Adusumilli Gopalakrishnaiah & Sugarcane Growers

Siddhartha Degree College of Arts & Science

Vuyyuru – 521165, Krishna District, Andhra Pradesh

(An Autonomous College in the Jurisdiction of Krishna University, Machilipatnam)

Accredited by NAAC with "A" Grade ISO 9001:2015 Certified Institution

2022-2023

ODD SEMESTER

DEPARTMENT OF ZOOLOGY

MINUTES OF BOARD OF STUDIES

B.Sc. AQUACULTURE

22-10-2022

Minutes of the meeting of Board of studies in Zoology for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 3:00 pm on 22-10-2022 in the Department of Zoology.

S.No	Name	Designation	signature
1.	**Smt. D.A.Kiranmayee** Head, Department of Zoology A.G&S.G.S Degree College Vuyyuru	Chair person	**D.A.Kiranmayee**
2	Smt. Dr.L.Suseela Bio Sciences & Bio technologyKrishna University Machilipatnam.	University Nominee	Dr.L.Suseela 22/10/22
3.	**Sri Dr.M.Vijay kumar** Head,Department of Zoology SRR & CVR Govt. Degree College, Vijayawada.	Subject Expert	**Dr.M.Vijay kumar**
4.	**Sri Ch. Venkateswaralu,** Head, Department of Zoology, P.B. Siddhartha College, Vijayawada.	Subject Expert	**Ch. Venkateswaralu,**
5.	**Sri.B. Appala Naidu,** Asst. Project Manager, RGCA Manikonda.	Industrialist	**B. Appala Naidu,**
6.	**Smt. K. Padmaja,** Lecturer in Zoology, A.G&S.G.S Degree College Vuyyuru-	Member	**K. Padmaja,**
7	**Smt. Dr.V.Subhashini,** Lecturer in Zoology, A.G & S.G.S Degree College Vuyyuru-	Member	**Dr.V.Subhashini**
8	**Sri.Ch.Chiranjeevi,** P.hd –Research Scholar, Dept.of Botany & Microbiology, Acharya Nagarjuna University Guntur.	Student Represent	**Ch.Chiranjeevi,**

AQUACULTURE

Agenda for B.O.S Meeting.

1. To recommend the syllabi (Theory & Practical), Model question paper for I Semester of I B.Sc (A.B.C) for the academic year 2022-2023.

2. To recommend the syllabi (Theory & Practical), Model question paper for III Semester of II B.Sc (A.B.C) for the academic year 2022-2023.

3.To recommend Semester End Internship (Apprenticeship) to students of III ABC for the academic year 2022-2023 in V Semester

4. To recommend the syllabi (Theory & Practical), Model question paper and Blue print of I, III & V semester of I, II, III B.Sc (A.B.C.) for the academic year 2021-2022.

5. To recommend the teaching and evaluation methods to be followed under Autonomous status.

6. Any other matter.

Chairman.

RESOLUTIONS

1. It is resolved to continue the same syllabi (Theory & Practical), model question paper of I Semester of I B.Sc. (A.B.C) under Choice Based Credit System (CBCS) for the academic Year 2022 – 2023.
2. It is resolved to continue thechange syllabi (Theory & Practical), model question paper of III Semester of II B.Sc. (A.B.C) under Choice Based Credit System (CBCS) for the academic Year 2022 – 2023.
3. It is resolved to send students of III ABC for Semester End Internship (Apprenticeship) for the academic year 2022-2023 in V Semester
4. It is resolved to follow the Model question paper and Blue print of I,III& V semester of I,II & III B.Sc
(A.B.C.) for the academic year 2022-2023.
5. It is resolved to continue the following teaching & evaluation methods for the Academic year 2022-23.
6. Any other matter.

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. Using of OHP and LCD projector to display on U boards etc; for better understanding of concepts.

Evaluation of a student is done by the following procedure:

- **Internal Assessment Examination:**
- Out of maximum 100 marks in each paper for I & III B.Sc(A.B.C) 30 marks shall be allocated for internal assessment.
- Out of these 30 marks, 20 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the assignment for I& III B.Sc (A.B.C).
- Out of maximum 100 marks in each paper for II B.Sc(A.B.C) 25 marks shall be allocated for internal assessment.
- Out of these 25 marks, 15 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on assignment and remaining 5 marks seminars for III semester.
- There is no pass minimum for internal assessment for I, II, III B.Sc
- **Semester – End Examination:**
- The maximum mark for I (ABC) semester – End examination shall be 75 marks and duration of the examination shall be 3 hours.
- The maximum mark for III, V (A.B.C) semester – End examination shall be 70 marks and duration of the examination shall be 3 hours. Even though the candidate is absent for two IA exams/ obtain Zero marks the external marks are considered (if the candidate gets 40/70) and the result shall be declared as "PASS".
- Semester – End examination shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of I, III & V semester for I, II & III B.Sc, (A.B.C).

Chairman

ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt., A.P. (AUTONOMOUS).

NAAC reaccredited at 'A 'level

Autonomous –ISO 9001-2015 Certified

Title of the Paper: **Basic Principles of Aquaculture**

Semester: - I

Course Code	*AQTTI1A*	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours/ Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2019-2020	Year of Offering 2019-2020	Year of Revision – 2021-22	Percentage of Revision: 50%

OBJECTIVES

- To study the concept of blue revolution and its impact at global, national and state level.
- To get acquainted with different culture systems and culture methods.
- To study the different types of ponds used in culture practices.
- To study the criteria for construction of ideal fish pond.
- To study the management practices in fish/ prawn culture.

PREREQUISITE

- Knowledge of fisheries management acquired in Intermediate.

COURSE OUTCOMES

By the end of the course students will be able to

CO 1	Understand the concept of blue revolution, analyse the history and compare the present status of aquaculture at global, national and state levels and its significance over agriculture and gain knowledge in the various aquaculture resources and advantages of culture over capture.
CO 2	Acquire knowledge in the different types of aquaculture, culture systems and culture methods in practice worldwide.
CO 3	Gain knowledge in the different types of culture ponds.
CO 4	Understand the arrangement of different types of ponds in a fish farm and design an ideal fish farm.
CO 5	Comprehend the best management practices to be adopted in aquaculture for good yield and acquire the skill in the analysis of water and soil parameters of a culture pond.
CO 6	Identify the different types of weeds and predators in a culture pond and suggest the suitable control measures for their eradication.

Syllabus
Course Details

Unit	Learning Units	Lecture Hours
I	**UNIT-I (Introduction)** Definition and History of Aquaculture Concept of Blue Revolution and PradhanMantriMatsyaSampadaYojana (PMMSY) Present status of Aquaculture at global level, India and Andhra Pradesh Aquaculture versus Agriculture; Present day needs with special reference to Andhra Pradesh Aquaculture resources: Ponds, tanks, lakes, reservoirs etc. Capture and Culture fisheries; Advantages of culture fishery over capture fishery	11
II	**UNIT-II (Types of Fish Ponds)** Lotic and lentic systems, streams and springs Functional classification of ponds – head pond, hatchery, nursery, rearing, production and stocking ponds; quarantine ponds, isolation ponds and wintering ponds Hatchery design	**11**
III	**UNIT- III (Design and Construction of Aqua Farms)** Important factors in the construction of an ideal fish pond – site selection, topography, nature of the soil, water resources Lay out and arrangement of ponds in a fish farm Construction of an ideal fish pond – space allocation, structure and components of barrage Pond	**10**
IV	**UNIT-IV (Aquaculture Systems and Practices)** Types of aquaculture Aquaculture Systems – Pond, Raceways, Cage, Pen, Rafts, Running water, Water Recirculating Systems, Biofloc Technology and 3-C System Pond cul Fin fish culture methods - Monoculture, Polyculture and Monosex culture and Integrated fish farming.	**12**
V	**UNIT-V (Management Factors of Culture Ponds** **Pre-stocking Management** Dewatering, drying, ploughing/desilting Liming and fertilization; Need of fertilizer and manure application, NPK contents of different fertilizers and manures and precautions in their Application Predators, weeds and weed fish in culture ponds - Advantages and disadvantages of weed plants; Toxins used for weed control and control of predators. Algal blooms and their control **Stocking Management** – Stocking density and stocking **Post-stocking Management**Feeding: Role of nutrients Water quality: Physico-chemical conditions of soil and water optimum for	**14**

	culture – temperature, depth, turbidity, light, water and shore currents, PH, DOD, CO_2, NH_3, NO_2 and nutrients Measures to increase oxygen and reduce ammonia & hydrogen sulphide in culture ponds; correction of PH	

PRESCRIBED BOOK(S):

Jhingran VG 1998. Fish and Fisheries of India. Hindusthan Publishing Corporation,New Delhi

Pillay TVR, 1996. Aquaculture Principles and Practices, Fishing News Books Ltd., London

REFERENCES:

Pillay TVR &M.A.Dill, 1979. Advances in Aquaculture. Fishing News BooksLtd., London

Stickney RR 1979. Principles of Warm Water Aquaculture. John Wiley & SonsInc. 1981

Boyd CE 1982. Water Quality Management for Pond Fish Culture. Elsivier Scientific Publishing

Bose AN et.al, 1991. Costal Aquaculture Engineering. Oxford & IBH Publishing Company.

CO-CURRICULAR ACTIVITIES

1. Collection of data on present status of aquaculture
2. Animal album-making
   a. Plankton
   b. Aquatic weeds
   c. Aquatic Insects
   d. Algal Blooms
   e. Weed and Predatory fish
3. Preparation of clay models of different ponds in a fish farm.
4. Field survey of nearby habitat for dietary dependency on and requirement of aqua- products

Collection of water and soil samples and estimation of various parameters.

Preparation of charts on aeration devices.

Collection of different culture species stage-wise {spawn, fry, fingerlings, zero size and adult (more than 200 g)}

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I SEMESTER END EXAMINATIONS

MODEL PAPER **Code:AQTT11A**

Title of the paper: Basic Principles of Aquaculture
(W.E.F 2022-2023)

Time: 3 Hours **Max. Marks: 70**

Answer **ALL** the following questions 5X14=70m

1(a) Define capture and culture fisheries. List out the advantages of culture fishery over capture fishery CO1, L1 10M

b)Explain the significance of Biofloc Technology CO2, L2 5M

OR

c).Mention the present status of Aquaculture at global level, India and Andhra Pradesh CO,1 L1- 10 M

d) Explain the concept of blue revolution CO1, L2 5M

2. a) Explain the different types of freshwater aquaculture CO2, L2 10M

b). Lotic and lentic systems CO2 L1 5M

OR

c) Describe the different types of pond culture methods. CO2, L2 10M

d)What is Quarantine ponds CO1, L1 5M

3. a) Give an account of the different types of hatcheries and describe the design of a modern hatchery. CO4 L2 10M

b). Classify ponds based on water resources. CO4, L2 5M

OR

c) Explain the space allocation CO3 L2 10M

d) Mention the criteria for site selection of an ideal fish pond CO4, L1 5M

4. a). Describe the structure and components of a barrage pond. CO4, L1 10M

b). What is Mari culture? CO2, L1 5M

OR

c). Describe the lay out and arrangement of nursery pond in a fish farm. CO4, L1 10M

d). Explain the importance of Integrated fish farming. CO4 CL3 5M

5. a) Analyze the physico-chemical conditions of water optimum for fish culture. CO5L4 10 M

b).Analyze the control measures for weed fish in culture ponds CO6, L4 5M

OR

c).Write an essay on aquatic weed plants in a fish pond, their advantages and disadvantages CO6, L4 10M

d). Justify the role of nutrients in a fish pond. CO5, L 5 5 M

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AQUACULTURE

PRACTICAL – I

w.e.f. 2022-2023.
Code:*AQTP11A*
MAX.MARKS: 40.
(2hrs/week)

LEARNING OUTCOMES:

By the end of the course students will be able to

- Identify the various live food organisms in the culture ponds.
- Identify the aquatic weeds, insects and weed fish causing damage to the cultured animals and suggest measures to control the algal blooms in culture ponds.
- Understand the mechanism of aeration devices used in culture ponds.
- Develop skill in analysing the various water and soil parameters.
- Gain practical knowledge in the management of different types of ponds in a fish farm.
- Understand the importanceof preservation ofmuseum specimens and identify the animals based on special identifyingcharacters.
- Maintain a neat, labeledrecord ofidentified museum specimens and exhibit the hidden creative talent.

SYLLABUS

1. Estimation of Carbonates, Bicarbonates in water samples
2. Estimation of Chlorides in water samples
3. Estimation of Dissolved Oxygen
4. Estimation of Ammonia in water.
5. Estimation of Total Hardness of water sample.
6. Determination of soil Nitrogen and Phosphorus.
7. Study of beneficial and harmful algal species
8. Study of aeration devices
9. Collection, identification and isolation of zooplankton and phytoplankton
10. Collection and study of aquatic weeds, aquatic insects, weed fish and larvivorous fish
11. Study of fish species banned from culture (*Clariusgariepinus*, *Hypostomus*plecostomus
12. Field visit to hatchery, nursery, rearing and stocking ponds of aqua farms.

PRESCRIBED BOOK(S):

1. Jhingran VG 1998. Fish and Fisheries of India, Hindustan Publishing Corporation, New Delhi
2. Pillay TVR, 1996. Aquaculture Principles and Practices, Fishing News Books Ltd., London

REFERENCES

1. Boyd CE. 1979. Water Quality in Warm Water Fish Ponds. Auburn University
2. Boyd, CE. 1982. Water Quality Management for Pond Fish Culture. Elsevier Sci. Publ. Co.
3. FAO. 2007. Manual on Freshwater Prawn Farming.

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I B.Sc AQUACULTURE
PRACTICAL EXAMINATION

Practical - I **Course Code:**
AQT P11A
Title of the paper: Basic Principles of Aquaculture

Time: 3hrs. **Max. Marks 40M**

I. Estimate the amount of Chlorides/ Dissolved Oxygen/Free Carbon dioxide /Total Hardness of the given sample. CO4, L5
10 M
Procedure: 5M
Calculations: 3M
Report: 2M

II. Identify, draw labelled diagram, classify and comment on
5x3=15 M

CO1, CO2, CO6, L3

A. Algal Blooms
B. Plankton
C. Aquatic weed
D. Aquatic Insect
E. Weed Fish

Identification : 1M
Diagram :1/2 M
Notes : 11/2M

III. Practical Record Book CO7, L3
5M

IV. Field note Book CO5, L1
5M

V. VIVA CO7, L5
5M

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NAAC reaccredited at 'A 'level
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Title of the Paper: **Fresh water & Brackish water Aquaculture**

Semester: - III

Course Code	**AQTT31A**	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours/ Week	4	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2020-2021	Year of Offering 2020-2021	Year of Revision – 2022-23	Percentage of Revision:

Objective of the course: The students understand Fresh water & Brackish water Aquaculture.

Course outcomes:

CO1: Learn the Status, Scope and Prospects of fresh water aquaculture in the world, India and AP.

CO2: Learn about Major Cultivable Indian Carps and Exotic fish Species introduced in India

CO3: Know about recent developments in the culture of clarius, anabas and murrels and special systems of aquaculture.

CO4: Gain knowledge of commercially valuable Fresh water prawns of India and their culturing methods. CO5: Learn about culturing of brackish water Prawn Species P.mondon and L.vannamei and hatchery technology's involved

LearningObjectives:

- To know the present status of freshwater and brackish water aquaculture and their role in world economy and food production.
- To gain knowledge on carp, prawn, shrimp and crab culture and composite fish culture systems.
- To improve the technical knowledge on fish and shrimp hatchery technology and culture practices.
- To improve the knowledge and technical skills for the identification of cultivable fin fish and shell fish.

Syllabus
Course Details

Unit	Learning Units	Lecture Hours
I	**Freshwater Fin Fish Aquaculture** Status, scope and prospects of freshwateraquaculturein theworld,India and AP Criteria for the selection of species for culture Natural seed resources and procurement of seed for stocking Culture of cultivable major Indiancarps–*Labeo,Catla*and*Cirrhinus* AndMinorcarps Culture of Exoticfish species – *Tilapia,Pangassius*and*Clarius species* Impactofexoticfish,compatibilityofIndianandexoticcarpsand Competitionamong them Compositefish culturesystem ofIndian and exotic and genetically modified carps (Amur common carp, JayanthiRohu	13
II	**Freshwater Shell Fish Aquaculture** Freshwaterprawns ofIndia -commercial value Natural seed resources and procurement of seed for stocking *Macrobrachiumrosenbergii*– biology, seed production, pond preparation, stocking, Managementofnursery andgrow-outponds,feeding,morphotypesand harvesting *M. malcolmsonii* - biology, seed production, pond preparation,stocking, Managementofnursery andgrow-outponds,feeding,morphotypesand harvesting	**14**
III	**Brackish Water Fin Fish Aquaculture** Status, scope and prospects of brackishwateraquaculturein theworld,India and AP Major cultivable species for brackish water aquaculture Biology and culture of *Latescalcarifer* Biology and culture of *Chanoschanos* Biology and culture of *Mugilcephalus* Biology and culture of *Etroplussuratensis* Biology and culture of *Trachinotus*sps (Pampano)	**15**
IV	**Brackish Water Shell Fish Aquaculture-I** Cultureof*P. mondon*–Hatcherytechnologyandculturepracticesincludingfeedand Diseasemanagement Cultureof*L. vannamei*– Hatcherytechnologyandculturepracticesincludingfeedand Diseasemanagement. Mixed cultureof fish and prawns	**11**
V	**Export – oriented Brackish Water Shell Fish Aquaculture-II** Biology and culture of *Scylla serrata* Biology and culture of *Pinctada vulgaris* Biology and culture of *Crassostrea* species	**07**

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Krishna Dt. A.P. (Autonomous)

Semester –III
Time: 3hrs Model question paper **w.e.f. 2022-2023**
Title of the paper: Fresh water & Brackish water Aquaculture. **Code – AQTT31A**
max.marks: 75

SECTION – A

Answer and FIVE of the following **5x5=25 Marks**

1. Discuss the status of freshwater aquaculture in Andhra Pradesh. CO2, L2
2. Analyse the advantages of composite fish culture of carps CO1, L2.
3. Explain the natural seed resources of freshwater prawns CO3, L1
4. Analyze the significance of morpho types in scampi CO3, L4
5. Explain the culture aspects of sea bass in Andhra Pradesh CO4, L2
6. Explain the impact of disease management on the harvest in *L.vennamei*CO5, L4
7. Describe the off-bottom culture methods of edible oysters CO6, L1
8. Describe the biology of silver pompano CO4, L3

SECTION – B

Answer the following questions. **5X10=50 Marks**

9. Enumerate the various criteria for the selection of species for culture. CO1 L1

   OR

   Explain the culture of Indian major carps. CO1, L1

10. Discuss the pond management practices of *Macrobrachium rosenbergii* CO3, L2

    OR

    Describe the seed production methods in *Macrobrachium malcolmsonii* CO3, L2

11. Discuss the culture methods of sea bass. CO4, L2

    OR

    Explain the biology and culture of milk fish. CO4, L2

12. Describe the hatchery technology of *L.vennamei*. CO5, L1

    OR

    List out the various diseases of *P.monodon* add a note on prophylaxis and treatment. CO5, L1

13. Write an essay on pearl oyster culture CO6, L1

    OR

    Explain the culture aspects of mud crab. CO6, L1

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KRISHNA Dt.,A.P. (AUTONOMOUS)

AQUACULTURE

PRACTICAL - III

w.e.f. 2022-2023.
Code: AQTP31A
MAX.MARKS: 50.
(2hrs/week)

PRACTICAL SYLLABUS

PRACTICALS:

1. Identification of important cultivable fresh water fishes (carps, cat fishes and Murrells)
2. Identification of important cultivable brackish water fishes
3. Identification of important cultivable fresh water prawns
4. Identification of important cultivable brackish wate rprawns
5. Identification of commercially viable crabs – Scyllaserrata, *Portunuspelagicus, P.sanguinolentus*, *Neptunuspelagicus*, *N.Sanguinolentus*
6. Identification of oysters of nutritional significance – *Crossostrea madrasensis, C.gryphoides, C. cucullata, C.rivularis, Picnodanta*.
7. Morph types of *Macro brachiumrosenbergii*
8. Identification of crustacean larval sequences (shrimp and crab)
9. Identification of diseases of *L. vennamei* and *P. monodon*
10. Field visitto freshwater/brackish water/prawn/shrimpfarmand studyof culture aspects.

Demonstration of dissection / dissected / virtual dissection:

1. *Chama*- Reproductive system
2. Shrimp – Reproductive system (Identification of male & female)

PRESCRIBED BOOK(S):

1. JhingranVG1998.FishandFisheriesofIndia, HindustanPublishingCorporation,New Delhi

REFERENCES:

1. SanthanamR,NSukumaranandPNatarajan1987.AManualofAquaculture, Oxford- IBH, New Delhi
2. Srivatsava1993. Fresh water AquacultureinIndia, Oxford-IBH,New Delhi
3. Marcel H 1972.Text book of Fish Culture. Oxford fishingnews books

A.G& S. G.S.DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU - 521165, KRISHNA Dt., A.P. (AUTONOMOUS)

Practical - III

w.e.f. 2022 - 2023

Max. Marks: 40

Model Question Paper –External **Paper Code: AQTP31A**

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1. Identify and draw a neat labelled diagram of *Channa* reproductive system.
   Or
   Identify and draw a neat labeled diagram of prawn reproductive system. **10M**

   Identification: 1M
   Diagram: 4M
   Labelling: 5M

2. Identify, classify, draw labelled diagram and comment on

5X3=15M

   A. Cultivable fresh water fish
   B. Cultivable prawn/shrimp
   C. Cultivable brackish water fish
   D. Cultivable shell fish (crabs and oysters)
   E. Shrimp/prawn disease

   Identification: 1M
   Diagram: 1M
   Notes: 1M

3. Field Note Book **5M**

4. Record Book **5M**

5. VIVA **5M**

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SEMESTER V - APPRENTICESHIP

Adusumilli Gopalakrishnaiah & Sugarcane Growers

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2022-2023

EVEN SEMESTER

DEPARTMENT OF ZOOLOGY

MINUTES OF BOARD OF STUDIES

B.Sc. AQUACULTURE

25-03-2023

Minutes of the meeting of Board of studies in Zoology for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 10:00 am on 25-03-2023 in the Department of Zoology.

Smt.D.A. Kiranmayee. ... Presiding

Members Present:

1) ..... **(Smt. D.A.Kiranmayee.)**	Chair person	Head, Department of Zoology, A.G&S.G.S Degree College of Vuyyuru-521165.
2)..... **(Smt. Dr.L.Suseela.)**	University Nominee	Bio Sciences & Bio technology Krishna University Machilipatnam.
3)...M.Vijay..... **(Sri Dr.M.Vijay kumar.)**	Academic Council Nominee	Head, Department of Zoology, SRR & CVR Govt. Degree College, Vijayawada.
4)..... **(Sri Ch. Venkateswaralu.)**	Academic Council Nomine	Head, Department of Zoology, P.B. Siddhartha College, Vijayawada.
5)..... **(B. Appala Naidu.)**	Industrialist	Principle Scientific Officer, RGCA Manikonda.
6)...K.padmaja..... **(Smt. K. Padmaja.)**	Member	Lecturer in Zoology, A.G&S.G.S Degree College Vuyyuru-521165.
7).....V.Subhashini..... **(Smt. Dr.V.Subhashini.)**	Member	Lecturer in Zoology, A.G&S.G.S Degree College Vuyyuru-521165.
8)..... **(Ch.Chiranjeevi.)**	Student Represent	P.hd –Research Scholar, Dept.of Botany & Microbiology, Acharya Nagarjuna University, Guntur.

AQUACULTURE

Agenda for B.O.S Meeting.

1. To recommend the syllabi (Theory & Practical), Model question paper for II Semester of I B.Sc
(A.B.C) for the academic year 2022-2023.
2. To recommend the syllabi (Theory & Practical), Model question paper for IV Semester of II B.Sc
(A.B.C) for the academic year 2022-2023.
3 To recommend the Blue print for the semester end exam for II&IV semester of I &II B.Sc (ABC) for the academic year 2022 - 2023.
4. To recommend Semester End Internship (Apprenticeship) to students of III ABC for the academic year 2022-2023
5 To recommend the teaching and evaluation methods to be followed under Autonomous status.
6 Any other matter.

Chairman.

Aquculture -Resolutions

1.It is resolved to continue the same syllabi (Theory & Practical), model question paper of II Semester of I B.Sc (A.B.C) under Choice Based Credit System (CBCS) for the academic Year 2022 – 2023.

2. It is resolved to implement the changed syllabi (Theory & Practical), model question paper of IV Semester of II B.Sc. (A.B.C) under Choice Based Credit System (CBCS) for the academic Year 2022 – 2023. The title of the paper is Fish Nutrition and Feed Technology and Fish health Management.

3. It is resolved to follow the Model question paper and Blue print of II & IV semester of I & II B.Sc (A.B.C.) for the academic year 2022-2023.

4. It is resolved to continue the following teaching & evaluation methods for the Academic year 2022-23

5. It is resolved to send the III ABC students for APPRENTICESHIP

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. Using of OHP and LCD projector to display on U boards etc; for better understanding of concepts.

Evaluation of a student is done by the following procedure:

- **Internal Assessment Examination:**
- Out of maximum 100 marks in each paper for I B.Sc (A.B.C) 30 marks shall be allocated for internal assessment.
- Out of these 30 marks, 20 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the assignment for I B.Sc (A.B.C).
- Out of maximum 100 marks in each paper for II B.Sc(A.B.C) 25 marks shall be allocated for internal assessment.
- Out of these 25 marks, 15 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on assignment and remaining 5 marks seminars for IV semester.
- There is no pass minimum for internal assessment for I & II B.Sc
- **Semester – End Examination:**
- The maximum mark for I (ABC) semester – End examination shall be 70 marks and duration of the examination shall be 3 hours.
- The maximum mark for IV (ABC) semester – End examination shall be 75 marks and duration of the examination shall be 3 hours.. Even though the candidate is absent for two IA exams/ obtain Zero marks the external marks are considered (if the candidate gets 40/70) and the result shall be declared as "PASS".
- Semester – End examination shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of I, IV semester for I & II B.Sc, (A.B.C).

Chairman

ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt., A.P. (AUTONOMOUS).

ALLOCATION OF CREDITS

Structure of AQUACULTURE Syllabus

For the Papers offered during II, IV& V/ VI Semesters

Year	Semester	Title	Teaching hours	Internal marks	External marks	Credits
I	II	Biology of fine fish &shell fish	4	30	70	03
		Practical - II	2	10	40	02
II	IV	Fish Nutrition & Feed Technology	4	25	75	03
		Fish Nutrition & Feed Technology - Practical	2	10	40	02
		Fisheries - Health Management, Extension and Marketing	4	25	75	03
		Fisheries - Health Management, Extension and Marketing - Practical	2	10	40	01
III	V/VI	Aquarium Management And Ornamental Fish Culture	3	30	70	03
		Practical – VI Lab Aquarium Management And Ornamental Fish Culture	3	25	25	02
		Postharvest Technology Of Fish And Fisheries	3	30	70	03
		Practical – VII Lab Postharvest Technology Of Fish And Fisheries	3	25	25	02
	VI	Apprenticeship				
		Total Credits				

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Title of the Paper:**Biology of fine fish &shell fish**

Semester: - II

Course Code	***AQTT21A***	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours/ Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2019-20	Year of Offering 2022-23	Year of Revision – 2021-22	Percentage of Revision: 50%

AIM

- To know the biology of fin fish and shell fish.

OBJECTIVES

- To study the systematics of cultivable finfish and shellfish.
- To understand feeding habit and growth patterns of cultured species.
- To study the factors responsible for longevity of fishes.
- To study the reproductive biology of finfish and shell fish.
- To study the developmental aspects of cultivable finfish and shell fish.
- To study the role of hormones in the growth of finfish and shell fish.

PREREQUISITE

- Knowledge of fisheries management acquired in Intermediate.

COURSE OUTCOMES

By the end of the course students will be able to

CO 1	Classify the finfish and shellfish, analyse the cultivable species of fin fish and shellfish of commercial importance, describe their salient features and appreciate the diversity and uniqueness of different groups.
CO 2	Comprehend the relationship between food and growth, age and growth, hormones and growth in cultivable fin and shell fish.
CO 3	Gain knowledge and compare the feeding habits, mouth parts and digestive systems and analyze gut contents.
CO 4	Develop the skill of identifying the gut contents, gonadal maturity and fecundity and comprehend the concept of breeding behaviour, embryonic and larval development of cultivable aquatic fin and shell fish.
CO 5	Acquaint with the significance of unique mechanisms and behavioural patterns like sense organs, electric organs, buoyancy, moulting and metamorphosis exhibited by finfish and shell fish.

Syllabus
Course Details

Unit	Learning Units	Lecture Hours
I	**Classification of Finfish and Shell fish** Classification of fishes up to the level of Class. Classification of crustaceans up to the level of Class Finfish and Shell fish of commercial Importance Cultivable fin fish Cultivable shell fish Sense organs of fishes and crustaceans Specialized organs in fishes – electric organ, venom and toxins buoyancy in fishes- swim bladder and mechanism of gas secretion	**11**
II	**Food, Feeding and Growth** Natural fish food Feeding habits, feeding intensity, stimuli for feeding, utilization of food Gut content analysis. Structural modifications in relation to feeding habits. Forage ratio and food selectivity index Age and Growth Principles of Age and growth determination Growth regulation Growth rate measurement – scale method, otolith method, skeletal parts as age indicators Genetic, biotic & ecological factors in determining the longevity of fishes Length frequency method, age composition, age-length keys, absolute and specific growth, back calculation of length and growth, annual survival rate, asymptomatic length, fitting of growth curve . Length-weight relationship Condition factor/Ponderal index, relative condition factor	**17**
III	**Reproductive Biology** Breeding in Fishes .Breeding habits & breeding grounds Breeding in natural environment and in artificial ponds, courtship Reproductive cycles Induced breeding in fishes Breeding in shrimp Breeding in pearl oyster	**09**
IV	**Development** Ovo-viviparity, oviparity, viviparity in fishes Parental care in fishes, nest building and brooding Embryonic and larval development of fishes Embryonic and larval development of shrimp Embryonic and larval development of crabs Environmentalfactorsaffectingreproductionanddevelopmentofcultivable Aquaticfin&shellfish	**12**

V	**5.0. Hormones & Growth** Endocrine system in fishes Neurosecretorycells,androgenicgland,ovary,Y-organ,chromatophores, Pericardial glands and cuticle. Molting, molting stages, metamorphosis in crustacean shellfish	**11**

PRESCRIBED BOOK(S):

1. Bone Q et al., 1995. Biology of fishes, Blackie academic &professional,LONDON
2. Saxena AB 1996. Life of Crustaceans.Anmol Publications Pvt.Ltd., New Delhi

REFERENCES:

1.Tandon K.K&Johal M.S 1996.Age and Growth in Indian Fresh Water Fishes.
Narendra Publishing
2. Raymond T et al., 1990. Crustacean Sexual Biology, Columbia University Press,
New York
3. Guiland J.A (ed) 1984. Penaeid shrimps- Their Biology andManagement.
4. Barrington FJW 1971. Invertebrates: Structure andFunction. ELBS
5. Parker F &Haswell 1992. The text book of Zoology, Vol I.Invertebrates

CO-CURRICULAR ACTIVITIES

1. Collection of cultivable finfish and shellfish
2. Animal album-making on cultivable finfish and shellfish
3. Preparation of models of digestive system of herbivorous, omnivorous and carnivorous fishes.
4. Preparation of charts on sense organs of fish and crustaceans
5. Growth rate measurement of different fishes using various methods.
6. Collection of data and finding the length –weight relationship in fishes.
7. Preparation of charts on reproductive cycles in fishes.
8. Preparation of models on fish nests.

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II SEMESTER END EXAMINATIONS

Model paper

Title of the paper: Biology of Fin fish and Shell fish (W.E.F 2022-2023)

Cours Code: AQTT21A

Time: 3 Hours **Max. Marks: 70**

SECTION –A (20M)

Answer all Questions Restrict to maximum of 2 sub divisions

Draw neat labelled diagrams wherever necessary.

1. i. Explain the Classification of fishes up to the level of Class. CO1 L1 4m

(Or)

ii. Enumerate the general characters of Cultivable fin fish CO1 L3

2. i. Explain the – electric organ – CO2 L2 4m

(Or)

ii. Explain the different fish feeding habitsCO2, L5

3. i. Describe the– Length-weight relationship CO3, L2 4m

(Or)

ii. Describe the – Breeding habits CO3, L2

4. i. Distinguish Breeding in shrimp – CO4, L2 4m

(Or)

ii. Explain Ovo-viviparity in Fishes – CO4, L2

5. i. Explain the Embryonic and larval Development in Crabs- CO2, L5 4m

(Or)

ii. Write a short note on Neurosecretary cells – CO3, LI

SECTION – B (50M)

Answer all Questions (Restrict to maximum of 2 sub divisions)

6.i. Explain the structure and function of Sense organs in fishes – CO1 , L2 10m

(Or)

ii. Give an account of Buoyancy in fishes – CO5, L2

7. i. Explain different factors that determine the longevity of fishes – CO2, L4 10m

(Or)

ii. Describe the different methods of estimating age and growth of fish – CO2, L4

8. i. Describe the process of Induced breeding in Fishes- CO2, L2 10m

(Or)

ii. Explain the breeding technique in shrimp- CO2, L2

9. i. Explain the role of Environmental factors on reproduction and development of finfish 10m CO2, L2

(Or)

ii. Write an essay on Embryonic and larval development in shrimp CO2, L2

10. i. Describe the structure of Pituitary gland and explain the functions of its hormones – CO2, L2 10M (Or)

ii. Describe the process of Moulting in Crustaceans- CO2, L2 10M

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AQUACULTURE

PRACTICAL - II

Semester- Ii Max. Marks: 40

Title Of The Paper:-Biology of Fin Fish and Shell Fish

NO OF HOURS: 30

CREDITS: 02

LEARNING OUTCOMES:

By the end of the course students will be able to

- Differentiate between the feeding habits of different fish and shell fish basing on their mouth parts and alimentary canal and identify the various appendages of shellfish.
- Understand the length – weight relationship and analyse the gut contents of fish and shrimp.
- Identify the eggs and larval stages of different cultured species of fish and shell fish and confirm the maturity and fecundity in fish and shell fish.
- Gain knowledge in nest building and brooding in fishes.
- Maintain a neat, labeled record ofidentified museum specimens and exhibit the hidden creative talent.

1. Study of mouth parts in herbivorous omnivorous and carnivorous fishes
2. Comparative study of digestive system of herbivorous and carnivorous fishes
3. Length-weight relationship of fishes
4. Gut content analysis in fishes and shrimp
5. Mouth parts and appendages of cultivable prawns, shrimps and other crustaceans
6. Study of eggs of fishes, shrimps, prawns and other crustaceans
7. Study of gonadal maturity and fecundity in fishes and shellfish
8. Observation of crustacean larvae
9. Study of nest building and brooding of fishes
10. Biostatistics – Mean, Mode, Median, Standard Deviation, Correlation and t-test

REFERENCES

1. Bone Q et al., 1995. Biology of fishes, Blackie academic & professional, LONDON
2. Saxena AB 1996. Life of Crustaceans. Anmol Publications Pvt.Ltd., New Delhi
3. Tandon K.K &Johal M.S 1996. Age and Growth in Indian Fresh Water Fishes. Narendra Publishing
4. Raymond T et al., 1990. Crustacean Sexual Biology, Columbia University Press, New York
5. Guiland J.A (ed) 1984. Penaeid shrimps- Their Biology
6. Thomas PC, Rath SC &Mohapatra KD.2003.Breeding and Seed Production of Finfish and Shellfish. Daya Publ.
7. Chakraborty C & Sadhu AK. 2000. Biology Hatchery and Culture Technology of Tiger Prawn and Giant Freshwater Prawn. Daya Publ. House

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AQUACULTURE

Biology of fin fish and shell fish

MODEL QUESTION PAPER

PARTICAL PAPER- II

SEMESTER-II **COURSE CODE: AQT P21A**

Time: 3 Hours **Max. Marks: 40M**

1. Identify and draw labeled diagram of digestive system of Labeo rohita. Compare it with that of a carnivorous fish. CO1, L2 &L3
   10M

   Or

   Identify and draw labeled diagram of digestive system of Channa punctatus. Compare it with that of a herbivore fish. CO1, L2 &L3

   Identification: 1M
   Diagram: 2M
   Labelling: 3M
   Comparison: 4M

2. Identify and draw labeled diagram of abdominal appendages of Macrobrachium malcolmsonii. CO1, L3
   10M

   Or

   Identify and draw labelled diagram of thoracic appendages of Scylla serrata.CO1, L3

   Identification: 2M
   Diagram: 4M
   Labelling: 4M

3. Identify and comment on CO1, CO3 & CO4, L3 & L1
   4x2½ =10M

   A. Mouth parts of fish/prawn/crab
   B. Egg mass of fish/prawn/shrimp/crab
   C. Crustacean larvae
   D. Types of fish nests

   Identification: 1M
   Diagram: ½M
   Notes: 1M

4. Record Book CO5, L3
   5M

5. VIVA CO5, L5
   5M Total **40M**

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Title of the Paper: **Fish Nutrition & Feed Technology**

Semester: - IV

Course Code	***AQTT01***	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours/ Week	4	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2019-20	Year of Offering 2022-2023	Year of Revision – 2021-2022	Percentage of Revision: 100%

Learning Objectives:

1 To know the nutritional requirements of fish and shell fish at different stages of theirlife.
2 To understand the different types of feeds, and feed additives used in the preparation of fish andshell fish feeds.
3 To improve the knowledge on feed manufacture and feedstorage.
4 To gain knowledge on feeding and feed evaluationmethods.
5 To gain knowledge on feed manufacture andstorage
6 To know the nutritional pathology and remedial methods of cultivable fish andshrimp.
7 To improve the technical knowledge feed quality and nutritional valueanalysis.

Course outcomes:

CO 1	Understand Nutritional requirements of cultivable fishes and factors affecting energy partitioning and feeding.
CO 2	Know different types of feed and FCR and different types of feeders
CO 3	Gain Knowledge of Feed manufacture and storage methods of feeds
CO 4	Understand the value of Feed additives and Non-Nutrient ingredients
CO 5	To create awareness of different nutritional deficiency and importance of natural and supplementary feeds and balanced diet.

Syllabus
Course Details

Unit	Learning Units	Lecture Hours
I	Nutritional requirements of cultivable fish and shellfish Classification of nutrients; Nutritional requirements (energy, proteins, carbohydrates, lipids, fiber, micronutrients) of different stages of cultivable fish andshellfish. Essential aminoacids and fatty acids, protein to energy ratio, nutrient interactionsand proteinsparingeffect Dietary sources of energy, effect of ration on growth, determination of feedingrate, check tray, factors affecting energy partitioningandfeeding Importance of natural and supplementary feeds, balanceddiet**.**	**10**
II	**Types of feeds and Feed additives** Live foods**:** Fish food organisms – Bacterioplankton, phytoplankton, zooplankton and their role in larvalnutrition. Artificial feeds: Supplementary feed stuffs; Non-conventional feed ingredients; Forms of processed feeds - wet feeds, moist feeds, dry feeds, mashes, pelleted feeds - floating and sinking pellets; advantagesof pelletization Water stability feeds, farm made aqua feeds, micro-coated feeds, micro-encapsulated feeds andmicro-bounddiets Feed additives: Binders, antioxidants, probiotics, enzymes, pigments, growth promoters, feed stimulants; use ofpreservatives.	**10**
III	**Feed formulation, manufacture & storage** Feed ingredients**:** selection, nutrient composition and nutrientavailability. Feed formulation and manufacturing – extrusion processing and steam pelleting - grinding, mixing and drying, pelletization,andpacking Microbial,insectandrodentdamageoffeed,chemicalspoilageduringstorageperiod and feed storage methods.	**15**
IV	**Feeding methods** Feeding devices and methods: Manual feeding, demand feeders, automatic feeders, surface spraying, bag feeding &trayfeeding Feeding schedules: Frequency of feeding, feeding rates and rationsize Feed evaluation:feed conversion ratio, feed conversion efficiency and protein efficiencyratio.	**15**
V	**Nutritional pathology of fish and shrimp** Protein(Essential amino acid) and Lipid (Essential fatty acid) deficiency disorders; Fatty liver disease in fishes Vitamin and mineral deficiency disorders Anti-nutrients and afflatoxins.	**10**

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SEMESTER-IV

Model Question paper w.e.f. 2022 – 2023

Paper Title**: Fish Nutrition & Feed Technology**
Paper Code: AQTT01
Time: 3 hrs Max.Marks:70

Note: Draw neat labelled Diagrams wherever necessary.

SECTION-A

Answer any Five of the following Questions. 5X5= 25M

1. List out the factors affecting energy partitioning. CO1 , L1
2. Explain the significance of Micronutrients CO1, L2
3. Differentiate between FCE and FCR CO2, L1
4. What is feeding frequency CO2, L1
5. Mention the types of feed damage CO4, L1
6. Explain the significance of aflatoxins in the feed– CO4, L2
7. Analyse the role of antioxidants in the fish nutrition CO3, L4
8. Explain the importance of supplementary feeds CO5, L2

SECTION-B

Answer all the Questions.
5X10=50M

9. Explain the nutritional requirements of cultured fish. CO1, L2
   OR
   Analyse the effect of ration on growth and determination of feeding rate. CO1, L2
10. Give an account of the different forms of fish feed– CO2, L2
    OR
    Explain the various feeding devices and methods. CO2, L2
11. Mention the various steps involved in feed preparation. CO3, L1
    OR
    Describe the various feed ingredients and their selection. CO3, L1
12. Explain the role of probiotics in fish feed .CO4, L1
    OR
    List out the various feed attractants and feed stimulants used in aqua feeds. CO4, L1
13. List out the various diseases caused due to nutritional deficiency. CO5 L2
    OR
    Explain the importance of natural feed in aquaculture. CO5 L2

PRESCRIBED BOOK(S):

1. HalverJ.E 1989.Fish Nutrition.Academicpress, San Diego.
2. NRC.NutritionalRequirements ofWarmWaterFishes.NationalAcademyofSciences, Washington.

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ZOOLOGY PRACTICAL SYLLABUS

PAPERS – IV w.e.f. 2022 – 2023.

Max.Marks:40
Credits: 2
Paper Title: Fish Nutrition & Feed Technology Paper Code: AQTP01

PRACTICALS: (Any 8 as per the local Industry needs and Requirement)

1. Estimation of protein content in aquaculturefeeds
2. Estimation of carbohydrate content in aquaculturefeeds
3. Estimation of lipid content in aquaculturefeeds
4. Estimation of ash in aquaculturefeed
5. Study of water stability of pellet feeds
6. Feed formulation and preparation in thelab
7. Study of binders used in aquaculturefeeds
8. Study of feed packing materials
9. Study of physical and chemical change duringstorage
10. Study on physical characteristics of floating and sinking feeds
11. Visit to a aqua-feedproduction unit
12. Visit to a farm for studyingfeeding practices

PRESCRIBED BOOK(S):

1. HalverJE 1989.Fish Nutrition. Academicpress, San diego

REFERENCES:

1. LovellR.T. 1998. Nutritionand Feedingof Fishes, Chapmann& Hall, NewYork
2. SenaDeSilva,TrevorAAnderson1995.FishNutritioninAquaculture**.**Chapman andHall, AquacultureSeries,London.

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EXTERNAL PRACTICAL- IV

w.e.f. 2022-2023.

MODEL QUESTION PAPER –IV **Code: AQTP01**

2hrs/week)

Time: 3 hrs. **Max.marks: 40m.**

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1. Estimate the amount of protein/carbohydrate /lipid content in the fish feed. **10 M**
   Procedure: 5M
   Calculation: 3M
   Result: 2M

2. Explain the physical andchemical changeduringstorage of fish feed.
   Or
   Explain the physical characteristics offloating and sinkingfeeds. **10M**

3. Formulate a feed with the given ingredients**.** **5 M**

4. Record Work Book **5 M**

5. Field notes **5 M**

6. VIVA **5M**

Total 40M

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Title of the Paper:**Fish Health Management and Fisheries Economics, Extension and Marketing**

Semester: - IV

Course Code	***AQTT42***	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours/ Week	4	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2022-2023	Year of Offering 2022-2023	Year of Revision –	Percentage of Revision:

AIM

To know the fish health management strategies and different fisheries economic policies.

OBJECTIVES

- To understand the diseases of fin fish
- To understand the diseases of shell fish.
- To understand thefish health management strategies.
- To understand the different fisheries economic policies .
- To understand the various schemes for the welfare of fishermen community

PREREQUISITE

- Knowledge of fisheries management acquired in Intermediate.

COURSE OUTCOMES

By the end of the course students will be able to

CO 1	Describe the various fungal, viral and bacterial diseases of fin fish and their prevention and therapy.
CO 2	Explain the various viral, bacterial and protozoan diseases of shell fish and their prevention and therapy.
CO 3	Describe the fish health management strategies.
CO 4	Explain different fisheries economic policies.
CO 5	Describe the various schemes for the welfare of fishermen community.

Syllabus
Course Details

Unit	Learning Units	Lecture Hours
I	DISEASES OF FIN FISH .Fungal diseases– Saprolegniasis, branchiomycosis, ichthyophiriasis diseases – Lagenidium diseases – Fusarium disease, prevention andtherapy Viral diseases – Emerging viral diseases in fish, haemorrhagic scepticemia, springviremia of carps, infectious hematopoietic necrosis in trout,infectious pancreatic necrosis in salmonids, swim-bladder inflammation in cyprinids, channel cat fish viral disease, prevention andtherapy Bacterial diseases – Emerging bacterial diseases, *Aermonas,Pseudomonas* and*Vibrio*infections, columnaris, furunculosis, epizootic ulcerative syndrome, infectious abdominal dropsy, bacterial gill disease, enteric red mouth, bacterial kidney disease, proliferative kidney disease, prevention and therapy	10
II	DISEASES OF SHELL FISH Major shrimp viral diseases – *Bacculoviruspenaeii*, *MonodonBacculovirus*, Bacculoviralmidgut necrosis, Infectious hypodermal and haematopoietic necrosis virus, Hepatopancreaticparvo like virus, Yellow head bacculovirus, white spotbacculovirus. Bacterial diseases of shell fish – aeromonas, pseudomonas and vibrio infections, Luminous bacterial disease, filamentous bacterial disease. Prevention and therapy Protozoan diseases- Ichthyophthiriasis, Costiasis, whirling diseases,trypanosomiasis.Prevention and therapy	**10**
III	**FISH HEALTH MANAGEMENT** Diagnostic tools – immune detection- DNA/RNA techniques, General preventive methods and prophylaxis. Application and development ofvaccines. Quarantine – Significance, methods and regulations fortransplants**.** GoodFeedmanagement for healthy organisms, Zero water exchange, Probiotics in health management, Issues ofbiosecurity.	**15**
IV	**FISHERIES ECONOMICS** **.**Meaningand scopeof economics with referenceto fisheries Principles of aquaculture economics – Capital costs, variable costs, cost- benefit analysis,Aquaculture economics- Application of economics principles to aquacultureoperations Various inputs and production function, laws of variableproportions Cost and earnings of aquaculture systems – carp culture, shrimp farming systems,	**15**

	hatcheries, Cost andearnings of fishingunits andfreezingplants Socio-economic conditions of fishermen in Andhra Pradesh Role of Matsyafedand NABARD in uplifting fishermen's conditions, fishermen Cooperatives,Contribution of fisheries to the nationaleconomy	
V	**FISHERIESEXTENSION AND MARKETING** **.**Fisheriesextension-scopeandobjectives,principlesandfeaturesoffisheries extensioneducation **.**Fisheriesextensionmethods and rural development Fisheries Training and Education in India; Role of extension in community development **.**Fish marketing methods in India; Basic concepts in demand and price analysis**2 .**Methods of economic analysisof business organizations Preparation ofproject and project appraisal	**10**

PRESCRIBED BOOK(S):

1. Shaperclaus W. 1991 Fish Diseases- Vol.I& II. Oxonian PressPvt.ltd
2. Roberts RJ 1989. Fish pathology. BailliereTindall, NewYork
3. Lydia Brown 1993. Aquaculture for veterinarians- fish husbandray and medicine. Pergamon Press.Oxford
4. Jayaraman R 1996. Fisheries Economics. Tamilnadu Veterinary and Animal Science University.Tuticorn
5. SubbaRao N 1986. Economics of Fisheries. Daya publishing house,Delhi
6.

REFERENCES:

1. Shankar KM & Mohan CV. 2002. Fish and Shellfish Health Management. UNESCO Publ. Sindermann CJ.1990
2. Walker P &Subasinghe RP. (Eds.). 2005 Principal Diseases of Marine Fish and Shellfish. Vols. I, II. 2nd Ed. AcademicPress
3. DNA Based Molecular Diagnostic Techniques: Research Needs for Standardization and Validation of the Detection of Aquatic Animal Pathogens and Diseases. FAO Publ. Wedmeyer G, Meyer FP & Smith L.1999.
4. Bullock G et.al., 1972 Bacterial diseases of fishes. TFH publications, NewJersey
5. Post G 1987. Text book of Fish Health. TFH publications, NewJersey
6. Johnson SK 1995. Handbook of shrimp diseases. Texas A & M University,Texas
7. Dewwett KK and Varma JD 1993. Elementary economic theory. S.chand, NewDelhi
8. Korakandy R 1996. Economics of Fisheries Mangement. Daya Publishing House,Delhi
9. Tripathi SD 1992. Aquaculture Economics. Asian Fisheries Society,Mangalore.

A.G. & S.G.Siddhartha Degree College of Arts & Science, Vuyyuru – 521165, Krishna Dt. A.P. (Autonomous)

Semester –IV w.e.f. 2022-2023

Title of the paper: Fish Health Management and Fisheries Economics, Extension and Marketing

Code – AQTT42

Model question paper

Time: 3hrs.
Max.marks: 75

Note: Draw neat labelled Diagrams wherever necessary.

SECTION-A

Answer any Five of the following Questions. **5X5= 25M**

1. Explain Spring Viremia of carp disease.
2. Explain Yellow head bacculovirus disease in shrimp
3. Write about probiotics in health management of fish.
4. Describe the contribution of fisheries to national economy
5. Give an account on rural development in aquaculture.
6. Write about the bacterial gill disease in fish
7. Explain IHHNV disease in shrimp
8. Write a short note on socio economic conditions of fishermen in A.P.

SECTION-B

Answer all the Questions. **5X10=50M**

9. a) Answer the following fungal diseases of fin fish
   i)Saprolegniasis ii) Branchiomycosis

   OR

   b) Explain the bacterial diseases of fish
   i) Columnaris ii) Enteric red mouth disease

10. a)Write about the following shell fish diseases
    i) Luminous bacterial disease ii) Filamentous bacterial disease

    OR

    b) Explain the following protozoan diseases
    i) Costiasis ii) Whirling disease
11. a) Write an essay on ELISA- immune detection technique

    OR

    b) Write about Quarantine methods

12. a) Explain the role of Matsyafed And Nabard in uplifting fishermen's conditions.

    OR

    b) Write an essay on principles of aquaculture economics

13. a) Describe the fisheries extension methods.

    OR

    b) Explain fisheries training and education in India

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt.,A.P. (AUTONOMOUS)

AQUACULTURE

PRACTICAL -IV

Code: AQTP42 **MAX.**

Title of the paper:-Fish Health Management and Fisheries Economics, Extension and Marketing

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LEARNING OUTCOMES:

By the end of the course students will be able to

- Identify the pathological changes in the visceral organs of fish, prawn and shrimp.
- Analyse the data for epidemiological investigations of viral diseases.
- Isolate, culture and characterize the bacterial pathogens.
- Identify the external parasites, prepare and evaluate antibiograms
- Develop skill in molecular and immunological techniques.
- Estimate the dose of antibiotics and probiotics used in aquaculture practices and methods of administering various chemotherapeutics.
- Maintain a neat record of experiments and exhibit the hidden creative talent.

Syllabus

1. Enumeration of Bacteria by TPC Method
2. Enumeration of total Coliformes
3. Observation of gross pathology and external lesions of fish and prawn with reference to the common diseases inaquaculture
4. Examination of pathological changes in gills and gut lumen, lymphoid organ, muscles and nerves offish
5. Examination of pathological changes in gutlumen, hepatopancreas, lymphoid organ, muscles and nerves of prawn andshrimp
6. Collection, processing and analysis of data for epidemiological investigations of viral diseases
7. Bacterial pathogens – isolation, culture and characterization
8. Identification of parasites in fishes: Protozoan, Helminths,Crustaceans
9. Antibiograms – preparation and evaluation
10. Molecular and immunological techniques; Biochemical tests; PCR; ELISA; Agglutination test; Challenge tests; Purification of virus for development of vaccines (Demonstration at institutes/labs)
11. Estimation of dose, calculation of concentration, methods of administration of various chemotherapeutics to fish and shellfish
12. Estimation of antibiotics used in aquaculture practices
13. Estimation of probiotics used in aquaculture
14. Field visit to farm for health monitoring and diseasediagnosis
15. Cost benefit analysis calculations

PRESCRIBED BOOK(S):

1. Shaperclaus W. 1991 Fish Diseases- Vol.I& II. Oxonian PressPvt.ltd
2. Roberts RJ 1989. Fish pathology. BailliereTindall, NewYork
3. Lydia Brown 1993. Aquaculture for veterinarians- fish husbandray and medicine. Pergamon Press.Oxford
4. Jayaraman R 1996. Fisheries Economics. Tamilnadu Veterinary and Animal Science University.Tuticorn
5. SubbaRao N 1986. Economics of Fisheries. Daya publishing house,Delhi

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AQUACULTURE

PRACTICAL -IV

w.e.f. 2022-2023.

MODEL QUESTION PAPER -IV

Code: AQTP42

MAX.MARKS: 40.

(2hrs/week)

Title of the paper:-Fish Health Management and Fisheries Economics, Extension and Marketing

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1. Enumeration of bacteria by TPC method? **10M**
2. Examine the following pathological changes
   i) Gills ii) Gut lumen **2x5 = 10M**
3. Identify the following
   i) Ichthyophthiriasis ii) Myxobolus **2 ½ x 2 = 5 M**
4. Cost Benefit Analysis Calculations **5M**
5. Record Book **5M**
6. Field notes **5M**

ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt., A.P. (AUTONOMOUS).

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VI SEMESTER : APPRENTICE SHIP

A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF BOTANY

MINUTES OF BOARD OF STUDIES

OOD SEMESTER

27-10-2022

ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGREE

COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt., A.P. (AUTONOMOUS).

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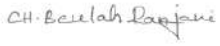
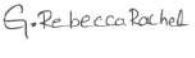
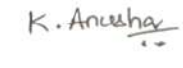
DEPARTMENT OF BOTANY
BOARD OF STUDIES MEETING: **27th October 2022**

The Board of studies meeting of Department of Botany was convened at 2:00 pm on 27/10/2022 under the chairmanship of Smt.Ch.Beulah Ranjani Head of the Department .The members present have discussed various aspects such as changes to be made in the syllabi, scheme of Evaluation and Blue print both for theory and practical papers, Departmental activities for 2022-2023 ,Estimated Budget proposals 2022-2023 for implementing them effectively during the I,III,& V semester for the academic year 2022-2023 onwards.

The following members were present.

S.No	Name	Designation	signature
1.	**Smt. Ch. Beulah Ranjani** Head, Department of Botany A.G&S.G.S Degree College Vuyyuru.	Chair person	
2	**prof. Avasan Maruthi** Bio Sciences & Bio technology Krishna University Machilipatnam.	University Nominee	
3.	**Sri Dr. Ch. Srinivasa Reddy** Lecturer in Botany SRR & CVR Govt. Degree College, Vijayawada.	Subject Expert	
4.	**P. Srinivasa Rao** Department of Botany, P.B. Siddhartha College,	Subject Expert	
5.	**Sri. S. Krishna Suman,** Natural farmer, yakamuru Vuyyuru.	Industrialist	
6.	**Sri. N. Ramana Rao** Lecturer in Botany, A.G &S.G.S Degree College Vuyyuru.	Member	
7.	**Miss. G. Rebecca Rachel** Lecturer in Botany, A.G&S.G.S Degree College Vuyyuru.	Member	
8.	**Miss. K. Anusha** Lecturer in chaitnya college, Gudiwada.	Student Represent	

Agenda for B.O.S Meeting.

1. To recommend the syllabi (Theory & Practical), Model question paper for I Semester of I B.Sc (B.Z.C, Aqua) for the academic year 2022 - 2023.

2. To recommend the syllabi (Theory & Practical), Model question paper for III Semester of II B.Sc (B.Z.C, Aqua) for the academic year 2022 - 2023.

3. To introduce Skill enhancement Course the syllabi (Theory & Practical), Model question paper for V Semester of III B.Sc (B.Z.C, Aqua) for the academic year 2022 - 2023.

4. To recommend the Blue print for the semester end exam for I, III & V semester of I,II, III B.Sc (B.Z.C, Aqua) for the academic year 2022 - 2023.

5. To recommend the teaching and evolution methods to be followed under Autonomous status.

6. Any other matter.

RESOLUTIONS

1. It is resolved to continue the same syllabi (Theory & Practical), model question paper & guide lines to be followed by the question paper setters of Botany of I semester of I B.Sc. (B.Z.C, Aqua)under Choice Based Credit System (CBCS) approved by the Academic Council of 2022 – 2023

2. It is resolved to implement the syllabi (Theory & Practical), model question paper & guide lines to be followed by the question papers under Choice Based Credit System (CBCS) setters of Botany of III Semester of II B.Sc. (B.Z.C, Aqua) approved by the Academic Council of 2022 –2023.

3. It is resolved to implement changed syllabi & model papers under Choice Based Credit System(CBCS) Setters of Botany of V semester SEC 6C (Plant tissue culture) and SEC 7C (Mushroom cultivation) of III B.Sc. (B.Z.C, Aqua) approved by the Academic Council of 2022-2023.

4.It is resolved to Continue the same Blue prints of I,III, &V Semesters of B.Sc Botany for the Academic year 2022-2023.

5. is resolved to continue the following teaching & evolution methods for the Academic year 2022-23.

6. Any other matter.

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. Using of OHP and LCD projector to display on U boards etc; for better understanding of concepts.

Evaluation of a student is done by the following procedure:

Internal Assessment Examination:

- Out of maximum 100 marks in each paper for I, III B.Sc, 30 marks shall be allocated for internal assessment.
- Out of these 30 marks, 20 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the assignment for I, III B.SC.
- Out of maximum 100 marks in each paper for II B.Sc, 25 marks shall be allocated for internal assessment.
- Out of these 25 marks, 15 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks allocated on the basis of candidate's percentage of attendance / assignment for II semester.
- There is no pass minimum for internal assessment for I, II, III B.Sc.

- **Semester – End Examination:**

- The maximum mark for II (BZC) semester – End examination shall be 75 marks and duration of the examination shall be 3 hours.
- The maximum mark for I, III B.Sc semester- End examination shall be 70 marks and duration of the examination shall be 3 hours. Even through the candidate is absent for two IA exams / obtain zero marks the external marks are considered (if the candidate gets 40/70) and the result shall be declared as "PASS"
- Semester – End examination shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of I, III, & V semester for I, II & III B.Sc.
- Discussed and recommended for organizing Seminars, Guest lectures, Work – Shops to upgrade the Knowledge of students, for the approval of the Academic Council.

CH. Beulah Ranjani
Chairman

Course Structure of BZC, AQUA Syllabus

year	semester	Paper code	Title of the paper	Marks(100)		Credits
				Internal assessment	End semester	
I	I	BOTIIA	Fundamentals of Microbes and Non-vascular plants	30	70	3
			Practical-I	10	40	2
II	III	BOTT31A	Anatomy of angiosperms, Plant Ecology and Biodiversity	25	75	3
			Practical-III	25	25	2
III	V	BOT-501	Plant tissue culture.	30	70	3
			Practical-v – 501	25	25	2
III	V	BOT-502	Mushroom Cultivation	30	70	3
			Practical-v- 502	25	25	2

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Title of the Paper: **Fundamentals of Microbes and Non-vascular Plants**

Semester: - I

Course Code	BOTT11A	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours/ Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2021-22	Year of Offering 2021-2022	Year of Revision –	Percentage of Revision: 0%

Course Prerequisites: Knowledge of microbes, thallophytes and Bryophytes at +2 level

Course Description: This course emphasizes the student to understand origin of life on earth and analyze structure, disease symptoms and transmission of plant viruses. Enhance one with the knowledge in diversity and characteristics of prokaryotes, characteristics of fungi and lichens, algae and bryophytes.

Course Objectives:

On successful completion of this course, the students will be able to:

1. To understand origin of life on the earth and analyze structure, disease symptoms and transmission of plant viruses.
2. To understand the diversity and characteristics of Prokaryotes.
3. To understand the characteristics of Fungi and Lichens.
4. To understand the characteristics of Algae.
5. To understand the characteristics of Bryophyta.

Course Outcomes: At the end of this course, students should be able to:

CO1: Explain origin of life on the earth.

CO2: Illustrate diversity among the viruses and prokaryotic organisms and can categorize them.

CO3: Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.

CO4: Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles.

CO5: Evaluate the ecological and economic value of microbes, thallophytes and bryophytes.

Syllabus

Course Details

Unit	Learning Units	Hours
I	**Origin of life and viruses** Origin of life, concept of primary Abiogenesis; Miller and Urey experiment. Five kingdom classifications of R.H. Whittaker. Discovery of micro- organisms, Pasteur experiments, germ theory of diseases. Shape and symmetry of viruses; structure of TMV and Gemini virus; multiplication of TMV, a brief account of Prions and Viroids. A general account on symptoms of plant diseases caused by Viruses. Transmission of plant viruses and their control. Significance of viruses in vaccine production, bio-pesticides and as cloning vectors.	12
II	**Special groups of Bacteria and Eubacteria** Brief account of Archaebacteria, Actinomycetes and Cyano bacteria. Cell structure and nutrition of Eubacteria. Reproduction- Asexual (Binary fission and endospores) and bacterial recombination.(Conjugation, Transformation, Transduction). Economic importance of Bacteria with reference to their role in Agriculture andindustry (fermentation and medicine). A general account on symptoms of plant diseases caused by Bacteria; Citrus canker.	12
III	**Fungi & Lichens** General characteristics of fungi and Ainsworth classification (up to classes). Structure, reproduction and life history of (a)*Rhizopus* (Zygomycota)and(b)*Puccinia* (Basidiomycota). Economic uses of fungi in food industry, pharmacy and agriculture. A general account on symptoms of plant diseases caused by Fungi; Blast of Rice. Lichens- structure and reproduction; ecological and economic importance.	12
IV	**Algae** General characteristics of Algae (pigments, flagella and reserve food material), Fritsch classification (up to classes). Thallus organization and life cycles in Algae. Occurrence, structure, reproduction and life cycle of (a)*Spirogyra* (Chlorophyceae) and (b) *Polysiphonia*(Rhodophyceae). Economic importance of Algae.	12
V	**Bryophytes** General characteristics of Bryophytes; classification up to classes. Occurrence, morphology, anatomy, reproduction (developmental details are not needed) and life cycle of (a) *Marchantia*(Hepaticopsida) and (b) *Funaria*(Bryopsida). General account on evolution of sporophytes in Bryophyta.	12

Textbook:

1. Botany – I (Vrukshasastram-I): Telugu Akademi, Hyderabad
2. Pandey, B.P. (2013) *College Botany, Volume-I,* S. Chand Publishing, New Delhi

Recommended Reference book:

1. Presscott, L. Harley, J. and Klein, D. (2005) *Microbiology, 6th edition*, Tata McGraw –Hill Co. New Delhi.
2. Alexopoulos, C.J., C.W.Mims&M.Blackwell(2007)*Introductory Mycology,* Wiley& Sons, Inc., New York.
3. Fritsch, F.E. (1945) *The Structure & Reproduction of Algae (Vol. I &Vol.II)* Cambridge UniversityPress Cambridge, U. K.

Course Delivery method: Face-to-face / Blended.

Course has focus on: Foundation.

Websites of Interest:

https://www.youtube.com/watch?v=SkClCX9FfiY

https://www.youtube.com/watch?v=h57UuVdyyLk

https://www.youtube.com/watch?v=OBej7rFyN7U

https://www.youtube.com/watch?v=7sZ5Nz8_cfc

Co-curricular Activities:

1. Question and answer session at the end of class.
2. Observing animations.
3. Written assignments.
4. Collection and identification of Algae from Fresh water.
5. Collection and identification of diseased plant parts.
6. Group Discussion (GD)/ Quiz.
7. Power Point Presentations.

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MODEL QUESTION PAPER- Theory Examination(s) at Semester end 2021-2022

TITLE OF THE PAPER: Fundamentals of Microbes and Non-vascular Plants

(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)

Max. Time: 3 Hrs. Course Code: BOTT11A Max. Marks: 70M

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Section-A

1. (a) i) Give an account of structure and multiplication of TMV? **(10M)** CO1- **L2.**
ii) Five kingdom classification of Whittaker. **(4M) CO1-L2.**

OR

b) i) Explain the significance of viruses in vaccine production, bio-pesticides and as cloning vectors. **(10M)** CO1-**L2.**
ii) Germ theory of diseases.**(4M) CO1-L2.**

2. (a) i) whether bacteria exhibit sexual reproduction or not? Elucidate different methods of bacterial recombination. **(10M)CO2 - L2.**

ii) What are the symptoms of citrus canker? Mention the causal organism of citrus canker. . **(4M) CO2 - L2**

OR

b) i) Explain the role of bacteria in agriculture and industry. **(10M)CO2 - L2.**

ii) General characters of blue – green algae. . **(4M) CO-3 L2**

3(a) i) Why *Puccinia* is called as macro cyclic rust? Explain the stages of the fungus on Primary host. **(10M) CO3-L1**.

ii) Ainsworth classification of fungi **CO-3 L2** .**(4M)**

OR

b i) Why lichens are considered as 'pioneers of colonization'? Give an account of ecological and economic Importance of lichens. **CO3 -L1. (10M)**

ii)Why lichens are considered as unique and composite organisms? **CO-3 L1.** .**(4M)**

4.(a)i) What is thallus? Describe various types of thalli found in algae. **(10M)** CO4 **-L2.**
ii) General characters of algae. **CO-3 L2**.**(4M)**

OR

b) i) Explain life cycle of *Spirogyra* .**CO-4 L2. (10M)**

ii) Explain about Cystocarp. **CO-4 L2.** .**(4M)**

5(a)i) Describe morphological and anatomical features of *Marchantia*.**CO5- L2. (10M)**

ii) Vegetative reproduction in Bryophytes. **CO5 - L2.** .**(4M)**

OR

b) i) Give account on of sporophyte evolution in Bryophytes. **CO5 -L 2 (10M).**
ii) Describe the gametophyte phase in Funaria **CO5- L2.** .**(4M)**

A .G & S .G. SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE, VUYYURU
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Practical Syllabus

SEMESTER- I **PAPER- I** **CREDITS : 02**

BOTANY	BOTT11A	WEF: 2021-2022	B. Sc (BZC), AQUA

Title of the paper: Fundamentals of Microbes and Non-vascular Plants

(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes) **NO OF HOURS: 30**

Course Prerequisites: Knowledge of microbes, thallophytes and Bryophytes at +2 level

Course Description: This course emphasizes the student to understand origin of life on earth, analyze and identify the structure, disease symptoms and transmission of plant viruses. Enhance one with the skill in identifying diversity and characteristics of prokaryotes, characteristics of fungi and lichens, algae and bryophytes.

Course Objectives:

On successful completion of this course, the students will be able to:

1. To understand origin of life on the earth and analyze structure, disease
2. Symptoms and transmission of plant viruses.
3. To understand the diversity and characteristics of Prokaryotes.
4. To understand the characteristics of Fungi and Lichens.
5. To understand the characteristics of Algae.
6. To understand the characteristics of Bryophyta.

Course Outcomes: At the end of this course, students should be able to:

CO1: Explain origin of life on the earth.

CO2: Illustrate diversity among the viruses and prokaryotic organisms and can categorize them.

CO3: Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.

CO4: Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles.

CO5: Evaluate the ecological and economic value of microbes, thallophytes and bryophytes.

Syllabus

Course Details:

Unit	Learning Units	Lecture Hours
I	Knowledge of Microbiology laboratory practices and safety rules. Knowledge of different equipment for Microbiology laboratory (Spirit lamp, Inoculation loop, Hot-air oven, Autoclave/Pressure cooker, Laminar air flow chamber and Incubator) and their working principles. (In case of the non- availability of the laboratory equipment the students can be taken to the local college/clinical lab. with required infrastructural facilities or they can enter a linkage with the college/lab for future developments and it will fetch credits during the accreditation by NAAC). Demonstration of Gram's staining technique for Bacteria. Study of Viruses (Corona, Gemini and TMV) using electron micrographs/ models.	6
II	Study of Archaebacteria and Actinomycetes using permanent slides/ electron micrographs/diagrams. Study of *Anabaena* and *Oscillatoria* using permanent/temporary slides. Study of different bacteria (Cocci, Bacillus, Vibrio and Spirillum) using permanent or temporary slides/ electron micrographs/ diagrams.	4
III	Study/ microscopic observation of vegetative, sectional/anatomical and reproductive structures of the following using temporary or permanent slides/ specimens/ mounts: a. Fungi:*Rhizopus, Penicillium* and *Puccinia* Lichens: Crustose, foliose and fruiticose.	10
IV	Algae: *Volvox, Spirogyra*, *Ectocarpus*and *Polysiphonia*. Bryophyta: *Marchantia* and *Funaria* Study of specimens of Tobacco mosaic disease, Citrus canker and Blast of Rice.	10

Recommended Reference book:

1. Vasista, B.R. (2018). Botany for degree students - Algae - S. Chand and company Ltd., New Delhi.
2. Dubey, H.C (2018). A text book of Fungi, bacteria and Viruses. Vikas publishing House, New Delhi.

3. Smith, G.M (1955). Cryptogamic Botany (Vol. I Algae, Fungi, & Lichens) McGraw-Hill Book Co.,

New York.

Course Delivery method: Face-to-face / Blended.

Course has focus on:Skill Development.

Websites of Interest:

https://youtu.be/KXtGklXMCQU

https://youtu.be/u3BVke4C8Sc

https://youtu.be/q7vwDDKugN0

https://youtu.be/1VXSjF16KXg

https://youtu.be/xtf0suS4vek

https://youtu.be/o77dGAToV3U

https://youtu.be/Edmev8lQxLM

https://youtu.be/ks8j2_iawVU

https://youtu.be/n4jtCgpXZVI

https://youtu.be/2kY7uzeYWFc

https://youtu.be/fvEJpipMWUs

https://youtu.be/KAlvzK_391s

Co-curricular Activities:

1. Question and answer session at the end of class.

2. Observing animations.

3. Collection and identification of Algae from Fresh water.

4. Collection and identification of diseased plant parts.

5. Group Discussion (GD)/ Quiz.

6. Power Point Presentations.

Model Question Paper Structure for SEE

Max: 40 Marks **Min. Pass: 16 Marks**

1. Take the T.S. of material 'A' (Fungi), make a temporary mount and make comments about identification……8M.

2. Identify any 2 algae from the mixture (material 'B') given with specific comments about identification……...8M

3. Take the T.S. of material 'C' (Bryophyta), make a temporary mount and make comments about identification……8M

4. Identify the following with specific reasons……4X2=8M

A .laboratory equipment of Microbiology

B. Virus

C. Archaebacteria /Ascomycete /Cyanobacteria/ Eu-Bacteria

D. Lichen

1. Record + Viva-voce……5+3 = 8M

CIA ……. 10 M

NAAC reaccredited at 'A 'level

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Title of the Paper: **(Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity)**

Semester: - III

Course Code	BOTT31A	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours/ Week	4	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2021-22	Year of Offering 2021-2022	Year of Revision –	Percentage of Revision: 0%

Course Prerequisites: Knowledge of Anatomy and Embryology of angiosperms, Plant Ecology and Biodiversity at +2 level.

Course Description: This course will provide one with a basic and comprehensive understanding of anatomical structure and functions. Enable the student with depth of topics and helps them to gain an appreciation in the embryology of Angiosperms. On the other hand, importance of understanding plant ecology and biodiversity provides an extensive knowledge to the student.

Course Objectives:

On successful completion of this course, the students will be able to:

1. To understand the Anatomy of Angiosperms.
2. To understand the Embryology of Angiosperms.
3. To understand the Basics of Ecology.
4. To understand the Population Community and Production Ecology.
5. To understand the Basics of Biodiversity.

Course Outcomes: At the end of this course, students should be able to:

CO1: Understand on the organization of tissues and tissue systems in plants.

CO2: Illustrate and interpret various aspects of embryology.

CO3: Discuss the basic concepts of plant ecology, and evaluate the effects of environmental and Biotic factors on plant communities.

CO4: Appraise various qualitative and quantitative parameters to study the population and community ecology.

CO5: Correlate the importance of biodiversity and consequences due to its loss and enlist the Endemic /endangered flora and fauna from two biodiversity hot spots in India and assess strategies for their conservation.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Anatomy of Angiosperms** Organization of apical meristems: Tunica-carpus theory and Histogen theory. Tissue systems–Epidermal, ground and vascular. Anomalous secondary growth in *Boerhavia* and *Dracaena*. Study of timbers of economic importance -Teak, Redsanders and Rosewood.	12
II	**Embryology of Angiosperms** History of embryology, Structure of anther, types of tapetum. Micro sporogenesis and development of male gametophyte. Structure of ovule, megaspore genesis; monosporic (*Polygonum*), bi sporic (*Allium*) and tetra sporic (*Peperomia*) types of embryo sacs. Outlines of pollination, pollen– pistil interaction and fertilization. Endosperm – Types and biological importance Free nuclear, cellular, helobial and ruminate. Development of Dicot (*Capsella bursa-pastoris*) embryo.	12
III	**Basics of Ecology** Ecology: definition, branches and significance of ecology. Ecosystem: Concept and components, energy flow, food chain, food web, ecological pyramids. Plants and environment: Climatic (light and temperature), edaphic and biotic factors. Ecological succession: Hydrosere and Xerosere.	12
IV	**Population, Community and Production Ecology** Population ecology: Natality, mortality, growth curves, ecotypes, ecads. Community ecology: Frequency, density, cover, life forms, biological spectrum. Concepts of productivity: GPP, NPP and Community Respiration. Secondary production, P/R ratio.	12
V	**Basics of Biodiversity** Biodiversity: Basic concepts, Convention on Biodiversity-Earth Summit. Value of Biodiversity; types and levels of biodiversity and Threats to biodiversity. Biodiversity Hot spots in India. Biodiversity in Eastern Ghats and Western Ghats. Principles of conservation: IUCN threat-categories, RED data book. Role of NBPGR and NBA in the conservation of Biodiversity.	12

Textbook:

- Botany–III(Vrukshasastram-I) : Telugu Akademi, Hyderabad
- Botany–IV(Vrukshasastram-II) : Telugu Akademi, Hyderabad
- Pandey,B.P. (2013)*CollegeBotany, Volume-II,* S. Chand Publishing, NewDelhi
- Pandey,B.P. (2013)*CollegeBotany, Volume-III,*S. Chand Publishing, New Delhi

Recommended Reference book:

- Esau, K. (1971) *Anatomyof Seed Plants*.JohnWileyand Son, USA.
- Fahn, A.(1990) *Plant Anatomy*, Pergamon Press,Oxford.
- Cutler, D.F., T.Botha& D. Wm. Stevenson (2008) *Plant Anatomy: An Applied Approach,* Wiley, USA.
- Paula Rudall(1987) *Anatomyof Flowering Plants: An Introduction to Structure and Development.*CambridgeUniversityPress,London.

Course Delivery method: Face-to-face / Blended.

Course has focus on: Foundation Websites of Interest:

https://byjus.com/biology/tissues-anatomy-of-angiosperms/

https://onlinecourses.swayam2.ac.in/cec21_bt22/preview

https://explorenaturalcommunities.org/ecology-basics#:~:text=Ecology%20is%20the%20science%20of,and%20with%20their%20physical%20environment.

https://en.wikipedia.org/wiki/Community_(ecology)

https://ec.europa.eu/environment/basics/natural-capital/biodiversity/index_en.htm#:~:text=%22Biodiversity%22%20is%20a%20word%20we,their%20habitats%20and%20their%20genes.&text=Much%20food%20production%20is%20only,that%20pollinate%20plants%20and%20trees.

Co-curricular Activities:

Question and answer session at the end of

class. Observing animations.

Written assignments.

Preparation of models.

Making charts

Group Discussion (GD) /
Quiz.

Power Point
Presentations.

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TITLE OF THE PAPER: Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity.

Model Question Paper Structure for SEE

Max. Time: 3 Hrs. Course Code: BOTT31A Max. Marks: 75M

Section-A

Answer Any Five at least one from each unit **5 x 5M = 25Marks**

1. Tunica corpus theory.**CO1L1**
2. Rose wood. **CO1L2**
3. Nemec phenomenon. **CO2L2**
4. Ruminate endosperm. **CO2L2**
5. Food chain & Food web. **CO3L1**
6. Ecads. **CO4L2**
7. Earth summit. **CO5L1**
8. Identify Biodiversity hot spots of India **CO5L3**.

Section-B

Answer the following questions **5 x 10M = 50Marks**

9. (a) Describe the epidermal tissue system. **CO1L1**

or **Unit I**

(b) What is anomalous secondary growth? Describe the anomalous secondary growth in *Boerhavia* stem. **CO1L1**

10. (a) What is embryosac? How many types are there? Explain the development of embryosac studied by you. **CO2L2.** **Unit II**

or

(b) Explain the development of embryo **CO2L2**

11. (a) What is an ecosystem? Give an account of structure of an ecosystem studied by you.**CO3L1**

or **Unit III**

(b) What is succession? Give account of xerosere. **CO3L1**

12. (a) What is population ecology? Explain characters of a population studied by you.CO4L2

or **Unit IV**

(b) List out the quantitative and qualitative characters of community. Explain? Qualitative characters of a plant community. **CO4L2**

13. (a) Classify and analyse main values of biodiversity. **CO5L4**

or **Unit V**

(b) Analyse the major threats to biodiversity. **CO5L4**

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Practical Syllabus

SEMESTER- III **PAPER- III** **CREDITS: 02**

BOTANY	BOTT3IA	WEF: 2022-2023	B. Sc (BZC), AQUA

Title of the paper: Anatomy and Embryology of Angio sperms, Plant Ecology and Biodiversity

NO OF HOURS: 30

Course Prerequisites: Knowledge of Anatomy and Embryology of angiosperms, Plant Ecology and Biodiversity at +2 level.

Course Description: This course will provide one with a basic and comprehensive under standing and skill of identifying anatomical structure and functions. Enable the student with depth of topics and helps them to gain an appreciation in the embryology of Angiosperms. On the other hand, importance of understanding plant ecology and biodiversity provides an extensive knowledge to the student.

Course Objectives:

On successful completion of this course, the students will be able to:

1. To understand the Anatomy of Angiosperms.
2. To understand the Embryology of Angiosperms.
3. To understand the Basics of Ecology.
4. To understand the Population Community and Production Ecology.
5. To understand the Basics of Biodiversity.

Course Outcomes:

On successful completion of this practical course students shall be able to:

1. Get familiarized with techniques of section making, staining and microscopic study of vegetative, anatomical and reproductive structure of plants.
2. Observe externally and under microscope, identify and draw exact diagrams of the material in the lab.
3. Demonstrate application of methods in plant ecology and conservation of biodiversity and Qualitative and quantitative aspects related to populations and communities of plants.

Course Details:

Unit	Learning Units	Lecture Hours
I	Tissue organization in root and shoot apices using permanent slides. Anomalous secondary growth in stems of *Boerhavi a*and *Dracaena*.	4
II	Study of anther and ovules using permanent slides/photographs. Study of pollen germination and pollen viability. Dissection and observation of Embryo sac haustoria in *Santalum* or *Argemone*. Structure of endosperm (nuclear and cellular) usingpermanent slides / Photographs. Dissection and observation ofEndosperm haustoria in *Crotalaria*or *Coccinia*. Developmental stages ofdicot and monocot embryos using permanent slides /photographs.	12
III	Study of instruments used to measure microclimatic variables; soil thermometer, maximum and minimum thermometer, anemometer, raingauze, and luxmeter. (Visit to the nearest/local meteorology station where the data is being collected regularly and record the field visit summary for the submission in the practical). Study of morphological and anatomical adaptations of hydrophytes and xerophytes (02each).	6
IV	Quantitative analysis of herbaceous vegetation in the college campus for frequency, density and abundance. Identification of vegetation/various plants in college campus and comparison with Raunkiaer's frequency distribution law.	6
V	Find out the alpha- diversity of plants in the area.	2

Recommended Reference book:

1. Practical Botany volume II- Bendra and Kumar.
2. Practical Botany volume II-O.P.Sharma.
3. Practical Botany volume III-H.N.Srivastava.
4. Khasim SM., Botanical Microtechnique- Principles & Practice, Capital Publishing Company.

Course Delivery method: Face-to-face / Blended.

Course has focus on: Skill Development.

Websites of Interest:

https://youtu.be/iA5EqQm3hqw
https://youtu.be/_3K2qLw_z_U
https://youtu.be/ZIF4NTDL14U
https://youtu.be/qPUPw7iS86Q
https://youtu.be/qGLo_cUMlHU
https://youtu.be/Spl9GWgXJPQ.

https://youtu.be/ifAdxMspJGY
https://youtu.be/K86XXQdwlB4
https://youtu.be/c83EtBUrWsk
https://youtu.be/enD2OwXBhCM
https://youtu.be/M-TczeGvCCg
https://youtu.be/dDrrTbi88zE
https://youtu.be/aX58F5jWxU8
https://youtu.be/rSsFn1GEuyw

Co-curricular Activities:

Question and answer session at the end of class.
Observing animations.
Written assignments. Preparation of temporary slides. Group Discussion (GD)/ Quiz.
Power Point Presentations.

Practical Model Question Paper

Max.: 40 Marks **Min. Pass: 16 Marks**

……

1. Take T.S of the given material '**A'** (Anatomy), prepare a temporary slide and justify the identification with specific reasons……..**8M**

2. Write the procedure for the experiment '**B'** (Embryology) and demonstrate the same…**8M**

3. Take T.S of the material '**C**'. Prepare a temporary slide and justify the identification with specific reasons……8M

4. Identify the following with specific reasons…….**4x2=8**

D. Anatomy/Embryology
E. Ecology instrument
F. Mapping of Biodiversity hot spot.
G. Endemic/endangered plant/animal

5. Record +Viva-voce…….**5+3=8 M**

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NAAC reaccredited at 'A 'level
Autonomous –ISO 9001-2015 Certified

Title of the Paper: **Plant tissue culture**

Semester: - V

Course Code	BOT 501	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours/ Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	50	Total Marks	100
Year of Introduction : 2022-23	Year of Offering 2022-2023	Year of Revision –	Percentage of Revision: 0%

Type of the Course: Skill Enhancement Course (Elective: Theory),

Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Comprehend the basic knowledge and applications of plant tissue culture.

CO2: Identify various facilities required to set up a plant tissue culture laboratory.

CO3: Acquire a critical knowledge on sterilization techniques related to plant tissue culture.

CO4: Demonstrate skills of callus culture through hands on experience.

CO5: Understand the biotransformation technique for production of secondary metabolites.

Syllabus

Course Details:

Unit	Learning Units	Lecture Hours
I	**Basic concepts of plant tissue culture** (10h) Plant tissue culture: Definition, history, scope and significance. Totipotency, differentiation, dedifferentiation, and redifferentiation; types of cultures. Infrastructure and equipment required to establish a tissue culture laboratory.	**10**
II	**Sterilization techniques and culture media (10h)** Aseptic conditions – Fumigation, wet and dry sterilization, UV sterilization, ultrafiltration. Nutrient media: Composition of commonly used nutrient culture media with respect to their contents like inorganic chemicals, organic constituents, vitamins, amino acids etc. Composition and preparationof Murashige and Skoog culturemedium	**10**
III	**Callus culture technique (10h)** Explant: Definition, different explants for tissue culture: shoot tip, axillary buds, leaf discs, cotyledons, inflorescence and floral organs, their isolation and surface sterilization; inoculation methods. **Callus culture**: Definition, various steps in callus culture. Initiation and maintenance of callus - Growth measurements and subculture; soma clonal variations.	**10**
IV	**Micropropagation (10h)** Direct and indirect morphogenesis, organogenesis, role of PGRs; somatic embryogenesis and synthetic seeds. Greenhouse hardening unit operation and management; acclimatization and hardening of plantlets - need, process, packaging, exports. Pathogen (Virus) indexing- significance, methods, advantages, applications.	**10**
V	**Applications of plant tissue culture (10h)** Germplasm conservation: cryopreservation methods, slow growth, applications and limitations; cryoprotectants. Plant transformation techniques and bioreactors; production of secondary metabolites-optimization of yield, commercial aspects, applications, limitations. Transgenic plants- gene transfer methods; BT cotton.	**10**

- References/TextBook/ e-books/websites:

1. Razdan, M.K. (2005) Introduction to Plant Tissue Culture, Oxford & IBH Publishers, Delhi

2. Bhojwani, S.S. (1990) Plant Tissue Culture: Theory and Practical (a revised edition). Elsevier Science Publishers, New York, USA.

ReferenceMaterials ontheWeb/web links:

https://www.youtube.com/watch?v=dFrx-t5J0PA

https://www.youtube.com/watch?v=A6qEgc6Jt3Q

Co-CurricularActivities

(a) Mandatory:(Training of students by teacher in field related skills:(lab:10 + field: 05)

1. **For Teacher**: Training of students by teacher in the laboratory/field for a total of not less than 15 hours on the field techniques/skills of sterilization procedures, preparation of media, establishment of callus culture, growth measurements; morphogenesis and organogenesis; acclimatization and hardening of plantlets.

2. **For Student**: Students shall (individually) visit anyone of plant tissue culture laboratories in universities/research organizations/private facilities, write their observations on tools, techniques, methods and products of plant tissue culture; and submit a hand-written Fieldwork/Project work Report not exceeding 10 pages to the teacher in the given format.

3. Max marks for Fieldwork/Project work Report: 05

4. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place visited, observations, findings and acknowledgements.

5. Unit tests (IE).

b) Suggested Co-Curricular Activities:

1. Training of students by related industrial experts.

2. Assignments (including technical assignments like identifying tools in plant tissue culture and their handling, operational techniques with safety and security, IPR)

3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).

4. Preparation of videos on tools and techniques in plant tissue culture.

5. Collection of material/figures/photos related to products of plant tissue culture, writing and organizing them in a systematic way in a file.

6. Visits to plant tissue culture/biotechnology laboratories in universities, research organizations, private firms, etc.

7. Invited lectures and presentations on related topics by field/industrial experts.

TITLE OF THE PAPER: PLANT TISSUE CULTURE

Model Question Paper

Max. Time: 3 Hrs. Course Code: BOT-501 Max. Marks: 70M

SECTION – A

Answer any FOUR of the following questions. 4x5=20 Marks

(Draw diagrams wherever necessary)

1. What is totipotency? Explain.
2. Describe the method of dry sterilization.
3. Enumerate the somaclonal variations.
4. Discuss about the virus indexing.
5. Prepare a note on cryoprotectants.
6. State a note on UV sterilization
7. What is an explant? Describe.
8. Describe the synthetic seeds in detail.

SECTION - B

Answer any Five of the following questions. 5x10 =50M.

(Draw diagrams wherever necessary)

9. Enumerate an account of Infrastructure and equipment required to establish a tissue culture laboratory.
10. Explain various methods of sterilization.
11. Discriminate an account of the composition and preparation of MS media.
12. Summarize an account of callus culture.
13. Paraphrase various ways of surface sterilization of explants
14. Illustrate about somatic embryogenesis.
15. Memorize the gene transfer methods.
16. State an account on secondary metabolite production through Bioreactors

Guide lines for paper setter: (for Paper V-BOT-501) W.e.f. 2022-23

1. In Section A: Unit II, III, VI, must carry Two questions from each unit. Unit I, V must carry one question.
2. In section-B: Set minimum two questions from Unit II, III & V and Set One Question from I, IV.
3. See the following table and Model paper.
4. Please provide the scheme of valuation for the paper.
5. Question paper should be both in English and Telugu media.

Unit	Section – A		Section - B		Weightage in
	Questions	Marks	Questions	Marks	Marks
Unit – I	1		1		
		5		10	15
Unit – II	2		2		
		10		20	30
Unit – III	2		2		
		10		20	30
Unit-IV	2		1		
		10		10	20
Unit-V	1		2		
		5		20	25
Max. Q & marks	8	(x 5) = 40	8	(x 10) = 80	(Total questions = 16) Marks 120
Max. Q and marks for Valuation	Questions	Marks	Questions	Marks	Max. marks
	4		5		
	(4 x 5) = 20		(5 x 10) = 50		70

INTERNAL EXAMS – 30 Marks

(20 marks for unit tests, 5 marks for assignments and remaining 5 marks for seminar etc.)

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Practical Syllabus

SEMESTER- III **PAPER- II** **CREDITS: 02**

BOTANY	BOT- 501	WEF: 2022-2023	B. Sc (BZC), AQUA

Title of the paper: PLANT TISSUE CULTURE NO OF HOURS: 30

Type of the Course: Skill Enhancement Course (Elective: Practical),

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Demonstrate the applications of autoclave, laminar airflow, hot air oven.
CO2: Sterilize the glassware and tools used for tissue culturing.
CO3: Prepare different stock solutions, media.
CO4: Measure the growth of callus formed.
CO5: Demonstrate the hardening and acclimatization in green house.

II: Practical (Laboratory) Syllabus:(30Periods): Atleast8Practicals….

1. Principles and applications of- Autoclave, Laminar Airflow, Hot Air Oven.

2. Sterilization techniques for glass ware, tools etc.,

3. MS medium - Preparation of different stock solutions; media preparation

4. Explant preparation, inoculation and initiation of callus from carrot.

5. Callus formation, growth measurements.

6. Induction of somatic embryos, preparation of synthetic seeds.

7. Multiplication of callus and organogenesis.

8. Hardening and acclimatization in green house.

III. Lab References:

1. Reinert, J. and M.M. Yeoman, 1982. Plant Cell and Tissue Culture - A Laboratory

2. Manual, Springer-Verlag Berlin Heidelberg

3. Robert N. Trigiano and Dennis J. Gray, 1999.Plant Tissue Culture Concepts and Laboratory Exercises. CRC Press, Florida

4. Ashok Kumar, 2018. Practical Manual for Biotechnology, College of Horticulture & Forestry, Jhalawar, AU, Kota
5. Chawla, H.S., 2003. Plant Biotechnology: A Practical Approach, Nova Science Publishers, New York
6. Web sources suggested by the teacher concerned.

Practical Question Paper

Time : 3hrs **Max.Marks:50**

1. Demonstration of a sterilization technique	'A'	5 M
2. Preparation of MS medium	'B'	5 M
3. Demonstration of callus culture technique/growth measurements	'C'	5M
4. Scientific observation and data analysis		**4 x 2 = 8 M**

D. Tissue culture equipment /photograph
E. Morphogenesis or organogenesis - photograph
F. Bioreactor/Secondary metabolite
G. Transgenic plant/photograph
5. Viva voce 2M

Internals:

1. Record	.05M
2. Project work…….…….……..	10M
3. Field trip	.5M
4. Internal practical exam	05M

Total Marks: 25

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Autonomous –ISO 9001-2015 Certified

Title of the Paper: **mushroom cultivation (7C)**

Semester: - V

Course Code	BOT 501	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours/ Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	50	Total Marks	100
Year of Introduction : 2022-23	Year of Offering 2022-2023	Year of Revision –	Percentage of Revision: 0%

Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Comprehend the value of mushrooms.

CO2: Identify the methods of composting and the materials required.

CO3: Acquire a critical knowledge on spawning and casing.

CO4: Demonstrate skills in cultivation of various mushrooms.

CO5: Understand the Post-harvest technology.

Syllabus: (Total Theory Hours: 45 including Unit tests etc.)UNIT-IIntroduction and value of mushrooms .

Course Details:

Unit	Learning Units	Lecture Hours
I	Mushrooms: Definition, structure of a mushroom and a brief account of life cycle; historical account and scope of mushroom cultivation; difference between edible and poisonous mushrooms. Morphological features of any four edible mushrooms, Button mushroom (*Agaricusbisporus*), Milky mushroom (*Calocybe indica*), Oyster mushroom (*Pleurotussajor-caju*) and Paddy straw mushroom (*Volvariellavolvacea*). Nutritional value of mushrooms; medicinal mushrooms in South India - Ganoderma lucidum, Phellinus rimosus, Pleurotus florida and Pleurotus pulmonaris – their therapeutic value; Poisonous mushrooms - harmful effects.	10
II	**Basic requirements of cultivation system** Small village unit and larger commercial unit; layout of a mushroom farm - location of building plot, design of farm, bulk chamber, composting, equipment and facilities, pasteurization room and growing rooms. **Compost and composting**: Definition, machinery required for compost making, materials for compost preparation. Methods of composting- long method of composting and short method of composting	10
III	**Spawning and casing** Spawn and spawning: Definition, facilities required for spawn preparation; preparation of spawn substrate. Preparation of pure culture, media used in raising pure culture; culture maintenance, storage of spawn. Casing: Definition, Importance of casing mixture, Quality parameters of casing soil, different types of casing mixtures, commonly used materials.	10
IV	**Mushroom cultivation** Raw material, compost, spawning, casing, cropping, and problems in cultivation (diseases, pests and nematodes, weed molds and their management strategies), picking and packing for any Four of the following mushrooms: (a) Button mushroom (b) Oyster mushroom (c) Milky mushroom and (d) Paddy straw mushroom	10
V	**Post harvest technology** Shelf life of mushrooms; preservation of mushrooms - freezing, dry freezing, drying and canning. Quality assurance and entrepreneurship - economics of different types of mushrooms; value added products of mushrooms. Management of spent substrates and waste disposal of various mushrooms.	10

References/TextBook/ e-books/websites

1. TewariPankajKapoor, S. C. (1988). Mushroom Cultivation. Mittal Publication, New Delhi.

2. Pandey R.K, S. K Ghosh, (1996). A Hand Book on Mushroom Cultivation.Emkey Publications

3. Web resources suggested by the teacher concerned and the college librarian including reading material.

ReferenceMaterials ontheWeb/web links:

https://www.youtube.com/watch?v=DwMCw14khIU

https://www.youtube.com/watch?v=vggMlUeIsoU

IV Co-CurricularActivities

(a) Mandatory:(Training of students by teacher in field related skills:(lab:10 + field: 05)

1. **For Teacher**: Training of students by teacher in the laboratory/field for not less than 15 hours on the field techniques/skills of identification of edible and poisonous mushrooms, basic facilities of a mushroom culture unit, preparation of compost and spawn, cultivation practices of edible mushrooms, storage and marketing of produce.

2. **For Student**: Students shall (individually) visit mushroom culture units in universities/research organizations/private sector write their observations on infrastructure, cultivation practices and products of a mushroom culture unit etc., and submit to the teacher a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format.

3. Max marks for Fieldwork/Project work Report: 05.

6. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place visited, observations, findings and acknowledgements.

4. Unit tests (IE).

b) Suggested Co-Curricular Activities: 1. Training of students by related industrial experts.

2. Assignments (including technical assignments like identifying various mushrooms, tools and techniques for culture, identification and control of diseases etc.,

3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).

4. Preparation of videos on tools and techniques in mushroom culture.

5. Collection of material/figures/photos related to edible and poisonous mushrooms, cultivation of mushrooms in cottage industries, writing and organizing them in a systematic way in a file.

6. Visits to mushroom culture units in universities, research organizations, private firms, etc.

7. Invited lectures and presentations on related topics by field/industrial experts.

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TITLE OF THE PAPER: Mushroom Cultivation

Model Question Paper Structure for SEE

Max. Time: 3 Hrs. Course Code: BOT-502 Max. Marks: 70M

.....

SECTION – B

Answer any FOUR of the following questions. 4x5=20 Marks

(Draw diagrams wherever necessary)

1. Extend the medicinal value of *Ganoderma*.
2. Describe the small village unit.
3. List the facilities required for spawn preparation.
4. Explain weed mold in mushroom cultivation.
5. Illustrate the Novel Value Added Products of Mushrooms.
6. Enumerate the Poisonous mushrooms.
7. Summarize Layout of a mushroom farm.
8. Explain about the Casing oil.

SECTION – B

5x10 =50M

Answer all questions.

(Draw diagrams wherever necessary)

9. Describe the life cycle of a mushroom.
10. Describe the morphological features of Paddy straw and oyster mushroom.
11. Explain various types of composting methods.
12. Point out basic requirements of mushroom cultivation.
13. What is casing? Explain different types of casing mixture and their Importance.
14. Summarize the process of cultivation of Milky mushroom.
15. Extend an account cultivation of Oyster mushroom.
16. What are the conditions required to improve shelf life of mushrooms?

Guide lines for paper setter: (for Paper V-BOT-502) W.e.f. 2022-23

6.In Section A: Unit I, II, III, must carry Two questions from each unit. UnitI VI& V must carry one question.

7.In section-B: Set minimum two questions from Unit I, II & IV and Set One Question from III & V.

8.See the following table and Model paper.

9.Please provide the scheme of valuation for the paper.

10. Question paper should be both in English and Telugu media.

Unit	Section – A		Section - B		Weightage in
	Questions	Marks	Questions	Marks	Marks
Unit – I	2		2		
		10		20	30
Unit – II	2		2		
		10		20	30
Unit – III	2		1		
		10		10	20
Unit-IV	1		2		
		5		20	25
Unit-V	1		1		
		5		10	15
Max. Q & marks	8	(x 5) = 40	8	(x 10) = 80	(Total questions = 16) Marks 120
Max. Q and marks for Valuation	Questions	Marks	Questions	Marks	Max. marks
	4		5		
	(4 x 5) = 20		(5 x 10) = 50		70

INTERNAL EXAMS – 30 Marks

(20 marks for unit tests, 5 marks for assignments and remaining 5 marks for seminar etc.)

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Practical Syllabus

SEMESTER- V (7C) **PAPER- V** **CREDITS: 02**

BOTANY	BOT-502	WEF: 2022-2023	B. Sc (BZC), AQUA

MUSHROOM CULTIVATION

Type of the Course: Skill Enhancement Course (Elective: Practical),

I. **Course Outcomes: Students at the successful completion of the course will be able to:**

CO1: Identify different types of mushroom.
CO2: Demonstrate preparation of pure culture of an edible mushroom.
CO3: Prepare compost and casing mixture.
CO4: Crop and harvest mushrooms.
CO5: Prepare value-added products.

II: Practical (Laboratory) Syllabus :(30Periods): Atleast8Practicals….

1. Identification of different types of mushrooms.
2. Preparation of pure culture of an edible mushroom.
3. Preparation of mother spawn.
4. Production of planting spawn and storage.
5. Preparation of compost and casing mixture.
6. Demonstration of spawning and casing.
7. Hands on experience on cropping and harvesting.
8. Demonstration of storage methods.
9. Preparation of value-added products.

III. Lab References:

1. Sushma Sharma Sapna Thakur Ajar NathYadav, 2018. Mushroom Cultivation: A Laboratory Manual, Eternal University, Sirmour, H.P.

2. Kadhila -Muandingi, N.P., F. S. Mubiana and K. L. Halueendo, 2012. Mushroom Cultivation: A Beginners Guide, The University of Namibia

3. Gajendra Jagatap and UtpalDey, 2012. Mushroom Cultivation:Practical Manual, LAMBERT Academic Publishing, Saarbrücken, Germany

4. Deepak Som, 2021. A Practical Manual on Mushroom Cultivation, P.K.Publishers& Distributors, Delhi

5. Web sources suggested by the teacher concerned.

Question Paper Pattern: Practicals

Time: 3 hrs **Max.Marks:50**

1. Demonstration of preparing pure culture/mother spawn 'A' 5 M
2. Preparation method for planting spawn and storage/compost and casing material 'B' 5 M
3. Demonstration of spawning and casing/storage and making a value- added product 'C' 5 M

4. Scientific observation and data analysis **4 x 2 = 08M**

D. Edible/poisonous mushroom specimen/photograph
E. Infrastructure/tool used in mushroom cultivation
F. Material for compost/casing
G. Storage practice/ a value-added product

5. Viva Voce 2M

Internals:

1. Record	.05M
2. Project work…….……..	10M
3. Field trip	.5M
4. Internal practical exam	05M

Total Marks: 25

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VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF BOTANY

MINUTES OF BOARD OF STUDIES

EVEN SEMESTER

31-03-2022

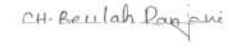
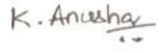
ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGREE

COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt., A.P. (AUTONOMOUS).

NAAC reaccredited at 'A 'level
Autonomous –ISO 9001-2015 Certified
DEPARTMENT OF BOTANY
BOARD OF STUDIES MEETING: **31st March 2022**

The Board of studies meeting of Department of Botany was convened at 3:00 pm on 31 /03/2023 under The chairmanship of Smt.Ch. Beulah Ranjani Head of the Department .The members present have discussed various aspects such as changes to be made in the syllabi, scheme of Evaluation and Blue print both for theory and practical papers, Departmental activities for 2022-2023, Estimated Budget proposals 2022 -2023 for implementing them effectively during the II, IV, & VI semester for the academic year 2022-2023 onwards.

The following members were present.

S.No	Name	Designation	signature
1.	**Smt. Ch. Beulah Ranjani** Head, Department of Botany A.G&S.G.S Degree College Vuyyuru.	Chair person	
2	**prof. Avasan Maruthi** Bio Sciences & Bio technology Krishna University Machilipatnam.	University Nominee	
3.	**Sri Dr. Ch. Srinivasa Reddy** Lecturer in Botany SRR & CVR Govt. Degree College, Vijayawada.	Subject Expert	
4.	**P. Srinivasa Rao** Department of Botany, P.B. Siddhartha College,	Subject Expert	
5.	**Sri. S. Krishna Suman,** Natural farmer, yakamuru Vuyyuru.	Industrialist	
6.	**Sri. N. Ramana Rao** Lecturer in Botany, A.G &S.G.S Degree College Vuyyuru.	Member	
	Miss. K. Anusha Lecturer in chaitnya college, Gudiwada.	Student Represent	

Agenda for B.O.S Meeting.

1. To recommend the syllabi (Theory & Practical), Model question paper for II Semester of I B.Sc (B.Z.C,Aqua) for the academic year 2022 - 2023.

2. To recommend the syllabi (Theory & Practical), Model question paper for IV Semester of II B.Sc (B.Z.C, Aqua) for the academic year 2022 - 2023.

3. To introduce Skill Enhancement Course the syllabi (Theory & Practical), Model question paper for V Semester of III B.Sc (Aqua) for the academic year 2022 - 2023.

4. To recommend the Blue print for the semester end exam for II, IV & VI semester of I,II, III B.Sc (B.Z.C, Aqua) for the academic year 2022 - 2023.

5. To recommend the teaching and evolution methods to be followed under Autonomous status.

6. Any other matter.

RESOLUTIONS

1. It is resolved to continue the same syllabi (Theory & Practical), model question paper & guide lines to be followed by the question paper setters of Botany of II semester of I B.Sc. (B.Z.C, Aqua)under Choice Based Credit System (CBCS) approved by the Academic Council of 2022 – 2023

2. It is resolved to implement the syllabi (Theory & Practical), model question paper & guide lines to be followed by the question papers under Choice Based Credit System (CBCS) setters of Botany of IV Semester of II B.Sc. (B.Z.C, Aqua) approved by the Academic Council of 2022 –2023.

3. It is resolved to implement the same syllabi & model papers under Choice Based Credit System(CBCS) Setters of Botany of V semester SEC 6C (Plant tissue culture) and SEC 7C (Mushroom cultivation) of III B.Sc. (B.Z.C, Aqua) approved by the Academic Council of 2022-2023.

4.It is resolved to Continue the same Blue prints of I,IV, &VI Semesters of B.Sc Botany for the Academic year 2022-2023.

5. It is resolved to continue the following teaching & evolution methods for the Academic year 2022-23.

6. Any other matter.

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. Using of OHP and LCD projector to display on U boards etc; for better understanding of concepts.

Evaluation of a student is done by the following procedure:

Internal Assessment Examination:

1. Out of maximum 100 marks in each paper for I, III B.Sc, 30 marks shall be allocated for internal assessment.
2. Out of these 30 marks, 20 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the assignment for I, III B.SC.
3. Out of maximum 100 marks in each paper for II B.Sc, 25 marks shall be allocated for internal assessment.
4. Out of these 25 marks, 15 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks allocated on the basis of candidate's percentage of attendance / assignment for II semester.
5. There is no pass minimum for internal assessment for I, II, III B.Sc.

- **Semester – End Examination:**

1. The maximum mark for II (BZC) semester – End examination shall be 75 marks and duration of the examination shall be 3 hours.
2 The maximum mark for I, III B.Sc semester- End examination shall be 70 marks and duration of the examination shall be 3 hours. Even through the candidate is absent for two IA exams / obtain zero marks the external marks are considered (if the candidate gets 40/70) and the result shall be declared as "PASS"
3. Semester – End examination shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of I, III, & V semester for I, II & III B.Sc.
4. Discussed and recommended for organizing Seminars, Guest lectures, Work – Shops to upgrade the Knowledge of students, for the approval of the Academic Council.

CH. Beulah Ranjani

Chairman

Course Structure of BZC, AQUA Syllabus

Year	Semester	Paper code	Title of the paper	Marks(100)		Credits
				Internal assessment	End semester	
I	II	BOT2IA	Basics of of vascular plants and Phyto geography	30	70	3
			Practical-I	10	40	2
II	IV	BOTT41A	Plant physiology and Metabolism	25	75	3
			Practical-III	25	25	2
	IV	BOTT42A	Cell biology ,Genetics and plant Breeding	30	70	3
			Practical-III	25	25	2
II	VI	BOT-501	Plant tissue culture.	30	70	3
			Practical-v – 501	25	25	2
II	VI	BOT-502	Mushroom Cultivation	30	70	3
			Practical-v- 502	25	25	2

A.G. & S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, Vuyyuru- 521165

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Title of the Paper: Basics ofVascularplants and Phytogeography
(Pteridophytes, Gymnoperms, Taxonomy of Angiosperms and Phytogeography)

Semester : II

Course Code	**BOTT21A**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours / Week	4	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2017-18	Year of Offering: 2021 - 22	Year of Revision: -	Percentage of Revision: -

Course Pre requisites: Knowledge of Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and Phytogeography studied in intermediate.

Course Description:

This course will provide one with a basic and comprehensive understanding of anatomical structureand functions. Enable the student with depth of topics and helps them to gain an appreciation in the embryology of Angiosperms. On the other hand, importance of understanding plant ecology and biodiversity provides an extensive knowledge to the student.

Course Objectives:

1. The study of Pteridophytes
2. The study of Gymnosperms
3. Knowledge of Basic aspects of Taxonomy
4. Study of Systematic Taxonomy
5. Knowledge of Phytogeography

Course Outcomes: At the end of this course, students should be able to:

CO1: Gain knowledge in the classification and comparison of Pteridophytes and Gymnosperms based on their morphology, anatomy, reproduction and life cycle.

CO2: Justify evolutionary trends in Tracheo phytes to adapt for land habitat. Evaluate the ecological, ethnic and economic value of different tracheophytes and summarize their good and services for human welfare

CO3: Explanation of the process of fossilization and compare the characteristics ofextinct and extant plants.

CO4: Analyze the morphology of the most common Angiosperm plants of theirlocalities and recognize their families.

CO5: Locate different Phytogeo graphical regions of the world and India and cananalyze their floristic wealth.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Pteridophytes** General characteristics of Pteridophyta; classification of Smith (1955) upto divisions. Occurrence, morphology, anatomy, reproduction (developmental details are not needed) and life history of (a) *Lycopodium* (Lycopsida) and (b) *Marsilea* (Filicopsida). Stelar evolution in Pteridophytes Heterospory and seed habit.	12
II	**Gymnosperms** General characteristics of Gymnosperms; Sporne classification upto classes. Occurrence, morphology, anatomy, reproduction (developmental details are not needed) and life history of (a) *Cycas (Cycadopsida)* and(b) *Gnetum* (Gnetopsida). Outlines of geological time scale. A brief account on Cycadeoidea.	12
III	**Basic aspects of Taxonomy** Aim and scope of taxonomy; Species concept:Taxonomic hierarchy, species, genus and family. Plant nomenclature: Binomial system, ICBN–rules for nomenclature. Herbarium and its techniques, BSI herbarium and Kew herbarium; concept of digital herbaria. Bentham and Hooker system of classification Systematic description and economic importance of the followingfamilies :(a) Annonaceae (b) Curcurbitaceae.	12
IV	**Systematic Taxonomy** Systematic description and economic importance of the following families: (a) Asteraceae (b)Ascleceae (c)Amaranthaceae,(d)Euphorbiacee (e) Orchidaceae,(f) Arecaceae(i) Poaceae Outlines of Angiosperm Phylogeny Group (APG IV).	12
V	**Phytogeography** Principles of Phytogeography, Distribution (wides, endemic, discontinuous species) Endemism – types and causes. Phytogeographic regions of World.Pytogeographic regions of India. Vegetation types in Andhra Pradesh.	12

Botany Textbook:

(Vrukshasastram-I): Telugu Akademi, Hyderabad
2. Botany – II (Vrukshasastram-II): Telugu Akademi, Hyderabad
3. Acharya, B.C., (2019) Archchegoniates, Kalyani Publishers, New Delhi
4. Bhattacharya, K., G. Hait &Ghosh, A. K., (2011) A Text Book of Botany, Volume II, New CentralBook Agency Pvt. Ltd., Kolkata
5. Hait, G., K. Bhattacharya & A.K. Ghosh (2011) A Text Book of Botany, Volume-I, New CentralBook Agency Pvt. Ltd., Kolkata
6. Pandey, B.P. (2013) College Botany, Volume-I, S. Chand Publishing, New Delhi Pandey, B.P.(2013) College Botany, Volume-II, S. Chand Publishing, New Delhi

Recommended Reference book:

1.Smith, G.M. (1971) Cryptogamic Botany Vol. II., Tata McGraw Hill, New Delhi
2.Sharma,O.P.(2012)Pteridophyta. Tata McGraw-Hill, New Delhi
3. Kramer, K.U.&P. S. Green (1990) The Families and Genera of Vascul Plants, Volume –I: Pteridophytes and Gymnosperms (Ed.K.Kubitzki) .Springe-Verlag, New York
4.Bhatnagar, S.P. &AlokMoitra (1996)Gymnosperms. New Age International, New Delhi Govil, C.M. (2007)Gymnosperms : Extinct and Extant. KRISHNA PrakashanMedia (P)Ltd.Meerut& Delhi
5. Sporne, K.R.(1971)The Morphology of Gymnosperms.Hutchinsons Co. Ltd., London
6. Arnold, C.A., (1947) An introduction to PaleobotanyMcGraw –Hill BookCompany,INC, New York
7. stewart,W.N., and G.W.Rothwell (2005) Paleobotany and the evolution of plants Cambridge University Press, New York Cambridge. London.
8 . Sambamurty, A.V.S.S. (2005)Taxonomy of Angiosperms I. K .International Pvt.Ltd., New Delhi
9.Singh, G. (2012). Plant Systematics: Theory and Practice.Oxford& IBH Pvt. Ltd., NewDelhi.12. Simpson, M.G. (2006). Plant Systematics. Elsevier Academic Press, San Diego,CA,U.S.A. Cain, S.A . (1944)Foundations of Plant GeographyHarper& Brothers, N.Y.
10. Mani, M.S (1974)Ecology & Biogeography of IndiaDr. W. Junk Publishers, The Haque

Course Delivery method: Face-to-face / Blended

Course has focus on: Foundation

Websites of Interest:

https://www.youtube.com/watch?v=VA2LNWkZNWo
https://www.youtube.com/watch?v=zDUCacewuAg
https://www.youtube.com/watch?v=sfFDOSM-EuAhttps://www.youtube.com/watch?v=wKNox2weqW4

Co-curricular Activities:

A. Measurable:

1. Collection and identification of Pteridophytes from their native locality/ making an album by collecting photographs of Pteridophytes.
2. Collection and identification of Gymnosperms from their native locality/making an album by collecting photographs of Gymnosperms.
3. Collection of information on famous herbaria in the world and preparation of a report.
4. Collection of information on famous botanic gardens in the world and preparation of a report.
5. Collection of data on plants of ethnic and ethnobotanical importance fromTheir native locality

.

6. Preparation of a local flora by enlisting the plants of their native place.

c. Assignments: Written assignment at home / during '0' hour at college;

Lycopodium - life cycle, Marselia-life cycle, Cycas-life cycle, Gnetum-life cycle, Bentham & Hooker classification, Stelar evolution in Pteridophytes, characteristics of Cycadeoidea, Asteraceae-taxonomy,Asclepiadaceae-taxonomy, Euphorbiaceae-taxonomy, Cucurbitaceae-taxonomy, Principles of phytogeography, Endemism types & causes, Phytogeographic regions of India.

Preparation of charts with drawings, making models etc., on topics included in syllabus. Five kingdom classification, Miller & Urey experiment, Shape and Symmetry of viruses.

B. General:

1. Quiz

Model Question Paper Structure for SEE

Max.: 70 Marks **Min. Pass : 30 Marks**

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Answer all questions

Section-A **(20Marks)**

1. (a) What is meant by heterospory? Justify the advantage of heterospory over homospory CO1, L1

OR

(b) Write about Protocorm and its morphological nature.CO1, L6.

2. (a) Explain the characteristics of Cycadeoidea. CO2, L2.

OR

(b)Enumerate Geological time scale. CO2, L1.

3. (a) Describe ICBN rules for nomenclature. CO3, L2.

OR

(b) Binomial nomenclature

4. (a) Write a note on Angiosperms Phylogeny Group. CO4, L6

OR

Ray florate and dicsflorate

5. (a)Discuss about the Vegetation types in Andhra Pradesh.CO5, L2.

OR

(b)Explain the causes and types of Endemism. CO5, L2.

Section-B

Answer the following questions **5 x 10M = 50Marks**

1. (a) Describe diverse gametophytes present in the *Lycopodium* species. CO1, L2.

(Or) Unit I

(b) What is sporocarp? Describe the structure of *Marselia* Sporocarp. CO1, L2.

2. (a) Describe the anatomy of *Cycas* leaflet. Add a note on xerophytic features ofit. CO2, L2.

(Or) Unit II

(b) Describe the structure of *Gnetum* male and female cones. CO2, L2.

3. (a) What is Natural System of Classification, Bentham and Hooker System ofClassification? CO3, L1.

(Or) Unit III

(b) Describe vegetative and floral characters of Cucurbitaceae. Add a note on andeconomic Importance CO3, L1.

4. (a) Elucidate floral characters of Asteraceae. CO4, L1.

(Or) Unit IV

(b) Describe floral characters of Poaceae. Add a note on economic importance CO4, L1.

5. (a)What is Phytogeography? Explain principles of Phytogeography. CO5, L2.

(Or) Unit V

(b) Explain about Phytogeographic region of India.CO5, L1.

Title of the Paper: **Basics of vascular plants and** Phytogeography
(Pteridophytes, Gymnoperms, Taxonomy of Angiosperms and Phytogeography)

SEMESTER - II	**BOTT21A**	**2022-23**	**B.Sc, B.Z.C,A.B.C**

Total Number of Lecture Hours: 30

Course Prerequisites: Knowledge of Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and Phytogeography studied in intermediate.

Course Description:
This course will provide one with a basic and comprehensive understanding of anatomical structureand functions. Enable the student with depth of topics and helps them to gain an appreciation in theembryology of Angiosperms. On the other hand, importance of understanding plant ecology and biodiversity provides an extensive knowledge to the student.

Course Objectives
1. The study of Pteridophytes
2. The study of Gymnosperms
3. Knowledge of Basic aspects of Taxonomy
4. Study of Systematic Taxonomy
5. Knowledge of Phytogeography

Course Outcomes: At the end of this course, students should be able to:

CO1: Demonstrate the techniques of section cutting, prep aring slides, identifying ofthe material and drawing exact figures.
CO2: Compare and contrast the morphological, anatomical and reproductive featuresof vascular plants.
CO3: Identify the local angiosperms of the families prescribed to their genus andspecies level and prepare herbarium.
CO4: Exhibit skills of preparing slides, identifying the given twigs in the lab anddrawing figures of plant twigs, flowers and floral diagrams as they are.
CO5: Prepare and preserve specimens of local wild plants using h erbariumtechniques.

1. Study/ microscopic observation of vegetative, sectional/anatomical and Reproductive structures of the following using temporary or permanent slides/ specimens/ mounts:

a. Pteridophyta: *Lycopodium* and *Marselia*

b. Gymnosperms: *Cycas* and *Gnetum*

2. Study of fossil specimens of Cycadeoidea and Pentoxylon (photographs /diagramscan be shown if specimens are not available).
3. Demonstration of herbarium techniques.
4. Systematic / taxonomicstudy of locally available plants belonging to the families prescribed in theory syllabus. (Submission of 30 number of Herbarium sheets of wildplants with the standard system is mandatory).
5. Mapping of phytogeographical regions of the globe and India.

Textbook:

1. A text book of Practical Botany-I Ashok Bendra and Ashok kumar
2. Practical manual of College Botany I and II- B.S..Reddy and S.M.Reddy

Course Delivery method: Face-to-face / Blended.**Course has focus on:** Skill Development **Websites of Interest:**

https://youtu.be/RJsOOhws5gI

https://youtu.be/9xtB1G4kISQ

https://youtu.be/2wFN9YmkBOQ

Model Question Paper Structure for SEE

Time: 3hrs. **Max. Marks 40M**

1. Take T.S. of the material 'A' (Pteridophyta), make a temporary slide and justify the identification with apt points.....**8M**
2. Take T.S. of the material 'B' (Gymnosperms), make a temporary slide and justify the identification with apt points.....**8M**
3. Describe the vegetative and floral characters of the material 'C' (Taxonomy of Angiosperms) and derive its systematic position.....**8M**
4. Identify the specimen 'D' (Fossil Gymnosperm) and give specific reasons.....**3M**

1. Locate the specified phytogeographical regions the world / India (E) map supplied to you **2X2=4 M**

2. Record + Herbarium & amp; Field note book **5+4 = 9M**

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Title of the Paper: **Plant Physiology and Metabolism**

Semester: IV

Course Code	**BOTT 41A**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2021-22	Year of Offering: 2021 - 22	Year of Revision: --	Percentage of Revision: -

Course Prerequisites: Knowledge of Plant Physiology and Metabolism at +2 level.

Course Description:

This course will provide one with a basic and comprehensive understanding of plant water relations. Enable the student with depth of topics and helps them to gain appreciation of the mineral nutrition, enzymes and respiration. On the other hand, importance of understanding photosynthesis and photorespiration are also learnt. A part from these the student will be enhanced with the knowledge of nitrogen and lipid metabolism. The course provides a vast knowledge in plant growth development and stress physiology.

Course Objectives

On successful completion of this course, the students will be able to:

1. To understand the plant water relations.
2. To understand the mineral nutrition, enzymes and respiration.
3. To understand the photosynthesis and photorespiration.
4. To understand the nitrogen and lipid metabolism.
5. To understand the plant growth-development and stress physiology.

Course Outcomes:

At the end of this course, students should be able to:

CO1: Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants.

CO2: Evaluate the role of minerals in plant nutrition and their deficiency symptoms, Interpret the role of enzymes in plant metabolism.

CO3: Criticallyunderstand the light reactions and carbon assimilation processes responsible for synthesis of food in plants.

CO4: Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms.

CO5: Evaluate the phytohormones that regulate growth and development in plants, examine the role of light on flowering and explain physiology of plants under stress conditions.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Plant-Water relations** 1. Importance of water to plant life, physical properties of water, diffusion, imbibitions, osmosis. Water potential, osmotic potential, pressure potential. 2. Absorption and lateral transport of water; Ascent of sap 3. Transpiration: stomata structure and mechanism of stomatal movements (K+ion flux). 4. Mechanism of phloem transport; source-sink relationships.	12
II	**Mineral nutrition, Enzymes and Respiration** Essentialmacroandmicromineralnutrientsandtheirroleinplants;symptomsof mineral deficiency Absorption of mineral ions; passive and active processes. Characteristics, nomenclature and classification of Enzymes. Mechanism of enzyme action, enzyme kinetics. Respiration: Aerobic and Anaerobic; Glycolysis, Krebs cycle; electron transport system, Mechanism of oxidative phosphorylation, Pentose Phosphate Pathway (HMPshunt).	12
III	**Photosynthesis and Photorespiration** Photosynthesis:Photosyntheticpigments,absorptionandactionspectra;Reddrop and Emerson enhancement effect Conceptoftwophotosystems;mechanismofphotosyntheticelectrontransport and evolution of oxygen; photo phosphorylation Carbon assimilation pathways (C3, C4 and CAM); Photorespiration-C2 pathway	12
IV	**Nitrogen and lipid metabolism** Nitrogen metabolism: Biological nitrogen fixation– asymbiotic and symbiotic nitrogen fixing organisms. Nitrogenase enzyme system. Lipid metabolism: Classification of Plant lipids, saturated and unsaturated fatty acids. Anabolism of triglycerides, β-oxidation of fatty acids, Glyoxylate cycle.	12
V	**Plant growth-development and stress physiology** Growth and Development: Definition, phases and kinetics of growth. Physiological effect of Plant Growth Regulators(PGRs)- Auxins, Gibberellins, Cytokinins, ABA, Ethylene and Brassino steroids. Physiology of flowering: Photoperiodism, role of phytochrome in flowering. Seed germination and senescence; physiological changes.	12

Textbook:

- Botany–IV(Vrukshasastram-II): Telugu Academy, Hyderabad
- Pandey,B.P. (2013)*CollegeBotany, Volume-III,*S. Chand Publishing, New Delhi

Recommended Reference book:

- Aravind Kumar&S.S. Purohit (1998) *Plant Physiology – Fundamentals and Applications,* Agro Botanica, Bikaner
- Datta, S.C. (2007) *Plant Physiology,* New AgeInternational (P)Ltd., Publishers, New Delhi

Course Delivery method: Face-to-face / Blended.

Course has focus on: Foundation

Websites of Interest:

https://youtu.be/4to_4guDx50

https://youtu.be/j0BN8RfeqD0

https://youtu.be/Uc4lDTd1JXs

https://youtu.be/LVxdoH9MLU4

https://youtu.be/MSsVrzYibI8

https://youtu.be/YoNgSOIsk0A

Co-curricular Activities:

Question and answer session at the end of class.

Observing animations.

Written assignments.

Group Discussion (GD)/ Quiz.

Power Point Presentations.

Model Question Paper Structure for SEE

Max.: 75 Marks **Min. Pass: 30 Marks**

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Section-A

Answer Any Five at least one from each unit **5 x 5M = 25Marks**

1. Identify role of Water potential in plants **CO1L2**
2. Carrier concept**CO2L1**
3. Oxidative phosphorylation**CO2L1**
4. CAM plants **CO3L1**
5. Emerson enhancement effect**CO3L1**
6. Classification of plant lipids **CO4L4**
7. Brassino steroids. **CO5L1**
8. PhytochromeCO5L1

Section-B

Answer the following questions (5 x 10M = 50Marks)

9. (a) Explain osmosis, diffusion and imbibition with the help of experiments.**CO1L2**

or **Unit I**

(b) Explain the various theories on mechanism of stomatal movements.**CO1L2**

10. (a) Define enzymes. Illustrate the properties and structure. Mention the mechanism of enzyme action.**CO2L1**

or **Unit II**

(b) Explain the bio chemical reactions that occur in kreb's cycle.**CO2L1**

11. (a) Explain carbon assimilation how many methods of carbon assimilation are shown by plants explain carbon assimilation in C3 plants.**CO3L1**

or **Unit III**

(b) What is photorespiration? Differentiate photorespiration and respiration in plants? Explain photorespiration.**CO3L1**

12. (a) what is biological nitrogen fixation? Explain types of biological nitrogen fixation.**CO4L2**

or **Unit IV**

(b) what are lipids? Give an account of classification of plant lipids.**CO4L2**

13. (a) What are phyto harmones? Analyse the physiological effects of cytokinines.in plant growth.**CO5L4**

or **Unit V**

(b) What is photo periodism? Distinguish the role of phytochrome in physiology of flowering.**CO5L4**

Title of the Paper: **Plant Physiology and Metabolism (practicals)**

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Course Prerequisites: Knowledge of Plant Physiology and Metabolism at +2 level

Course Description: This course will provide one with a basic and comprehensive skill in understanding plant water relations. Enable the student with depth of topics and helps them to gain appreciation of the mineral nutrition, enzymes and respiration. On the other hand, importance of understanding photosynthesis and photorespiration are also learnt. A part from these the student will be enhanced with the knowledge of nitrogen and lipid metabolism. The course provides a vast knowledge in plant growth development and stress physiology.

Course Objectives:

On successful completion of this course, the students will be able to:

1. To understand the plant water relations.
2. To understand the mineral nutrition, enzymes and respiration.
3. To understand the photosynthesis and photorespiration.
4. To understand the nitrogen and lipid metabolism.
5. To understand the plant growth-development and stress physiology.

Course Outcomes:

At the end of this course, students should be able to:

CO1: Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants.

CO2: Evaluate the role of minerals in plant nutrition and their deficiency symptoms, Interpret the role of enzymes in plant metabolism.

CO3: Critically understand the light reactions and carbon assimilation processes responsible for synthesis of food in plants.

CO4: Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms.

CO5: Evaluate the phyto hormones that regulate growth and development in plants, examine the role of light on flowering and explain physiology of plants under stress conditions.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	Determination of osmotic potential of plant cellsap by plasmolytic method using *Rhoeo* / *Tradescantia* leaves. Calculation of stomatal index and stomatal frequency of a mesophyte and a xerophyte. Determination of rate of transpiration using Cobalt chloride method / Ganong's potomete (at least for a dicot and a monocot). Effect of Temperature on membrane permeability by colorimetric method. Minor experiments– Osmosis, Arc-auxonometer, ascent of sap through xylem, cytoplasmic streaming.	
II	Study of mineral deficiency symptoms using plant material/photographs. Demonstration of amylase enzyme activity and study the effect of substrate and Enzyme concentration. Separation of chloroplast pigments using paper chromatography technique. Demonstration ofPolyphenol oxidase enzymeactivity(Potato tuber orApple fruit)	
III	Anatomyof C3, C4 and CAM leaves Estimation of protein bybiuret method/Lowry method	

Textbook:

1. Taiz, L., Zeiger, E., (2010). Plant Physiology. Sinauer Associates Inc., U.S.A. 5th Edition.
2. Hopkins, W.G., Huner, N.P., (2009). Introduction to Plant Physiology. John Wiley & Sons, U.S.A. 4th Edition.

Recommended Reference book:

1. Bajracharya, D., (1999). Experiments in Plant Physiology- A Laboratory Manual. Narosa Publishing House, New Delhi.

Course Delivery method: Face-to-face / Blended.

Course has focus on: Skill Development.

Websites of Interest:

https://youtu.be/VPwLN6U1spk
https://youtu.be/wBDC8gFuobo
https://youtu.be/Fi33E5sC0To
https://youtu.be/Hc3Mg0Yc7kI
https://youtu.be/IigeZ7PtWQU
https://youtu.be/q50VbVyWy6o
https://youtu.be/ug5p2CRqjDk
https://youtu.be/W56RHxu2Hpc
https://youtu.be/3PYdMaClUmw
https://youtu.be/VyKsT6q1O-s
https://youtu.be/1kTbPx0WFiA

Co-curricular Activities:

Question and answer session at the end of class.
Observing animations.
Written assignments.
Group Discussion (GD)/ Quiz.
Power Point Presentations.

Model Question Paper Structure for SEE

Max. Time: 3Hrs. **Max. Marks: 40**

1. Conduct the experiment **'A'** (Major experiment), write aim, principle, material and apparatus/equipment, procedure, tabulate results and make conclusion. **15M**
2. Demonstrate the experiment **'B'**(Minor experiment), write the principle, Procedure and give inference. **5M**
3. Identify the following with apt reasons. **3x4=12M**

   C. Plant water relations /Mineral nutrition

   D. Plant metabolism

   E. Plant growth and development
4. Record +Viva-voce **5+3=8M**

ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt., A.P. (AUTONOMOUS).

NAAC reaccredited at 'A 'level
Autonomous –ISO 9001-2015 Certified

Title of the Paper: **Cell Biology, Genetics and Plant Breeding**

Course Code	**BOT T42A**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2021-22	Year of Offering: 2017 - 18	Year of Revision: -- 100%	Percentage of Revision: -

Course Prerequisites: Knowledge of Cell Biology, Genetics and Plant Breeding studied in intermediate.

Course Description: This course will provide one with a basic and comprehensive understanding of cell biology. Enable the student with depth of topics and helps them to gain an appreciation in the genetics. On the other hand, importance of understanding plant breeding provides an extensive knowledge to the student.

Course Objectives:

1. Knowledge of Cell Biology.
2. The study of Chromosomes.
3. The study of Mendelian and Non-Mendelian genetics.
4. Study of Structure and functions of DNA.
5. Knowledge of Plant breeding

Course Outcomes: At the end of this course, students should be able to:

CO1: Distinguish prokaryotic and eukaryotic cells and design the model of a cell.
CO2: Explain the organization of a eukaryotic chromosomeand the structure of genetic material.
CO3: Demonstrate techniques to observe the cell and its componentsunder a microscope.
CO4: Discuss the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings.
CO5: Elucidate the role of extra-chromosomal genetic material for inheritance of characters.
Evaluate the structure, function and regulation of genetic material.

CO6: Understand the application of principles and modern techniques inplant breeding.
Explain the procedures of selection and hybridization for improvement of crops.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**The Cell** 1. Cell theory; prokaryotic vs eukaryotic cell; animal vs plant cell; a brief account on ultra-structure of a plant cell. 2. Ultra-structure of cell wall. 3. Ultra-structure of plasma membrane and various theories on its organization. 4. Polymorphic cell organelles (Plastids); ultra structure of chloroplast. Plastid DNA.	12
II	**Chromosomes** 1. Prokaryotic vs eukaryotic chromosome. Morphology of a eukaryotic chromosome. 2. Euchromatin and Heterochromatin; Karyotype and ideogram. 3. Brief account of chromosomal aberrations - structural and numerical changes 4. Organization of DNA in a chromosome (solenoid and nucleosome models).	12
III	**Mendelian and Non-Mendelian genetics** 1. Mendel's laws of inheritance. Incomplete dominance and co-dominance; Multiple allelism. 2. Complementary, supplementary and duplicate gene interactions (plant-based examples are to be dealt). 3. A brief account of linkage and crossing over; Chromosomal mapping - 2 point and 3-point test cross. 4. Concept of maternal inheritance (Corren's experiment on *Mirabilis jalapa*);	12
IV	**Structure and functions of DNA** 1. Watson and Crick model of DNA. Brief account on DNA Replication (Semi-conservative method). 2. Brief account on Transcription, types and functions of RNA. Gene concept and genetic code and Translation. 3. Regulation of gene expression in prokaryotes - Lac Operon.	12
V	**Plant Breeding** 1. Plant Breeding and its scope; Genetic basis for plant breeding. Plant Introduction and acclimatization. 2. Definition, procedure; applications and uses; advantages and limitations of :(a) Mass selection, (b) Pure line selection and (c) Clonal selection. 3. Hybridization – schemes, and technique; Heterosis (hybrid vigour). 4. A brief account on Molecular breeding – DNA markers in plant breeding. RAPD, RFLP.	12

Textbook:

1.Botany – III (Vrukshasastram-I): Telugu Akademi, Hyderabad
2.Pandey, B.P. (2013) *College Botany, Volume-III,* S. Chand Publishing, New Delhi
3.Ghosh, A.K., K.Bhattacharya&G. Hait (2011) *A Text Book of Botany, Volume-III,* New Central Book Agency Pvt. Ltd., Kolkata
4.Chaudhary, R. C. (1996) *Introduction to Plant Breeding,* Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi

Recommended Reference book:

1.S. C. Rastogi (2008)*Cell Biology,*New Age International (P) Ltd. Publishers, New Delhi
2.P. K. Gupta (2002)*Cell and Molecular biology,*Rastogi Publications, New Delhi
3.B. D. Singh (2008) *Genetics,*Kalyani Publishers, Ludhiana
4.A.V.S.S. Sambamurty (2007) *Molecular Genetics,*Narosa Publishing House,New Delhi
5.Cooper, G.M. & R.E. Hausman (2009)*The Cell – A Molecular Approach,* A.S.M. Press, Washington
6.Becker, W.M., L.J. Kleinsmith& J. Hardin (2007)*The World of Cell,* Pearson Education, Inc., New York
7.De Robertis, E.D.P. & E.M.F. De Robertis Jr. (2002)*Cell and Molecular Biology,* Lippincott Williams & Wilkins Publ., Philadelphia
8.Robert H. Tamarin (2002)*Principles of Genetics,*Tata McGraw –Hill Publishing Company Limited, New Delhi.
9.Gardner, E.J., M. J. Simmons & D.P. Snustad (2004)*Principles of Genetics,* John Wiley & Sons Inc., New York
10.Micklos, D.A., G.A. Freyer& D.A. Cotty (2005) *DNA Science: A First Course,* I.K. International Pvt. Ltd., New Delhi

Course Delivery method: Face-to-face / Blended.

Course has focus on:Foundation

Websites of Interest:

https://youtu.be/LFyjJBiltFI
https://youtu.be/hUJZ4X3Hkbw
https://youtu.be/rBkE5SAL7IA

Co-curricular Activities:

Suggested co-curricular activities for Botany Core Course- 5 in Semester-IV:

A. Measurable:

a. Student seminars:

1. Light microscopy: bright field and dark field microscopy.
2. Scanning Electron Microscopy (SEM).
3. Transmission Electron Microscopy (TEM).
4. Mitosis and Meiosis
5. Cell cycle and its regulation.
6. Cell organelles bounded by single membrane.
7. Prokaryotic chromosomes
8. Special types of chromosomes:Polytene, Lamp brush and B-chromosomes.
9. Different forms of DNA.
10. Gene mutations.
11. DNA damage and repair mechanisms.
12. Reverse transcription.
13. Protein structure.
14. Modes of reproduction in plants.
15. Modes of pollination in plants

b. Student Study Projects:

1. Study of mitoticcell cycle in roots of*Alliumcepa*
2. Study of mitoticcell cycle in roots of*Aloe vera*
3. Observation of chromosomal aberrations in *Allium cepa* root cells exposed toindustrial effluent(s).
4. Observation of chromosomal aberrations in *Allium cepa* root cells exposed toheavy metal(s).
5. Observation of polyembryony in *Citrus* spp.and *Mangiferaindica.*

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General:

1. Field visit to Agriculture/Horticulture University/ Research station to observe Plant breeding methods.
2. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course. RECOMMENDED ASSESSMENT OF STUDENTS:

Recommended continuous assessment methods for all courses:

Some of the following suggested assessment methodologies could be adopted. Formal assessment for awarding marks for Internal Assessment in theory.

Formal:

1. Assessment of practical skills
2. Individual and group project reports
3. Seminar presentations

Model Question Paper Structure for SEE

Max.: 75 Marks **Min.Pass: 30 Marks**

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Section-A

Answer Any Five at least one from each unit **5 x 5M = 25Marks**

1. Distinguish the difference between eukaryotic cell and prokaryotic cell. **CO1**, **L4**.
2. Explain the ultra-structure of Chloroplast. **CO1**, **L2**.
3. State the difference between euchromatin and heterochromatin. **CO2**, **L1**.
4. Explain 2-point test cross. **CO2**, **L2**.
5. Describe incomplete dominance. **CO3**, **L2**.
6. Discuss about the semi conservative method of DNA replication. **CO4**, **L6**.
7. What is pure line selection? Explain. **CO5**, **L1**.
8. Elucidate the role of RAPD in molecular breeding. **CO5**, **L2**.

Section-B

Answer the following questions **5 x 10M = 50Marks**

9. (a) Explain ultra structure of plasma membrane. **CO1**, **L2**.
   or **Unit I**
   (b) Explain the ultra structure of cell wall. **CO1**, **L2**.
10. (a) Write a detailed account of chromosomal aberrations. **CO2**, **L6.**
   or **Unit II**
   (b) Describe the organization of DNA in a chromosome (solenoid and nucleosome models).**CO2, L2.**
11. (a) Design a detailed account on Linkage. **CO3, L5.**
   or **Unit III**
   (b) Compose a detailed account on Crossing Over. **CO3, L5.**
12. (a) Discuss about the Watson and Crick model of DNA. **CO4, L6.**
   or **Unit IV**
   (b) Elucidate the regulation of gene expression in prokaryotes - Lac Operon.**CO4, L2.**

13. (a) Develop a note on advantages and limitations of :(a) Mass selection, (b) Pure line selection. **CO5, L3.**
   or **Unit V**
   (b) Explain the process of Hybridization, with respect to the schemes and techniques.**CO5, L2.**

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NAAC reaccredited at 'A' level

Autonomous -ISO 9001 – 2015 Certified

Title of the Paper: **Cell Biology, Genetics and Plant Breeding (practicals)**

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Semester: IV **Credits: 02**

Hours Taught: 30 hrs. Per Semester **Max.Time**: 3 Hours

Course Prerequisites: Knowledge of Cell Biology, Genetics and Plant Breeding studied in intermediate.

Course Description: This course will provide one with a basic and comprehensive understanding of cell biology. Enable the student with depth of topics and helps them to gain an appreciation in the genetics. On the other hand, importance of understanding plant breeding provides an extensive knowledge to the student.

Course Objectives:

1. Knowledge of Cell Biology.
2. The study of Chromosomes.
3. The study of Mendelian and Non-Mendelian genetics.
4. Study of Structure and functions of DNA.
5. Knowledge of Plant breeding.

Course Outcomes: At the end of this course, students should be able to:

CO1: Distinguish prokaryotic and eukaryotic cells and design the model of a cell.
CO2: Explain the organization of a eukaryotic chromosome and the structure of genetic material.
CO3: Demonstrate techniques to observe the cell and its components under a microscope.
CO4: Discuss the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings.
CO5: Elucidate the role of extra-chromosomal genetic material for inheritance of characters.
Evaluate the structure, function and regulation of genetic material.

CO6: Understand the application of principles and modern techniques inplant breeding.
Explain the procedures of selection and hybridization for improvement of crops.

Syllabus

1. Study of ultra-structure of plant cell and its organelles using Electron microscopic Photographs/models.

2. Demonstration of Mitosis in *Allium cepa*/*Aloe vera*roots using squashtechnique; observation of various stages of mitosis in permanent slides.

3. Demonstration of Meiosis in P.M.C.s of *Allium cepa*flower buds using squash technique; observation of various stages of meiosis in permanent slides.

4. Study of structure of DNA and RNA molecules using models.

5. Solving problems monohybrid, dihybrid, back and test crosses.

6. Solving problems on gene interactions (at least one problem for each of the gene interactions in the syllabus).

7. Chromosome mapping using 3- point test cross data.

8. Demonstration of emasculation, bagging, artificial pollination techniques for hybridization.

Course Delivery method: Face-to-face / Blended.

Course has focus on: SkillDevelopment

Websites of Interest:

https://youtu.be/LFyjJBiltFI

https://youtu.be/hUJZ4X3Hkbw

https://youtu.be/rBkE5SAL7IA

Model Question Paper Structure for SEE

Time: 3hrs. **Max. Marks 40M**

1. Make a cytological preparation of given material 'A' (mitosis or meiosis in Onion) by squash technique, report any two stages, draw labelled diagrams and write the reasons. **10M**

2. Solve the given Genetic problem (Dihybrid cross/ Interaction of genes/ 3-point test cross) 'B' and write the conclusions. **10M**

3. Identify the following and justify with apt reasons. **3x4 =12M**
C. Cell Biology (Cell organelle)
D. Genetics (DNA/RNA)
E. Plant Breeding

4. Record + Viva-voce **5 + 3 =8M**

A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE
VUYYURU-521165, KRISHNA Dt., A.P. (Autonomous)

Accredited by NAAC with "A" Grade
2022-23

DEPARTMENT OF ZOOLOGY
MINUTES OF BOARD OF STUDIES
ODD SEMESTER
22-10-2022

Minutes of the meeting of Board of studies in Zoology for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 3:00 pm on 22-10-2022 in the Department of Zoology.

S.No	Name	Designation	signature
1.	**Smt. D.A.Kiranmayee** Head, Department of Zoology A.G&S.G.S Degree College Vuyyuru	Chair person	**D.A.Kiranmayee**
2	Smt. Dr.L.Suseela Bio Sciences & Bio technologyKrishna University Machilipatnam.	University Nominee	Dr.L.Suseela 22/10/22
3.	**Sri Dr.M.Vijay kumar** Head,Department of Zoology SRR & CVR Govt. Degree College, Vijayawada.	Subject Expert	**Dr.M.Vijay kumar**
4.	**Sri Ch. Venkateswaralu,** Head, Department of Zoology, P.B. Siddhartha College, Vijayawada.	Subject Expert	**Ch. Venkateswaralu,**
5.	**Sri.B. Appala Naidu,** Asst. Project Manager, RGCA Manikonda.	Industrialist	**B. Appala Naidu,**
6.	**Smt. K. Padmaja,** Lecturer in Zoology, A.G&S.G.S Degree College Vuyyuru-	Member	**K. Padmaja,**
7	**Smt. Dr.V.Subhashini,** Lecturer in Zoology, A.G & S.G.S Degree College Vuyyuru-	Member	**Dr.V.Subhashini**
8	**Sri.Ch.Chiranjeevi,** P.hd –Research Scholar, Dept.of Botany & Microbiology, Acharya Nagarjuna University Guntur.	Student Represent	**Ch.Chiranjeevi,**

ZOOLOGY

Agenda for B.O.S Meeting.

1. To recommend the syllabi (Theory & Practical), Model question paper for I Semester of IB.Sc (B.Z.C) for the academic year 2022 - 2023.

2. To recommend the syllabi (Theory & Practical), Model question paper for III Semester of II B.Sc (B.Z.C) for the academic year 2022 - 2023.

3. To introduce Skill enhancement course the syllabi (Theory & Practical), Model question paper for VSemester of IIIB.Sc (B.Z.C) for the academic year 2022 - 2023.

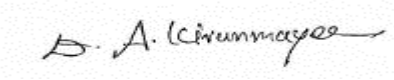
4. To recommend the Blue print for the semester end exam for I, III & V semester of I, II, III B.Sc (B.Z.C) for the academic year 2022 - 2023.

5. Tointroduce LifeSkill Course – Health and Hygiene forII year students in this academic year 2022-23.

6. To introduce Value added course (Theory, Model question paper) for VSemester of III B.Sc(B.Z.C) for the academic year 2022 - 2023.

7. To recommend the teaching and evaluation methods to be followed under Autonomousstatus.

8. Any other matter.



Chairman.

ZOOLOGY- RESOLUTIONS

1. It is resolved to continue the same syllabi (Theory & Practical), model question paper & guide lines to be followed by the question paper setters of Zoology of I semester of I B.Sc. (B.Z.C) under Choice Based Credit System (CBCS) approved by the Academic Council of 2022 – 2023.

2. It is resolved to follow the changedsyllabi (Theory & Practical), model question paper & guide linesto be followed by the question papers under Choice Based Credit System (CBCS) setters of Zoology of III Semester of II B.Sc. (B.Z.C) for approval by the Academic Council of 2022 –2023.The new paper introduced is Cell Biology, Cellular Metabolism, Genetics, Organic Evolution and Animal Behaviour

3. It is resolved to implement the new syllabi & model papers under Choice Based Credit System (CBCS) of Zoology of V semester SEC – 6 (Sustainable Aquaculture Management) and SEC – 7A(Postharvest Technology of fish and Fisheries) of III B.Sc. (B.Z.C) approved by the Academic Council of 2022-2023.

4.It is resolved to continue thesame Blue prints of I, III, &V Semesters of B.Sc Zoology for the Academic year 2022-2023.

5. It is resolved to implement Life Skill Course for II-year students. of III SEM

6. It is resolved to implement Value added Course for III-year studentsof V SEM

7. It is resolved to continue the following teaching & evaluation methods for the year 2022-23.

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. Using of OHP and LCD projector to display on U boards etc; for better understanding of concepts.

Evaluation of a student is done by the following procedure:

- **Internal Assessment Examination:**
- Out of maximum 100 marks in each paper for I ,IIIB.Sc, 30 marks shall be allocated for internal assessment.
- Out of these 30 marks, 20 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the assignment for I, III B.SC.
- Out of maximum 100 marks in each paper for II B.Sc, 25 marks shall be allocated for internal assessment.
- Out of these 25 marks, 15 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5marks allocated on assignment and reaming 5 marks seminar for III semester.There is no pass minimum for internal assessment for I, II, III B.Sc.
- **Semester – End Examination:**
- The maximum mark for I&III (BZC) semester – End examination shall be 70 marks and duration of the examination shall be 3 hours.
- The maximum mark for IIB.Sc semester- End examination shall be 75 marks and duration of the examination shall be 3 hours. Even through the candidate is absent for two IA exams / obtain zero marks the external marks are considered (if the candidate gets 40/70) and the result shall be declared as "PASS"
- Semester – End examination shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of I, III, & V semester for I, II & III B.Sc.
- Discussed and recommended for organizing Value added course, Seminars, Guest lectures, Work – Shops to upgrade the Knowledge of students, for the approval of the Academic Council.

D. A. Viswanayee

- Chairman

ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt., A.P. (AUTONOMOUS).

ALLOCATION OF CREDITS

Year	*Semester*	*Title*	*Teaching hours*	*Internal marks*	*External marks*	*Credits*
I	I	Animal Diversity – I Biology of Non-Chordates	4	25	75	03
		Animal Diversity –Biology of Non-Chordates – Practical - I	2	10	40	02
II	III	Cell Biology, Cellular Metabolism, Genetics, Organic Evolution and Animal Behaviour	4	25	75	03
		Cell Biology, Cellular Metabolism, Genetics, Organic Evolution and Animal Behaviour Practical - III	2	10	40	02
	III	Health and Hygiene	2	10	40	02
III	SEC-6(A) V(501)	**SUSTAINABLE AQUACULTURE MANAGEMENT**	3	30	70	03
		Practical – 501p **SUSTAINABLE AQUACULTURE MANAGEMENT**	3	25	25	02
	SEC-7(A) V(502)	**POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES**	3	30	70	03
		Practical – 502p **POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES**	3	25	25	02
		6B LIVE STOCK MANAGEMENT-I (BIOLOGY OF DAIRY ANIMALS	**3**	**30**	**70**	**3**
		Practical paper-6B Biology of Dairy Animals	**3**	**25**	**25**	**2**
		7B LIVE STOCK MANAGEMENT -II (DAIRY PRODUCTION AND MANAGEMENT)	**3**	**30**	**70**	**3**
		Practical paper-7B Dairy products and management	**3**	**25**	**25**	**2**
		POULTRY MANAGEMENT- I (POULTRY FARMING)	**3**	**30**	**70**	**3**
		POULTRY MANAGEMENT- II (POULTRY PRODUCTION AND MANGEMENT	**3**	**25**	**25**	**2**

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NAAC reaccredited at 'A 'level

Autonomous –ISO 9001-2015 Certified

Title of the Paper: **Animal Diversity Biology of Non – Chordates**

Semester: - I

Course Code	***ZOOT11A***	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours/ Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction: 2021-22	Year of Offering 2021-2022	Year of Revision – 2021-22	Percentage of Revision: 0%

AIM

- To know the biodiversity of invertebrates

LEARNING OBJECTIVES

- To understand the structural organization of animals from Protozoa to Hemichordate
- To understand the evolutionary relationship of different phyla from Protozoa to Hemichordate
- To understand the specific phenomena exhibited by different groups of invertebrates from Protozoa to Hemichordate
- To understand the taxonomic position and affinities of certain groups of invertebrates AsConnecting links
- To study the life cycles, and pathogenicity of certain

PREREQUISITE

- Knowledge of invertebrates acquired in Intermediate

COURSE OUTCOMES

By the end of the course students will be able to

CO 1 Gain knowledge in the fundamental concepts underlying the structural complexity in the organization of invertebrates.

CO 2 Understand biology and pathogenicity of parasites and their adaptations analyse remedial and preventive measures and promote the same in public domain.

CO 3 Appreciate and evaluate the economic, commercial, medicinal and culture importance of invertebrates and their larval stages in relation to phylogeny

CO 4 Describe the significance of connecting links in understanding the concept of evolution

CO 5 Explain the significance of specific phenomena in different group's of invertebrates in relation to their adaptability for survival

CO 6 Comprehend the systems biology of individual phyla with a specific type study and understand the origin and evolutionary relationship of differentphyla and appreciate the uniqueness of individual phyla.

Syllabus
Course Details

Unit	Learning Units	Lecture Hours
I	***PROTOZOA AND PORIFERA*** Introduction to Non-chordates – Origin of metazoans Type study: *Polystomella*(structure and life cycle) Locomotion in protozoans Nutrition in protozoans Type study: *Sycon*(Structure, histology and skeleton) Canal system in sponges	**13**
II	***CNIDARIA AND CTENOPHORA*** Type study: *Obelia*. (Structure – polyp and medusa and life cycle) Polymorphism in cnidarians. Corals and coral reefs Ctenophora (structure and affinities)	**10**
III	***HELMINTHES AND ANNELIDA*** Type study: *Fasciola hepatica* (Structure, reproduction, life cycle and pathogenicity) Parasitic adaptations in helminthes Type study: *Ascarislumbricoides*(Structure, reproduction, life cycle and pathogenicity) Type study: *Hirudineria*(Structure, circulatory, excretory and reproductive systems) Coelom and coelomoducts in annelids	**17**
IV	***ARTHROPODA AND MOLLUSCA*** Structural affinities of Onycophora Type study: *Macrobrachiumrosenbergii*(Structure, appendages and Respiratory system) Economic importance of insects (Beneficial – Lac insect, honey bee, *Bombyxmori*and Lady bird; Harmful – house fly, mosquito, locustand bedbug) Metamorphosis in insects Study of Pearl Oyster and Pearl Formation Torsion in gastropods	**14**
V	***ECHINODERMATA AND HEMICHORDATA*** Water-vascular system Echinoderm larvae *Balanoglossus*- Structure and affinities	**6**

TEXTBOOKS

1. R.L. Kotpal, *Modern Text Book of Zoology - Invertebrates*.
2. P.S. Dhami and J.K. Dhami*Invertebrate Zoology*.

SUGGESTED READINGS

1. L.H. Hyman, '*The Invertebrates' Vol I, II and V*. – M.C. Graw Hill Company Ltd.
2. Ruppert, Fox and Barnes, *Invertebrate Zoology - A Functional Evolutionary Approach* - Thomas Publishers.Indian Edition.
3. E.L. Jordan and P.S. Verma'*Invertebrate Zoology'* S. Chand and Company.
4. R.D. Barnes '*Invertebrate Zoology'* by: W.B. Saunders CO., 1986.
5. Barrington. E.J.W. *'Invertebrate Structure and Function'* by ELBS.
6. Sedgwick. A. *'A Student Text Book of Zoology' Vol-I, II and III* – Central Book Depot, Allahabad.
7. Parker.T.J. &Haswell*'A Text Book of Zoology'* by, W.A., Mac Millan Co.London.

CO-CURRICULAR ACTIVITIES

- Preparation of chart/model of *Elphidium*life cycle
- Visit to Zoology museum or Coral island as part of Zoological tour
- Charts on life cycle of *Obelia*, polymorphism, sponge spicules
- Clay models of canal system in sponges
- Preparation of charts on life cycles of *Fasciola*and*Ascaris*
- Visit to adopted village and conducting awareness campaign on diseases, to people as part of Social Responsibility.
- Plaster-of-Paris or Thermocol model of *Peripatus*
- Construction of a vermicompost in each college, manufacture of manure by students and donating to local farmers
- Models of compound eye, bee hive and terminarium (termitaria) by students
- Visit to apiculture centre and short-term training as part of apprenticeship programme of the govt. of Andhra Pradesh
- Chart on pearl forming layers using clay or Thermocol
- Visit to a pearl culture rearing industry/institute
- Live model of water vascular system
- Phylogeny chart on echinoderm larvae and their evolutionary significance
- Preparation of charts depicting the feeding mechanism, 3 coeloms, tornaria larva etc., of *Balanoglossus*

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I SEMESTER END EXAMINATIONS

PAPER – I **MODEL PAPER*Cours Code: ZOOT11A***
Title of the paper: Animal Diversity Biology of Non – Chordates
(W.E.F 2022-2023)

Time: 3 Hours **Max. Marks: 70**

Answer **ALL**the following questions5X14=70m

1. a) .Explain the different types of nutrition in protozoans. 10M CO5, L2
b)Describe the structure of Polystomella 4M CO 1, L1
OR

c).Explain the different types of canal system in sponges10M CO5, L2
d) List out the different types of cells in sponges 4M CO1, L1

2 . a) Evaluate the process of metagenesis in the life cycle of *Obelia*. 10M CO1, L5
(b) .Describe*Obelia*medusa 4M CO1, L1
OR
c) Evaluate how ctenophores differ structurally from cnidarians. 10M CO1, L5
d) Describe Corals and coral reefs 4M CO1, L1

3.. (a) Describe the life cycle of *Ascarislumbricoides*. 10M CO2, L2
(b) Explain the significance of coelom in annelids 4M CO2, L2
OR
c) Describe the reproductive system of *Hirudinaria*. 10M CO2, L2
d)Explain the Flame cells in *Fasciola hepatica* 4M CO3, L2

4. a) Enumerate the economic importance of insects 10M CO3, L1
b) Explain the process of pearl formation and its significance 4M CO5, L2
OR
c). Describe torsion in gastropods as significant in larval development 10M
CO3, L1
d).Structural affinities of Onycophora4M CO4, L4

5.a) Analyze the functional suitability of water vascular system in echinoderms10M CO5, L4
b) Explain bipinnaria larva in relation to phylogeny 4M CO3 ,L2
OR

c).Examine the structural affinities of *Balanoglossus.*10M CO4, L4
d).*Peripatus*is a connecting link. Analyze4M CO4,L4
.

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PRACTICAL- I (At the end of I Semester)

Title of the paper: Animal Diversity Biology of Non – Chordates

No of Hours: 30 **Credits: 02**
WEF: 2021-2022Course Code: ZOO P11A

LEARNING OUTCOMES:

By the end of the course students will be able to

1. Understand the general characters and classification from Protozoa to Hemichordata
2. Understand the importance of preservation of museum specimens
3. Identify animals based on special identifying characters
4. Understand different organ systems through demo or virtual dissections
5. Maintain a neat, labeled record of identified museum specimens
6. Exhibit the hidden creative talent

COURSE OUTCOMES

CO1 To identify the characteristics and systematic position of protozoans and poriferans PO1, PO2, PO5, PO6, PO7, PSO1

CO2 To identify the characteristics and systematic position of Cnidarians and Helmenthes.PO1, PO2, PO5, PO6, PO7, PSO1

CO3 To identify the characteristics and systematic position of Annelids, Arthropodans and Molluscans. PO1, PO2, PO5, PO6, PO7, PSO1

CO4 To identify the characteristics and systematic position of Echinoderms and hemichordates. PO1, PO2, PO5, PO6, PO7, PSO1

CO5 To understand the various systems of Prawn by Dissecting and Mounting its appendages.PO1, PO2, PO5, PO6, PO7, PSO1

Syllabus
Course Details

Unit	Learning Units
Syllabus	General characters and classification of the following phyla and sub-phyla up to classes withsuitable examples: Protozoa, Porifera, Cnidaria, Platyhelminthes, Nematoda, Annelida,Arthropoda, Mollusca, Echinodermata and Hemichordata.
I	**SPOTTERS** Porífera: *Euspongia, Spongilla, Sycon*. Cnidaria: *Physalia, Velella, Aurelia, Gorgonia, Pennatula.* Annelida: *Nereis, Heteronereis, Aphrodite, Hirudineria.* Arthropoda: *Scylla, Macrobrachium, Scolopendra, Sacculina, Limulus, Scorpion, Peripatus.* Mollusca: *Chiton, Murex, Unio, Sepia, Loligo, Octopus, Nautilus*. Echinodermata: *Asterias, Ophiothrix, Echinus, Clypeaster, Cucumaria, Antedon.* Hemichordata: *Balanoglossus*
II	***SLIDES*** Protozoa: *Elphidium, Paramoecium, Paramoecium* - Binary fission and conjugation,*Vorticella, Entamoebahistolytica, Plasmodium vivax* Porifera: T.S and L.S. of *Sycon*, spicules, gemmule Cnidaria: *Obelia*colony and medusa, Platyhelminthes: *Planaria*, *Fasciola hepatica*, *Fasciola*larval forms (Miracidium,Redia,Cercaria) *Echinococcusgranulosus, Taeniasolium* Nematoda: *Ascarislumbricoides (*male and female), *Ancylostomaduodenale* (male and female), *Dracunculus, Wuchereria* Annelida: Trochophore larva Arthropoda: Mouthparts of housefly, butter fly, male and female *Anopheles* and *Culex*,Crustacean larvae *(*nauplius, mysis, zoea*)* Mollusca: Glochidium larva Echinodermata: Bipinnarialarva Hemichordata: Tornaria larva
III	***DEMONSTRATION OF DISSECTIONS*** 1. Prawn: Nervous system Mounting of statocyst Mounting of appendages 2. Mounting of Insect mouth parts • Animal Album to be submitted at the time of practical examination • Laboratory Record Book to be submitted at the time of practical examination

Suggested Manuals

1. Practical Zoology- Invertebrates S.S.Lal
2. Practical Zoology - Invertebrates P.S.Verma
3. Practical Zoology K.P.Kurl

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I B.Sc. ZOOLOGY PRACTICAL EXAMINATION

Practical - I **Course Code: ZOO P11A**
Title of the paper: Animal Diversity Biology of Non – Chordates

Time: 3hrs. **Max. Marks 40M**

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1. List out the general characters of Phylum ----------. CO1 L1 3 M
2. Identify and draw a neat labeled diagram of nervous system/appendages of prawn. 7M
CO 4 L3 Identification: 1 M
Diagram: 4 M
Labeling: 2 M

2. Prepare a neat mount of statocyst/ mouth parts of cockroach. 5 M
CO4 L3 Mounting: 2 M
Diagram: 1 M
Labeling: 2 M

3. Identify, draw a labeled diagram, classify and write notes on A, B, C, D and E
CO3 L2 5 X 3 = 15 M
A. Protozoa &Porifera
B. Cnidaria& Platyhelminthes
C. Nematoda& Annelida
D. Arthropoda
E. Mollusca, Ecinodermata&Hemichordata

Identification: 1 M
Diagram: ½ M
Classification: ½ M
Comments: 1 M

4. Practical Record Book CO5 L3 5 M

5. VIVA CO6 L5 5M

Total Marks :- 40M

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Title of the Paper: **Cell Biology, Cellular Metabolism, Genetics, Organic Evolution and Animal Behaviour**
Semester: - III

Course Code	***ZOOT31A***	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours/ Week	4	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2017-18	Year of Offering 2021-2022	Year of Revision – 2021-22	Percentage of Revision:100%

COURSE OUTCOMES:

CO1	To understand the basic unit of the living organisms and to differentiate the organisms by their cell structure. Describe fine structure and function of plasma membrane and different cell organelles of eukaryotic cell.
CO2	To understand the history of origin of branch of genetics, gain knowledge on heredity, interaction of genes, various types of inheritance patterns existing in animals
CO3	Acquiring in-depth knowledge on various of aspects of genetics involved in sex determination, human karyotyping and mutations of chromosomes resulting in various disorders
CO4	Understand the central dogma of molecular biology and flow of genetic information from DNA to proteins.
CO5	Understand the principles and forces of evolution of life on earth, the process of evolution of new species and apply the same to develop new and advanced varieties of animals for the benefit of the society

Syllabus
Course Details

Unit	Learning Units	Lecture Hours
I	**Cell Biology :** Electron microscopic structureofanimalcell**.** Structure and functions of Golgi complex, Endoplasmic Reticulum AndLiposome's Structure and functions of Ribosome's and Mitochondria Structure and functions of Chromosomes (Polygene and Lamp brush chromosomes) Structure and functions of Nucleus and its components	**14**
II	**CELLULAR METABOLISM** Bio molecules Carbohydrates - Classification of carbohydrates; Structure of glucose Proteins - Classification of proteins; General properties of amino acids Lipids - Classification of lipids 1 Hour Carbohydrate metabolism – Glycogen metabolism, Gluconeogenesis Protein metabolism-Transamination, Deamination and Urea Cycle	**11**
III	**GENETICS** Gene interactions (lethal genes, Epistasis & Pleiotropy) DNA damage and repair Human karyotyping and amniocentesis Autosomal and allosomal disorders (Klinefelter syndrome, Turner Syndrome,Down syndrome, Phenylketonuria, Alkaptonuria & Sickle cell anaemia)	**11**
IV	**ORGANIC EVOLUTION** Modern synthetic theory of evolution Variations Isolating mechanisms Types of natural selection (directional, stabilizing & disruptive) Artificial selection Speciation – allopatry and sympatry. Microevolution vs. Macroevolution (Example: Darwin finches)	**10**
V	**ANIMAL BEHAVIOUR** Ethology and its branches. Concepts of Ethology (motivation, fixed action patterns, releasers, learning) Biological clocks Biological rhythms (Circadian, Circalunar and Circannular) Sexual behavior in animals (Intra sexual selection & Inter sexual selection) Coloration & Mimicry	**14**

A.G. &S.G.Siddhartha Degree College of Arts & Science, Vuyyuru – 521165, Krishna Dt. A.P. (Autonomous)

Semester III*w.e.f. 2022-2023*
(Model question paper)
Title of the paper:**Cell Biology, Cellular Metabolism, Genetics, Organic Evolution and Animal Behaviour**
Code – ZOOT31A
Time: 3hrs. ***max.marks: 75***

Section – A ***4 x 5= 20.***

Answer any **four** questions. Each question carries **five** marks. Draw neat labeled diagrams wherever necessary.

Draw neat labeled diagrams wherever necessary.

SECTION –A

Answer and **FIVE** of the following **5x5=25 Marks**

1. General properties of amino acids **CO2, L2**
2. Explain Urea Cycle **CO2, L2**
3. Klinefelter syndrome **CO3, L2**
4. Epistasis **CO3, L2**
5. Industrial melanism**CO4, L2**
6. Allopatry and sympatry**CO4, L1**
7. Classical conditioning **CO5, L2**
8. Circadian rhythms **CO5, L2**

SECTION – B

Answer any **FIVE** of the following **5X10=50 Marks**

9. Write electron microscopic structure of animalcell **CO1, L6**

OR

Explain the structure and functions of polytene and lamp brush chromosomes. **CO1, L2**

10. What are Carbohydrates? Write the classification of Carbohydrates. **CO2, L6**

OR

Write an essay on Protein Metabolism. **CO2, L6**

11. Give an account on Gene Interactions. **CO3, L2**

OR

Narrate an essay on autosomal and allosomal disorders. **CO3, L2**

12. Write an essay on Isolating mechanisms. **CO4, L6**

OR

Explain modern synthetic theory of evolution. **CO4, L2**

13. Elucidate the biological rhythms in animals. .**CO5, L1**

OR

Give an account of the types of mimicry in animals. **CO5, L6**

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.Title:-Cell Biology, Cellular Metabolism, Genetics, Organic Evolution and Animal Behaviour.
Code: ZOOP31A
Credits:- (02)
***MAX.MARKS: 40* 2hrs/week)**

SYLLABUS

Learning Objectives:

- Acquainting and skill enhancement in the usage of laboratory microscope
- Hands-on experience of different phases of cell division by experimentation
- Develop skills on human karyotyping and identification of chromosomal disorders
- To apply the basic concept of inheritance for applied research
- To get familiar with phylogeny ad geological history of origin & evolution of animals.

I. CellBiology

1. Preparation of temporaryslides of Mitoticdivisions with onion root tips
2. Observation ofvarious stages of Mitosisand Meiosis using permanent slides
3. Mountingofsalivarygland chromosomes of*Chironomous*

II. Cellular Metabolism

1. Estimation of total proteins in given solutions by Biurette method.
2. Estimation of total carbohydrate byTrinder's method.

III. Genetics

A, B, O blood typing. Problems based on Blood grouping.
Karyotyping of human chromosomes [Human karyotype figure on paper should be cut in to different sets of chromosomes and students are asked to arrange them in an order and comment on the ideogram]
Identification of genetic syndromes given on charts.
Pedigree Analysis

IV. Evolution

1. Study of fossil evidences
2. Study of homology and analogy from suitable specimens and pictures
3. Phylogeny of horse with pictures
4. Darwin finches (pictures)

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PAPER – III

Title: Cell Biology, Cellular Metabolism, Genetics, Organic Evolution and Animal Behaviour

w.e.f.2022-23.

Time:3hrs *Model Question paper (External)*Max.Marks: 40 M.
Paper Code: ZOOP31A

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1. Describe ABO blood typing. Identify the given sample.**CO3,L27M**
Procedure 04
Slide Preparation 02
Result 01

2. In Holstein cattle the spotting of the coat is due to a recessive gene while a solid–coloured coat isdominant. What types of offspring might be produced by a cross between two spotted animals? Show how you reach your conclusion. The gene P is responsible for coat pattern. **CO3,L45M**

3. Identify, draw a labelled diagram and write a comment upon A, B, C, D and E. **5 X 3=15M**
CO1, CO2, CO3, CO4, CO5, L1

A. Down syndrome
B. Parental care in *Hippocampus*
C. Protective colouration in *Octopus*
D. Bee hive
E. *Cedaroid*
Identification 1
Diagram 1
Characters 1

4. Field Note book **03M**

5. Viva **05M**

6. RECORD **05M**

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Title of the Paper:**SUSTAINABLE AQUACULTURE MANAGEMENT**

Semester: - V

Course Code	***ZOO-501***	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours/ Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction: 2022-23	Year of Offering 2022-2023	Year of Revision	Percentage of Revision:100%

LearningOutcomes: -Students at the successful completion of this course will be able to

CO1:Evaluate the present status of aquaculture at the Global level and Nationallevel

CO2:Classify different types of ponds used inaquaculture

CO3:Demonstrate induced breeding ofcarps

CO4:Acquire critical knowledge on commercial importance ofshrimps

CO5:Identify fin and shell fishdiseases

Syllabus
Course Details

Unit	Learning Units	Lecture Hours
I	Present status of Aquaculture – Global and National scenario, Major cultivable species for aquaculture: freshwater, brackish water andmarine. Traditional, extensive, modified extensive, semi-intensive and intensive cultures of fish and shrimp. Design and construction of fish and shrimp farms.	**15**
II	Functional classification of ponds – head pond, hatchery, nurseryponds. Functional classification of ponds -rearing, production, stocking and quarantineponds. Need of fertilizer and manure application in cultureponds. Physio-chemical conditions of soil and water optimum for culture (Temperature, depth, turbidity, light, water, PH, BOD, CO_2 andnutrients)	**15**
III	Induced breeding infishes Culture of Indian major carps:Pre-stocking management (Dewatering,drying, ploughing/desilting; Predators, weeds and algal blooms and their control, Liming andfertilization) Culture of Indian major carps - Stockingmanagement Culture of Indian major carps - post-stockingmanagement	**10**
IV	Commercial importance of shrimp &prawn *Macrobrachiumrosenbergii*- biology, seedproduction. Culture of *L. vannamei* – hatchery technology and culturepractices Mixed culture of fish andprawns.	**10**
V	Viral diseases of Fin Fish & shellfish Fungal diseases of Fin & Shellfish Bacterial diseases of Finfish & Shellfish Prophylaxis inaquaculture	**10**

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SEMESTER-V (Model Question paper)

Paper Title: **SUSTAINABLE AQUACULTURE MANAGEMENT** w.e.f.- 2022-2023

Paper Code: ZOO 501C

Time: 3 hrs.Max.Marks:70

Part – A

Answer **any FOUR** questions out of eight in Part - A. Each question carries five marks. 4X5=20

Part – A

1 .Traditional culture

2Semi-intensive

3.Head pond

4.stockingponds.

5.Predators

6.Liming

7.*Macrobrachiumrosenbergii*

8. Bacterial diseases of Finfish

Part – B

Answer **any FIVE** questions out of eight in Part - B .Each question carries Ten marks. 5X10=50

9. Write an essay on Cultivable species for aquaculture from fresh water brackish water Marinewater.?

10. Write an essay on Design and construction of fish form?

11. Explain about Rearing pond?.

12. Write about water quality and soil characteristics suitable for fish culture?.

13. Give an account of Induced breeding infishes?

14. Write in detail about the post-stockingmanagement.

15. Write an essay on.Seedproduction?

16. Discuss about the Bacterial diseases of Finfish and shell fish?

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SEMESTER-V

Time: 3 hrs

Guide lines to the paper setter

Paper Title:SUSTAINABLE AQUACULTURE MANAGEMENT **Paper Code: ZOO -501C**

Max.Marks:70m.

Note:1.Answer**any FOUR** questions out of eight in Part-A . Each question carries five marks.4X 5 = 20M.

2. Answer any**FIVE** questions out of eight in Part-B . Each question carries 10 marks. 5 X 10 = 50M.

	PART	Unit – I	Unit – II	Unit – III	Unit – IV	Unit – V
5 Marks Questions	**A**	**2**	**2**	**2**	**1**	**1**
10 Marks Questions	**B**	**2**	**2**	**2**	**1**	**1**
Weightage		**30**	**30**	**30**	**15**	**15**

Note: 1. please provide the scheme of valuation for the paper.

2. Question paper should be both in English and Telugu media.

I. References:

1. Pillay TVR &M.A.Dill, 1979. Advances in Aquaculture. Fishing News Books Ltd.,London
2. Stickney RR 1979. Principles of Warm Water Aquaculture. John Wiley & SonsInc.1981
3. Boyd CE 1982. Water Quality Management for Pond Fish Culture. Elsivier Scientific PublishingCompany.
4. Bose AN et.al. 1991. Costal Aquaculture Engineering. Oxford &IBH Publishing Company Pvt.Ltd.

Web Links:

1. http://www.fao.org/fishery/docs/CDrom/FAO_Training/FAO_Training/General/x6708e/x6708e06.htm
2. http://aquaticcommons.org/1666/1/Better-Practice3_opt.pdf
3. https://www.notesonzoology.com/india/fishery/fish-diseases-symptoms-and-control- fishery/871

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PRACTICAL - V

w.e.f. 2022-2023.*Code: ZOO- 501P*MAX.MARKS: 50M

(2hrs/week) Credits: 02

(30 hrs) Sustainable Aquaculture Management

PRACTICAL SYLLABUS

Learning Outcomes: On successful completion of this practical course, student shall be able to:

- · Identify the characaters of Fresh water cultivable species
- · Etimatephysico chemical characateristics of water used for aquaculture
- · Examine the diseases of fin and shell fish
- · Suggest measures to prevent diseases in aquaculture

Practical (Laboratory) Syllabus:

1. Fresh water Cultivable species any (Fin & Shell Fish Specimens – Observation of morphologicalcharacters by observation and drawings)-5

2. Brackish water cultivable species (Fin &Shell fish- Specimens- Observation of Morphological Character by observing drawing) -5

3.Hands on training on the use of kits for determination of water quality in aquaculture (DO,
Salinity, pH, Turbidity- Testing kits to be used for the estimation of various parameters/ Standard procedure can be demonstrated for the same)

4. Demonstration of Hypophysation (Procedure of hypophysation to be demonstrated in the
Practicallab with any edible fish as model)

5. Viral diseases of Fin & Shell Fish (Observation of his to pathological slides / Charts/ Models of viral pathogens in fin/ shell fish – one edible specimen can be used for observation of same in the laboratory)

6.Bacterial diseases of Fin & Shell Fish (Observation of his to pathological slides / Charts/ Models of Bacterial pathogens in fin/ shell fish – One edible specimen can be used for observation of same in the laboratory)

7. Fungal diseases ofFin& Shell Fish (Observation of his to pathological slides / Charts/ Models of Bacterial pathogens in fin/ shell fish – One edible specimen can be used for observation of same in the laboratory)

VI. Lab References

1. Boyd CE 1982. Water Quality Management for Pond Fish Culture. Elsevier Scientific Publishing Company
2.http://www.fao.org/fishery/docs/CDrom/FAO_Training/FAO_Training/General/x6708e/x6708e06.htm
3. http://aquaticcommons.org/1666/1/Better-Practice3_opt.pdf
4. https://www.notesonzoology.com/india/fishery/fish-diseases-symptoms-and-control fishery/871

Web resources suggested by the teacher concerned and the college librarian including reading material

VII. **Co-Curricular Activities**

a) **Mandatory**:*(Student training by teacher in field skills: Total 15 hrs., Lab:10 + field 05)*

1. For Teacher: Training of students by the teacher in laboratory/field fornotlessthan15 hours on Breeding- Induced breeding in carps -hatchery technology of *L. Vennami*-Farming techniques- disease diagnostic techniques—concepts –Demonstration @ any aqua laboratory .

2. For Student: Students shall (individually) visit a Hatchery/Farm/ Aqua diagnostic centerand make careful observations of the process method and implements- protocols and report on thesame in 10 pages hand written Fieldwork/Project work Report.

3.Max marks for Fieldwork/Project work Report: 05

4..Suggested Format for Fieldwork/Project work**:** Title page, student details, index page, details of place visited, observations made, findings and acknowledgements

5. (IE).Unit tests.

b) Suggested Co-Curricular Activities

1. Preparation of Model/Charts of Cultivable species of fin fish shell fish
2. Preparation of Model/Chart of Ideal fish Pond- with the standards prescribed.
3. Observation of aquaculture activities in their area (Observation of any activity related to aquaculture in the vicinity of the college/village)
4. Preparation of Model – charts of Fin /Shell fish Diseases with eco-friendly material.
5. Assignments, Group discussion, Seminar, Quiz, Collection of Material, Video preparation etc., Invited lecture

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PAPER – III

Guide lines for the practical Examiner

W.e.f.2022-2023

Class: III B.Z.C
Paper Title: Paper: Sustainable Aquaculture Management Code: ZOO-501P
.
Credits:(02)Max.Marks: 25 M.

……..

1. Spotters: Identify, draw neat labeled diagram and comment on 5X2=10 m

A, B, C,D & E
2. Estimation of Dissolved Oxygen in given water sample 5m

3.. Procedure of hypophysation4 m

4. Commenton identification and study of Bacterial, viral and fungal diseases in edible fishes 3X2=6m
A,B & C

. **Total -- 25M**

A. G.& S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165
ZOOLOGY PRACTICAL -V
(INTERNAL)
w.e.f. 2022-2023.

(2hrs/week).

Sustainable Aquaculture Management
Code: ZOO-501P.

Max.marks:25M.
Time: 3hrs.

1. Attendance ---------- 5M.
2. Record ---------- 10M.
3. Assignments ----------10M.

Total ------ 25M.

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NAAC reaccredited at 'A 'level
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Title of the Paper:**POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES**

Semester: - V

Course Code	***ZOO-502***	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours/ Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2022-23	Year of Offering 2022-2023	Year of Revision	Percentage of Revision: 100%

Objective of the course To prepare students to become future aqua culturists.

CO 1	Identify the types of preservation methods employed in aquaculture
CO 2	Choose the suitable processing methods in aquaculture
CO 3	They can earn while they learn
CO 4	Maintain the standard quality control protocols laid down in aqua industry
CO 5	Identify the best Seafood quality assurance system

Syllabus
Course Details

Unit	Learning Units	Lecture Hours
I	**Handling and Principles of fish Preservation** Handling of fresh fish, storage and transport of fresh fish, post mortem changes (rigor mortis and spoilage), spoilage in marine fish and freshwater fish. Principles of preservation – cleaning, lowering of temperature, rising of temperature, denudation, use of salt, use of fish preservatives, exposure to low radiation of gamma rays.	**15**
II	**Methods of fish Preservation** Traditional methods - sun drying, salt curing, pickling and smoking. .Advanced methods – chilling or icing, refrigerated sea water, freezing, canning, irradiation and Accelerated Freeze drying (AFD).	**08**
III	**Processing and preservation of fish and fish by-products** Fish products – fish minced meat, fish meal, fish oil, fish liquid (ensilage), fish protein concentrate, fish chowder, fish cake, fish sauce, fish salads, fish powder, pet food from trash fish, fish manure. Fish by-products – fish glue, Using glass, chitosan, pearl essence, shark fins, fish Leather and fish maws.	**17**
IV	**Sanitation and Quality control** Sanitation in processing plants - Environmental hygiene and Personal hygiene in processing plants. Quality Control of fish and fishery products – pre-processing control, control during processing and control after processing.	**08**
V	**Quality Assurance, Management and Certification** Seafood Quality Assurance and Systems: Good Manufacturing Practices (GMPs); Good Laboratory Practices (GLPs); Standard Operating Procedures (SOPs); Concept of Hazard Analysis and Critical Control Points (HACCP) in seafood safety. National and International standards – ISO 9000: 2000 Series of Quality Assurance System, *Codex Aliment Arius*.	**12**

A.G& S.G.S.DEGREECOLLEGE OF ARTS & SCIENCE, VUYYURU – 521165, KRISHNA Dt.,A.P. (AUTONOMOUS)

SEMESTER-V (Model Question paper)

Paper Title: **POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES** w.e.f.- 2022-2023

Paper Code: ZOO 502

Time: 3 hrs.Max.Marks:70 m.

Part – A

Answer **any FOUR** questions out of eight in Part - A. Each question carries five marks. 4X5=20

Part – A

1.Post mortem changes

2 Cleaning,

3.Sun drying,

4.Canning,

5.Chitosan

6.Pre-processing control,

7.Good Manufacturing Practices

8. *Codex Aliment Arius*.

Part – B

Answer **any FIVE** questions out of eight in Part - B .Each question carries Ten marks. 5X10=50

09. Give a detailed account on handling of fresh fish and storage fish

10. Describe the processes principles of preservation

11. Explain Traditional methods of fish drying

12. Explain any four fish products?

13. Describe any four fish by products?

14. Give a detailed note on sanitation in processing plant.

15. Describe the process of quality control in processing plants

16. Write about National and International standards for quality control. ?

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SEMESTER-V

Time: 3 hrs

Guide lines to the paper setter

Paper Title:POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES **Paper Code: ZOO -502**

Max.Marks:70m

*Note:*1.Answer**any FOUR** questions out of eight in Part-A . Each question carries five marks.4X 5 = 20M.

2. Answer any**FIVE** questions out of eight in Part-B . Each question carries 10 marks. 5 X 10 = 50M.

	PART	Unit – I	Unit – II	Unit – III	Unit – IV	Unit – V
5 Marks Questions	**A**	**2**	**2**	**1**	**1**	**2**
10 Marks Questions	**B**	**2**	**1**	**2**	**2**	**1**
Weightage		**30**	**20**	**25**	**25**	**20**

Note: 1. please provide the scheme of valuation for the paper.

2. Question paper should be both in English and Telugu media.

III. References:

1. Santharam R, N Sukumaran and P Natarajan 1987. A manual of aquaculture, Oxford-IBH, NewDelhi

2. Lakshmi Prasad's, Fish Processing Technology 2012, Arjun Publishing House 3. Dr Sunitha Rai, Fish Processing Technology, 2015, Random Publications 4. Safety and Quality Issues in Fish Processing (Woodhead Publishing Series in Food Science, Technology and Nutrition)by H A Bremner

5. K.A Mahanthy, Innovations in Fishing and Fish Processing Technologies, January 2021 Web Resources:

1. http://ecoursesonline.iasri.res.in/mod/page/view.php?id=145743
2. https://ecourses.icar.gov.in/e-Leaarningdownload3_new.aspx?Degree_Id=03

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt.,A.P. (AUTONOMOUS)

PRACTICAL - V

w.e.f. 2022-2023.*Code: ZOO- 502P*MAX.MARKS: 50.

(2hrs/week)POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES Credits: 02

(30 hrs) PRACTICAL SYLLABUS

Learning Outcomes:

On successful completion of this practical course, student shall be able to:

- Identify the quality of aqua processed products.
- Determine the quality of fishery by products by observation.
- Analyze the protocols of aqua processing methods.

PracticalSyllabus:

1. Evaluationoffish/fisheryproductsfororganoleptic, chemicalandmicrobial quality.
2. Preparation of dried, cured and fermented fish
3. Examinationofsalt,protein,moistureindried/cured products
4. Examinationofspoilage ofdried/curedfishproductsmarinades,pickles, sauce.
5. Preparationofisinglass, collagen andchitosanfromshrimpandcrabshell.
6. Developingflowchartsandexercisesinidentificationofhazards–preparationof Hazardanalysisworksheet
7. Correctiveactionprocedures inprocessingoffish-flowchart-worksheetpreparation.

References:

Balachandran KK. 2001. *Post-harvest Technology of Fish and Fish Products*. Daya Publ.

2. Bond, et al. 1971. *Fish Inspection and Quality Control.*Fishing News Books, England.

Websites of Interest:

Https://www.youtube.com/watch?v=xyf_g7fku-4

https://www.youtube.com/watch?v=bvtqb_ccmy4

Co-Curricular Activities

a) Mandatory: *(Lab/field training of students by teacher (lab 10 + field 05):* 1. For Teacher: Training of students by the teacher in laboratory/fieldfornotlessthan15hourson various steps of post-harvest techniques of fishes, on the advanced techniques in post-harvest technology – Training of students on other employability skills in the Post-harvest sector of Aquaculture Industry- like Processing, Packing, marketing of processed aqua products. 2. For Student: Students shall (individually) visit - Any fish/shrimp Processing Plant/Packing industry and make observations on post harvesting techniques and submit a brief handwritten Fieldwork/Project work Report with pictures and data /survey in 10 pages.

3. Max marks for Fieldwork/Project work Report: 05.

4. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, details of place visited, observations made, findings and acknowledgements*

5. (IE): Unit tests,

b) Suggested Co-Curricular Activities

1. Observation of fish/shrimp processing plants – visit web sites of processing companies and record the details of that Unit
2. Interaction with local fishermen to know the method of preservation and details with the available traditional technology
3. Collection of web resources on the Quality assurance, quality control measures in Aqua Industries-cross checking the standards during the visit to any processing units. 4. Assignments, Seminar, Group discussion. Quiz, Collection of Material, Invited lecture, Video preparation etc.,

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PAPER – III

Guide lines for the practical Examiner

W.e.f.2022-2023

Class: III B.Z.C
Paper Title: Paper: ***POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES*** Code: ZOO-502P
.
Credits:(02)Max.Marks: 25 M.

……..

1. Evaluation of fish/fishery products for organoleptic and microbial quality. 6m
2. Preparation of dried and fermented fish 4m
3 Examination of salt in dried fish products 5m
4 Examination of spoilage of cured fish pickles . 5m
5 Preparation of isinglass shrimp and crab shell. 5m

Total -- 25M

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ZOOLOGY PRACTICAL -V
(INTERNAL)
w.e.f. 2022-2023.

(2hrs/week).

Title:-***POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES***
Code: ZOO-502P.

Max.marks:25M.
Time: 3hrs.

1. Attendance ---------- 5M.
2. Record ---------- 10M.
3. Assignments ----------10M.

Total ------ 25M.

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Title of the Paper:**Health and Hygiene**

Semester: - III

Course Code	***LSCZOOT01***	Course Delivery Method	Class Room/Blended Mode - Both
Credits	2	CIA Marks	00
No. of Lecture Hours/ Week	10	Semester End Exam Marks	50
Total Number of Lecture Hours		Total Marks	50
Year of Introduction :	Year of Offering 2022-2023	Year of Revision – 2021-23	Percentage of Revision: 0%

LIFE SKILL COURSE	Course code: LSCZOOTO1	***2022-2023***	**BA, B. Com (G), B.Com e-commerce,B.Com-Computers, A.B.C.,& B.Z.C**

Learning Outcomes:

- To provide knowledge on different health indicators and types of hygienemethods
- To impart knowledge on different health care programmes taken up byIndia
- To make student understand the latest concepts of health such as HIA, EIA, SIAand SEA
- To enable student with disaster mitigationstrategies
- To create awareness on community health andhygiene
- To enrich knowledge on communicable and non-communicable diseases and their control
- To aware the student on the importance of food, social strategies, mental status and physical activities onhealth
- To introduce different community-based mobile apps on health to student and thereby to thecommunity

Course Outcomes: On completion of this course, the students will be able to understand -

- What is a healthydiet
- How can we use available information to optimize ourdiet?
- Can nutrition be used for a healthylife?
- Is there a one-size-fits-all "good" diet or should we individualize our dietarygoals?
- Disaster management and responsiveness of public in pandemic and epidemic diseases
- Assess the impact of policies on health and hygiene Health measures to consider
- While travelling
- Awareness in public through digital media viz., mobileapps

Syllabus Course Details

Unit	Learning Units	Lecture Hour
I	**BasicsofNutrition** Nutrition – definition, importance, Good nutrition and mal nutrition; BalancedDiet: Basics of MealPlanning Carbohydrates –functions, dietary sources, effects ofdeficiency. Lipids –functions, dietary sources, effects ofdeficiency. Proteins –functions, dietary sources, effects ofdeficiency. Brief account of Vitamins- functions, food sources, effects ofdeficiency, Macro and micro minerals –functions, effects of deficiency; food sources of Calcium, Potassium and Sodium; food sources of Iron, Iodine andZinc Importance of water– functions, sources, requirement and effects ofdeficiency.	10
II	**Health** Health - Determinants of health, Key Health Indicators, Environment health & Public health; Health-Education: Principles andStrategies Health Policy & Health Organizations: Health Indicators and National Health Policy of Govt. of India-2017; Functioning of various nutrition and health organizations in India viz., NIN (National Institution of Nutrition), FNB (Food and Nutrition Board), ICMR (Indian Council of Medical Research), IDA (Indian Dietetics Association),WHO-India, UNICEF-India National Health Mission: National Rural Health Mission (NRHM) Framework, National Urban Health Mission (NUHM)Framework Women & Child Health Care Schemes: Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+); Janani Shishu Suraksha Karyakaram (JSSK); Rashtriya Bal SwasthyaKaryakram(RBSK); India Newborn Action Plan (INAP); AdolecentHeatlh-Rashtriya Kishor SwasthyaKaryakram(RKSK) Disaster Management – Containment, Control and Prevention of Epidemics and Pandemics – Acts, Guidelines and Role of Government andPublic.	**10**
III	**Hygiene** Hygiene – Definition; Personal, Community, Medical and Culinary hygiene; WASH (**WA**ter, **S**anitation and **H**ygiene)programme Rural Community Health: Village health sanitation & Nutritional committee (Roles & Responsibilities); About Accredited Social Health Activist (ASHA); Village Health Nutrition Day, Rogi KalyanSamitis Community & Personal Hygiene: Environmental Sanitation and Sanitation in Public places Public Awareness through Digital Media - An Introduction to Mobile Apps of Government of India: NHP, Swasth Bharat, No More Tension, Pradhan Mantri SurakshitMantritva Abhiyan (PM Suman Yojana), My Hospital (Meraaspataal), India fights Dengue, JSK Helpline, Ayushman Bhava, Arogya Setu, Covid19AP	**10**

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Semester –III
w.e.f. 2022-2023Time: 90 mins (Model question paper)

Title of the paper:Health and HygieneCode – LSCZOOT01
max.marks: 40

Section – A

Answer any **four** questions. Each question carries **five** marks. ***2 x 5= 10.***

1. Balanced Diet
2. Vitamins
3. ICMR
4. Village Health Nutrition Day

Section – B

Answer any **three** questions. Each question carries **Ten** marks. ***3 x 10 =30***

5. Define Nutrition and write it's importance?

6. What are Carbohydrates, write itsfunctions, dietary sources, effects ofdeficiency.

7. Define Health Explainthe Determinants of health. ?

8. Write an essay on National Institution of Nutrition (NIN)?

9. Write an essay onCommunity & Personal Hygiene?

10. Give an accountPradhanMantri SurakshitMantritva Abhiyan (PM Suman Yojana)?

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SEMESTER-III
SKILL DEVELOPMENT COURSE

Guide lines to the paper setter **Time: $1^{1}/_{2}$ hrs**
Max.Marks:40

Paper Title: Health and Hygiene ***Code – LSCZOOT01-***.

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*Note:*1. Answer **any four** questions out of eight in Part-A. Each question carries five marks.2X 5 = 10M.

2. Answer any**three** questions out of five in Part-B. Each question carries 10 marks.3 X 10 = 30M.

	PART	**Unit –I**	**Unit – II**	**Unit-III**
5 Marks Questions	**A**	**2**	**1**	**1**
10 Marks Questions	**B**	**2**	**2**	**2**
Weightage		**30**	**35**	**25**

Note: 1. please provide the scheme of valuation for the paper.

2. Question paper should be both in English and Telugu media.

ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU

An Autonomous College in the Jurisdiction of Krishna University, Machilipatnam

NAAC reaccredited at 'A 'level

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BOARD OF STUDIES MEETING FOR B.SC. BZC2022-2023 II& IV&VI SEMESTERS

25th March 2023

DEPARTMENT OF ZOOLOGY

AG& SG Siddhartha Degree College of Arts & Science
Vuyyuru

2022-2023

Minutes of the meeting of Board of studies in Zoology for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 10:00 am on 25-03-2023 in the Department of Zoology.

Smt.D.A. Kiranmayee. ... Presiding

Members Present:

1) ..... **(Smt. D.A.Kiranmayee.)**	Chair person	Head, Department of Zoology, A.G&S.G.S Degree College of Vuyyuru-521165.
2)..... **(Smt. Dr.L.Suseela.)**	University Nominee	Bio Sciences & Bio technology Krishna University Machilipatnam.
3)...M.Vijay..... **(Sri Dr.M.Vijay kumar.)**	Academic Council Nominee	Head, Department of Zoology, SRR & CVR Govt. Degree College, Vijayawada.
4)..... **(Sri Ch. Venkateswaralu.)**	Academic Council Nomine	Head, Department of Zoology, P.B. Siddhartha College, Vijayawada.
5)..... **(B. Appala Naidu.)**	Industrialist	Principle Scientific Officer, RGCA Manikonda.
6)...K.padma..... **(Smt. K. Padmaja.)**	Member	Lecturer in Zoology, A.G&S.G.S Degree College Vuyyuru-521165.
7).....V.Subhashini..... **(Smt. Dr.V.Subhashini.)**	Member	Lecturer in Zoology, A.G&S.G.S Degree College Vuyyuru-521165.
8)..... **(Ch.Chiranjeevi.)**	Student Represent	P.hd –Research Scholar, Dept.of Botany & Microbiology, Acharya Nagarjuna University, Guntur.

ZOOLOGY

Agenda for B.O.S Meeting.

1. To recommend the syllabi (Theory & Practical), Model question paper for II Semester of IB.Sc (B.Z.C) for the academic year 2022 - 2023.

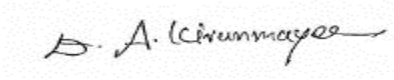
2. To recommend the syllabi (Theory & Practical), Model question paper for IV Semester of II B.Sc (B.Z.C) for the academic year 2022 - 2023.

3. To recommend the Blue print for the semester end exam for II&IV semester of I &IIB.Sc (B.Z.C) for the academic year 2022 - 2023.

4. Tointroduce SkillDevelopment Course –Poultry Farming for I year students in thisacademic year 2022-23.

5. To recommend the teaching and evolution methods to be followed under Autonomousstatus.

6. Any other matter.



Chairman.

ZOOLOGY- RESOLUTIONS

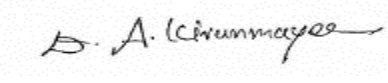
1. It is resolved to continue the same syllabi (Theory & Practical), model question paper &guide lines to be followed by the question paper setters of Zoology of II semester of I B.Sc. (B.Z.C) under Choice Based Credit System (CBCS) to be approved by the Academic Council of 2022 – 2023.
2. It is resolved to implement new paper for IV SEM of II B.Sc. BZC as approved by BOS members. The paper title is Embryology, Animal Physiology and Animal Ecology. It is resolved to continue the same syllabus for the IV SEM of II B.Sc. BZC in 402 paper.
3. It is resolved to Continue thesame Blue prints of II&IV Semestersof B.Sc Zoology for the Academicyear 2022-2023.
4. It is resolved to implement SkillDevelopment Course for I year students in Poultry farming.
5. It is resolved to continue the following teaching & evaluation methods for the Academic year 2022-23.
6. In VI Sem there is 3 months Internship for III BZC students

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. Using of OHP and LCD projector to display on U boards etc; for better understanding of concepts.

Evaluation of a student is done by the following procedure:

- **Internal Assessment Examination:**
- Out of maximum 100 marks in each paper for IB.Sc, 30 marks shall be allocated for internal assessment.
- Out of these 30 marks, 20 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the assignment for I B.SC.
- Out of maximum 100 marks in each paper for II B.Sc, 25 marks shall be allocated for internal assessment.
- Out of these 25 marks, 15 marks are allocated for announced tests (i.e .IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks allocated on assignment andreaming 5 marks seminar for IV semester.
- **Semester – End Examination:**
- The maximum mark for I (BZC) semester – End examination shall be 70 marks and duration of the examination shall be 3 hours.
- The maximum mark for IIB.Sc semester- End examination shall be 75 marks and duration of the examination shall be 3 hours. Even through the candidate is absent for two IA exams / obtain zero marks the external marks are considered (if the candidate gets 40/70) and the result shall be declared as "PASS"
- Semester – End examination shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of I & IV semester for I &II B.Sc.
- Discussed and recommended for organizing Seminars, Guest lectures, Work – Shops to upgrade the Knowledge of students, for the approval of the Academic Council.



Chairman

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❖ ALLOCATION OF CREDITS

❖ For the Papers offered during II&IV Semesters

Year	Semester	Title	Teaching hours	Internal marks	External marks	Credits
I	II	Animal Diversity Biology of Chordates	4	30	70	03
		Practical – II	2	10	40	02
	II	Poultry farming	2	15	35	02
II	IV	Embryology, Physiology, & Ecology	4	25	75	03
		Practical – IV	2	10	40	02
		Immunology & Animal Biotechnology	4	25	75	03
		Practical – V	2	10	40	02
III	VI	VIII	SEMESTER INTERNSHIP			

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Title of the Paper: **Animal Diversity Biology of Chordates**

Semester: - II

Course Code	ZOOT21A	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours/ Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2021-22	Year of Offering 2021-2022	Year of Revision – 2021-22	Percentage of Revision: 0%

Course Objectives:

- To understand the structural organization of animals of prochordates and cyclostomes.
- To understand the type study belonging to Pisces.
- To understand type study belonging to amphibian.
- To understand the type study belonging to reptilia and identification of piousness snakes.
- To understand the type study belonging to Aves and Aquatic mammals.

Course Outcomes:

CO1	Gain knowledge in the major Chordate groups, describe their salient features,appreciate the diversity and analyze the uniqueness of different groups.
CO 2	Understand the fundamental organization of chordates and evaluate the similarities and differences among the different groups of chordates in the light o evolutionary significance.
CO 3	Comprehend and compare the morphology and anatomy of different classes ofchordates and apply the same to their fitness in the ecological habitats
CO 4	Develop the skill of identifying the vertebrate fauna in general and South Indianfauna in specific.
CO 5	Acquaint with the significance of unique mechanisms and behavioral patternsexhibited by different groups of chordates.

Syllabus

Unit	Learning Units	Lecture Hours
I	UNIT I 1.0. Protochordates to cyclostomes 1.1. Protochordates 1.1.1 Salient features of UrochordataandCephalochordata 1.1.2. Structure and life-history of *Herdmania*, 1.1.3. Significance of retrogressive metamorphosis. 1.2. General organization of vertebrates 1.3. General characters of cyclostomes 1.4. Comparison of *Petromyzon*and*Myxine*1 hour	8 hrs
II	UNIT II 2.0 Fishes 2.1. Type study – *Scoliodon* - Morphology, respiratory, circulatory, excretory and nervous systems and sense organs. 2.2. Migration in fishes. 2.3. Viviparity in fishes 2.4. Types of scales 2.5. Accessory respiratory organs in fishes	13 HOURS
III	UNIT III 3.0. Amphibia 3.1. South Indian Amphibians. 3.2. Type study - *Rana*: Morphology, digestive system, respiratory system circulatory system,excretory system, nervous system and reproductive system 3.3. Parental care in amphibians	11 HOURS
IV	UNIT IV 4.0. Reptilia 4.1. South Indian Chelonians. 4.2. Type study – *Calotes*: Morphology, digestive, respiratory, circulatory, urinogenital and nervous systems. 4.3. Identification of poisonous snakes	11 HOURS
V	UNIT V 5.0. Aves and Mammalia 5.1. Aves 5.1.1 Birds as Glorified Reptiles. 5.1.2. Type study-Pigeon (*Columbialivia*): Exoskeleton, respiratory, circulatory and excretory systems 5.1.3. Significance of migration in birds 5.1.4. Flight adaptations in birds 5.2. Mammalia 5.2.1. Aquatic Mammals 5.2.2. Dentition in Mammals.	17 HOURS

Textbooks
1. R.L. Kotpal, *Modern Text Book of Zoology - Invertebrates*.
2. P.S. Dhami and J.K. Dhami*Invertebrate Zoology*.

Recommended Reference book:
Suggested Readings
1. E.L.Jordan and P.S. Verma'*Chordate Zoology'* -. S. Chand Publications.
2. Mohan P.Arora. '*Chordata – I*, Himalaya Publishing House Pvt.Ltd.
3. Marshal, Parker and Haswell'*Text book of Vertebrates*'. ELBS and McMillan, England.
4. Alfred Sherwood Romer. Thomas S. Pearson '*The Vertebrate Body*, Sixth edition, CBS college Publishing, Saunders College Publishing
5. George C. Kent, Robert K. Carr. *Comparative Anatomyof the Vertebrates*, 9th ed. McGraw Hill.
6. Kenneth Kardong*Vertebrates: Comparative Anatomy, Function and Evolution*, 4thed, 'McGraw Hill.
7. J.W. Young, *The Life of Vertebrates*, 3rded, OxfordUniversity press.
8. Harvey Pough F, Christine M. Janis, B. Heiser, *Vertebrate Life*, Pearson, 6thed, Pearson Education Inc.2002.

Course Delivery method: Face-to-face / Blended.
Course has focused on: Foundation

Websites of Interest:

https://www.youtube.com/watch?v=-mcfPHd_sH8https://www.youtube.com/watch?v=U8F9IzuwdzQhttps://www.youtube.com/watch?v=jhXqIy49YEw
https://www.youtube.com/watch?v=ywD50XyayFk

Co-curricular Activities:
- Preparation of charts on Chordate classification (with representative animal photos) and retrogressive metamorphosis
- Thermocol or Clay models of Herdmania and Amphioxus
- Visit to local fish market and identification of local cartilaginous and bony fishes
- Maintaining of aquarium by students
- Thermocol model of fish heart and brain
- Preparation of slides of scales of fishes
- Visit to local/nearby river to identify migratory fishes and prepare study notes
- Preparation of Charts on topics by students (Eg: comparative account of vertebrate heart/brain/lungs, identification of snakes etc.)
- Collecting and preparation of Museum specimens with dead frogs/snakes/lizards etc., and/or their skeletons
- Additional input on types of snake poisons and their antidotes (student activity).
- Collection of bird feathers and submission of report on Plumology
- Taxidermic preparation of dead birds for Zoology Museum
- Map pointing of prototherian and metatherian mammals
- Chart preparation for dentition in mammals

D.A. Kiranmayee
Signature of the Course In-charge

D.A. Kiranmayee
Signature of the Program In-charge

Signature of the HOD

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II SEMESTER END EXAMINATIONS

PAPER – IIMODEL PAPERCours Code: ZOOT21A

Title of the paper: Animal Diversity Biology of Chordates

(W.E.F 2022-2023)

Time: 3 Hours **Max. Marks: 70**

Draw neat labelled diagrams wherever necessary.

SECTION –A (20M)

Answer all Questions

(Restrict to maximum of 2 sub divisions)

1. i. Describe the structure of *Herdmania*– CO1 L2 4M

(Or)

ii. Enumerate the general characters of Cephalochordata – CO1 L1 4M

2. i. Explain the different types of Scales in fishes –CO2 L2 4M

(Or)

ii. Explain Viviparity in fishes – CO2, L2 4M

3. i. Describe the southindian amphibians– CO3, L2 4M

(Or)

ii. Describe the ventricles of brain of frog – CO3, L24M

4. i. Distinguish between poisonous and non-poisonous snakes – CO4, L2 4M

(Or)

ii. Describe the functions of brain of calotes- CO4, L2 4M

5. i. explains the structure of tooth. CO5, L2 4M

(Or)

ii. Describe the structure of quill feather. CO5, L2 4M

SECTION – B(50M)

Answer all Questions

(Restrict to maximum of 2 sub divisions)

6.i. What is meant by Retrogressive Metamorphosis? Apply the phenomenon with reference tothe development of *Herdmania* – CO1, L3 10M

(Or)

ii. Enumerate the General characters of Cyclostomes – CO1 L3 10M

7. i. Describe the Respiratory system in *Scoliodon*– CO2, L2 10M

(Or)

ii. Explain the significance of Accessory respiratory organs –CO2, L2 10M

8. i. Describe Respiratory system in *Rana*– CO3, L2 10M

(Or)

ii. Discuss Parental Care in Amphibians – CO3 L2 10M

9. i. Explain about the South Indian Chelonians – CO4, L2 10M

(Or)

ii. Describe the structure and working of heart of *Calotes*- CO4, L2 10M

10. i. Describe the Respiratory system in Pegion – CO5, L2 10M

(Or)

ii. Explain about the Aquatic Mammals – CO5, L2 10M

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PRACTICAL- II (At the end of II Semester)

Title of the paper: Animal Diversity -Biology of Chordates

No of Hours: 30 **Credits: 02**
WEF: 2022-2023Course Code: ZOOP21A

LEARNING OUTCOMES:
By the end of the course students will be able to
1. to Understand the general characters and classification from Pisces to Mammalia
2. to Understand the importance of preservation of museum specimens
3. to Identify chordates based on special identifying characters
4. to Understand different organ systems through demo or virtual dissections
5. to Maintain a neat, labeled record of identified museum specimens
6. to Exhibit the hidden creative talent

COURSE OUTCOMES:

CO1	To identify the systematic position of Protochordata, Cyclostomata and Pisces. PO1, PO2, PO5, PO6, PO7, PSO1
CO2	To identify the systematic position of Amphibians and Reptiles. PO1, PO2, PO5, PO6, PO7, PSO1
CO3	To identify the systematic position of Aves and mammals. PO1, PO2, PO5, PO6, PO7. PO1, PO2, PO5, PO6, PO7, PSO1
CO4	To Study the Appendicular skeleton of Varanus, Gallus and Oryctolagus. PO1, PO2, PO5, PO6, PO7, PSO1
CO5	To understand the various systems of Fish by Dissecting and process of Mounting the scales of Fish. PO1, PO2, PO5, PO6, PO7, PSO1

SYLLABUS

General characters and classification of the following phyla and sub-phyla up to classes with suitable examples: Pisces (up to subclass only), Amphibia (up to orders), Reptilia (up to orders), Aves (up to subclass only) and Mammalia (up to infraclass only).

I. SPECIMENS.

1. Protochordata: Herdmania, Amphioxus.
Slides: Amphioxus T.S through pharynx.
2. Cyclostomata: Petromyzon, Myxine.
3. Pisces: Pristis, Torpedo, Channa, Pleuronectes, Labeo, Catla, Hippocampus, Exocoetus, Echeneis, Clarias, Anguilla.
Slides: Fish scales.
4. Amphibia: Ichthyophis, Amblystoma, Siren, Axolotl larva, Hyla, Rhacophorus.
5. Reptilia: Trionyx, Testudo, Draco, Chamaeleon, Uromastix, Daboia (=Vipera) russelli, Naja, Enhydrina, Bungarus, Crocodilus.
6. Aves: Psittacula, Bubo, Alcedo, Passer, Eudynamis, Corvus
Different types of feathers- quill, contour, filoplume and down.
7. Mammalia: Ornithorhynchus, Didelphys, Pteropus, Funambulus, Manis, Erinaceus.

II. OSTEOLOGY.

Appendicular skeleton of Varanus, Gallus and Oryctolagus - limbs and girdles.

III. DEMONSTRATION OF DISSECTIONS
1. Mounting of fish scales.
2. Channa: Digestive system
3. Scoliodon: V, VII, IX and X cranial nerves.

Suggested Manuals:

Suggested manuals
1. Practical Zoology – Vertebrata - S.S.Lal
2. A manual of Practical Zoology – ChordataP.S.Verma

Course Delivery method: Face-to-face / Blended.
Course has focused on: Skill Development

Weblinks:

https://www.youtube.com/watch?v=-2Q2rqEh0Bk
https://www.youtube.com/watch?v=C35LwntxUkE
https://www.youtube.com/watch?v=OuEUQRQ3iQo

Co-curricular Activities:

Preparation of slides of scales of fishes

- Visit to local/nearby river to identify migratory fishes and prepare study notes
- Preparation of Charts on topics by students (Eg: comparative account of vertebrate heart/brain/lungs, identification of snakes etc.)
- Collecting and preparation of Museum specimens with dead frogs/snakes/lizards etc., and/or their skeletons
- Additional input on types of snake poisons and their antidotes (student activity).
- Collection of bird feathers and submission of report on Plumology
- Taxidermic preparation of dead birds for Zoology Museum
- Map pointing of prototherian and metatherian mammals
- Chart preparation for dentition in mammals

D.A Kiranmayee

Signature of the Course In-charge

D.A Kiranmayee

Signature of the Program In-charge

Signature of the HOD

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I B.Sc. ZOOLOGY PRACTICAL EXAMINATION

Practical - IICourse Code: ZOOP21A
Title of the paper: Animal Diversity Biology of Chordates

Time: 3hrs. **Max. Marks 40M**

1. List out the general characters of Class Mammalia. CO5, L 5 M

2. Identify and draw a neat labelled diagram of digestive system of *Channa*. CO2, L3 10 M
Identification: 2M
Diagram: 4 M
Labelling: 4 M

3. Identify, draw a labelled diagram, classify and write notes on A, B, C, D and E CO1,2,3,4,5 L2
5 X 3 = 15 M
A. Protochordata and Cyclostomata
B. Pisces
C. Amphibia and Reptilia
D. Aves and Mammalia
E. Osteology
Identification: 1 M
Diagram : $^1/_2$
Classification: $^1/_2$
Comment 1 M

4. Practical Record Book CO1, 2,3,4,5 L3 5 M

5. VIVA CO1, 2,3,4,5 L5 5 M

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NAAC reaccredited at 'A 'level
Autonomous –ISO 9001-2015 Certified

Title of the Paper:**Embryology, Animal Physiology and Animal Ecology.**

Semester: - IV

Course Code	**ZOOT41A**	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours/ Week	4	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2017-18	Year of Offering 2021-2022	Year of Revision – 2021-22	Percentage of Revision: 0%

OBJECTIVES

- The study of fundamentals of embryology
- The study of functional aspects of the body.
- Understanding the mechanism of homeostasis
- Understanding the mechanism of coordination in the body.
- Understanding the structural and functional aspects of an ecosystem.
- Understanding the dynamics of populations

COURSE OUTCOMES

CO 1	Comprehend and describe the process of formation and fusion of gametes and appraise the significance of foetal membranes and placenta in the formation of an embryo.
CO 2	Understand the mechanism of functioning of the different organ systems of a vertebrate and analyse their coordination in adapting the animal to the changing environment.
CO 3	Identify and describe the histology of various organs of a mammal and developmental stages of chick embryo at different hours of incubation.
CO 4	Develop skill in conducting tests for identification of the presence of biomolecules and excretory products and estimating various water parameters.
CO 5	Acquaint with the structural and functional aspects of an ecosystem, concept of community and population - their characteristics and interactions and analyse the adaptations of animals to specific habitat and explain peculiarities in their distribution in different zoogeographical realms.

SYLLABUS

I	UNIT- I Embryology Spermatogenesis, oogenesis and Fertilization. Types of eggs Types of cleavages Development of frog up to gastrulation and formation of primary germ layers Foetal membranes and their significance in chick embryo Placenta in mammals: types and functions	14hrs
II	UNIT- II Physiology – I Digestive system: process of digestion Absorption of digested food Respiratory system - Pulmonary ventilation, transport of oxygen and Carbon dioxide Circulatory system - Structure and functioning of heart, Cardiac cycle. Excretory system - Structure of nephron, urine formation, and counter current Mechanism	14hrs
III	UNIT - III Physiology - II Nerve impulse -Resting membrane potential, origin and propagation of action potentials along myelinated and non- myelinated nerve fibres Muscle contraction - Ultra structure of muscle fibre, molecular and chemical basis of muscle contraction Endocrine glands - Structure, secretions and the functions (of hormones) of pituitary, thyroid, parathyroid, adrenal glands and pancreas Hormonal control of reproduction in human being 1 Hour	12hrs
IV	UNIT - IV Ecology I Physical and chemical factors of an ecosystem Pressure Atmospheric gases: oxygen and carbon dioxide. Functional aspects of an ecosystem Biogeochemical cycles: nitrogen cycle, phosphorus cycle and carbon cycle Animal communities Types of communities Community structure Ecotone and edge effect, Community interactions Prey-predator relationships Competition	11hrs
V	UNIT - V Ecology - II Habitat Ecology and adaptations Ecological habitat and niche Desert adaptations,Pelagic adaptations Population Ecology Characteristics of animal populations <u>Zoogeography</u> Zoogeographical regions: Study of physical and faunal peculiarities of Oriental, Australian and Ethiopian regions.	9hrs

Textbooks

1. A.K. Berry, *A Text Book of Animal Physiology*, Delhi
2. SubrahmanyamN.S.&. Sambamurthy A.V.S.S, *Ecology,* Narosa Publishing House,New Delhi

Suggested Readings

1. Gerard J. Tortora and Sandra Reynolds Garbowski*Principles of Anatomy and Physiology*, Tenth Ed., John Wiley & Sons
2. Arthur C. Guyton MD, *A Text Book of Medical Physiology,* Eleventh ed., John E. Hall, Harcourt Asia Ltd.
3. William F. Ganong, *A Review of Medical Physiology*, 22 ed, McGraw Hill, 2005
4. Sherwood, Klandrof, Yanc, *Animal Physiology*, Thompson Brooks/Coole, 2005.
5. Sherwood, Klandrof, Yanc,*Human Physiology*, Thompson Brooks/Coole, 2005.
6. Knut Scmidt-Nielson, *Animal Physiology*, 5thed, Cambridge Low Price Edition.
7. Roger Eckert and Randal, *Animal Physiology*, 4thed, Freeman Co, New York.
8. BaliniskyB.I.*An introduction to Embryology*, 5thed, Thompson Brook, Coole.
9. McEwen, R.s. *Vertebrate Embryology*, Oxford and IBH Publishing Co. New Delhi.
10. M.P.Arora, '*Ecology*' Himalaya Publishing company.
11. P.D.Sharma, *Environmental Biology'*.
12. P.R.Trivedi and Gurdeep Raj. '*Environmental Ecology'*
13. BuddhadevSarma and Tej Kumar, *Indian Wildlife Threats and Preservation*
14. Chapman J.L. and Reiss M.J, *Ecology Principles and Applications,* Second Ed., Cambridge University Press, London.
15. Benny Joseph, *Environmental Studies*, TATA MGraw Hill Com., New Delhi.
16. Eugene P. Odum, *Fundamentals of Ecology* Third Ed., NataraJ Publishers, Dehradun.
17. BaliniskyB.I.*An introduction to Embryology*, 5thed, Thompson Brook, Coole.
18. McEwen, R.s. *Vertebrate Embryology*, Oxford and IBH Publishing Co. New Delhi.

Course Delivery method: Face-to-face / Blended.
Course has focused on: Foundation

Weblinks

https://www.youtube.com/watch?v=4Q43dqaIvnc
https://www.youtube.com/watch?v=7LqQYmgMqLk
https://www.youtube.com/watch?v=qtTLiQoYTyQ

CO-CURRICULAR ACTIVITIES

- Chart on cardiac cycle, human lung, kidney/nephron structure etc.
- Working model of human / any mammalian heart.
- Chart of sarcomere/location of endocrine glands in human body
- Chart affixing of photos of people suffering from hormonal disorders
- Student study projects such as identification of incidence of hormonal disorders in the local primary health center, studying the reasons thereof and measures to curb or any other as the lecturer feels good in nurturing health awareness among students
- Preparation of models of different types of eggs in animals
- Chart on frog embryonic development, fate map of frog blastula, cleavage etc.

D.A. Kiranmayee

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Semester IV **w.e.f. 2022-2023**
(Model question paper)
Title of the paper: Embryology, Animal Physiology and Animal Ecology.
Code – ZOOT41A
Time: 3hrs. **Max.Marks: 75**

SECTION –A

Answer and FIVE of the following 5x5=25 Marks
Draw neat labelled diagrams wherever necessary.

1. Mention the different types of eggs CO1, L1
2. Explain fate maps of frog blastula CO2, L2
3. Illustrate the structure of nephron CO3, L3
4. Analyze the process of absorption of lipids CO3, L4
5. Explain the significance of adrenal hormones CO3, L5
6. Explain Phosphorous cycle CO4, L2
7. Write a comparative account on ecotone and edge effect. CO5, L4
8. List out the different pelagic adaptations. CO5, L1

SECTION – B

Answer any FIVE of the following 5X10=50 Marks
Draw neat labelled diagrams wherever necessary.

9. Write an essay on foetal membranes and their significance in chick embryo. CO2, L2

OR

Describe the process of gametogenesis CO2, L2

10. Explain the process of transportation of Oxygen through blood.CO3, L2

OR

Describe the structure and functioning of mammalian heart. CO3, L2

11. Write an essay on hormonal control of reproduction in human beings. CO3, L4

OR

Explain the propagation of action potential along myelinated and non-myelinated nervefibres. CO3, L4

12. Explain pressure as an ecological factor. CO4, L2

OR

Explain prey-predator relationships in animal communities.CO5, L2

13. Write an essay on the various adaptations of desert animals. CO5, L1

OR

Describe the physical features and fauna of Ethiopian region.CO5, L1

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PRACTICAL - IV

.Title:-. Embryology, Animal Physiology and Animal Ecology

Code: ZOOP41A
Credits:- (02)
MAX.MARKS: 40
(2hrs/week)

OBJECTIVES

- Identify the different stages of development of a vertebrate embryo
- Analyze the presence of various substances of metabolism
- Estimate the amount of chemical parameters of a water body
- Maintain a neat, labelled record of work done in the laboratory

Syllabus:

I. Embryology

1. Study of T.S. of testis, ovary of a mammal

2. Study of different stages of cleavages (2, 4, 8 cell stages)

3. Construction of fate map of frog blastula

4. Study of chick embryos of 18 hours, 24 hours, 33 hours and 48 hours of incubation

II. Physiology

1. Qualitative tests for identification of carbohydrates, proteins and fats

2. Qualitative tests for identification of ammonia, urea and uric acid

3. Study of activity of salivary amylase under optimum conditions

4. Study of prepared slides of T.S. of duodenum, liver, lung, kidney, spinal cord, bone and cartilage of a mammal

III. Ecology

1. Determination of pH of given sample.

2. Estimation of dissolved oxygen of given sample.

3. Estimation of total alkalinity of given sample.

4. Estimation of salinity of given sample.

REFERENCE BOOKS:

1. Harper's Illustrated Biochemistry
2. Cell and molecular biology: Concepts & experiments. VI Ed. John Wiley &sons. Inc.
3. Lab Manual on Blood Analysis and Medical Diagnostics, S. Chand and Co. Ltd.
4. Laboratory techniques by Plummer

Course Delivery method: Face-to-face / Blended.
Course has focused on: Skill Development

Weblinks

https://www.youtube.com/watch?v=4Q43dqaIvnc
https://www.youtube.com/watch?v=7LqQYmgMqLk
https://www.youtube.com/watch?v=qtTLiQoYTyQ

CO-CURRICULAR ACTIVITIES

- Chart affixing of photos of people suffering from hormonal disorders
- Student study projects such as identification of incidence of hormonal disorders in the local primary health center, studying the reasons thereof and measures to curb or any other as the lecturer feels good in nurturing health awareness among students
- Preparation of models of different types of eggs in animals
- Chart on frog embryonic development, fate map of frog blastula, cleavage etc.

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PAPER – IV

Title: Embryology, Animal Physiology and Animal Ecology

w.e.f.2022-23.

Time:3hrs Model Question paper (External) Max.Marks: 40 M.

Paper Code: ZOOP41A

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1. Identify any two organic substances (Proteins and Carbohydrates) present in the given tissue sample. Write the procedure and tabulate the results. 10 M

2. Estimate the total Alkalinity of the water sample. Write the procedure and tabulate the results. 10 M

i. Procedure 03

ii. Experiment 05

iii. Table 02

3. Identify, Classify, Draw diagrams and write notes on. 4 X 2 ½ = 10M

A. Histology slide

B. Histology slide

C. Embryology slide

D. Embryology slide

Identification: 1 M
Diagram: ½ M
Comments: 1 M

4. PRACTICAL RECORD BOOK 10M

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NAAC reaccredited at 'A 'level
Autonomous –ISO 9001-2015 Certified

Title of the Paper: Immunology and Animal Biotechnology

Semester: - IV

Course Code	**ZOOT01**	Course Delivery Method	Class Room/Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours/ Week	4	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2021-22	Year of Offering 2021-2022	Year of Revision – 2021-22	Percentage of Revision: 0%

OBJECTIVES

- To understand the different types of immunity in man and different cells and organs of immune system
- To understand the different types of antigens and antibodies
- To analyze the role of immunity in health and disease management and get acquainted with the concept of vaccination
- To understand the mechanism of techniques in r DNA technology and the concept of animal cell technology.
- To study the reproductive technologies and different aspects of industrial biotechnology.
- To be aware of the ethical, legal, and social issues related to genetically modified organisms.

COURSE OUTCOMES

CO 1	Understand the basic concepts of immune system and hypersensitivity reactions and apply the same in identification of diseases and describe the triggering and regulation of immunological response.
CO 2	Acquire basic knowledge in r DNA technology and acquaint with the techniques of PCR, hybridization and DNA sequencing.
CO 3	Comprehend Animal Cell Culture technology, Reproductive technologies and techniques.
CO 4	Apply the techniques of animal biotechnology in various fields like industry, medicine, animal husbandry etc., for improving the quality of life.
CO 5	Acquaint with safety measures in using the techniques and develop skills in handling and maintaining laboratory equipment.

Syllabus

I	UNIT – I Immunology – I (Overview of Immune system) Introduction to basic concepts in Immunology Innate and adaptive immunity Cells of immune system Organs of immune system Antigens: Basic properties of antigens B and T cell epitopes, haptens and adjuvant Factors influencing immunogenicity	13hrs
II	UNIT – II Immunology – II (Antigens, Antibodies, MHC and Hypersensitivity) Antibodies Antigen – antibody reactions Structure of antibody Classes and functions of antibodies Structure and functions of major histocompatibility complexes Exogenous and Endogenous pathways of antigen presentation and processing Hypersensitivity – Classification and Types Basic properties and functions of cytokines Vaccines and Immunization programme	17hrs
III	UNIT – III Biotechnology – I (Techniques of Recombinant DNA technology) Genetic Engineering: Basic concept, Vectors, Restriction Endonucleases and Recombinant DNA technology Gene delivery: Microinjection, electroporation, biolistic method (gene gun), liposome and viral-mediated gene delivery PCR: Principle, procedure and advantages of PCR DNA Sequencing: Maxam Gilbert and Sanger's methods of DNA sequencing- traditional and automated sequencing Hybridization techniques: Southern, Northern and Western blotting	11hrs
IV	UNIT – IV Biotechnology – II (Cell culture techniques) Animal Cell, Tissue and Organ culture media: Natural and Synthetic media Cell cultures Establishment of cell culture: Primary culture, Protocols for Primary Cell Culture and Secondary culture Types of cell lines: Continuous and Established Cell lines (common examples such as MRC, HeLa, CHO, BHK,Vero) Organ culture; Cryopreservation of cultures Stem cells: Types of stem cells and applications Hybridoma Technology: Production & applications of Monoclonal antibodies(mAb)	11hrs
V	UNIT – V Biotechnology – III (Applications of Animal Biotechnology). Transgenesis: Production of Transgenic animals: sheep and fish Ethical, Legal, Social and Disposable issues of Genetically Modified Organisms Manipulation of reproduction in animals: Artificial Insemination, *In vitro* fertilization, super ovulation, Embryo transfer, Embryo cloning Applications in Industry: Fermentation: Different types of Fermentation and Downstream processing	8hrs

TEXT BOOKS:

1. B.D.Singh, Biotechnology, Kalyani Publishers, 1998 (reprint 2001)
2. Armugam, A Text Book of Immunology, Saras Publications

REFERENCE BOOKS

1. Immunology by Ivan M. Riott
2. Immunology by Kubey
3. Sree Krishna V. 2005. *Biotechnology –I, Cell Biology and Genetics.*New Age International Publ.New Delhi, India.

Course Delivery method: Face-to-face / Blended.
Course has focused on: Foundation

CO-CURRICULAR ACTIVITIES:

- Organizing awareness on immunization importance in local village in association with NCC and NSS teams
- Charts on types of cells and organs of immune system
- Student study projects on aspects such as – identification of allergies among students (hypersensitivity), blood groups in the class (antigens and antibodies duly reported) etc., as per the creativity and vision of the lecturer and students
- Visit to research laboratory in any University as part of Zoological tour and exposure and/or hands-on training on animal cell culture.
- Visit to biotechnological laboratory in university or any central/state institutes and create awareness on PCR, DNA finger printing and blot techniques or Visit to a fermentation industry

Weblinks:

https://www.youtube.com/watch?v=EfNY0aiYRIE
https://www.youtube.com/watch?v=R69M7NuBNBA
https://www.youtube.com/watch?v=hqs57VsSk7s
https://www.youtube.com/watch?v=8rAgLPb85N0

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Semester IV*w.e.f. 2022-2023*
(Model question paper)
Title of the paper: Immunology and Animal Biotechnology
Code – ZOOT01
Time: 3hrs. **max.marks: 75**

Draw neat labelled diagrams wherever necessary for sections A and B.

SECTION –A

Answer and FIVE of the following 5x5=25 Marks

1. Describe the structure and function of Lymph node CO1 L1
2. Role of B – cells in immune system CO1 L2
3. Illustrate the endogenous pathway of antigen presentation and process CO2 L3
4. List out the properties of cytokines CO2 L1
5. Explain the process of microinjection in gene delivery CO3 L2
6. Explain the importance of cryopreservation in cell culture CO4 L3
7. Explain the role of natural media in cell culture CO4 L2
8. Mention the significance of superovulation in animal husbandry CO5 L4

SECTION – B

Answer the following questions 5X10=50 Marks

9. Explain the different factors contributing for innate immunity. CO1 L1

Or

List out the different types of vaccines.CO1 L1

10. Describe the structure and function of different types of immunoglobulin. CO2 L2

Or

Give an account of the various hypersensitivity reactions. CO2 L2

11. Explain the principle, procedure and advantages of PCR. CO3 L2

Or

Explain in detail about Maxam-Gilbert method of DNA sequencing. CO3 L2

12. What are cell lines? List out their types with examples CO4 L1

Or

Explain in detail about the production of Monoclonal antibodies through Hybridoma TechnologyCO4 L1

13. What is transgenesis? Explain the production of transgenic sheep. CO5 L2

Or

Explain the significance of downstream processing.CO5 L4

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PRACTICAL - V

w.e.f. 2022-2023.**Title:-**Immunology and Animal Biotechnology

Code: ZOOP01

Credits:- (02)

(2hrs/week)MAX.MARKS: 40

Objectives

- Acquaint with immunological techniques vis-à-vis theory taught in the class room
- Interconnect the theoretical and practical knowledge of immunity with the outer world for the development of a healthier life.
- Demonstrate basic laboratory skills necessary for Biotechnology research
- Apply the lab techniques for taking up research in higher studies

SYLLUBUS:

I. IMMUNOLOGY

1. Demonstration of lymphoid organs (as per UGC guidelines)
2. Histological study of spleen, thymus and lymph nodes (through prepared slides)
3. Blood group determination
4. Demonstration of
   a. ELISA - Pregnancy Test and HBs Ag,
   b. Immunoelctrophoresis - Malarial parasite (cells) and VDRL

II. ANIMAL BIOTECHNOLOGY

1. Preparation of culture media.
2. DNA quantification using by agarosegel electrophoresis (by using Lambda DNA as standard) Method.
2. Techniques: Western Blot, Southern Hybridization,
3. study of the following techniques through
A. Paper chromatography
B. Thin layer chromatography.
4. Cleaning and sterilization of glass and plastic wares for cell culture.
5. Project work.

SUGGESTED MANUALS

1. Immunology Lab Biology 477 Lab Manual; Spring 2016 Dr. Julie Jameson
2. Practical Immunology A Laboratory Manual; LAP LAMBERT Academic Publishing
3. Manual of Laboratory Experiments in Cell Biology - Edward, G
4. Laboratory Techniques – Plummer

Course Delivery method: Face-to-face / Blended.
Course has focused on: skill development

CO CURRICULAR ACTIVITIES

- Charts on types of cells and organs of immune system
- Student study projects on aspects such as – identification of allergies among students (hypersensitivity), blood groups in the class (antigens and antibodies duly reported) etc., as per the creativity and vision of the lecturer and students
- Visit to research laboratory in any University as part of Zoological tour and exposure and/or hands-on training on animal cell culture.
- Visit to biotechnological laboratory in university or any central/state institutes and create awareness on PCR, DNA finger printing and blot techniques or Visit to a fermentation industry

WEBLINKS:

https://www.youtube.com/watch?v=Svoipyl6IRc
https://www.youtube.com/watch?v=I_CAmtiwmyQ
https://www.youtube.com/watch?v=LlGHHueBVVg
https://www.youtube.com/watch?v=4srp4ooLYNg
https://www.youtube.com/watch?v=_rp4mAHeYmE

D.A. Kiranmayee
Signature of the Course In-charge

D.A. Kiranmayee
Signature of the Program In-charge

A. G & S. G. S. DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU 521165, KRISHNA Dt., A.P. (AUTONOMOUS)

PAPER – IV

Title: Immunology and Animal Biotechnology

w.e.f.2022-23.

Time:3hrs *Model Question paper (External)*Max.Marks: 40 M.

Paper Code: ZOOP01

I. Analyse the given sample for HBs Ag/HIV/Malarial parasite/VDRL/Ra factor 8 M

Principle : 2M
Procedure : 4M
Result : 2M

III. Identify the sample using paper chromatography technique 10M

Principle : 3M
Procedure : 5M
Result : 2M

IV. Identify, draw labelled diagram and comment on 3x4=12 M

A. Lymphoid organ	Identification : 1M
B. Histology slide	Diagram : 1M
C. Glass ware for cell culture	Notes : 2M

V. Practical Record Book 5 M

VI. Viva 5 M

SKILL DEVELOPMENT COURSE OFFERED BY

THE DEPARTMENT OF ZOOLOGY

DURING -2022-2023

ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt., A.P. (AUTONOMOUS).

NAAC reaccredited at 'A 'level
Autonomous –ISO 9001-2015 Certified

Title of the Paper:**Poultry Farming**

Semester: - II

Course Code	**SDCZOOT01**	Course Delivery Method	Class Room/Blended Mode - Both
Credits	2	CIA Marks	15
No. of Lecture Hours/ Week	2	Semester End Exam Marks	35
Total Number of Lecture Hours	08	Total Marks	50
Year of Introduction :	Year of Offering 2021-2022	Year of Revision – 2022-23	Percentage of Revision: 0%

SKILL DEVELOPMENT COURSE	Course code:SDCZOOT01	***2022-2023***	**I BA, MPCS, MSCS & MCCS, ABC&BZC,**

Learning Outcomes:

By successful completion of the course, students will be able to;

1. Understand the field level structure and functioning of insurance sector and its role in protecting the risks
2. Comprehend pertaining skills and their application for promoting insurance coverage
3. Prepare better for the Insurance Agent examination conducted by IRDA
4. Plan 'promoting insurance coverage practice' as one of the career options.

COURSE OUTCOMES

CO 1	Understand the basic concepts of poultry farming andapply the same in the management practices of poultry farming.
CO 2	Acquire knowledge in the preparation of project report for banking and insurance.
CO 3	Acquaint with the poultry feed management practices
CO 4	Understand the nutrient requirements for different stages of layers and broilers
CO 5	Gain knowledge in harvesting of eggs and recycling of poultry waste.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Section I (Introduction to Poultry Farming):** General introduction to poultry farming -Definition of Poultry; past and present scenario of poultry industry in India. Principles of poultry housing. Poultry houses, Systems of poultry farming. Management of chicks, growers and layers. Management of Broilers. Preparation of project report for banking and insurance	10
II	**Section II (Feed and Livestock Health Management):** Poultry feed management – Principles of feeding, Nutrient requirements for different stages of layers and broilers. Feed formulation and Methods of feeding. Poultry diseases – viral, bacterial, fungal and parasitic (two each); symptoms, control and management; Vaccination programme.	**10**
III	**Section III (Harvesting of Eggs and Sanitation):** Selection, care and handling of hatching eggs. Egg testing Methods of hatching. Brooding and rearing. Sexing of chicks. Farm and Water Hygiene, Recycling of poultry waste.	**10**

Co- Curricular Activities suggested: **(4 Hrs)**

1. Group discussion& SWOT analysis
2. Visit to a poultry farm
3. Invited Lectures by Concerned officers of government or private farms
4. Cheap and Healthy Feed preparation by students based on government standards
5. Market study and Survey (Monitoring of daily price hike in poultry market and analysis)
6. Online Swayam Moocs course on poultry farming (see reference 9 below)

Reference books:

1. Sreenivasaiah., P. V., 2015. Textbook of Poultry Science. 1st Edition. Write & Print Publications, New Delhi

2. 2. Jull A. Morley, 2007. Successful Poultry Management. 2nd Edition. Biotech Books, New Delhi"

A.G. &S.G.Siddhartha Degree College of Arts & Science, Vuyyuru – 521165, Krishna Dt. A.P.
(Autonomous)

Semester –II
w.e.f. 2022-20223Time: 90 mins (Model question paper)
Title of the paper: Poultry Farming.Code – SDCZOOT01
Max.marks: 35

Section – A

Answer any **Three** questions. Each question carries **five** marks.***3 x 5= 15.***

1. Poultry house
2. Broilers
3. Methods of feeding
4. Any two bacterial diseases of poultry
5. Egg testing

Section – B

Answer any **TWO** questions. Each question carries **Ten** marks. ***2 x 10 =20***

1. Explain principles of poultry housing in detail, with examples.

2. Write an essay on viral diseases of poultry.

3. Give an account of fungal and bacterial diseases (any two each) of poultry

4.Write an essay on selection, handling and hatching of eggs.

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(AUTONOMOUS)

SEMESTER-II
SKILL DEVELOPMENT COURSE

Guide lines to the paper setter

Time: $1^{1}/_{2}$ hrs

Max.Marks:35

Paper Title: - Poultry Farming.

Paper Code: SDCZOOT01

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*Note:*1. Answer **any THREE** questions out offive in Part-A. Each question carries five marks.3X 5 = 15M.

2. Answer any**TWO**questions out of fourin Part-B. Each question carries 10 marks.2 X 10 = 20M.

	PART	Unit –I	Unit – II	Unit-III
5 Marks Questions	**A**	**2**	**2**	**1**
10 Marks Questions	**B**	**1**	**2**	**1**
Weightage		**20**	**30**	**15**

Note: 1. please provide the scheme of valuation for the paper.

2. Question paper should be both in English and Telugu media.

A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF MATHEMATICS

MINUTES OF BOARD OF STUDIES

ODD SEMESTER

29-10-2022

Minutes of the meeting of BOS in Mathematics for B. Sc Degree Courses o AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 2.30 PM on 29 – 10 – 2022 through online mode.

N.V. Srinivasa Rao — *Presiding*

Members Present:

1)	N.V Srinivasa Rao **(N.V. Srinivasa Rao)**	Chairman	Head, Department of Mathematics, AG & SG S Degree College.
2)	_____ **(Dr. K. Jaya Lakshmi)**	University Nominee	Department of Mathematics, Krishna University, Machilipatnam.
3)	_____ **(M. Venkateswara Rao)**	Subject Expert	Department of Mathematics, Govt. Degree College, Avanigadda.
4)	_____ **(I. V. Venkateswara Rao)**	Subject Expert	Department of Mathematics, P. B. Siddhartha College, Vijayawada
5)	D. Sunitha **(D. Sunitha)**	Member	Lecturer in Mathematics AG & SG S Degree College.
6)	A. Bhargavi **(A. Bhargavi)**	Member	Lecturer in Mathematics AG & SG S Degree College.
7)	Noor Mohammad **(Noor Mohammad)**	Member	Lecturer in Mathematics AG & SG S Degree College.
8)	K. Rajya Lakshmi **(K. Rajya Lakshmi)**	Member	Lecturer in Mathematics AG & SG S Degree College.
9)	Jahnavi. G **(G . Jahanvi)**	Student Member	III B.Sc M.P.Cs AG & SG S Degree College.
10)	Pavan Sai. N. **(N. Pavan Sai Kumar)**	Student Member	III B.Sc M.P.C (E) AG & SG S Degree College.

Agenda of B.O.S Meeting:

1. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Mathematics for 1st Semester as per the guidelines and instructions prescribed APSCHE and Krishna University from the Academic Year 2022-23.

2. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Mathematics and Analytical Skills for 3rd Semester as per the guidelines and instructions prescribed APSCHE and Krishna University from the Academic Year 2022-23.

3. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Mathematics for 5th/ 6th Semester as per the guidelines and instructions prescribed APSCHE and Krishna University from the Academic Year 2022-23.

4. Any other matter.

Resolutions.

1. Discussed and recommended that no changes are required in Syllabi. Changes are required in Model Question Papers and Guidelines to be followed by the question paper setters in Mathematics for [illegible] Semesters from the Academic year 2022-23. The maximum marks for IA is 30 and SE is 70. Each IA written examination is of 1 Hr. 30 min duration for 20 marks. The tests will be conducted centrally. The average of two such IA is calculated for 20 marks. 5 marks will be allotted for attendance and 5 marks are allotted for Assignment/ Activity. There is no minimum passing for IA and there is no provision for improvement in IA. Even though the candidate is absent for two IA exams/obtain zero marks the external marks are considered (if he/ she gets 40 out of 70) and the result shall be declared as 'PASS' from the Academic year 2022-23.

2. Discussed and recommended that changes are required in Syllabi, Model Question Papers and Guidelines to be followed by the question paper setters in Mathematics and Analytical Skills for all degree programs of 3rd Semesters from the Academic year 2022-23. The maximum marks for IA is 25 and SE is 75. Each IA written examination is of 1 Hr. duration for 15 marks. The tests will be conducted centrally. The average of two such IA is calculated for 15 marks. 5 marks will be allotted basing on Assignment and 5 marks are allotted for activity. There is no minimum passing for IA and there is no provision for improvement in IA. Even though the candidate is absent for two IA exams/obtain zero marks the external marks are considered (if he/ she gets 40 out of 75) and the result shall be declared as 'PASS' from the Academic year 2022-23. There is 10 marks IA (There is no minimum passing for IA) for Analytical Skills and minimum pass marks is 16 out of 40 in SE.

3. Discussed and recommended that changes are required in syllabi, Model Question Papers and Guidelines for question paper setters in Mathematics for the 5th/ 6th Semester for the Academic year 2022-23.

4. Discussed and recommended for organizing seminars, Guest lecturers, Online Examinations and Workshops to upgrade the knowledge of students for Competitive Examinations for the approval of the Academic Council.

N.V. Seshayya
Chairman

A . G & S . G Siddhartha Degree College of Arts and Science (Autonomous), Vuyyuru

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Department of Mathematics

COURSE STRUCTURE

Paper Title :- DIFFERENTIAL EQUATIONS **Semester : I**

Course Code	MATT11A	Course Delivery Method	Class Room / Blended Mode - Both
Credits	5	CIA Marks	30
No. of Lecture Hours / Week	6	Semester End Exam Marks	70
Total Number of Lecture Hours	90	Total Marks	100
Year of Introduction : 2018-19	Year of Offering: 2022 - 23	Year of Revision: ----	Percentage of Revision: 0%

Programme Outcomes

S. No	P.O
	At the end of the Programme the student will be able to:
1	Demonstrate the ability to use mathematical skills such as formulating and tackling mathematics related problems and identifying and applying approximate physical principles and methodologies to solve a wide range of problems associated with mathematics.
2	Apply the underlying unifying structures of mathematics and the relationships among them.
3	Investigate and apply mathematical problems and solutions in variety of contexts related to science and technology, business and industry.

Course Outcomes of MATT11A

S. No	C.O Upon successful completion of this course, students should have the knowledge and skills to:	Mapping
1	Determine the solution of differential equations of the first order and of the first degree by Exact, Linear and Bernoulli's method.	L2, PO –1
2	Understand the basic concepts of first order differential equations to find Orthogonal trajectories.	L2, PO - 1
3	Determine the solution of differential equations of the first order and of a degree higher than first by using methods of solvable for P, X, and Y.	L2,PO - 1
4	Compute all solutions of second and higher order linear differential equations with constant coefficients, linear equations with variable coefficients.	L3, PO – 1
5	Calculate the solutions of higher order differential equations by Cauchy Euler and Variation of parameters.	L2, PO – 1

A . G & S . G Siddhartha Degree College of Arts and Science (Autonomous), Vuyyuru

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MATHEMATICS	MAT T11A	2021 – 22 onwards	B.Sc (MPC, MPCS, MCCS, MSCS)

DIFFERENTIAL EQUATIONS

SEMESTER-I **No of Credits: 5**

OBJECTIVES:

1. Understand all of the concepts relating to the order and linearity of ODEs, analytic and computational solution methods for ODEs, and the real-world applications of ODEs.
2. Apply your understanding of the concepts, formulas, and problem-solving procedures to thoroughly investigate relevant physical models.
3. Explain the concepts of linear systems, ODE solution methods, and related ideas at a fundamental level, as well as how and why we use the solution techniques that we use.

UNIT-I: DIFFERENTIAL EQUATIONS OF FIRST ORDER& FIRST DEGREE (12Hrs)

1.1 Linear Differential Equations
1.2 Differential Equations Reducible to Linear Form, Bernoulli's differential equations.
1.3 Exact Differential Equations
1.4 Integrating Factors, 1/Mx+Ny, 1/Mx-Ny, $e^{\int f(x)dx}$, $e^{\int g(y)dy}$, and Inspectionmethod
1.5 Change of Variables

UNIT-II: ORTHOGONAL TRAJECTORIES &DIFFERENTIAL EQUATIONS OF FIRST ORDER BUT NOT FIRST DEGREE (12Hrs)

2.1 Orthogonal Trajectories
2.2 Self-Orthogonal Trajectories
2.3 Equations solvable for p
2.4 Equations solvable for y
2.5 Equations solvable for x
2.6 Equations Homogeneous in X & Y
2.7 Equations that do not contain x (or y)
2.8 Clairaut's Equation and Equations reducible to clairaut's form.

UNIT – III: Higher order linear differential equations-I (12Hrs)

3.1 Solution of homogeneous linear differential equations of order n with constant coefficients
3.2 Solution of the non-homogeneous linear differential equations with constant coefficients by means of polynomial operators.
3.3 General Solution of f(D)y=0
3.4 General Solution of f(D)y=Q when Q is a function of x.
3.5 1/f(D) is Expressed as partial fractions.
3.6 P.I. of f (D) y = Q when Q= be^{ax}
3.7 P.I. of f (D) y = Q when Q is b sinax or b cosax.

UNIT – IV: Higher order linear differential equations-II (12Hrs)

4.1 Solution of the non-homogeneous linear differential equations with constant coefficients.
4.2 P.I. of f (D) y = Q when Q= bx^k
4.3 P.I. of f (D) y = Q when Q= $e^{ax}V$
4.4 P.I. of f (D) y = Q when Q= xV
4.5 P.I. of f (D) y = Q when Q= x^mV where v = sin bx and cosbx

UNIT-V: Higher order Differential Equations –III (12Hrs)

5.1 The Cauchy-Euler Equation.
5.2 Linear differential Equations with non-constant coefficients
5.3 Method of Variation of parameters.

Student Activities:

1) **Class-room activities:** Power point presentations, Assignments
2) **Library activities:** Visit to library and preparation of notes for Assignment problems.
3) **Activities in the Seminars, workshops and conferences:** Participation/presentation in seminar/workshop/conference.

CO-CURRICULAR ACTIVITES:

- Quiz Competitions, Seminars
- Group Discussions

WEB LINKS:

https://en.wikipedia.org/wiki/Differential_equation
https://tutorial.math.lamar.edu/classes/de/de.aspx
https://www.mathsisfun.com/calculus/differential-equations.html

Prescribed Text book:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1	V. Krishna Murthy	A text book of Mathematics for B.A/B.ScVol – I	S-Chand&co	2015

Reference books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1	Dr.A. Anjaneyulu	A text book of mathematics for B.A/B.ScVol – I	Deepthi Publications	2015
2	Rai Singhania	Ordinary& Partial Differential Equations	S-Chand	2009
3	Zafar Ahsan	Differential Equations and their applications	Prentice-Hall of India Pvt Ltd, McGraw Hill	2000

Recommended Question Paper Pattern and Model BLUE PRINT FOR QUESTION PAPER PATTERN COURSE-I, DIFFERENTIAL EQUATIONS

Unit	**TOPIC**	**S.A.Q**(including choice)	**E.Q**(including choice)	**Total Marks**
I	Differential Equations of 1^{st} order and 1^{st} degree	2	2	28
II	Orthogonal Trajectories, Differential Equations of 1^{st} order but not of 1^{st} degree	2	2	28
III	Higher Order Linear Differential Equations (with constant coefficients) – I	2	2	28
IV	Higher Order Linear Differential Equations (with constant coefficients) – II	2	2	28
V	Higher Order Linear Differential Equations (with non-constant coefficients)	2	2	28
TOTAL		10	10	140

S.A.Q. = Short answer questions (4 marks)

E.Q. = Essay questions (10 marks)

Total Marks = 70 M

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A . G & S . G Siddhartha Degree College of Arts and Science (Autonomous), Vuyyuru

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COURSE-I, DIFFERENTIAL EQUATIONS

B.Sc MATHEMATICS MODEL PAPER (W.E.F 2022 – 2023)

Time: 3Hrs Max.Marks:70M

Answer the following questions. 5 x 14 = 70M

1. (a) i) ------ 10 M
   ii) ------ 4M
   (OR)
   (b) i) ------ 10M
   ii) ------ 4 M
2. (a) i) ------ 10 M
   ii) ------ 4M
   (OR)
   (b) i) ------ 10M
   ii) ------ 4 M
3. (a) i) ------ 10 M
   ii) ------ 4M
   (OR)
   (b) i) ------ 10M
   ii) ------ 4 M
4. (a) i) ------ 10 M
   ii) ------ 4M
   (OR)
   (b) i) ------ 10M
   ii) ------ 4 M
5. (a) i) ------ 10 M
   ii) ------ 4M
   (OR)
   (b) i) ------ 10M
   ii) ------ 4 M

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Department of Mathematics

COURSE STRUCTURE

Paper Title :- ABSTRACT ALGEBRA **Semester : III**

Course Code	MATT31	Course Delivery Method	Class Room / Blended Mode - Both
Credits	5	CIA Marks	25
No. of Lecture Hours / Week	6	Semester End Exam Marks	75
Total Number of Lecture Hours	90	Total Marks	100
Year of Introduction : 2018-19	Year of Offering: 2022 - 23	Year of Revision: ----	Percentage of Revision: 0%

Programme Outcomes

S. No	P.O
	At the end of the Programme the student will be able to:
1	Demonstrate the ability to use mathematical skills such as formulating and tackling mathematics related problems and identifying and applying approximate physical principles and methodologies to solve a wide range of problems associated with mathematics.
2	Apply the underlying unifying structures of mathematics and the relationships among them.
3	Investigate and apply mathematical problems and solutions in variety of contexts related to science and technology, business and industry.

Course Outcomes of MATT31

S. No	C.O Upon successful completion of this course, students should have the knowledge and skills to:	Mapping
1	Understand concepts of groups and its properties.	L2, PO –1
2	Determine subgroups and whether the given subsets of a group are subgroups.	L4, PO – 1
3	Explain the significance of cosets, normal subgroups and factor groups.	L2,PO – 2
4	Determine group homomorphisms and isomorphisms.	L4, PO – 1

A.G & S.G Siddhartha Degree College of Arts and Science, Vuyyuru (An Autonomous College in the jurisdiction of Krishna University, Machilipatnam)

MATHEMATICS	MATT31	2022-2023	B.Sc.(MPC, MPCS, MCCS, MSCS)

ABSTRACT ALGEBRA

SEMESTER - III **No of Credits: 5**

OBJECTIVE: TO ENHANCE THE DATA EVALUATIONAL SKILLS,LOGICAL THINKINGNESS OF THE STUDENT

UNIT-I : GROUPS (16hrs)

1.1 Binary Operation, Semi group, Algebraic Structure, Monoid, Cancellation laws, Group definition, Abelian group, Elementary Properties.

1.2 Finite and Infinite groups with examples, Order of a group with examples.

1.3 Addition modulo m – Definition – theorem – Problems.

1.4 Multiplication Modulo P – definition- {1, 2, 3,…….p-1} where P is a prime number is a group – theorem – Problems.

1.5 Order of an element of a group – Definition – Theorems.

UNIT-II: SUB GROUPS (20 hrs)

2.1 Complex definition, Multiplication of two complexes, Inverse of a complex, subgroup definition, Identity and Inverse of a subgroup.

2.2 Criterion for a complex to be a subgroup, Criterion for the product of two subgroups to be a subgroup.

2.3 Union and Intersection of subgroups.

2.4 Cosets Definition – Properties of cosets.

2.5 Index of a subgroups of a finite groups, Lagrange's Theorem.

UNIT-III: NORMAL SUBGROUPS (18 hrs)

3.1 Definition of a normal subgroup, Proper and improper normal subgroups.

3.2 Intersection of two normal subgroups, Subgroup of index 2 is a normal subgroup, Simple Group.

3.3 Quotient group, Criteria for the existence of a Quotient group.

UNIT-IV: HOMOMORPHISM (16hrs)

4.1 Definition of a Homomorphism, Image of a Homomorphism, Properties of a Homomorphism.

4.2 Isomorphism, Automorphism definitions and elementary properties.

4.3 Kernel of a homomorphism, Fundamental theorem on homomorphism of groups and Applications.

4.4 Inner automorphism, Outer automorphism.

UNIT-V: PERMUTATIONS AND CYCLIC GROUPS (20 hrs)

5.1 Definition of a permutation group, Equal permutations, Permutation multiplications, Order of a permutation, Inverse of a permutation, Orbits and cycles of permutation

5.2 Transposition, Even and odd permutations – Theorem – Related Problems.

5.3 Cayley's theorem – Related Problems.

5.4 Definition of a cyclic group – Properties of Cyclic group.

5.5 Standard theorems on cyclic groups – related problems.

Prescribed Text book:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1	V.Venkateswara Rao, BVSS Sharma, S.AnjaneyaSastry & Others	A textbook of mathematics for B.A/B.ScVol – I	S-Chand	2015

Reference books:

S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1	Dr.A. Anjaneyulu	A text book of mathematics for B.A/B.ScVol – I	Deepthi Publications	2015
2	M.L.Khanna	Modern Algebra	Jaya Prakashnadh & Co	2012

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SEMESTER – III
Model Paper

COURSE CODE: MATT 31

TITLE OF THE PAPER: ABSTRACT ALGEBRA

Time: 3hrs. **Max. Marks: 75**

Section – A

Answer any FIVE questions **5x5=25**

1. In a group G, Show that the inverse of an element is unique. (L1,CO1)
2. H is a non-empty complex of a group G. Show that the necessary and sufficient condition for H to be a sub group of G is $a,b \in H \Rightarrow ab^{-1} \in H$. (L1,CO2)
3. Show that any two left (right) cosets of a sub group are either disjoint (or) identical.(L2,CO3)
4. Show that every subgroup of an abelian group is normal. (L3,CO3)
5. Prove that Every Quotient group of an abelian group is abelian. (L2,CO3)
6. If 'f' is a homomorphism of a group G into a group G', then show that the Kernel of f is a normal subgroup of G. (L3,CO3)
7. Use Cayley's theorem to find the regular permutation group isomorphic to the multiplicative group $\{1,-1, i,-i\}$. (L3,CO5)
8. Prove that every cyclic group is abelian. (L2,CO5)

Section – B

Answer ALL questions. **(5 x 10 = 50)**

Unit - I

9. (a). Prove that the set Z of all integers from an abelian group w.r.t to the operation defined by a * b = a+b+2 $\forall$ a,b$\in$ z. (L3, CO1)

(OR)

(b).Prove that G = {0,1,2,3,4,5} is an abelian group w.r.t. addition modulo 6.(L3,CO1)

Unit – II

10. (a).Prove that the union of two sub groups of a group G is a sub group of G if and only if one is contained in the other. (L1,CO2)

(OR)

(b). State and prove Lagrange's theorem on groups. (L1,CO2)

Unit – III

11. (a).If H is a normal subgroup of a group G, then prove that the set of all cosets of H in G is a group with respect to coset multiplication. (L1,CO3)

(OR)

(b).Prove that H is a normal subgroup of a group G iff product of two right cosets of H is again a right coset of H. (L1, CO3)

(P.T.O)

Unit – IV

12. (a).State and Prove Fundamental Theorem of Homomorphism. (L1,CO4)

(OR)

(b).Let 'a' be a fixed element of a group G. Prove that the mapping $f_a : G \to G$ defined by $f_a(x) = a^{-1}xa \ \forall x \in G$ is an automorphism of G. (L2, CO4)

Unit - V

13.(a).Prove that every finite group G is isomorphic to a permutation group. (L1,CO5)

(OR)

(b).Prove that every subgroup of a cyclic group is cyclic. (L1,CO5)

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A.G & S.G Siddhartha Degree College of Arts and Science, Vuyyuru

(An autonomous college in the jurisdiction of Krishna University, Machilipatnam, A.P., India)

LIFE SKILL COURSE	LSC003	2022 -'23	All Degree Programs

SEMESTER – III **Credits: 2** **(Total 30 Hrs)**

ANALYTICAL SKILLS

CO1: After studying this chapter student update them to analyze the data in Graphs, tables, passages etc.

CO2: After studying this chapter student understand to find missing object in a sequence and analyze the objects. And also the student easily identify the family relations, find the day of the week for a particular date and improve the calculations in an easy way.

CO3: After studying this chapter student understand the age related problems and how to calculate speed in different methods and also the student can update themselves to solve business related problems and banking related problems.

UNIT – 1 (5 Hours)

Data Interpretation:-The data given in a Table, Graph, Bar Diagram, Pie Chart, Venn diagram or a passage is to be analyzed and the questions pertaining to the data are to be answered.

UNIT – 2 (10 Hours)

Verbal Reasoning:- Analogies of numbers and alphabets completion of blank spaces following the pattern in A:b::C: d relationship odd thing out; Missing number in a sequence or a series. Coding & Decoding. Calendar Problems, Clock Problems, Blood Relationship

Arithmetic ability:- Algebraic operations BODMAS, Fractions, Divisibility rules, LCM&GCD (HCF).

.

UNIT - 3 (15Hours)

Quantitative aptitude:- Averages, Ration and proportion, Problems on ages, Time-distance – speed.

Business computations:- Percentages, Profit &loss, Partnership, simple compound interest.

Reference Books:

1. Quantitative Aptitude for Competitive Examination by R S Agrawal, S.Chand publications.
2. Quantitative Aptitude and Reasoning by R V Praveen, PHI publishers.
3. Quantitative Aptitude : Numerical Ability (Fully Solved) Objective Questions, Kiran Prakashan, Pratogitaprakasan, Kic X, Kiran Prakasan publishers
4. Quantitative Aptitude for Competitive Examination by Abhijit Guha, Tata Mc Graw hill publications.
5. Old question Paper of the exams conducted by (Wipro, TCS, Infosys, Etc) at their recruitment process, source-Internet.

Note: The teachers/students are expected to teach /learn the contents by not converting them to the problems of algebra at the maximum possible extent, but to use analytical thinking to solve the exercises related to those topics. This is the main aim of the course.

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE: VUYYURU-521165

(An Autonomous College in the jurisdiction of Krishna University, Machilipatnam)

Accredited with "A" Grade by NAAC, Bengaluru

DEPARTMENT OF MATHEMATICS

ANALYTICAL SKILLS

(Model paper)

TIME:2HRS **MAX.MARKS: 40MARKS**

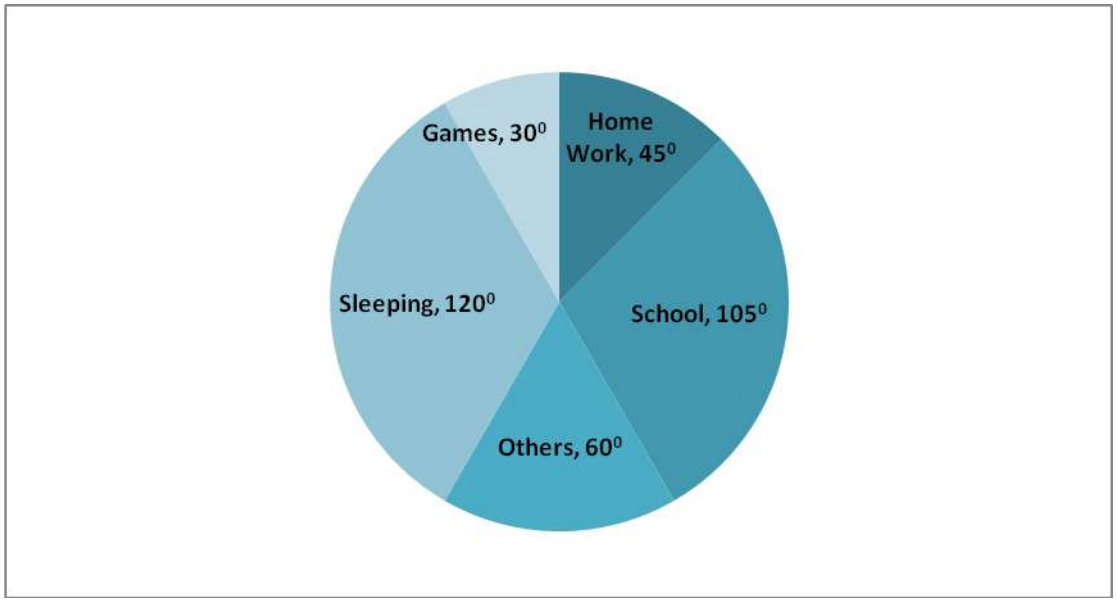
****

Choose the correct answer from the following.. (80questions* ½ =40M)

Directions (Q.No:1 to 5): Study the following pie chart carefully and answer the questions given below it.

The following Pie chart shows the Hourly distribution

(in degrees) of all the major activities of a Student.



1. The Approximate percentage of time, which he spends in School is?

a)38% b)30% c)40% d)25% e)None

2. How much time(in percentage) does he spends in games in comparision to sleeping?

a)30% b)40% c)25% d)75% e)None

3. What is the ratio of time spend in sleeping to time spend in Home Work respectively?

a)9:5 b)7:4 c)5:2 d)8:3 e)None

4. If he spends 1/3rd of time for homework in Mathematics, then the number of hours he spends in rest of the subjects in homework is…

a)2hrs b)5hrs c)7hrs d)18hrs e)None

5. The ratio of time spend in sleeping and games together to time spend in others respectively

a)9:11 b)5:7 c)13:11 d)7:9 e)None

6. What is the value of 0.99999....in the form of p/q ?

a)1 b)1.2 c)2/3 d)7/9 e)None

7. (4x4x4x4x4)÷(4x4x4)+4=?

a)20 b)4 c)14 d)3/4 e)None

8. Find the square root of 3721

a)49 b)51 c)61 d)59 e)None

9. Difference of any two even numbers..

a)Odd b)Even c)Prime d)Composite e)None

10. Find the least value of '*' so that the number 12*25253 is divisible by 3

a)3 b)4 c)1 d)2 e)None

11. What is the units place in 2528^{2529}

a)7 b)1 c)8 d)9 e)None of These

12. Find the LCM of 28, 35, 56 and 84

a)840 b)140 c)255 d)250 e)None

13. LCM and HCF of two numbers is 180 and 20 respectively. One of the two numbers is 30. find the another number..

a)100 b)90 c)120 d)70 e)150

14. Find the total number of factors of 169 ?

a)1 b)2 c)3 d)9 e)None

Directions (Q.No:15 to 19): These questions are based on the data in the following table, study it carefully and answer the questions given below it.

Population (in Lakh) of various states over the years

Years	STATES									
	A	B	C	D	E	F	G	H	I	J
2000	56	37	62	48	63	53	71	69	53	73
2001	64	42	60	46	64	56	72	72	52	75
2002	70	39	63	45	61	52	69	73	55	76
2003	69	43	61	47	65	55	73	68	54	77
2004	73	40	65	49	62	54	71	67	57	79
2005	65	45	66	52	63	58	74	75	56	80
2006	72	47	69	51	60	57	72	74	58	81
2007	77	52	67	52	64	59	75	76	59	83
2008	76	50	68	53	66	60	76	78	60	84
2009	75	53	70	50	68	61	74	77	62	85

15. The population of which state was the highest in the year 2003?

a)A b)E c)I d)J e)None

16. The population of state C in 2007 was equal to the population of which state in 2004?

a)A b)H c)I d)J e)None

17. What was the difference between the population of state C in 2007 and state E in 2002

a)6 lakhs b)7 lakhs c)4 lakhs d)5 lakhs e)None

18. Which state had the lowest population in 2009?

a)C b)B c)D d)A e)None

19. The population of state 'I' was the lowest in which year?

a)2008 b)2009 c)2001 d)2000 e)None

20. If A:B=3:5 and B:C=5:3. Find A:B:C?

a)15:25:15 b)4:5:3 c)3:5:3 d)9:12:20 e)None

21. Rs.189 has been divided among A,B,C in the ratio 2:3:4. What is the share of A?

a)Rs.48 b)Rs.32 c)Rs.54 d)Rs.42 e)None

22. The salaries of A,B,C are in the ratio 3:5:7. If the increments of 15%,10% and 20% are allowed respectively in their salaries then what will be the new ratio of their salaries?

a)3:5:7 b)10:11:20 c)23:33:60 d)69:110:168 e)None

23. A/2=B/3=C/5 then find A:B:C?

a)2:3:5 b)5:4:3 c)3:4:5 d)4:5:3 e)None

24. A,B and C entered into a partnership. A contributes Rs.3600 for 4 months, B contributes Rs.1800 for 3 months. C contributes Rs.2700 for 5 months. Find the ratio of their profits share.

a) 16:6:15 b) 36:18:19 c) 3:1:2 d) 5:2:3 e) None

25. If the capitals of P & Q are in the ratio of 7:9 and the times of their investments are in the ratio 81:49.Then find their Profits Ratio?

a) 4:9 b) 7:9 c) 9:7 d)5:9 e) None

26. A, B and C together started a business and their capitals are in the ratio 5:3:2 the timing of their investments being in the ratio 4:5:6. In what ratio would their profits be distributed?

a) 20:15:12 b) 12:13:15 c)14:15:16 d) 12:5:5 e) None

27. In a business A,B and C invested Rs.8000, Rs,5000 & Rs.12000 respectively find the share of B in the total profit of 62500/-

a) Rs.12600 b) Rs. 12800 c) Rs. 12500 d) Rs. 12400 e) None

28. The difference between the ages of Rajesh and Vinod is 9yrs and they are in the ratio 2:3 then the ratio of their ages after 2 yrs is..

a)10:11 b)10:19 c)20:11 d)20:29 e)None

29. The ratio of the present ages of Father and His son is 4:3. Six years hence it will be 7:6. What is the present age of the son?

a)7yrs b)5yrs c)10yrs d)9yrs e)None

30. Before 6yrs, the ratio of ages of A & B was 4:5 and present their ages ratio is 6:7. What is the present age of A.?

a)6yrs b)17yrs c)7yrs d)5yrs e)None

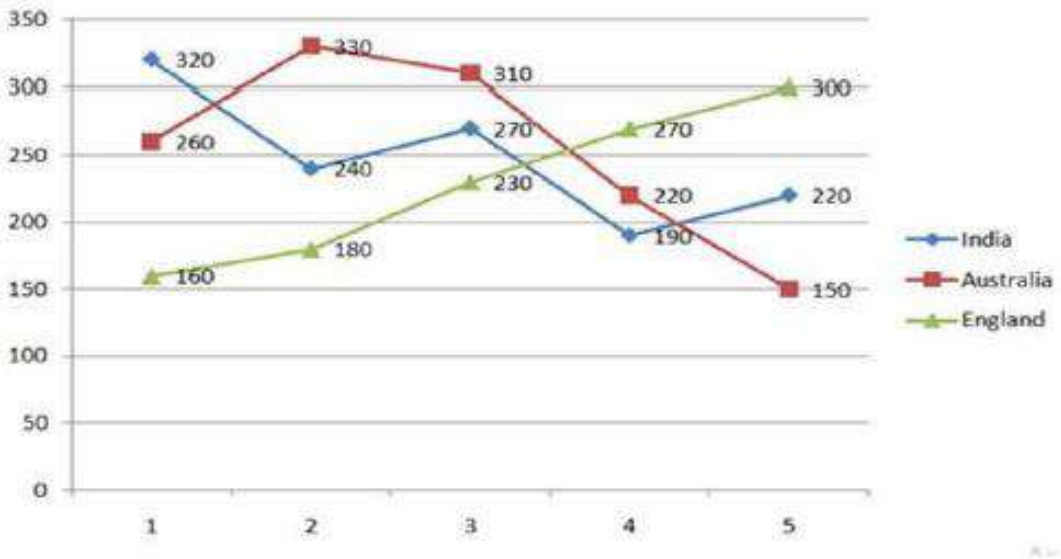
31. The ratio between the present ages of Ramesh and Jayesh is 3:2. 4yrs ago Ramesh's age was 12yrs more than by Jayesh. What is the present age of Ramesh..?

a)18yrs b)36yrs c)64yrs d)9yrs e)None

Directions(Q.no-32 to 36):

Study the following graph carefully and answer the questions that follow.

Runs scored by three different teams in five different cricket matches



32. Total runs scored by India and Australia in Match 4 together is approximately, what percentage of the total runs scored by England in all five matches together?

a) 42% b)18% c)36% d)24% e) 28%

33. In which match, is the difference between the runs scored by Australia and England second lowest?

a) 1 b)2 c)3 d) 4 e)5

34. In which match the total runs scored by India and England is the third highest/lowest?

a) 1 b)2 c) 3 d) 4 e) 5

35. What is the respective ratio between the runs scored by India in Match 5 Australia in Match 1 and England in Match 2 ?

a) 11 : 13 : 7 b) 11 : 7 : 13 c)11 : 3 : 9 d)11 : 13 : 9 e)NONE OF THESE

36. What was the average runs scored by all the three teams in Match 3 together?

a) 280 b)270 c) 275 d)285 e) NONE OF THESE

Directions(Q.No-37 to 41): Complete the Series

37. 64 125 216 343 __

a)512 b)513 c)514 d)625 e)None

38. 127 218 345 514 __

a)729 b)731 c)730 d)728 e)None

39. 9,27,31,155,161,1127 __

a)1144 b)1212 c)1692 d)1135 e)None

40. R U X A D __
a)H b)G c)X d)W e)None
41. ABCDEABCDABCA__
a)B b)C c)D d)A e)None
Directions(Q.No:42 to 47): Analyse the elements

42. 342:24::543:__
a)12 b)16 c)60 d)30 e)None
43. 9:18::6:__
a)24 b)12 c)18 d)21 e)None
44. EIGHTY:GIEYTH::OUTPUT:
a)TUOTUP b)OUTTUP c)TUOPUT d)PUTTUO e)None
45. A2C:D5F::G8H:__
a)J 11 L b)I 11 K c)I 10 K d)I 12 M e)None
46. Girl:Beautiful::Boy:__
a)Smart b)Heroic c)Courageous d)Handsome e)None
47. Train:Trail::Grain:__
a)Grial b)Grail c)Gairl d)Giarl e)None
Directions(Q.No-48 to 52): Find the odd thing in

48. a)127 b)53 c)63 d)111 e)89
49. a)8 b)12 c)15 d)20 e)24
50. a)A 4 C b)D 10 F c)I 20 K d)G 16 I e)W 25 Y
51. a)47 B144 C)169 d)49 e)64
52. a)51 b)85 c)119 d)102 e)76
53. What % is equivalent to 3/4?

(a)50% (b)60% (c)75 % (d)16.66% (e) None of these.

54. What fraction equivalent to 325%?

(a)19/4 (b) 13/4 (c) 7/4 (d) 9/4 (e) None of these.

55. 40% of a number is added to 42.The resultant is that number.Find the number?

(a) 150 (b) 200 (c) 100 (d) 300 (e) None of these.

56. The population of village is decreased from 4000 to 3500. Find the decreased percentage?

(a) 25% (b) 22.5% (c) 12.5% (d) 14.5% (e) None of these

57. The ratio between the cost price and selling price is 9:11. Find the profit percentage?

a)25% b)22.33% c)22.11% d)22.22% e)None

58. A dishonest dealer sold his goods at cost price but he uses 2 kg instead of 3kg. Then what is the profit percentage?

a)50% b)25% c)12% d)33.33% e)None

59. Rajesh sold a TV set for Rs.2500 at 25% profit then what is cost price of the TV set?

a)Rs.1000 b)Rs.2750 c)Rs.2220 d)Rs.2400 e)None

60. Arun sold an article for Rs.3200 at a loss of 20% find the cost price?

a)Rs.2000 b)Rs.1800 c)Rs.3200 d)Rs.4000 e)None

61.Pointing a photograph of Arshita, Rajesh said,"Her father is the only son of my father."How isArshita related to Rajesh?

a)mother b)sister c)niece d)daughter e)none

62.A and B are children of C.C is the father of A but B is not the son of C.how is A related to C?

a)daughter b)cousin c)son d)nephew e)none

63. What is my mother's husband's father-in-law's son's doughter to me ?

a)brother b)bother-in-law c)uncle d)cousin e)None of these

64.Pointing to a man in photograph ,Asha said."Hismather's only daughter is my mother."

How is Asha related to that man?

a)nephew b)sister c)wife d)niece e)none

65. April 16 th 2019 was tuesday. What day of the week will it be on january 26th 2020.

(a)Wednesday (b)Tuesday (c)sunday (d)Saturday (e)None of these.

66. The year next to 2019 having same calendar as that of 2019 is

(a)2020 (b)2025 (c)2030 (d)2031 (e)None of these.

67. Find the number of odd days on 226 days

(a)6 (b)3 (c)2 (d)5 (e) None of these.

68. Number of odd days in 1600 years?

(a)3 (b)1 (c)5 (d)0 (e)None of these.

69. Express 150mps in kmph.?

a)250kmph b)590kmph c)580kmph d)540kmph e)None

70. The speed of a car is 30kmph after completion every one hour the speed of the car is increased by 2kmph. How much distance travelled by the car in 10hrs?

a)390km b)200km c)210km d)305km e)None

71. Ram goes to city B from city A at 80kmph and returns to A from B at 30kmph. What is the average speed of the whole journey?

a)48kmph b)60kmph c)65kmph d)35kmph e)None

72. The speed of a train is 90kmph. What is the distance covered by it in 25seconds?

a)500m b)600m c)575m d)625m e)None

73. What is the mirror image of 12:30 AM

a)11:30am b)11:30pm c)12:30pm d)10:30pm e)None

74. Howmany times the hands of a clock be coincide in 24 hours

a)12 b)11 c)13 d)22 e)NoneOfThese

75. At what angle the hands of a clock are coincide when the time is 10:20PM

a)190^0 b)160^0 c)120^0 d)110^0 e)NoneOfThese

76. The hands of a correct clock coincide after every?

a)60min b)65 5/11min c)64 6/11min d)65min e)NoneOfThese

77. A person borrow Rs.5000 at 16 2/3% (mixed fraction) per annum after 3 years how much amount will he pay (if simple interest is calculated annually)

a)Rs.7000 b) Rs.8000 c) Rs 7500 d) Rs.8500 e) None of these

78. A person borrow Rs.4000 at 10% per annum after 2 years how much amount will he pay (if compound interest is calculated annually)

a) Rs.4440 b) Rs.4242 c) Rs.4700 d) Rs.4840 e) None of these

79. A person borrow Rs.10000 at 30% per annum after 2 years how much interest will he pay (if compound interest is calculated annually)

a) Rs.6500 b) Rs.6900 c) Rs.6000 d) Rs.7900 e) None of these

80. A lent Rs.1,20,000 to B. After 5yrs A received Rs.36,000 as interest. Find the rate of interest per annum (if simple interest is calculated annually)

a)42% b)14% c)4% d)8% e)6%

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A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS &SCIENCE

(An Autonomous College in the jurisdiction of Krishna University, Machilipatnam)

2022 - 2023

Course Code: **SECMAT501** Offered to: MPC, MPCs, MCCs
Domain Subject: **MATHEMATICS** Semester – **V**
Max. Marks: **100** (CCIA: 30 + SEE: 70) Theory Hrs./Week: **6**

Course 6B: MULTIPLE INTEGRALS AND APPLICATIONS OF VECTOR CALCULUS

Type of the Course: (**Skill Enhancement Course** (Elective)), Credits: 05

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Students learn about Multiple Integrals, Change of Order of Integration in Double Integral, Area and Volume by Double Integration. Triple Integrals.
CO2: To set up and evaluate multiple integrals for regions in the plane. To find Area of the region bounded by curves and to find volume, surface area, Mass, C.G and M.I of solid geometric figures.
CO3: Recognize vector fields and vector calculus, and define Gradient, Divergence and Curl operators.
CO4: Compute the derivatives and line integrals, surface integrals and volume integrals of vector functions and learn their Applications.
CO5: Students learn Green's theorem, Gauss Divergence theorem, Stoke's theorem and applications to evaluating line integrals and finding areas.

II. Syllabus: **(Total Theory Hours: 75)**

UNIT-I: MULTIPLE INTEGRALS – I **(15 Periods)**

1.1 Introduction, Double integrals, Evaluation of double integrals, Properties of doubleintegrals.
1.2 Region of integration, double integration in Polar Co-ordinates,
1.3 Change of variables in double integrals, change of order of integration.

UNIT-II: MULTIPLE INTEGRALS – II **(15 Periods)**

2.1 Triple integral, region of integration, change of variables.
2.2 Plane areas by double integrals, surface area by double integral.
2.3 Volume as a double integral, volume as a triple integral.

UNIT-III: VECTOR DIFFERENTIATION **(15 Periods)**

3.1 Vector differentiation, ordinary derivatives of vectors.
3.2 Differentiability, Gradient, Divergence, Curl operators,
3.3 Formulae involving the separators.

UNIT-IV: VECTOR INTEGRATION (15 Periods)

4.1 Line Integrals with examples.
4.2 Surface Integral with examples.
4.3 Volume integral with examples.

UNIT-V: VECTOR INTEGRATION APPLICATIONS (15 Periods)

5.1 Gauss theorem and applications of Gauss theorem.
5.2 Green's theorem in plane and applications of Green's theorem.
5.3 Stokes's theorem and applications of Stokes theorem.

III References/ Text Book/ e-books/websites

1. Dr.M Anitha, Linear Algebra and Vector Calculus for Engineer, Spectrum University Press, SR Nagar, Hyderabad-500038, INDIA.
2. Dr.M.Babu Prasad, Dr.K.Krishna Rao, D.Srinivasulu, Y.AdiNarayana, Engineering Mathematics-II, Spectrum University Press, SR Nagar, Hyderabad-500038,INDIA.
3. V.Venkateswararao, N. Krishnamurthy, B.V.S.S.Sarma and S.Anjaneya Sastry, A text Book of B.Sc., Mathematics Volume-III, S. Chand & Company, Pvt. Ltd., Ram Nagar, NewDelhi-110055.
4. R.Gupta,Vector Calculus, Laxmi Publications.
5. P.C.Matthews, Vector Calculus, Springer Verlag publications.
6. Web resources suggested by the teacher and college librarian including reading material.

Reference Materials on the Web/web-links:
https://mate.unipv.it/moiola/ReaDG/VC2016/VectorCalculus_LectureNotes_2016.pdf

IV Co-Curricular Activities:

A) Mandatory:

For Teacher: Teacher shall train students in the following skills for 15 hours, by takingRelevant outside data (Field/Web).

1. The methods of evaluating double integrals and triple integrals in the class room and train to evaluate these integrals of different functions over different regions.
2. Applications of line integral, surface integral and volume integral.
3. Applications of Gauss divergence theorem, Green's theorem and Stokes's theorem.

For Student: Project work Each student individually shall undertake Project work and submit a report not exceeding 10 pages in the given format on the work-done in the areas like thefollowing**,** by choosing any one of the following aspects.

1. Going through the web sources like Open Educational Resources to find the values of double and triple integrals of specific functions in a given region and make conclusions. (or)
2. Going through the web sources like Open Educational Resources to evaluate line integral, surface integral and volume integral and apply Gauss divergence theorem, Green's theorem and Stokes theorem and make conclusions.

Max. Marks for Project work Report: 5.

Suggested Format for Project work Report:
Title page, Student Details, Index page, Stepwise work-done, Findings, Conclusions and Acknowledgements.

Comprehensive Continuous Assessment Test (CCIA):
(2 tests will be conducted each carries 20 Marks, consider Average Mark: 20)

B) Suggested Co-Curricular Activities:

1. Assignments, Seminar, Quiz, Group discussions/Debates.
2. Visits to research organizations, Universities, ISI etc.
3. Invited lectures and presentations on related topics by experts in the specified area.

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE, VUYYURU – 521165, KRISHNA Dt., A.P.

(An Autonomous College in the jurisdiction of Krishna University, Machilipatnam)

Accredited with "A" Grade by NAAC, Bengaluru

EXAMINATION AT THE END OF SEMESTER (w.e.f 2022-23)

MATHEMATICS Paper VI SECMAT-501 MAX.MARKS: 70 TIME: 3 hrs

MULTIPLE INTEGRALS AND APPLICATIONS OF VECTOR CALCULUS

Section – A (short answer questions)

Answer any Four of the following questions. 4x5 = 20M

1.

2.

3.

4.

5.

6.

7.

8.

Section – B (long answer questions)

Answer any FIVE of the following questions. 5x10 = 50M

9.

10.

11.

12.

13.

14.

15.

16.

A.G & S.G SIDDHARTHA DEGREE COLLEGE, VUYYURU

(An Autonomous College in the jurisdiction of Krishna University, Machilipatnam)

Accredited with "A" Grade by NAAC, Bengaluru

DEPARTMENT OF MATHEMATICS

Guidelines of III B.Sc for Question Paper Setters V/VI Semester-End Exams: 2022-23

Time: 3 Hrs **SECMAT501** Max.Marks:70

Paper Title: MULTIPLE INTEGRALS AND APPLICATIONS OF VECTOR CALCULUS

Note :- 1). Answer any FOUR questions out of 8 in Section-A.
Each question carries 5 marks. (4x5=20 Marks)

2). Answer any FIVE questions out of 8 in Section-B.
Each question carries 10 marks. (5x10 =50 marks)

Questions to be set as follows:

	Unit-1	Unit-2	Unit-3	Unit-4	Unit-5
Section-A (Short Answer Questions)	1	1	2	2	2
Section-B (Essay Questions)	1	1	2	2	2

-The End -

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS &SCIENCE

(An Autonomous College in the jurisdiction of Krishna University, Machilipatnam)

2022 - 2023

Course Code: **SECMAT502** Offered to: MPC, MPCS, MCCs
Domain Subject: **MATHEMATICS** Semester – **V**
Max. Marks: **100** (CCIA: 30+ SEE: 70) Theory Hrs./Week: **6**

Course 7B: INTEGRAL TRANSFORMS WITH APPLICATIONS

Type of the Course: (**Skill Enhancement Course** (Elective)), Credits: 05

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Evaluate Laplace transforms of certain functions, find Laplace transforms of derivatives and ofintegrals.
CO2: Determine properties of Laplace transform which may be solved by application of special functions namely Dirac delta function, error function, Bessel function and periodic function.
CO3: Understand properties of inverse Laplace transforms, find inverse Laplace transforms ofderivatives and of integrals.
CO4: Solve ordinary differential equations with constant/ variable coefficients by using Laplace transforms method.
CO5: Comprehend the properties of Fourier transforms and solve problems related to finite Fouriertransforms.

II. Syllabus: **(Total Theory Hours: 75)**

UNIT-I: LAPLACE TRANSFORMS – I **(15 Periods)**

1.1 Definition of Laplace transform, linearity property-piecewise continuous function.
1.2 Existence of Laplace transform, functions of exponential order and of class A.
1.3 First shifting theorem, second shifting theorem and change of scale property.

UNIT-II: LAPLACE TRANSFORMS – II **(15 Periods)**

2.1 Laplace Transform of the derivatives, initial value theorem and final value theorem. Laplacetransforms of integrals.
2.2 Laplace transform of t^n. f (t), division by t, evolution of integrals by Laplace transforms.
2.3 Laplace transform of some special functions-namely Dirac delta function, error function,Bessel function and Laplace transform of periodic function.

UNIT-III: INVERSE LAPLACE TRANSFORMS (15 Periods)

3.1 Definition of Inverse Laplace transforms, linear property, first shifting theorem, secondshifting theorem, change of scale property, use of partial fractions**.**

3.2 Inverse Laplace transforms of derivatives, inverse, Laplace transforms of integrals, multiplication by powers of 'p', division by 'p'.

3.3 Convolution, convolution theorem proof and applications.

UNIT-IV: FOURIER SERIES (15 Periods)

4.1 Introduction, Euler's formulae for Fourier series expansion of a function f(x), Dirichlet's conditions for Fourier series, convergence of Fourier series.

4.2 Functions having arbitrary periods. Change of interval, half range series.

4.3 Parseval's theorem, illustrative examples based on Parseval's theorem, some particular series.

UNIT-V: FOURIER TRANSFORMS (15 Periods)

5.1 Integral transforms, Fourier integral theorem (without proof), Fourier sine and cosine integrals.

5.2 Properties of Fourier transforms, change of scale property, shifting property, modulation theorem.

5.3 Convolution, Convolution theorem for Fourier transforms, Parseval's Identify, finite Fourier transforms.

III References/ Text Book/ e-books/websites

1. Dr. S.Sreenadh, S.Ranganatham, Dr.M.V.S.S.N.Prasad, Dr. V.Ramesh Babu, Fourier series and Integral Transforms, S. Chand & Company, Pvt. Ltd., Ram Nagar, New Delhi-110055.
2. A.R. Vasistha, Dr. R.K. Gupta, Laplace Transforms, Krishna Prakashan Media Pvt. Ltd.Meerut.
3. M.D.Raisinghania, H.C. Saxsena , H.K. Dass, Integral Transforms, S. Chand & Company Pvt. Ltd., Ram Nagar, New Delhi-110055.
4. Dr. J.K. Goyal, K.P. Gupta, Laplace and Fourier Transforms, Pragathi Prakashan, Meerut.
5. Shanthi Narayana , P.K. Mittal, A Course of Mathematical Analysis, S. Chand & Company Pvt.Ltd. Ram Nagar, New Delhi-110055.
6. Web resources suggested by the teacher and college librarian including reading material.

Reference Materials on the Web/web-links:

1. http://aurora.phys.utk.edu/~forrest/papers/fourier/index.html An introduction to the Fourier Transform, Fast Fourier Transform, and Discrete Fourier Transform.
2. http://risc1.numis.nwu.edu/fft/ Public Domain code related to Fast Fourier Transforms.

IV) Co-Curricular Activities:

A) Mandatory:

For Teacher: Teacher shall train students in the following skills for 15 hours, by takingRelevant outside data (Web).

1. Demonstrate on sufficient conditions for the existence of the Laplace transform of a function.
2. Evaluation of Laplace transforms and methods of finding Laplace transforms.
3. Evaluations of Inverse Laplace transforms and methods of finding Inverse Laplace transforms.
4. Fourier transforms and solutions of integral equations.

For Student: Project work: Each student individually shall undertake Project work and submit a report not exceeding 10 pages in the given format on the work-done in the areas like thefollowing**,** by choosing any one of the aspects.

1. Going through the web sources like Open Educational Resources on Applications of Laplace transforms and Inverse Laplace transforms to find solutions of ordinary differential equations with constant /variable coefficients and make conclusions. (or)
2. Going through the web sources like Open Educational Resources on Applications of convolution theorem to solve integral equations and make conclusions. (or)
3. Going through the web source like Open Educational Resources on Applications of Fourier transforms to solve integral equations and make conclusions.

Max. Marks for Project work Report: 5.

Suggested Format for Fieldwork/Project work Report: Title page, Student Details, Indexpage, Stepwise work-done, Findings, Conclusions and Acknowledgements.

Comprehensive Continuous Assessment Test (CCIA):

(2 tests will be conducted each carries 20 Marks, consider Average Mark: 20)

B) Suggested Co-Curricular Activities:

1. Assignments/collection of data, Seminar, Quiz, Group discussions/Debates
2. Visits to research organizations, Universities, ISI etc.
3. Invited lectures and presentations on related topics by experts in the specified area.

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE, VUYYURU – 521165, KRISHNA Dt., A.P.

(An Autonomous College in the jurisdiction of Krishna University, Machilipatnam)

Accredited with "A" Grade by NAAC, Bengaluru

EXAMINATION AT THE END OF THE SEMESTER (w.e.f 2022-23)

MATHEMATICS Paper VII SECMAT-502 MAX.MARKS: 70 TIME: 3 hrs

INTEGRAL TRANSFORMS WITH APPLICATIONS

Section – A (short answer questions)

Answer any Four of the following questions. 4x5 = 20M

1.

2.

3.

4.

5.

6.

7.

8.

Section – B (long answer questions)

Answer any FIVE of the following questions. 5x10 = 50M

9.

10.

11.

12.

13.

14.

15.

16.

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DEPARTMENT OF MATHEMATICS

Guidelines of III B.Sc for Question Paper Setters V/VI Semester-End Exams: 2022-23

Time: 3 Hrs **SECMAT502** Max.Marks:70

Paper Title: INTEGRAL TRANSFORMS WITH APPLICATIONS

Note :- 1). Answer any FOUR questions out of 8 in Section-A.
Each question carries 5 marks. (4x5=20 Marks)

2). Answer any FIVE questions out of 8 in Section-B.
Each question carries 10 marks. (5x10 =50 marks)

Questions to be set as follows:

	Unit-1	Unit-2	Unit-3	Unit-4	Unit-5
Section-A (Short Answer Questions)	2	2	2	1	1
Section-B (Essay Questions)	2	2	2	1	1

-The End -

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2022-2023

DEPARTMENT OF MATHEMATICS

MINUTES OF BOARD OF STUDIES

EVEN SEMESTER

19-04-2023

Minutes of the meeting of BOS in Mathematics for B. Sc Degree Courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 2.30 PM on 19 – 04 – 2023 through online mode.

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N.V. Srinivasa Rao — *Presiding*

Members Present:

1)	N.V. Srinivasa Rao	Chairman	Head, Department of Mathematics, AG & SG S Degree College.
2)	(Dr. K. Jaya Lakshmi)	University Nominee	Department of Mathematics, Krishna University, Machilipatnam.
3)	(M. Venkateswara Rao)	Subject Expert	Department of Mathematics, Govt. Degree College, Avanigadda.
4)	(I. V. Venkateswara Rao)	Subject Expert	Department of Mathematics, P. B. Siddhartha College, Vijayawada
5)	D. Sunitha (D. Sunitha)	Member	Lecturer in Mathematics AG & SG S Degree College.
6)	A. Bhargavi (A. Bhargavi)	Member	Lecturer in Mathematics AG & SG S Degree College.
7)	(Noor Mohammad)	Member	Lecturer in Mathematics AG & SG S Degree College.
8)	K. Rajya Lakshmi (K. Rajya Lakshmi)	Member	Lecturer in Mathematics AG & SG S Degree College.
9)	Jahnavi. G (G . Jahanvi)	Student Member	III B.Sc M.P.Cs AG & SG S Degree College.
10)	N. Pavan Sai (N. Pavan Sai Kumar)	Student Member	III B.Sc M.P.C (E) AG & SG S Degree College.

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Agenda of B.O.S Meeting:

1. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Mathematics for 2nd Semester as per the guidelines and instructions prescribed APSCHE and Krishna University from the Academic Year 2022-23.
2. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Mathematics for 4th Semester as per the guidelines and instructions prescribed APSCHE and Krishna University from the Academic Year 2022-23.
3. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Mathematics for 5th/ 6th Semester as per the guidelines and instructions prescribed APSCHE and Krishna University from the Academic Year 2022-23.
4. Any other matter.

Resolutions.

1. Discussed and recommended that no changes are required in Syllabi. Changes are required in Model Question Papers and Guidelines to be followed by the question paper setters in Mathematics for 2nd Semesters from the Academic year 2022-23. The maximum marks for IA is 30 and SE is 70. Each IA written examination is of 1 Hr. 30 min duration for 20 marks. The tests will be conducted centrally. The average of two such IA is calculated for 20 marks. 5 marks will be allotted for attendance and 5 marks are allotted for Assignment/ Activity. There is no minimum passing for IA and there is no provision for improvement in IA. Even though the candidate is absent for two IA exams/obtain zero marks the external marks are considered (if he/ she gets 40 out of 70) and the result shall be declared as 'PASS' from the Academic year 2022-23.

2. Discussed and recommended that changes are required in Syllabi, Model Question Papers and Guidelines to be followed by the question paper setters in Mathematics for 4th Semesters from the Academic year 2022-23. The maximum marks for IA is 25 and SE is 75. Each IA written examination is of 1 Hr. duration for 15 marks. The tests will be conducted centrally. The average of two such IA is calculated for 15 marks. 5 marks will be allotted basing on Assignment and 5 marks are allotted for activity. There is no minimum passing for IA and there is no provision for improvement in IA. Even though the candidate is absent for two IA exams/obtain zero marks the external marks are considered (if he/ she gets 40 out of 75) and the result shall be declared as 'PASS' from the Academic year 2022-23.
3. Discussed and recommended that changes are required in syllabi, Model Question Papers and Guidelines for question paper setters in Mathematics for the 5th/ 6th Semester for the Academic year 2022-23.
4. Discussed and recommended for organizing seminars, Guest lecturers, Online Examinations and Workshops to upgrade the knowledge of students for Competitive Examinations for the approval of the Academic Council.

N.V.

Chairman

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Title of the Paper: REAL ANALYSIS **Semester: II**

Course Code	**MAT T21B**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	5	CIA Marks	25
No. of Lecture Hours / Week	6	Semester End Exam Marks	75
Total Number of Lecture Hours	75	Total Marks	100
Year of Introduction :2021-22	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

Course Outcomes:

After successful completion of this course, the student will be able to

1. Get clear idea about the real numbers and real valued functions.
2. Obtain the skills of analyzing the concepts and applying appropriate methods fortesting convergence of a sequence/ series.
3. Test the continuity and differentiability and Riemann integration of a function.
4. Know the geometrical interpretation of mean value theorems.

Course Syllabus:

UNIT – I (12 Hours) REAL NUMBERS:

The algebraic and order properties of R, Absolute value and Real line, Completeness property of R, Applications of supremum property; intervals. (No question is to be set from this portion).

Real Sequences:

Sequences and their limits, Range and Boundedness of Sequences, Limit of a sequence and Convergent sequence. The Cauchy's criterion, properly divergent sequences, Monotone sequences, Necessary and Sufficient condition for Convergence of Monotone Sequence, Limit Point of Sequence, Subsequences and the Bolzano-weierstrass theorem – Cauchy Sequences – Cauchy's general principle of convergence theorem.

UNIT –II (12 Hours) INFINITIE SERIES:

Series: Introduction to series, convergence of series. Cauchy's general principle of convergence for series tests for convergence of series, Series of Non-Negative Terms.

1. P-test
2. Cauchy's n^{th} root test or Root Test.
3. D'-Alembert's Test or Ratio Test.
4. Alternating Series – Leibnitz Test.

Absolute convergence and conditional convergence.

UNIT – III (12 Hours) CONTINUITY :

Limits : Real valued Functions, Bounded ness of a function, Limits of functions. Some extensions of the limit concept, Infinite Limits. Limits at infinity. (No question is to be set from this portion).

Continuous functions: Continuous functions, Combinations of continuous functions, Continuous Functions on intervals, uniform continuity.

UNIT – IV (12 Hours) DIFFERENTIATION AND MEAN VALUE THEORMS:

The derivability of a function, on an interval, at a point, Derivability and continuity of a function, Graphical meaning of the Derivative, Mean value Theorems; Rolle's Theorem, Lagrange's Theorem, Cauchy's Mean value Theorem

UNIT – V (12 Hours) RIEMANN INTEGRATION :

Riemann Integral, Riemann integral functions, Darboux theorem. Necessary and sufficient condition for R – integrability, Properties of integrable functions, Fundamental theorem of integral calculus, integral as the limit of a sum, Mean value Theorems.

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/ Real Analysis and its applications / Problem Solving.

Text Book:

Introduction to Real Analysis by Robert G.Bartle and Donlad R. Sherbert, published by John Wiley.

Reference Books:

1. A Text Book of B.Sc Mathematics by B.V.S.S. Sarma and others, published by S. Chand & Company Pvt. Ltd., New Delhi.
2. Elements of Real Analysis as per UGC Syllabus by Shanthi Narayan and Dr. M.D. Raisinghania, published by S. Chand & Company Pvt. Ltd., New Delhi.

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SEMESTER – II , REAL ANALYSIS

B.Sc MATHEMATICS MODEL PAPER

Time: 3Hrs **Max.Marks:75M**

SECTION - A

Answer any FIVE questions. Each question carries FIVE marks. **5x5 = 25M**

1.
2.
3.
4.
5.
6.
7.
8.

SECTION - B

Answer ALL the questions. Each question carries TEN marks. **5 X 10 M = 50 M**

9. a) OR b)
10. a) OR b)
11. a) OR b)
12. a) OR b)
13. a) OR b)

BLUE PRINT FOR QUESTION PAPER PATTERN COURSE-IV, REAL ANALYSIS

Unit	TOPIC	S.A.Q	E.Q	Total Marks
I	Real Number System and Real Sequence	1	2	25
II	Infinite Series	1	2	25
III	Limits and Continuity	2	2	30
IV	Differentiation and Mean Value Theorem	2	2	30
V	Riemann Integration	2	2	30
	TOTAL	8	10	140

S.A.Q. = Short answer questions (5 marks)

E.Q. = Essay questions (10 marks)

Short answer questions : 5 X 5 M = 25 M

Essay questions : 5 X 10 M = 50 M

Total Marks = 75 .

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Department of Mathematics

COURSE STRUCTURE

Sem	Course Code	Paper	Title of the Paper	Total Marks	Internal Exam	Sem.End Exam	Teaching Hours	Credits
IV	MATT 01A	CORE	SOLID GEOMETRY	100	25	75	6	5

Programme Outcomes

S. No	P.O
	At the end of the Programme the student will be able to:
1	Demonstrate the ability to use mathematical skills such as formulating and tackling mathematics related problems and identifying and applying approximate physical principles and methodologies to solve a wide range of problems associated with mathematics.
2	Apply the underlying unifying structures of mathematics and the relationships among them.
3	Investigate and apply mathematical problems and solutions in variety of contexts related to science and technology, business and industry.

Course Outcomes of MATT01A

S. No	C.O Upon successful completion of this course, students should have the knowledge and skills to:	Mapping
1	Understand the basic concepts of plane to find the length of perpendicular from a given point to given plane, bisectors of angles between two planes, angle between the pair of planes.	L2, PO-1
2	Determine the equation of a line in various forms & image of a given point w.r.t. a line and plane.	L3, PO - 1
3	Compute the equations of the hallow spheres through the given points, plane section of a sphere.	L3,PO - 1
4	Determine orthogonal spheres, coaxial system of spheres. The equation of cone, vertex of a cone ,General equation of second degree should represent a cone.	L3, P0-1
5	Calculate the equation of enveloping cone, reciprocal cone, right circular cone and intersection of two cones with a common vertex.	L3, P0-1

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MATHEMATICS	**MATT01A**	**2022-23 onwards**	**B.Sc (MPC,MPCS, MSCs, MCCS)**

SOLID GEOMETRY

SEMESTER-IV No of Credits: 5

OBJECTIVE: TO ENHANCE DATA ANALYTICAL SKILLS AND LOGICAL THINKING SKILLS TO THE STUDENTS.

UNIT-I: The Plane (18Hrs)

1.1 Equation of plane in terms of its interception the axis, Equations of the plane through the given points

1.2 Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes

1.3 Plane passing through the intersection of two given planes, Orthogonal projection on a plane

1.4 Joint equation of a pair of planes, Angle between the pair of planes, Angle between the pair of parallel planes.

UNIT-I: The Line (18Hrs)

2.1 Equation of a line in symmetric form and parametric form; Angle between a line and a plane

2.2 The condition that a given line may lie in a given plane, The condition that two given lines are coplanar

2.3 Number of arbitrary constants or parameters in the equations of straight line

2.4 Length of the perpendicular from a given point to a given line.

2.5 The shortest distance between two lines, The length and equations of the line of shortest distance between two straight lines.

UNIT-III: Sphere: (18Hrs)

3.1 Definition and equation of the sphere; Equation of the sphere through given points

3.2 Plane sections of a sphere, Great Circle, Small Circle

3.3 Intersection of sphere and a line.

3.4 Conditions for a plane to intersect a sphere

3.5 Equation of a Sphere through a given circle

3.6 Intersection of a sphere and a line; tangent plane touching spheres, Power of a point;

3.7 Plane of contact; Polar plane; Pole of a Plane; Conjugate points; Conjugate planes; Conjugate lines or polar lines, Angle of intersection of two spheres; Conditions for two Spheres to be orthogonal;

3.8 Radical plane; Radical line, Radical Centre, Coaxial system of spheres; Limiting points.

UNIT-IV: Cones **(18Hrs)**

4.1 Definition of a cone, Vertex, guiding curve, generators, Equation of the cone with a given Vertex and guiding curve

4.2 Condition that the general equation of the second degree should represent a cone

4.3 Enveloping cone of a surface, Equations of cones with vertex at origin

4.4 Condition that a cone may have three mutually perpendicular generators, Intersection of a line with a cone

4.5 Tangent lines and tangent plane at a point, Condition that a plane may touch a cone

4.6 Reciprocal cones, Intersection of two cones with a common vertex

4.7 Right circular cone, Equation of the right circular cone with a given vertex, Axis and semi-vertical angle.

UNIT-V: Cylinders: **(18Hrs)**

5.1 Definition of a cylinder, Equation to the cylinder whose generators intersect a given Conic and are parallel to a given line

5.2 Enveloping cylinder of a sphere

5.3 The right circular cylinder

5.4 Condition for tangents, Director Sphere.

Student Activities:

4) **Class-room activities:** Power point presentations, Assignments

5) **Library activities:** Visit to library and preparation of notes for Assignment problems.

6) **Activities in the Seminars, workshops and conferences:** Participation/presentation in seminar/workshop/conference.

CO-CURRICULAR ACTIVITES:

- Quiz Competitions, Seminars
- Group Discussions

WEB LINKS:

https://www.whitman.edu/mathematics/calculus online/sectionl 2.05.html
https://en.wikipedia.org/wiki/Sphere

Prescribed Text book:				
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAROF PUBLICATION
1	V. Krishna Murthy	A text book of mathematics for B.A/B.ScVol-1	S-Chand	2015

Reference books:				
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1	Dr. A. Anjaneyulu	A text book of mathematics for B.A/B.ScVol-1	Deepthi Publications	2015
2	Shanti Narayan and P.K. Mittal	Analytical Solid Geometry	S.Chand& Company Ltd.	2010
3	Dr.C Govardhan	A text book of mathematics for B.A/B.ScVol-1	Telugu Academy	2009

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SEMESTER – IV

Model Paper

COURSE CODE : MAT T01A

TITLE OF THE PAPER : SOLID GEOMETRY

Time: 3hrs. **Max. Marks: 75**

Section-A

Answer any FIVE questions **(5x5=25 Marks)**

1. Find the equation of the plane through (4, 4, 0) and perpendicular to the planes x+2y+2z and 3x+3y+2z-8=0. (CO l, L2)
2. Find the angle between the planes 2x-3y-6z =6 and 6x+3y-2z=18. (CO l, L2)
3. Find the image of the point (2,-1,3) in the plane 3x-2y+z=9 (CO2, L3)
4. Find the equation to the sphere through 0=(0,0,0) and making intercepts a, b, c on the axes. (CO3, L3)
5. Find the equations of the spheres passing through the circle $x^2 + y^2 = 4$, z=0 and is intersected by the plane x+2y+2z=0 in a circle of radius 3. (CO3, L3)
6. Find the equation of the cone whose vertex is (1, 1, 0) and whose guiding curve is y=0, $x^2 + z^2 = 4$ (CO4, L3)
7. Find the equation to the cone which passes through the three coordinate axes and the lines (CO4, L3) – — – and – – –
8. Find the equation of the cylinder whose generators are parallel to and which – Passes through the curve $x^2 + y^2$=16, z=0 (COS, L3)

Section-B

Answer ALL questions. **(5 x 10 = 50 Marks)**

9(a). Prove that the equation $2x^2 - 6y^2 - 12z^2 + 18yz + 2zx + xy = 0$ represents a pair of planes, and find the angle between them. (COl, L2)

(OR)

9(b). Find the bisecting plane of the acute angle between the planes 3x-2y+6z+2 =0, 2x-y+2z+2=0 (COl, L2)

I0(a). Find the image of the line — — — in the plane x+y+z=l (CO2, L3)

OR)

I0(b). Find the length and equations to the line of S.D between the lines **(CO_2, L_3)**

— — — and — — —

l l(a). Show that the plane 2x-2y+z+12=0 touches the sphere $x^2 + y^2 + z^2 - 2x - 4y + 2z - 3 = 0$ and find the point of contact. (CO3, L3)

(OR)

l l(b). Find the limiting points of the co-axial system of spheres of which two members are $x^2 + y^2 + z^2 + 3x - 3y + 6 = 0$, $x^2 + y^2 + z^2 - 6y - 6z + 6 = 0$ (CO3, L3)

12(a). Find the vertex of the cone

$7x^2 + 2y^2 + 2z^2 - 10zx + 10xy + 26x - 2y + 2z - 17 = 0$ (CO4, L3)

(OR)

12(b). Find the equation to the right circular cone whose vertex is (1,-2,-1), axes the line — — — and semi vertical angle 60^o (CO4, L3)

13(a). Find the equation to the right circular cylinder whose guiding circle is

$x^2 + y^2 + z^2 = 9$, $x - y + z = 3$ (CO5, L3)

(OR)

13(b). Find the equation of the enveloping cylinder of the sphere $x^2 + y^2 + z^2 - 2x + 4y - 1 = 0$, having its generators parallel to the line x=y=z. (CO5, L3)

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DEPARTMENT OF MATHEMATICS

COURSE STRUCTURE

Semester	Course Code	Paper	Title of the paper	Total marks	Internal exam	Sem end exam	Teaching hours	credits
IV	MAT T41A	CORE	Linear Algebra	100	25	75	5	5

Programme Outcomes:

S.No	P. O
	At the end of the program the student will able to
1	Demonstrate the ability to use mathematical skills such as formulating and tackling mathematics related problems and identifying and applying approximate physical principles and methodologies to solve a wide range of problems associated with mathematics.
2	Apply the underlying unifying structures of mathematics and the relationships among them.
3	Investigate and apply mathematics problem and solutions in variety of contexts related to science and technology, business and industry.

Course Outcomes of MAT T41A

S. No	C.O	
	Upon successful completion of their course, students should have the knowledge and skills to	
1.	Knowledge in fundamental concepts of vector spaces.	L2, PO-1
2.	Ability to understand the basic concepts of Basis and Dimensions.	L2, PO-1
3.	Discuss the linear transformations, rank and nullity.	L2, PO-1
4.	Appreciation in the concept of matrices as a tool in solving system of linear equations and determining eigen values and eigen vectors.	L2, PO-1
5	Ability to understand the basis concepts of inner product spaces and to develop hypothetical ideas and laws to solve the related problems in the context.	L4, PO-1

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MATHEMATICS	**MAT T41A**	**2022 – 23 Onwards**	**B.Sc.(MPC,MPCS,MCCs,MSCS)**

LINEAR ALGEBRA

SEMESTER-IV **No of Credits: 5**

OBJECTIVE: TO ENHANCE THE ANALYTICAL SKILLS AND APPLICATION SKILLS.

UNIT I: Vector spaces (18hrs)

1.1 Vector space definition – general properties of Vector space.

1.2 subspace definition – theorems & related problems.

1.3 Linear sum of two subspaces, linear combination of vectors and linear span of a set – theorems &related problems.

1.4 Linear dependence of vectors - theorems & related problems.

1.5 Linear independence of vectors - theorems & related problems.

UNIT II: Basis and Dimension (18hrs)

2.1 Basis of a vector space – definition, Basis existence, Basis extension, Basis Invariance, theorems.

2.2 Coordinates – definition & related problems.

2.3 Dimension of a vector space, dimension of a subspace - theorems & related problems.

2.4 Quotient space, dimension of Quotient space - theorems.

UNIT III: Linear Transformation (18hrs)

3.1 Vector space homomorphism – definitions

3.2 Linear transformation, Properties of L.T., Determination of L.T. - theorems & related problems.

3.3 Sum of linear transformations, scalar multiplication of L.T., product of linear transformations, Algebra of linear operators - theorems & related problems.

3.4 Range & Null space of a L.T. – Definitions, theorems & related problems.

3.5 Rank nullity theorem - related problems.

UNIT IV: Matrices (18hrs)

4.1 Fundamentals of Matrices.

4.2 Elementary matrix operations & elementary matrices.

4.3 Rank of a matrix – definition, related problems.

4.4 Echelon form of a matrix, reduction to normal form, PAQ form, Inverse of a matrix – related problems only.

4.5 System of linear equations – homogeneous & non homogeneous linear equations - related problems.

4.6 Eigen values & Eigen vectors of a matrix – definitions, theorems & related problems.

4.7 Cayley - Hamilton theorem, related problems.

UNIT V: Inner product spaces (18hrs)

5.1 Inner product spaces – definition, Norm (or) Length of a vector - theorems & related problems.

5.2 Schwarz in equality, Triangle inequality, parallelogram law – theorems.

5.3 Orthogonality – orthogonal, orthonormal vectors, orthogonal set, orthonormal sets of I.P.S - theorems & related problems.

5.4 Gram- Schmid orthogonalization process, Bessel’s Inequality and Parseval’s Identity.

Prescribed Text book:				
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1.	V. Venkateswara Rao, N. Krishna Murthy.	A text book of Mathematics for B.A/B.ScVol – III. (Pg No: 111-192; 232 – 321 & 339 – 389; 395 – 434).	S-Chand & Co.	2006

Reference Text books:				
S.NO	AUTHOR	TITLE OF THE BOOK	PUBLISHER	YEAR OF PUBLICATION
1.	J.N. Sharma and A. R. Vasistha	Linear Algebra	Krishna PrakashanMandir Meerut-250002.	
2.	Dr. A. Anjaneyulu	A Text Book of Mathematics B.A/B.Sc – Vol III	Deepthi Publications	3rd Edition 2006 - 2007

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SEMESTER – IV **Model Paper**

COURSE CODE : MAT T41A **Time: 3hrs.**

TITLE OF THE PAPER : LINEAR ALGEBRA **Max. Marks: 75**

SECTION – A

Answer any FIVE of the following questions **5X5=25M**

1. The set W of ordered triads (x, y, 0) where x, y ϵ F is a subspace of $V_3(F)$. (CO1, L2)
2. If two vectors are linearly dependent, prove that one of them is a scalar multiple of the other. (CO1, L2)
3. Show that the set { (1,0,0), (1,1,0),(1,1,1) } is a basis of $C^3(C)$.Hence find the coordinates of the vector (3+4i, 6i, 3+7i) in $C^3(C)$. (CO2,L4)
4. Describe explicitly the linear transformation T: $R^2 \rightarrow R^2$ such that T(2, 3) = (4, 5) and T(1, 0) = (0,0) (CO3,L2)
5. Find the rank of the matrix $\begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 1 \\ 1 & 1 & 0 \end{bmatrix}$. (CO4,L2)
6. Solve the system $2x_1 - x_2 + x_3 = 0$, $3x_1 + 2x_2 + x_3 = 0$, $x_1 - 3x_2 + 5x_3 = 0$. (CO4,L2)
7. Show that zero is a characteristic root of a matrix if and only if the matrix is singular. (CO4,L2)
8. State & prove the Triangle Inequality. (CO5,L2)

SECTION -B

Answer the following questions. **5X10=50M**

9a) If S, T are the subset of a vector space V (F), then prove that

i) $S \subseteq T \Rightarrow$ (i) $L(S) \subseteq L(T)$

ii) $L(S \cup T) = L(S) + L(T)$. (CO1,L2)

(OR)

9b). Let V (F) be a vector space and S = { $\alpha_1,\alpha_2,\alpha_3,\ldots\ldots\alpha_n$ } is a finite subset of non-zero vectors of V (F).Then S is linear dependent if and only if some vector $\alpha_k \in S$, $2 \leq k \leq n$, can be expressed as a linear combination of its preceding vectors**.** **(**CO1, L2)

10a) State and prove Basis extension theorem. (CO2, L2)

(OR)

10b) Let W be a subspace of a finite dimensional vector space V (F) then dim V/W = dim V – dim W. (CO2,L2)

11a) Find T (x, y, z) where T : $R^3 \rightarrow R$ is defined by T (1 , 1, 1) = 3; T(0, 1 ,-2) = 1; T(0, 0, 1) = -2. (CO3, L2)

(OR)

11b) State and prove Rank – nullity theorem. (CO3, L4)

12a) Show that the only number λ for which the system x + 2y + 3z = $\boldsymbol{\lambda}$x, 3x + y + 2z = $\boldsymbol{\lambda}$y, 2x + 3y + z = $\boldsymbol{\lambda}$z has non-zero solutions is 6. (CO4,L2)

(OR)

12b) State and prove Cayley – Hamilton theorem. (CO4,L2)

13a) State and prove Cauchy – Schwarz's Inequality. (CO5,L4)

(OR)

13b) Given {(2,1,3), (1, 2, 3), (1, 1, 1)} is a basis of R^3; Construct an orthonormal basis. (CO5,L4)

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A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF PHYSICS

MINUTES OF BOARD OF STUDIES

ODD SEMESTER

26-10-2022

Minutes of the meeting of Board of studies in Physics for the Autonomous course of A.G. & S.G. Siddhartha Degree College of Arts & Science, Vuyyuru held at 2.30 P.M on 26 - 10 - 2022 in the Department of Physics.

Sri J. Hareesh Chandra — **Presiding**

Members Present:

1) ..... **(Sri. J. Hareesh Chandra)**	Chairman	**Head, Department of Physics** A.G. &S.G.S. Degree College of Arts & Science, Vuyyuru - 521165
2) ..... **(Dr. M. Rami Reddy)**	University Nominee	**Registrar** Krishna University, Machilipatnam.
3) ..... **(Dr. P.V. Ramana)**	Academic Council Nominee	**H.O.D. Dept. of Physics,** SRI DNR Women's College, Palakollu.
4) ..... **(Dr. T. Srinivasa Krishna)**	Academic Council Nominee	**Associate Professor,** H.O.D, Dept. of Physics, P.B.Siddhartha College of Arts & Science, Vijayawada
5) ..... **(Sri I. Chittibabu)**	Representative from Industry	**Sub Divisional Engineer** BSNL , Vijayawada.
6) ..... **(Sri B. Dileep Kumar)**	Alumni	**Lecturer in Physics,** Dept.ofPhysics,IIIT, Nuzivid.
7) ..... **(Sri M. Sateesh)**	Member	**Lecturer in Physics,** A.G.&S.G.S.Degree College of Arts & Science, Vuyyuru - 521165.
8) ..... **(Smt. M.P.D. Parimala)**	Member	**Lecturer in Physics** A.G. & S.G.S.Degree College of Arts & Science, Vuyyuru - 521165.
9) ..... **(Sri J. Dileep)**	Member	**Lecturer in Physics** A.G.&S.G.S.Degree College of Arts & Science, Vuyyuru - 521165.
10) ..... **(Sri U.Ram prasad)**	Member	**Lecturer in Physics,** A .G.& S.G.S.Degree, College of Art. & Science,Vuyyuru -521165

Agenda for B.O.S Meeting

1. To recommend the syllabi (Theory & Practical) and model paper for I semester of I Degree B.Sc (MPC, MPCS) Physics for the Academic year 2022-2023.
2. To recommend the syllabi (Theory & Practical) and model paper for III semester of II Degree B.Sc (MPC, MPCS) Physics for the Academic year 2022-2023.
3. To recommend the syllabi (Theory & Practical) and model paper for V semester of III Degree B.Sc (MPC, MPCS) Physics for the Academic year 2022-2023.
4. To recommend Skill Development Course "ELECTRICAL APPLIANCES" for II year (III SEMESTER) students in this academic year 2022-23.
5. To recommend the Blue print of question papers for I, III & V semesters of B.Sc. Physics for the Academic year 2022-2023.
6. To recommend the Guidelines to be followed by the question paper setters in Physics for I, III & V Semester – end exams.
7. To recommend the teaching and evaluation methods to be followed under Autonomous status.
8. Any suggestions regarding seminars, workshops, Guest lecture to be organized.
9. Recommend the panel of paper setters and Examiners to the controller of Examinations of autonomous Courses of A.G. & S.G.S.Degree colleges of Arts & Science, Vuyyuru.
10. Any other matter.

T. Harischandra
Chairman

RESOLUTIONS

The following resolutions are made in Board of studies in Physics for UG Programs of Odd - semester to recommend to the Academic Council for its approval.

1. It is resolved and recommended to continue the course with title "Mechanics, Waves and Oscillations" in I semester of B.Sc.(M.P.C & M.P.Cs.) for both theory and practical with no modifications for the batch of students admitted in 2022-23 and onwards. Model paper is prepared with levels of Bloom's Taxonomy.
2. It is resolved and recommended to continue the course with title "Heat and Thermodynamics" in the III semester of B.Sc (M.P.C & M.P.Cs) for both theory and practical with no modifications for the batch of students admitted in the academic year 2021-22 and onwards. Model paper is prepared with levels of Bloom's Taxonomy.
3. It is resolved and recommended the Skill Development Course " ELECTRICAL APPLIANCES" in the III semester for the students admitted in the academic year 2021-22 and onwards.
4. As per the direction of APSCHE and Krishna University, it is mandatory to introduce Skill Enhancement courses for Semester-V. Therefore, the BOS committee choosen one pair from three alternate pairs from SECs. The titles of the courses are "APPLICATIONS OF ELECTRICITY AND ELECTRONICS" and "ELECTRONIC INSTRUMENTATION" for both theory and practical in the V-semester of B.Sc. (M.P.C, M.P.CS) and VI-semester of B.Sc. (M.P.C & M.P.CS) for the students admitted in the academic year 2020-21 and onwards. The modifications are made as per the recommendations of the BOS committee.
5. As per the direction of APSCHE and Krishna University, an INTERNSHIP is mandatory for final year B.Sc. students. So, the BOS committee recommended and approved the same.

1. It is resolved to follow the changed syllabi and model papers for I semester of I B.Sc. as per APSCHE guidelines from the Academic year 2022-2023.
2. It is resolved to follow the changed syllabi and model papers for III semester of II B.Sc. as per APSCHE guidelines from the Academic year 2022-2023.
3. It is resolved to follow the changed syllabi and model papers for v semester of III B.Sc. as per APSCHE guidelines from the Academic year 2022-2023 .
4. It is resolved to follow the Blue prints as proposed by members of BOS I,III& V semester of Degree B.Sc.for the Academic year 2022-2023.
5. It is resolved to follow the guidelines to be followed by the question paper setters of physics for I, III& V semesters of Degree B.Sc. for the Academic Year 2022-2023.
6. It is resolved to continue the following teaching and evolution methods for Academic year 2022-2023.

Teaching Methods:

Besides the conventional methods of teaching, we use modern technology i.e. using of LCD projector, U boards, virtual lab etc, for better understanding of concepts.

Evaluation of a student is done by the following procedure:

Internal Assessment Examinations:

- For I B.Sc (sem I), out of 100 marks in each paper, 30 marks shall be allocated for internal assessment.
- For II B.Sc (sem III), out of 100 marks in each paper, 25 marks shall be allocated for internal assessment.
- For III B.Sc (sem V) , out of 100 marks in each paper, 30 marks shall be allocated for internal assessment
- For I st Semester, Out of these 30 marks, 20 marks are allocated for announced tests (i.e. IA-1 & IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance, 5 marks are allocated for assignment /Activity .
- For III rd semester, Out of these 25 marks, 15 marks are allocated for announced tests (i.e. IA-1 & IA-2) . Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated for assignment , 5 marks are allocated for component (class room seminars/group discussion) .

- for V th Semester, Out of these 30 marks, 20 marks are allocated for announced tests (i.e. IA-1 & IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance, 5 marks are allocated for assignment / class room seminars .

Semester – End Examination:

- The maximum marks for I B.SC, I Semester – End examination shall be 70 marks and duration of the examination shall be 3 hours.
- The maximum marks for II B.SC, III Semester – End examination shall be 75 marks and duration of the examination shall be 3 hours.
- The maximum marks for III B.SC. Semesters – End examination shall be 70 marks and duration of the examination shall be 3 hours.
- Semester End examinations in theory papers and practical Examinations shall be conducted at the end of every semesters I, III & V

7. Discussed and recommended for organizing seminars, Guest lecturers, workshops to upgrade the knowledge of students, for the approval of the academic council.
8. Discussed and empowered the Head of the department of Physics to suggest the panel of paper setters and examiners to the controller of examinations.
9. Nil.

T. Haranchandra
Chairman

LIST OF THE COURSES REVISED/ INTRODUCED IN I, III and V SEMESTERS 2022-2023

S.NO	Course	Course Code	Offered in SEM	Type of the Paper	Year of Introduction	Year of Revision	Revision /Introduce	OBE with BTL	Offerd to
1	Mechanics, waves and oscillations	PHYT11B	I	Core	2020-2021	2021-2022	No Revision	yes	B.Sc. (MPC & MPCS)
2	Mechanics, waves and oscillations lab	PHYP11B	I	Core lab	2020-2021	Nil	No Revision	yes	B.Sc. (MPC & MPCS)
3	Heat and Thermodynamics	PHYT31A	III	Core	2020-2021	2021-2022	No Revision	yes	B.Sc. (MPC & MPCS)
4	Heat and Thermodynamics lab	PHYP31A	III	Core lab	2020-2021	Nil	No Revision	yes	B.Sc. (MPC & MPCS)
5	ELECTRICAL APPLIANCES	SDCPHYT01	III	SDC	2020-2021	Nil	No Revision	yes	----
6	Optical instruments and optometry	6A	V	Skill Enhancement course (Elective)	2022-2023	-	Introduced	yes	B.Sc. (MPC,MPCS)
7	Optical instruments and optometry lab	6A	V	Skill Enhancement course (Elective)	2022-2023	-	Introduced	yes	B.Sc. (MPC.MPCS)
8	Optical Imaging and photography	7A	V	Skill Enhancement course (Elective)	2022-2023	-	Introduced	yes	B.Sc. (MPC,MPCS)
9	Optical Imaging and photography lab	7A	V	Skill Enhancement course (Elective)	2022-2023	-	Introduced	yes	B.Sc. (MPC,MPCS)
10	Low temperature physics and refrigeration	6B	V	Skill Enhancement course (Elective)	2022-2023	-	Introduced	yes	B.Sc. (MPC,MPCS)
11	Low temperature physics and refrigeration lab	6B	V	Skill Enhancement course (Elective)	2022-2023	-	Introduced	yes	B.Sc. (MPC,MPCS)
12	Solar Energy and applications	7B	V	Skill Enhancement course (Elective)	2022-2023	-	Introduced	yes	B.Sc. (MPC,MPCS)
13	Solar Energy and applications lab	7B	V	Skill Enhancement course (Elective)	2022-2023	-	Introduced	yes	B.Sc. (MPC,MPCS)
14	Applications of Electricity and Electronics	SECPHY501C	V	Skill Enhancement course (Elective)	2022-2023	-	Introduced	yes	B.Sc. (MPC,MPCS)
15	Applications of Electricity and Electronics lab	SECPHY501P	V	Skill Enhancement course (Elective lab)	2022-2023	-	Introduced	yes	B.Sc. (MPC,MPCS)
16	Electronic Instrumentation	SECPHY502C	V	Skill Enhancement course (Elective)	2022-2023	-	Introduced	yes	B.Sc. (MPC,MPCS)
17	Electronic Instrumentation lab	SECPHY502P	V	Skill Enhancement course(Elective lab)	2022-2023	-	Introduced	yes	B.Sc. (MPC,MPCS)

				MARKS	MARKS	DURATION
PHYT11B	Mechanics, waves and oscillations	4	**3**	**30**	**70**	**3 Hrs.**
PHYP11B	Mechanics, waves and oscillations lab	2	**2**	**10**	**40**	**3 Hrs.**

SEMESTER – I

SEMESTER- III

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
PHYT31A	Heat and Thermodynamics	4	3	**25**	**75**	**3 Hrs.**
PHYP31A	Heat and Thermodynamics lab	2	2	**10**	**40**	**3 Hrs.**
SDCPHYT01	ELECTRICAL APPLIANCES	2	2	**10**	**40**	**2 Hrs.**

SEMESTER – V

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation	
				CIA	

				MARKS	SEE	
					MARKS	DURATION
6A	Optical instruments and optometry	3	**3**	**30**	**70**	**3 Hrs.**
6A	Optical instruments and optometry lab	3	**2**	**25**	**25**	**3 HRS**
7A	Optical Imaging and photography	3	**3**	**30**	**70**	**3 HRS**
7A	Optical Imaging and photography lab	3	**2**	**25**	**25**	**3 HRS**
6B	Low temperature physics and refrigeration	3	**3**	**30**	**70**	**3 HRS**
6B	Low temperature physics and refrigeration lab	3	**2**	**25**	**25**	**3 HRS**
7B	Solar Energy and applications	3	**3**	**30**	**70**	**3 HRS**
7B	Solar Energy and applications lab	3	**2**	**25**	**25**	**3 HRS**
SECPHY501C	Applications of Electricity and Electronics	3	**3**	**30**	**70**	**3 HRS**
SECPHY501P	Applications of Electricity and Electronics lab	3	**2**	**25**	**25**	**3 HRS**
SECPHY502C	Electronic Instrumentation	3	**3**	**30**	**70**	**3 HRS**
SECPHY502P	Electronic Instrumentation lab	3	**2**	**25**	**25**	**3 HRS**

A. G & S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS &SCIENCE VUYYURU-521165.

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Title of the Paper: MECHANICS, WAVES AND OSCILLATIONS

Course Type: Core (TH) SEMESTER: I **Max.Time**: 3 Hours

Course Code	**PHYT11B**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**3**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**4**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours per semester	**60**	**Total Marks**	**100**
Year of Introduction: 2020-21	**Year of Offering: 2021 -22**	**Year of Revision: 2021-22**	**Percentage of Revision: NIL**
CLASS:	**I B.Sc (MPC & MPCs)**		

Course Prerequisites (if any):

To be eligible for BSc Physics admission, students need to graduate 10+2 with PCBM, or PCM as compulsory subjects.

Course Description:

The students would learn about the behaviour of physical bodies it provides the basic concepts related to the motion of all the objects around us in our daily life. The course builds a foundation of various applied field in science and technology; especially in the field of mechanical engineering. The course comprises of the study laws of motion, momentum, energy, rotational motion, gravitation, special relativity and study of superposition of harmonic oscillations, waves motion (general), oscillators, sound.

Course Objectives:

1. provide an in-depth understanding of the principles of Newtonian mechanics and apply them to solve problems involving the dynamic motion of classical mechanical systems
2. explain the limitations of Newtonian mechanics for motion at very high velocities, and thus introduce the special theory of relativity
3. provide hands-on experience to perform experiments to study some properties of matter and oscillations
4. By Learning Fourier analysis, student can analyse different mechanical, optical and electro-magnetic waves
5. To attain the knowledge of Ultrasonic waves and apply to different fields

Course outcomes:

On successful completion of this course, the students will be able to:

CO1: Remember the rotational kinematic relations and its applications such as freely rotating symmetric top. Comprehend the general characteristics of central forces and the application of Kepler's laws to describe the motion of planets and satellite in circular orbit through the study of law of Gravitation.

CO2: Understand Newton's laws of laws of motion, reference frames, and its applications i.e., projectile motion, Rocket motion.

CO3: Apply the rotational kinematic relations, the principle and working of gyroscope and it applications and the processional motion of a freely rotating symmetric top.

CO4: Analyze the features of central forces with respect to planetary motion, waves and oscillations and formulate the problem of coupled oscillations and solve them to obtain normal modes of oscillation and their frequencies in simple mechanical systems.

CO5: Figure out the formation of harmonics and overtones in a stretched string and acquire knowledge on Ultrasonic waves, their production and detection and their applications in different fields.

SYLLABUS

Unit	Learning Units	Lecture Hours
I	**1.Mechanics of Particles** (5 hrs) Review of Newton's Laws of Motion, Motion of variable mass system, Multistage rocket, Concept of impact parameter, scattering cross-section, Rutherford scattering-Derivation. **2.Mechanics of Rigid bodies** (7 hrs) Rigid body, rotational kinematic relations, Equation of motion for a rotating body, Angular momentum and Moment of inertia tensor, Euler equations, Precession of a spinning top, Gyroscope, Precession of the equinoxes	12
II	**3.Celestial mechanics** Central force - definition and examples, characteristics of central forces, conservative nature of central forces, Equation of motion under a central force **4. Orbital mechanics** Kepler's laws of planetary motion- Proofs, Motion of satellites – **escape velocity, orbital velocity**, Basic idea of Global Positioning System (GPS)	12
III	**5.Frames of reference and transformation** (5 hrs) Introduction to relativity, Frames of reference - Galilean transformations, absolute frames, Michelson-Morley experiment & negative result. **6. Consequences of relativistic transformations** (7 hrs) Postulates of Special theory of relativity, Lorentz transformation, time dilation, length contraction, variation of mass with velocity, Einstein's mass-energy relation	12
IV	**7.Undamped, Damped and Forced oscillations**: (07 hrs) Simple harmonic oscillator, damped harmonic oscillator, forced harmonic oscillator - differential equations and its solutions, Resonance, Logarithmic decrement, Relaxation time and Quality factor. **8.Fourier analysis (05 hrs)** Fourier theorem (Statement & limitations), evaluation of the Fourier coefficients using Fourier's theorem, analysis of periodic wave functions - square wave, triangular wave.	12
V	**9.Vibrating Strings**: (07 hrs) Transverse wave propagation along a stretched string, General solution of wave equation and its significance, Modes of vibration of stretched string clamped at ends, Overtones and Harmonics. **10.Ultrasonics**: (05 hrs) Ultrasonics, General Properties of ultrasonic waves, Production of ultrasonics by piezoelectric and magnetostriction methods, Detection of ultrasonics, Applications of ultrasonic waves, SONAR	12

TEXT BOOKS

1. B. Sc. Physics, Vol.1, Telugu Academy, Hyderabad
2. Unified Physics - Waves and Oscillations, Jai PrakashNath&Co.Ltd.

REFERENCE BOOKS:

1. Fundamentals of Physics Vol. I - Resnick, Halliday, Krane, Wiley
2. College Physics-I. T. Bhimasankaram and G. Prasad. Himalaya Publishing House.
3. University Physics-FW Sears, MW Zemansky& HD Young, Narosa Publications, Delhi
4. Mechanics, S.G. Venkatachalapathy, Margham Publication, 2003. Waves and Oscillations. N. Subramanyam and Brijlal, VikasPulications
5. Waves & Oscillations. S. Badami, V. Balasubramanian and K.R. Reddy, Orient Longman.
6. The Physics of Waves and Oscillations, N.K. Bajaj, Tata McGraw Hill
7. Science and Technology of Ultrasonics- Baldevraj, Narosa, New Delhi,2004

STUDENT ACTIVITY

1. Seminars
2. Assignments.

LIBRARY ACTIVITY

Student visit library to refer and gather information regarding seminar topics andassignments.

Course Delivery method: Face-to-face / Blended

Course has focus on: Foundation & Employability

A.G & S.G Siddhartha Degree College of Arts and Science (Autonomous), Vuyyuru - 521165

SEMESTER – I

MODEL PAPER (W.E.F 2022 – 2023)

Time : 3Hrs Max.Marks:70M

Answer **ALL** the following questions, Choosing one question from (a) and one question from (b) in each question **(5x14 = 70M)**

1. A) i) What is Rutherford scattering? Obtain an expression for number of particles scattered per unit area. (CO1, L1)---- 10 M

(OR)

ii) What is precessional motion? Find angular velocity of precession of a spinning top. Show that the rate of precession is independent of mass but depends on the distribution of mass. (CO2, L1).------ 10M

B) i) State Newton's laws of motion and give two examples each. (CO1, L1)----4M

(OR)

ii) The kinetic energy of metal disc rotating at a constant speed of 5 revolutions per second is joules. Find the angular momentum of the disc. (CO2, L3)---- 4M

2. A) i) What is conservative force ? Show that central forces are conservative.(CO2, L2)----10 M

(OR)

ii) State Kepler's third law of motion. And prove that the square of period of revolution of a planet moving in a circular orbit round the sun is proportional to the cube of its distance from the sun. (CO2, L2)-----10 M

B) i) Explain central forces with examples. (CO2, L1)----- 4 M

(OR)

ii) If the Earth be one-half of its present distance from the sun, what will be the number of days in a year (CO2, L3)----- 4 M

3.A)i) State the fundamental postulates of special theory of relativity and deduce the Lorentz transformations. (CO3,L2) -----10 M

(OR)

ii) Describe the Michelson-Morley experiment and explain the physical significance of negative results. (CO3,L2)-----10 M

B) i) Explain time dilation. (CO3, L1) ----- 4 M

(OR)

ii) A rocket ship is 100 meter long on the ground when it is in flight, its length, is 99 eters to anobserver on the ground. What is its speed?(CO3, L3) --- 4 M

4. A) i) What are damped oscillations? Derive the differential equation of damped Harmonic oscillator and discuss the case of under damping. (L2, CO3)---- 10 M

(OR)

ii) StateFourier Theorem and evaluate Fourier coefficients. (L2, CO4)---10 M

B) i) What is logarithmic decrement and relaxation time? (CO4, L1)---- 4 M

(OR)

ii) If the energy note of frequency 100Hz decreases to one half of tis original value in one second, calculate the Q-factor, (CO4, L3)------ 4 M

5. A) i)What are transverse waves? Obtain the equation of velocity of transverse wave in a wire kept under tension. (L3. CO5)----- 10 M

(OR)

ii) What are ultrasonics? Describe Magnetostriction method of producing ultrasonics (L3, CO5)------10 M

B) i)Explain overtones and harmonics. (CO5, L1)-----4M

(OR)

ii) A piezoelectric crystal has a thickness of 0.002m. If the velocity of sound wave in crystal is 5750m/s, calculate the fundamental frequency of crystal. (CO5, L3)----4M

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Title of the Paper: MECHANICS, WAVES AND OSCILLATIONS

Offered to: I B.Sc. (MPC&MPCs)
Course Type: Core (L)
Year of Introduction: 2020-21 Year of Revision: Nil
Percentage of Revision: Nil
Semester: I Credits: 02
Hours Taught: 30 hrs. per Semester Max. Time: 2 Hours

Course outcomes (Practicals):

On successful completion of this practical course, the student will be able to:

CO 1. Perform experiments on Properties of matter such as the determination of moduli of elasticity viz., Young's modulus, Rigidity modulus of certain materials; Surface tension of water, Coefficient of viscosity of a liquid, Moment of inertia of some regular bodies by different methods and compare the experimental values with the standard values.

CO 2. Know how to determine the acceleration due to gravity at a place using Compound pendulum and Simple pendulum.

CO 3. Notice the difference between flat resonance and sharp resonance in case of volume resonator and sonometer experiments respectively.

CO 4. Verify the laws of transverse vibrations in a stretched string using sonometer and comment on the relation between frequency, length and tension of a stretched string under vibration.

EXPERIMENTS LIST:

1. Young's modulus of the material of a bar (scale) by uniform bending
2. Young's modulus of the material a bar (scale) by non- uniform bending
3. Surface tension of a liquid by capillary rise method
4. Simple pendulum- normal distribution of errors-estimation of time period and the error of the mean by statistical analysis
5. Determination of 'g' by compound/bar pendulum
6. Verification of laws of vibrations of stretched string –Sonometer
7. Bifilar suspension –Moment of inertia of a regular rectangular body.
8. Rigidity modulus of material of a wire-Dynamic method (Torsional pendulum)
9. Volume resonator experiment
10. Viscosity of liquid by the flow method (Poiseuille's method)
11. Determination of the force constant of a spring by static and dynamic method. Coupled oscillators
12. Determination of frequency of a bar –Melde's experiment.

Note :

1. 9 (NINE) experiments are to be done and recorded in the lab. These experiments will
   be evaluated in CIA.
2. For certification minimum of 7 (Seven) experiments must be done and recorded by student who had put in 75 % of attendance in the lab.
3. **Best 6 experiments are to be considered for CIA**.
4. 10 marks for CIA.
5. 40 marks for practical exam.

The marks distribution for the Semester End practical examination is as follows:

Formula/ Principle / Statement with explanation of symbols	05
Diagram/Circuit Diagram / Tabular Columns	05
Setting up of the experiment and taking readings/Observations	10
Calculations (explicitly shown) + Graph + Result with Units	05
Procedure and precautions	05
Viva-voce	05
Record	05
Total Marks	40

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Title of the Paper: HEAT AND THERMODYNAMICS

Course Type: Core (TH) SEMESTER: III **Max.Time**: 3 Hours

Course Code	**PHYT31A**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**3**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**4**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours per semester	**60**	**Total Marks**	**100**
Year of Introduction: 2020-21	**Year of Offering: 2021 -22**	**Year of Revision: 2021-22**	**Percentage of Revision: NIL**
CLASS:	**II B.Sc (MPC & MPCs)**		

Course Description:

The course makes the students able to understand the basic physics of heat and temperature and their relation with energy, work, radiation and matter. The students also learn how laws of thermodynamics are used in a heat engine to transform heat into work. The course contains the study of laws of thermodynamics, thermodynamic description of systems, thermodynamic potentials, kinetic theory of gases.

Course Objectives:

1. Introduce the microscopic approach through kinetic theory of gases and basic statistical thermodynamics
2. Give the fundamentals of thermodynamic systems, the laws of thermodynamics and their application to thermodynamic problems
3. Provide essential tools to analyze Carnot engine, heat engines and refrigerators with the help of their thermodynamic cycles
4. Highlight the use of mathematical methods to derive thermodynamic relationships
5. Analyses thermal conductivity and black body radiation

COURSE OUTCOMES

Upon successful completion of this course, students should have the knowledge and skills to:

CO1 State the First Law and define heat, work, thermal efficiency and the difference between various forms of energy and describe energy exchange processes, reversible and irreversible process.

CO2 Understand the microscopic behavior of molecules, interactions and the concepts of transport phenomena of heat transfer, mass transfer and momentum transfer.

CO3 Use kinetic theory of gases to derive expressions for pressure of an ideal gas, heat capacities of solids and gases and transport properties

CO4 Understand very low temperatures like the concept of Joule Thomson effect, Liquefaction of gases and the properties at very low temperatures.

CO5 Ability to evaluate entropy changes in a wide range of processes and determine the reversibility or irreversibility of a process from such calculations. Examine the nature of black body radiations and the basic theories.

SYLLABUS

Unit	Learning Units	Lecture Hours
I	**1. Kinetic Theory of gases**-Introduction, Maxwell's law of distribution of molecular velocities, Mean free path, Degrees of freedom, Principle of equipartition of energy (Qualitative ideas only), **2. Transport phenomenon in ideal gases**: viscosity, Thermal conductivity and diffusion of gases.	12
II	**3. Introduction to Thermodynamics** Introduction- Isothermal and Adiabatic processes - Work done in these processes, Heat engines - Reversible and irreversible processes, Carnot's engine and its efficiency, Second law of thermodynamics, Carnot's theorem, Thermodynamic scale of temperature and its identity with perfect gas scale. **4. Entropy** Entropy and its Physical significance, change in entropy in reversible and irreversible processes; Entropy and disorder-Entropy of Universe; Temperature-Entropy (T-S) diagram and its uses, change of entropy when ice changes into steam (**Qualitative**).	12
III	**5Thermodynamic potentials** - Internal Energy, Enthalpy, Helmholtz Free Energy, Gibb's Free Energy and their significance, Derivation of Maxwell's thermodynamic relations from thermodynamic potentials, **6.Applications of Maxwell's thermodynamic relations**: (i) Clausius-Clapeyron's equation (ii) Value of C_P- C_V (iii) Value of C_P/C_V (iv) Joule-Kelvin coefficient for ideal and Van der Waals' gases	12
IV	**Low temperature Physics**: (12hrs) **7. Methods for producing very low temperatures**: Joule Kelvin effect - Porous plug experiment, Joule expansion, Distinction between adiabatic and Joule Thomson expansion, Expression for Joule Thomson cooling **8. Production of low temperature**: Adiabatic demagnetization, Principle of Refrigeration, effects of chloro and fluoro carbons on ozone layer.	12
V	**9. Radiation Laws**: (7 hrs) Blackbody and its spectral energy distribution of black body radiation, Kirchoff's law, Wein's displacement law, Stefan-Boltzmann's law and Rayleigh-Jean's law (No derivations), Planck's law of black body radiation-Derivation, Deduction of Wein's law and Rayleigh- Jean's law from Planck's law. **10. Measurement of Radiation (5 hrs)** Pyrometers: Angstrom pyrheliometer and determination Solar constant, Estimation of surface temperature of Sun.	12

TEXT BOOKS

1. BSc Physics, Vol.2, Telugu Akademy, Hyderabad
2. Unified Physics Vol.2, Optics & Thermodynamics, Jai Prakash Nath &Co.Ltd., Meerut

REFERENCE BOOKS:

1. Thermodynamics, R.C. Srivastava, S.K. Saha & Abhay K. Jain, Eastern Economy Edition.
2. Fundamentals of Physics. Halliday/Resnick/Walker.C. Wiley India Edition 2007
3. Heat, Thermodynamics and Statistical Physics-N Brij Lal, P Subrahmanyam, P S Hemne, S. Chand& Co., 2012
4. Heat and Thermodynamics- MS Yadav, Anmol Publications Pvt. Ltd, 2000
5. University Physics, HD Young, MW Zemanski Sears, Narosa Publishers, New Delhi

STUDENT ACTIVITY

1. Seminars
2. Assignments.

LIBRARY ACTIVITY

Student visit library to refer and gather information regarding seminar topics and assignments.

Course Delivery method: Face-to-face / Blended

Course has focus on: Foundation & Employability

A.G & S.G Siddhartha Degree College of Arts and Science (Autonomous),Vuyyuru - 521165

SEMESTER – III

Title of the Paper: Heat and Thermodynamics

MODEL PAPER (W.E.F 2022 – 2023)

Time : 3Hrs Max.Marks : 75M

Section-A

Answer ALL questions :- **(5X10=50M)**

1. a) Derive an expression for Maxwell's law of distribution of molecular speeds in a gas. (CO1, L1)

(OR)

b) Define coefficient of viscosity. On the basis of kinetic theory of gases, derive an expression for the coefficient of viscosity. (CO1, L1)

2. a) Describe the working of Carnot's reversible engine and derive an expression for its efficiency. (CO2, L2)

(OR)

b) What are reversible and irreversible processes? How does the entropy change in each of these processes? (CO2, L2)

3. a) Define the four thermodynamic potentials. Obtain Maxwell's thermodynamic equations using these potentials. (CO3, L3)

(OR)

b) State and explain Joule-kelvin effect. Obtain an expression for Joule-kelvin coefficient. (CO3, L3)

4. a) What is adiabatic demagnetization? How is this principle used in producing low temperatures? (CO3, L2)

(OR)

b) Explain Joule-kelvin effect. Derive an expression for Joule-Thompson cooling. (CO4, L2)

5. a) Derive the Planck's formula for the distribution of energy in black body radiation. (CO5, L2)

(OR)

b) What is a pyrometer? Describe the construction and working of Angstrom pyrheliometer (CO5, L2)

Section-B

Answer any THREE of the following: **3X5=15M**

6. Write a note mean free path. (CO1, L1)

7. Explain the second law of thermodynamics in terms of entropy. (CO2, L2)

8. Prove $C_p - C_v = R$ (CO3, L3)

9. Write the principle of refrigeration. (CO4, L3)

10. How did you find the solar constant. (CO5, L2)

Section-C

Answer any TWO of the following: **2X5=10M**

11. Find the R.M.S velocity of hydrogen at N.T.P and at C? (CO1, L3)

12. Calculate the efficiency of a reversible engine that operates between the temperatures 200^0 Cand 120^0 C? (CO1, L3)

13. Calculate the temperature inversion of helium gas. Given a=3.44 $x10^{-3}$ntm^4/mol^{2}and b = 0.023 $x10^{-3}$ m^3 /mol. (CO1, L3)

14. Find the wavelength at which maximum energy is radiated by a black at a temperature of 227^0c and wien's constant is 2.877$x10^{-3}$mk. (CO1, L3)

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NAAC reaccredited at 'A' level

Autonomous -ISO 9001 – 2015 Certified

Title of the Paper : HEAT AND THERMODYNAMICS (LAB)

Offered to : II B.Sc (MPC&MPCs)
Course Type: Core (L) PHYP31A
Year of Introduction: 2020-21 Year of Revision: NIL
Percentage of Revision:NIL
Semester: III Credits: 02
Hours Taught: 30 hrs. per Semester Max.Time: 2 Hours

Course Description

Students would gain practical knowledge about heat and radiation, thermodynamics, thermo emf, RTD etc. and perform various experiments.

Course Objectives:

1. The primary objective of this course is to provide the fundamental knowledge to understand the behaviour of thermal systems.
2. This course provides a detailed necessary transfer through solids, fluids, and experimental analysis, including the application and heat vacuum.
3. Convection, conduction, and radiation heat transfer in one and two dimensional steady and unsteady systems are examined.

COURSE OUTCOMES

Upon successful completion of this course, students should have the knowledge and skills to:

CO1: Determine the thermal conductivity of bad conductor-Lee's method, thermal conductivity of rubber and Coefficient of thermal conductivity of copper by using Searle's apparatus.

CO2: Study the heating efficiency of electrical kettle with varying voltages.

CO3: Determine Specific heat of a liquid by Joule's calorimeter and study Barton's radiation correction by plotting a graph between temperature and time and Specific heat of a liquid by applying Newton's law of cooling correction.

CO4: Study temperature variation of resistance in a thermostat.

List of experiments

1. Study of variation of resistance with temperature - Thermistor.
2. Thermal conductivity of bad conductor-Lee's method
3. Thermal conductivity of rubber.
4. Measurement of Stefan's constant - emissive method

5. Heating efficiency of electrical kettle with varying voltages.
6. Specific heat of a liquid –Joule's calorimeter –Barton's radiation correction
7. Specific heat of a liquid by applying Newton's law of cooling correction.
8. Thermo emf- thermo couple - Potentiometer
9. Thermal behavior of an electric bulb (filament/torch light bulb)
10. Measurement of Stefan's constant

Note :

1. 9 (NINE) experiments are to be done and recorded in the lab. These experiments will be evaluated in CIA.
2. For certification minimum of 7 (Seven) experiments must be done and recorded by student who had put in 75 % of attendance in the lab.
3. **Best 6 experiments are to be considered for CIA**.
4. 10 marks for CIA.
5. 40 marks for practical exam.

The marks distribution for the Semester End practical examination is as follows:

Formula/ Principle / Statement with explanation of symbols	05
Diagram/Circuit Diagram / Tabular Columns	05
Setting up of the experiment and taking readings/Observations	10
Calculations (explicitly shown) + Graph + Result with Units	05
Procedure and precautions	05
Viva-voce	05
Record	05
Total Marks:	40

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VUYYURU-521165.

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Title of the Paper: ELECTRICAL APPLIANCES

(AS PART OF SKILL DEVELOPMENT COURSES)

Semester: III

Course Code	**SDCPHYT01**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**2**	**CIA Marks**	**10**
No. of Lecture Hours / Week	**2**	**Semester End Exam Marks**	**40**
Total Number of Lecture Hours per semester	**30**	**Total Marks**	**50**
Year of Introduction: 2020-21	**Year of Offering: 2021 -22**	**Year of Revision: ------**	**Percentage of Revision: NIL**
CLASS :	**II B.Sc**		

Learning Outcomes:

By successful completion of the course, students will be able to:

CO 1. Acquire necessary skills/hand on experience/ working knowledge on multimeters, galvanometers, ammeters, voltmeters, ac/dc generators, motors, transformers, single phase and three phase connections, basics of electrical wiring with electrical protection devices.

CO2. Understand the working principles of different household domestic appliances.

CO3. Check the electrical connections at house-hold but will also learn the skill to repair the electrical appliances for the general troubleshoots and wiring faults.

SYLLABUS

UNIT-I **(6 hrs)**

Voltage, Current, Resistance, Capacitance, Inductance, Electrical conductors and Insulators, Ohm's law, Series and parallel combinations of resistors, Galvanometer, Ammeter, Voltmeter, Multimeter, Transformers, Electrical energy, Power, Kilowatt hour (kWh), consumption of electrical power .

UNIT-II **(10 hrs)**

Direct current and alternating current, RMS and peak values, Power factor, Single phase and three phase connections , Basics of House wiring, Star and delta connection, Electric shock, First aid for electric shock, Overloading , Earthling and its necessity, Short circuiting , Fuses , MCB , ELCB, Insulation, Inverter, UPS .

UNIT-III **(10 hrs)**

Principles of working, parts and servicing of Electric fan, Electric Iron box, Water heater; Induction heater, Microwave oven; Refrigerator, Concept of illumination, Electric bulbs, CFL, LED lights, Energy efficiency in electrical appliances, IS codes & IE codes.

Co-curricular Activities (Hands on Exercises): (04 hrs)

[Any four of the following may be taken up]

1. Studying the electrical performance and power consumption of a given number of bulbs connected in series and parallel circuits.
2. Measuring parameters in combinational DC circuits by applying Ohm's Law for different resistor values and voltage sources
3. Awareness of electrical safety tools and rescue of person in contact with live wire.
4. Checking the specific gravity of lead acid batteries in home UPS and topping-up with distilled water.
5. Identifying Phase, Neutral and Earth on power sockets.
6. Identifying primary and secondary windings and measuring primary and secondary voltages in various types of transformers.
7. Observing the working of transformer under no-load and full load conditions.
8. Observing the response of inductor and capacitor with DC and AC sources.
9. Observing the connections of elements and identify current flow and voltage drops.
10. Studying electrical circuit protection using MCBs, ELCBs
11. Assignments, Model exam etc.

Reference Books:

1. A Text book on Electrical Technology, B.L.Theraja, S.Chand& Co.
2. A Text book on Electrical Technology, A.K.Theraja.
3. Performance and design of AC machines, M.G.Say, ELBSEdn.,
4. Handbook of Repair & Maintenance of domestic electronics appliances; BPB Publications
5. Consumer Electronics, S.P.Bali, Pearson
6. Domestic Appliances Servicing, K.P.Anwer, Scholar Institute Publications

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU.

ACADEMIC YEAR-2022-23

SEMESTER – III	COURSE CODE : SDCPHYT01
PAPER TITLE : **ELECTRICAL APPLIANCES**	

Model Paper

Time: 2 Hours Maximum marks : 40 M Pass marks : 16M

SECTION-A

Answer any Two Questions . Each question carries **5** marks. **(2X5=10Marks)**

1)

2)

3)

4)

SECTION-B

Answer any THREE Questions. Each question carries **10** marks. **(3X10=30M)**

5)

6)

7)

8)

9)

10)

The Guidelines to be followed by the question paper setters in PHYSICS for the III-Semester - end exams. ACADEMIC YEAR-2022-23

Weightage for the question paper - ELECTRICAL APPLIANCES

syllabus	Section-A (Short answer questions)	Section-B (Essay questions)
Unit-1 (30Marks)	2	2
Unit-2 (25Marks)	1	2
Unit-3 (25Marks)	1	2

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

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NAAC reaccredited at 'A' level
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Title of the Paper: OPTICAL INSTRUMENTS AND OPTOMETRY

Semester: V/VI [Skill Enhancement Course (Elective)] **Offered to: III** B.Sc (MPC & MPCs)

Course Type: Core (TH)

Course Code	**6A**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	**30**
No. of Lecture Hours / Week	**3**	Semester End Exam Marks	**70**
Total Number of Lecture Hours	**45**	Total Marks	**100**
Year of Introduction : 2022-23	Year of Offering: 2022-23	Year of Revision: --------	Percentage of Revision: 0

I. Learning Outcomes: Students at the successful completion of the course will be able to:

1. Understand the construction and working principles of various optical instruments used in daily life.
2. Acquire a critical knowledge on the various defects of eye and their correcting methods with suitable lenses.
3. Demonstrate skills of using biological microscope through hands on experience.
4. Understand the various techniques used in optometry and computer based eye testing.
5. Comprehend the various applications of microscopes and telescopes.

II. Syllabus: *(Total Hours: 90 including Teaching, Lab, Field Training, Unit tests etc.)*

UNIT-I OPTICAL MICROSCOPES (9hrs)

Introduction to Microscopes**,** Need of a Microscope**,** Different types of microscopes and their uses, Simple microscope-Construction, Magnifying power, normal adjustment; Compound microscope-Construction, Magnifying power, normal adjustment, Phase contrast microscope-Operating principle, Travelling microscope-Construction, working and uses

UNIT-II TELESCOPES (9hrs)

Introduction to Telescopes**,** Different types of Telescopes and their uses, Refracting Telescopes and Reflecting telescopes, Construction, working and magnifying power of Astronomical Telescope and Terrestrial Telescopes, Binoculars – working principle and applications.

UNIT-III APPLICATIONS OF OPTICAL INSTRUMENTS (9hrs)

Introductory ideas and applications of various microscopes *viz*., (i) Optical microscopes (Compound microscope, Stereo microscope, Confocal microscope) (ii) Electron microscopes (TEM, SEM), (iii) Scanning Probe microscope (iv) Scanning Acoustic microscope and (v) X-ray microscope.

Introductory ideas and applications of various telescopes *viz*., (i) Optical telescopes (ii) Radio telescopes (iii) Solar telescopes (iv) Infrared telescope (v) Ultraviolet telescope (vi) X-ray telescope and (vii) Gamma ray telescope

UNIT-IV OPTICAL VISION (9hrs)

Introduction to optical Vision, Eye as an optical instrument, Formation of image in the eye and the camera, Ophthalmic lenses, Power of the lenses, Far point and near points, Myopia and Hypermetropia defects, Removal of defects in vision using ophthalmic lenses, Contact lenses-Working principle, Different types of Contact lenses.

UNIT-V OPHTHALMIC TECHNIQUES AND OPTOMETRY (9hrs)

Ophthalmoscope and keratometer and their working principles, Evaluation of eye disorders, Guidelines for standardized eye chart preparation, Simple phoropter and its working principle and its uses, Checking the power of lenses, Principles of Computer based eye testing

References:

1. Optics and Optical Instruments: An Introduction by B. K. Johnson, Dover Publications.
2. Modern Optical Instruments and their construction by or ford Henry-Publisher: Biblio Life, LLC.
3. A Text Book of Optics by Brj Lal and N.Subramanyam, S.Chand& Co.
4. Practical Optics by Menn Naftly, Elsevier Science Publishing.
5. Applications of Optics in daily life | CK-12 Foundation. https://flexbooks.ck12.org ›
6. Web sources suggested by the teacher concerned and the college librarian including Reading material.

Course 6A: Optical Instruments and Optometry

PRACTICAL SYLLABUS *(30 Hrs. Max Marks: 50)*

IV. Learning Outcomes: On successful completion of this practical course, student shall be able to:

1. List out, identify and handle various equipments like binoculars, telescopes and microscopes.
2. Learn the procedures of operation of various optical instruments.
3. Demonstrate skills on testing the power of lenses, improving the resolution of telescopes and microscopes.
4. Acquire skills in observing and measuring the power, focal length and different refractive errors of eye.
5. Perform some techniques related to testing the blood and other biological samples.
6. Understand the technique of operation of Computer eye testing and evaluation.

V. Practical (Laboratory) Syllabus: *(30 hrs)*

1. Evaluation of magnifying power of simple microscope.
2. Measurement of reflection and transmission coefficient of certain materials using a microscope.
3. Resolving power of telescope
4. Determination of radii of different capillary tubes using travelling microscope.
5. Refractive index of a liquid (water) using (i) concave mirror and (ii) convex lens and a plane mirror.
6. Removal of refractive errors of eye using combination of lenses.
7. Determination of power of a convex lens by finding its focal length.

VI. Lab References:

1. A Practical Guide to Experimental Geometrical Optics byYuriy A. Garbovskiy-Cambridge Univ. Press
2.https://physics.columbia.edu/sites/default/files/content/Lab%20Resources/1292%20Lab%20Manual.pdf
3. https://www.lnmiit.ac.in/Department/Physics/uploaded_files/lab-manual.pdf
4. Basic Optics Experiments -http://www.phys.unm.edu › Optics Lab › Basics
5. A Practical Guide to Experimental Geometrical Optics by Yuriy A. Garbovskiy, Anatoliy V. Glushchenko, Cambridge Univ. Press
6. Web sources suggested by the teacher concerned.
http://www.phy.olemiss.edu/~thomas/weblab/Optics_lab_Items/Telescope_Microscope

VII. Co-Curricular Activities

(a) Mandatory: (*Training of students by teacher in field related skills: (lab:10 + field: 05*)

1. **For Teacher**: Training of students by the teacher (if necessary, by a local expert) in laboratory/field for a total of not less than 15 hours on the field techniques/skills on the familiarization of various optical instruments available in the laboratory; construction of different types of telescopes and their comparison in construction, operation and their utility and limitations; the details of construction of eye and various defects in the eye sight, emerging techniques in the design of eye lenses including contact lenses and making the student to understand on the testing of a biological sample using a clinical microscope

For Student: Students shall (individually) visit and observe the functioning of optical instruments at any one of the following places /centres like (a) pathological laboratory **or** (b) a local ophthalmologist **or** (c) a local optician to understand the various types of eye lenses **or** (d) a local computer based eye testing centre**or**(e) an optician, who fixes contact lenses **or** (f) a local cinema theatre **or** (g) a planetarium.Student shall write the observations and submit a hand-written Fieldwork/Project work not exceeding 10 pages in the given format to the teacher.

2. Max marks for Fieldwork/Project work: 05.

3. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, details of place visited, observations, findings and acknowledgements*.

4. Unit tests (IE).

(b) Suggested Co-Curricular Activities

1. Training of students by related industrial experts.

2. Assignments (including technical assignments like identifying tools in the lens grinding, frame fitting, lens cleaning culture and other operational techniques with safety and security, IPR)

3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).

4. Preparation of videos on tools and techniques in optical instruments and optical lenses, contact lenses.

5. Making a model microscope and measuring its magnification.

6. Making a simple astronomical telescope using two convex lenses.

7. Checking the power of your spectacles or lenses at home.

8. Students shall take up making their own (i) Telescope and (ii) Binoculars with the accessories available at home.

https://paksc.org/pk/science-experiments/physics-experiments/how-to-make-astronomical-telescope
https://kids.nationalgeographic.com/nature/article/make-a-telescope
https://learning-center.homesciencetools.com/article/how-to-make-a-telescope-optical-science-project/
http://scipop.iucaa.in/Amateurs/telemaking.html

9. Collection of material/figures/photos related to various types of lenses and their power.

10. Visit to any eye research laboratories, if available

11. Invited lectures and presentations on related topics by field/industrial experts

The Guidelines to be followed by the question paper setters in PHYSICS for the V/VI- Semester - end exams

SEMESTER – V/VI	PAPER CODE : 6A
PAPER TITLE : OPTICAL INSTRUMENTS AND OPTOMETRY ACADEMIC YEAR-2022-2023	

Weightage for the question paper :

syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (20 Marks)	2	1
Unit-2 (25Marks)	1	2
Unit-3 (25Marks)	2	1
Unit-4 (30Marks)	2	2
Unit-5 (15 Marks)	1	2

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

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(AUTONOMOUS), VUYYURU.

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III B.Sc, PHYSICS **SEMESTER – V/VI**	**PAPER CODE : 6A**

PAPER TITLE : OPTICAL INSTRUMENTS AND OPTOMETRY
Paper : 6 A

ACADEMIC YEAR-2022-2023

Time: 3Hours Maximum marks: 70 Minimum marks: 28

MODEL PAPER

Section - A

Answer any **Four** of the following :- (4X5=20M)

1. What are the uses of travelling microscope .
2. Explain the need of microscope.
3. Explain the principle of Astronomical telescope.
4. Write any five uses of telescope.
5. Explain the principle of X-ray microscope.
6. Explain the principle of Ultraviolet telescope.
7. Distinguish between Myopia and Hypermetropia defects.
8. How to check the power of lenses? Explain.

Section - B

Answer any **Five** of the following :- (5X10=50M)

9. Briefly explain the different types of microscopes.
10. Explain the construction and working of travelling microscope.
11. Explain about Refracting and Reflecting telescopes.
12. Explain working principle of Binoculars. Write the applications.
13. Write a short note on Electron microscopes (TEM, SEM).
14. Discuss the applications of various telescopes.
15. Whatdo you mean by optical Vision ? Explain the formation of image in the eye and the camera.
16. Explain the working principles of ophthalmoscope and keratometer.

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Title of the Paper : Course 7A: OPTICAL IMAGING AND PHOTOGRAPHY_
Semester: V/VI

[Skill Enhancement Course (Elective)] **Offered to : III** B.Sc (MPC & MPCs)**Course Type:** Core (TH)

Course Code	**7A**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	**30**
No. of Lecture Hours / Week	**3**	Semester End Exam Marks	**70**
Total Number of Lecture Hours	**45**	Total Marks	**100**
Year of Introduction : 2022-23	Year of Offering: 2022-23	Year of Revision: --------	Percentage of Revision: -----

I. Learning Outcomes: Students after successful completion of the course will be able to:
1. Identify the different types of cameras and camera lenses according to different purposes.
2. Identify and understand the focal length of the different types of lenses
3. Acquire a critical knowledge on natural and artificial sources of light and their application in photography.
4. Demonstrate skills of camera usage especially Digital Cameras.
5. Understand the various Image development and editing techniques.
6. Comprehend the concept of different types of common shooting techniques.

II. Syllabus: *(Total Hours: 90 including Teaching, Lab, Field Training, Unit tests etc.)*

Unit-I : INTRODUCTION TO PHOTOGRAPHY: (9 hrs)
Photography-Introduction, working principle of a camera, Image formation in simple camera and human eye, Types of cameras, Pin-hole camera, Single Lens Reflex (SLR) camera, Twin Lens Reflex (TLR) camera, Digital Single-lens reflex camera (DSLR), Digital camera, Drone flying cameras, Care and maintenance of camera, Factors influencing choice of camera

Unit-II : DIGITAL PHOTOGRAPHY: (9 hrs)
Different types of Digital cameras and their parts, Working of DSLR camera, Types of lenses-Normal, Wide angle, telephoto, Zoom lenses, Digital Image formation, Digital camera image sensors, Size of the image, Depth of focus, Depth of field, Exposure time, Aperture, Shutter speed, ISO, filters, knowledge on pixels and their uses , resolution, Camera accessories

Unit-III : PHOTOGRAPHIC LIGHT SOURCES: (9 hrs)
Need for the light in photography, Light sources- Natural light, Sun light, Moon light,Ambient light, Artificial light sources-Flood light, Spot light, Halogen light, Halogen flash light, Digital lights, Exposure, Studio photography

Unit-IV : PHOTOGRAPHIC SHOOTING TECHNIQUES: (9 hrs)
Significance and role of Camera lens in photo shooting, Arrangement of lenses in a Camera-Positioning, Techniques involved in the use of DSLR cameras, Usage of Filters, Techniques of Photomicrography, High speed Photography with motor driven camera, Basic ideas on Underwater Photography, Medical Photography, Astronomical Photography, Infra-Red (IR) Photography, Ultra Violet (UV) Photography and Forensic Photography.

Unit-V : PHOTO MANIPULATION :(9 hrs)

Developing and printing the photographs, equipment and materials used in developing and printing, image mixing and printing, Image editing through image editing software's like Adobe Photoshop – Adjustment of Brightness, Contrast, Tonal and Colour Values, Factors influencing quality of digital image, Methods of storing and processing, Image transportation through Pendrive, CD, HDD and CLOUD [Internet]

III Reference Books:

1. Object and image; An introduction to photography by George M Craven, PHI
2. An Introduction to Digital Photo Imaging Agfa, 1994
3. Advance Photography by M. Langford.
4. Digital Photography-A hands on Introduction by Phillip Krejcarek, Delmer Publishers
5. Multimedia – An Introduction by John Villamil, PHI
6. https://www.adobe.com/in/creativecloud/photography/discover/dslr-camera.html
7. Web sources suggested by the teacher concerned and the college librarian including reading material.

Course 7A: Optical Imaging and Photography

PRACTICAL SYLLABUS *(30 Hrs, Max Marks: 50)*

IV. Learning Outcomes: On successful completion of this practical course, student shall be able to:

1. List out, identify and understand various image formation techniques including Eye.
2. Learn the procedures of using Analog and Digital cameras.
3. Demonstrate the focusing techniques of Analog and Digital cameras.
4. Acquire skills in the editing and development of photos and videos.
5. Perform some experimental skills related to images, videos using the equipment available in the lab or in a local studio.

V. Practical (Laboratory) Syllabus: *(30 hrs)*

1. Construction of a simple pin hole Camera and study it's working.
2. Capture an image using a Digital Camera and apply editing techniques.
3. Understanding various image formats and convert one image format intoother (For ex: JPEG to BMP)
4. Convert a video stream into image stream by using a suitable editingsoftware.
5. Evaluate the number of pixels and size of digital Image.
6. Comparison of the quality of a 8-bit, 16-bit and 32 bit images.
7. Perform the reduction and enlargement of a given Digital Image.
8. Change the appearance of an image by applying the filters (For ex: from the IR image of the given digital Image by suitable IR filter)

VI. Lab References:

1. DSLR Photography for Beginners by Brian Black
2. The Art of Photography by Bruce Barnbaum
3. Photoshop for Photographers by John Slavio
4. https://www.youtube.com/channel/UCwWyFRy2l6aUFMsRemP51Sw. You Tube resource.
5. https://www.udemy.com/course/complete-photography-course/
6. Web sources suggested by the teacher concerned.

VII. Co-Curricular Activities

(a) Mandatory:(*Training of students by teacher in field related skills: (lab:10 + field: 05*):

1. For Teacher: Training of students by the teacher (if necessary, by a local expert) in laboratory/field for not less than 15 hours on the field techniques/skills of Image formation by using lenses and mirrors. Also to make students to understand the construction, operation and the Physics principles involved in a normal Camera and Digital Camera.

2.**For Student**: Students shall (individually) visit a local Photo studio or any such facility in a university/research organization/private and observe (i) the operation of different digital cameras, compact and SLR and in taking photographs using different types of lenses by varying aperture, shutter speed for still camera, video camera, CCTV and spy camera **or** (ii) the use of natural light, tungsten light, fluorescent light, electronic flash reflectors, exposure meters, studio flash and its accessories **or** (iii) the usage of various lighting techniques for different lenses and will do practice on special areas of photography in outdoor and indoor conditions **or** (iv) the different processes viz., audio video recording, mixing, editing, dubbing of sound, using different types of microphones **or** (v) the handling of the digital video cameras, DVD, HDD, accessories and exposure to take different common shots, dimension of images and movements as per requirement **or** (v) the computer system by digital editing software, printing the photographs taken by digital cameras and the image transportation to the storage media, sending photographs through E-mail and Scanning the photographs, capture frames and analysis of images and record their observations and submit a hand-written Fieldwork/Project work not exceeding 10 pages in the given format to the teacher.

3. Max marks for Fieldwork/Project work: 05.

4. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, details of place visited, observations, findings and acknowledgements*.

5. Tests (IE).

(b) Suggested Co-Curricular Activities:

1. Training of students by a related skilled person from a Photo studio.

2. Assignments (including technical assignments like identifying the tools &techniques involved in photography and handling, operational techniques of different Cameras with safety and security)

3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).

4. Preparation of videos on tools and techniques related to Image formation and Photographic Techniques.

5. Practice taking outdoor photographs with a digital camera in (i) Black & White and (ii) Colour in the following conditions**:**

Landscapes – Street / Building – Sculpture – Insect / Animal movement – Industrial plant (outside view) – Children, birds (close up / long shot / model photography)- slow and fast moving objects-Night photography etc.

6. Shooting of different areas and topics such as sports, wildlife, modeling, drama, documentary, serial, story board making, news, interview, seminar/ workshop, industrial, live broadcasting, musical event, advertisement, etc.

7. Collection of material/figures/photos related to various components of a Camera, writing and organizing them in a systematic way in a file.

8. Visits to any local Photo Studio or any Lab in universities, research organizations, private firms, etc.

9. Invited lectures and presentations on related topics by field/industrial experts.

The Guidelines to be followed by the question paper setters in PHYSICS for the V/VI- Semester - end exams

SEMESTER – V/VI	PAPER CODE : 7A
PAPER TITLE : OPTICAL IMAGING AND PHOTOGRAPHY ACADEMIC YEAR-2022-2023	

Weightage for the question paper :

syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (20 Marks)	2	1
Unit-2 (25Marks)	1	2
Unit-3 (25Marks)	2	1
Unit-4 (30Marks)	2	2
Unit-5 (15 Marks)	1	2

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

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(Accredited at "A" Grade by NAAC, Bangalore)

III B.Sc ,PHYSICS , SEMESTER – V /VI	**PAPER CODE : 7A**
PAPER TITLE : OPTICAL IMAGING AND PHOTOGRAPHY **Paper : 7 A** **ACADEMIC YEAR-2022-2023**	

Time: 3Hours Maximum marks: 70 Minimum marks: 28

MODEL PAPER

Section A

Answer any **Four** of the following (4X5=20M)

1. Explain about drone flying camera.
2. Write a short note on factors influencing choice of camera.
3. Explain the procedure of digital image formation.
4. What do you mean by ISO? Explain.
5. What do you mean by studio photography.
6. Explain the significance and role of camera lens in photo shooting.
7. Explain image transportation through pendrive.
8. How photographs are developed and printed?

Section – B

Answer any **Five** of the following :- (5X10=50 M)

9. Explain the working principle of a camera. Mention different types of cameras.
10. Briefly explain Twin Lens Reflex (TLR) camera, Digital Single-lens reflex camera (DSLR).
11. Explain different types of digital cameras and their parts.
12. Give a brief account on pixels and write their uses.
13. What is light? Explain various light sources used in photography.
14. Discuss about different artificial light sources.
15. Write a note on techniques involved in the use of DSLR cameras.
16. Explain the procedure of image editing through Adobe photoshop software.

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NAAC reaccredited at 'A' level

Autonomous -ISO 9001 – 2015 Certified

Title of the Paper : Low Temperature Physics & Refrigeration
Semester: V/VI

[Skill Enhancement Course (Elective)] **Offered to : III** B.Sc (MPC & MPCs) **Course Type:** Core (TH)

Course Code	**6B**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	**30**
No. of Lecture Hours / Week	**3**	Semester End Exam Marks	**70**
Total Number of Lecture Hours	**45**	Total Marks	**100**
Year of Introduction : 2022-23	Year of Offering: 2022-23	Year of Revision: --------	Percentage of Revision: -----

Course Objectives:

1. To acquire the knowledge of producing refrigerating effect or cooling which is used in air refrigeration cycles.
2. To understand the different methods of producing low temperatures & necessity of low temperature in various fields.
3. To know the techniques of measuring low temperatures by using various thermometers with accuracy and to estimate the internal energy possessed by the system.
4. Gives the idea on Methodology involved in both refrigeration cycle, network of refrigerated components to understand the transient simulations of whole system.
5. To acquire the knowledge on benefits of Cryogenics in various fields like Preservation of biological material & food, Macroscopic quantum phenomena, Cryo surgery,Medical field, Data centers, and Satellites

Course Outcomes: Students after successful completion of the course will be able to

1. Identify various methods and techniques used to produce low temperatures in theLaboratory.
2. Acquire a critical knowledge on refrigeration and air conditioning.
3. Demonstrate skills of Refrigerators through hands on experience and learns aboutrefrigeration components and their accessories.
4. Understand the classification, properties of refrigerants and their effects on environment.
5. Comprehend the applications of Low Temperature Physics and refrigeration.

Syllabus : -

UNIT-I PRODUCTION OF LOW TEMPERATURE (9 hrs)

(a) Production of low temperatures-Introduction, Freezing mixtures, Joule-Thomson effect (concept only), Regenerative cooling,

(b) Different methods of liquefaction of gases, liquefaction of air, Production of liquid hydrogen and nitrogen, Adiabatic demagnetization, Properties of materials at low temperatures. Superconductivity

UNIT-II MEASUREMENT OF LOW TEMPERATURE (9 hrs)

(a) Gas thermometer and its correction and calibration, Secondary thermometers, resistance thermometers, thermocouples.

(b) Vapour pressure thermometers, Magnetic thermometers, Advantages and drawbacks of each type of thermometer.

UNIT-III PRINCIPLES OF REFRIGERATION (9 hrs)

(a) Introduction to Refrigeration- Natural and artificial refrigeration, Stages of refrigeration, Types of refrigeration - Vapor compression and vapor absorption refrigeration systems, Refrigeration cycle and explanation with a block diagram, Introductory ideas on air- conditioning.

(b) Refrigerants-Introduction, Ideal refrigerant, Properties of refrigerant, Classification of refrigerants, commonly used refrigerants, Eco-friendly refrigerants

UNIT-IV COMPONENTS OF REFIGERATOR (9 hrs)

(a) Refrigerator and its working, Block diagram, Coefficient of Performance (COP), Tons of refrigeration (TR) and Energy Efficiency Ratio (EER)

(b) Refrigerator components: Types of compressors, evaporators and condensers and their functional aspects, defrosting in a refrigerator, Refrigerant leakage and detection

UNIT-V: APPLICATIONS OF LOW TEMPERATURE & REFRIGERATION (9 hrs.)

(a) Applications of Low temperatures: Preservation of biological material, Food freezing, liquid nitrogen and liquid hydrogen in medical field, Superconducting magnets in MRI- Tissue ablation (cryosurgery) - Cryogenic rocket propulsion system.

(b) Applications of refrigeration: Domestic refrigerators, Water coolers, Cold treatment of metals, Construction field, Cold storages, Ice plants, Food preservation methods, Chemical and Process industries, Desalination of water, Data centers (Field visit and it's report).

References:

1. Heat and Thermodynamics by Brij Lal &N.Subramanyam, S.Chand Publishers.
2. Thermal Physics by S C Garg, R M Bansal & C K Ghosh, McGrawHill Education,India
3. Heat and Thermodynamics by M MZemansky,McGrawHill Education (India).
4. Low-Temperature Physics by Christian E. & Siegfried H., Springer.
5. Thermal Engineering by S. Singh, S.Pati, Ch:18 Introduction to Refrigeration.
6. The Physics Hyper Text Book. Refrigerators.https://physics.info/refrigerators/
7. Refrigeration and Air Conditioning by Manohar Prasad, New age international (P)limited, New Delhi
8. A course in Refrigeration and Air Conditioning by S.C. Arora and S. Domkundwar,Dhanpatrai and sons, Delhi
9. https://trc.nist.gov/cryogenics/Papers/Review/2017-Low_Temperature_Applications_and_Challenges.pdf
10. https://nptel.ac.in/content/storage2/courses/112105129/pdf/RAC%20Lecture%203.pdf
11. Other Web sources suggested by the teacher concerned and the reading material.https://nptel.ac.in

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PHYSICS	Semester – V/VI	2022-2023	B.Sc. (MPC&MPCs)

Credits – 2

TITLE : **6B** : **Low Temperature Physics & Refrigeration Lab**

Learning Outcomes: On completion of practical course, student shall be able to

1. List out, identify and handle equipment used in refrigeration and low temperature lab.
2. Learn the procedures of preparation of Freezing Mixtures.
3. Demonstrate skills on developing various Freezing mixtures and materials and theirapplications in agriculture, medicine and day to day life.
4. Acquire skills in observing and measuring various methodologies of very lowtemperatures

b. Perform some techniques related to Refrigeration and Freezing in daily life.

Practical (Laboratory) Syllabus: *(Max marks: 50)*)

1. Record the Principles and applications of Refrigerators and Freezers.
2. Measure the temperatures below Melting point of Ice using a thermometer available in the Lab.
3. Make a freezing mixture by adding different salts viz., Sodium chloride, Potassium Hydrate (KOH), Calcium chloride to ice in different proportions and observe the temperature changes.
4. Study the operation of a refrigerator and understand the working of different parts.
5. Study the properties of refrigerants like chlorofluorocarbons-hydrochlorofluoro- carbons and record the lowest temperatures obtained.
6. Consider a simple faulty refrigerator and try to troubleshoot the simple problems by understanding its working.
7. Understand the practical problem of filling the Freon Gas into the Refrigerator.
8. Get the Liquid Nitrogen or Liquid Helium from nearby Veterinary Hospital and measure their temperatures using chromel-alumel thermocouple or mercury thermometer and observe their physical properties like colour, smell etc and precautions to be taken for their safe handling.
9. Preparation of freeze drying food with Dry ice and liquid nitrogen
10. Preparation of freeze drying food with liquid nitrogen

The Guidelines to be followed by the question paper setters in PHYSICS for the V/VI- Semester - end exams

SEMESTER – V/VI	PAPER CODE : 6B
PAPER TITLE : Low Temperature Physics & Refrigeration ACADEMIC YEAR-2022-2023	

Weightage for the question paper :

syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (20 Marks)	2	1
Unit-2 (25Marks)	1	2
Unit-3 (25Marks)	2	1
Unit-4 (30Marks)	2	2
Unit-5 (15 Marks)	1	2

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

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III B.Sc PHYSICS , SEMESTER – V/VI	**PAPER CODE : 6B**
PAPER TITLE : LOW TEMPERATURE PHYSICS & REFRIGERATION	
ACADEMIC YEAR-2022-2023	

Time: 3Hours Maximum marks: 70 Minimum marks: 28

MODEL PAPER

Section A

Answer any **Four** of the following (4X5=20M)

1. Explain Joule Thomson effect. L2, CO1
2. Explain the properties of materials at low temperatures.L2, CO1
3. Write about Resistance thermometer. L1, CO2
4. Explain the advantages and drawbacks of magnetic thermometers. L2, CO2
5. Explain briefly refrigeration by vapor absorption method. L2, CO3
6. What is an ideal refrigerant?L1,CO3.
7. Explain the term Energy Efficiency ratio. L1, CO4
8. Explain the working of water coolers. L3, CO5

Section -B

Answer any **FIVE** of the following (5X10=50M)

9. Explain the liquefaction of Air with neat diagram. L2, CO1
10. Explain the production of low temperatures by adiabatic demagnetization method . L2, CO-1
11. Explain about gas thermometers and their calibration. L3, CO2
12. Explain vapour pressure thermometer. L3, CO2
13. Explain Natural and artificial refrigeration & various stages involved in refrigeration L2, CO3
14. Explain various types of refrigerants and their properties. L2, CO3 .
15. Explain the principle & working of refrigerator with block diagram L3, CO4
16 . Explain the applications of low temperatures in various fields. L3,CO5.

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Title of the Paper : 7 B : Solar Energy and Applications, Semester: V/VI

[Skill Enhancement Course (Elective)] **Offered to : III** B.Sc (MPC & MPCs) **Course Type:** Core (TH)

Course Code	**7B**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	**30**
No. of Lecture Hours / Week	**3**	Semester End Exam Marks	**70**
Total Number of Lecture Hours	**45**	Total Marks	**100**
Year of Introduction : 2022-23	Year of Offering: 2022-23	Year of Revision: --------	Percentage of Revision: -----

Course Objectives:

1. Acquire knowledge on solar radiation principles with respect to solar energy estimation.
2. Get familiarized with various collecting techniques of solar energy and its storage
3. Learn the solar photovoltaic technology principles and different types of solar cells for energy conversion and different photovoltaic applications.

Course Outcomes:

After successful completion of the course, the student will be able to:

1. Understand Sun structure, forms of energy coming from the Sun and its measurement.
2. Acquire a critical knowledge on the working of thermal and photo voltaic collectors.
3. Understand testing procedures and fault analysis of thermal collectors and PV modules.
4. Comprehend applications of thermal collectors and PV modules.

Syllabus:

Unit-I: BASIC CONCEPTS OF SOLAR ENERGY

(a) Spectral distribution of solar radiation, Solar constant, zenith angle and Air-Mass, standard time, local apparent time, equation of time, direct, diffuse and total radiations.

(b) Pyroheliometer-workingprinciple,directradiationmeasurement,Pyrometer-workingPrinciple,diffuseradiation measurement, Distinction between the two meters.

Unit-II: SOLAR THERMAL COLLECTORS(10hrs)

(a) Solar Thermal Collectors-Introduction, Types of Thermal collectors, Flat plate collector – liquid heating type, Energy balance equation and efficiency, Evacuated tube collector, collect or overall heat loss co efficient.

(b) Definitions of collector efficiency factor, collector heat-removal factor and collector flow factor, Testing of flat-plate collector, solar water heating system, natural and forced circulation types. Concentrating collectors, Solar cookers, Solar dryers, Solar declinators.

Unit-III : FUNDAMENTALS OF SOLARCELLS (10hrs)

(a) Semi conductor interface, Types, homo junction, hetero junction and Schottky barrier, advantages and drawbacks, Photo voltaic cell, equivalent circuit, output parameters (Field Visit and its report), conversion efficiency, quantum efficiency

(b)Measurement of IV characteristics, series and shunt resistance, their effect on efficiency, Effect of light intensity, inclination and temperature on efficiency

Unit-IV: TYPESOFSOLARCELLSANDMODULES(10hrs)

(a)Types of solar cells, Crystalline silicon solar cells, I-V characteristics, poly-Sicells, Amorphous silicon cells, Thin film solar cells-CdTe/CdSandCuInGaSe2/CdS cell configurations, structures, advantages and limitations

(b)Multi junction cells – Double and triple junction cells. Module fabrication steps, Modules in series and parallel, Bypass and blocking diodes.

Unit–V: SOLAR PHOTOVOLTAIC SYSTEMS(10hrs)

(a) Energy storage in PV systems, Energy storage modes, electrochemical storage, Batteries, Primary and secondary.

(b) Solid-state battery, Molten solvent battery, lead acid battery and dry batteries, Mechanical storage –Flywheel, Electrical storage –Super capacitor

References:

1. Solar Energy Utilization by G. D. Rai, Khanna Publishers
2. Solar Energy- Fundamentals, design, modelling and applications by G.N. Tiwari, Narosa Publications, 2005.
3. Solar Energy-Principles of thermal energy collection & storage by S.P. Sukhatme, TataMc-GrawHill Publishers, 1999.
4. Science and Technology of Photo voltaics, P. Jayarama Reddy, CRC Press(Taylor &Francis Group), Leiden &BS Publications,Hyderabad,2009.
5. Solar Photo voltaics-Fundamentals, technologies and applications, Chetan Singh Solanki, PHI Learning Pvt. Ltd.,
6. Websourcessuggestedbytheteacherconcernedandthecollegelibrarianincl udingreadingmaterial.

(a) https://courses.edx.org/c4x/DelftX/ET.3034TU/asset/solar_energy_v1.1.pdf

(b) https://www.sku.ac.ir/Datafiles/BookLibrary/45/John%20A.%20Duffie,%20

William%2 0A.%20Beckman(auth.)-Solar%20Engineering%20of%20Thermal%20Processes,%20Fourth%20Edition%20(2013).pdf

Solar Energy and Applications – Practical (lab)work *(MaxMarks:50)*

Learning Outcomes: On successful completion of this practical course, student shall be able to:

1. Listoutandidentifyvariouscomponentsofsolarthermalcollectorsandsystems,solar photo voltaic modules and systems.
2. Learn the procedures for measurement of direct, global and diffuse solar radiation,I-Vcharacteristics and efficiency analysis of solar cells and modules.
3. Demonstrateskillsacquiredinevaluatingtheperformanceofsolarcell/moduleinconnecting them appropriately to get required power output.
4. Acquire skills in identification and elimination of the damaged panels without affecting the output power in a module / array.
5. Performproceduresandtechniquesrelatedtogeneralmaintenanceofsolarthermalandphoto voltaicmodules.

I. Practical(Laboratory) Syllabus: (**30hrs**)(Max.50Marks)

1. Measurement of direct radiation using pyrheliometer.
2. Measurement of global and diffuse radiation using pyranometer.
3. Evaluation of performance of a flat plate collector
4. Evaluation of solar cell / module efficiency by studying the I –V measurements.
5. Determination of series and shunt resistance of a solar cell/module.
6. Determination of efficiency of two solar cells/ modules connected in series.
7. Determination of efficiency of two solar cells/ modules connected in parallel.
8. Study the effect of input intensity on the performance of solar cell / module.
9. Study the influence of cell /module temperature on the efficiency.
10. Study the effect of cell / module inclination on the efficiency.

The Guidelines to be followed by the question paper setters in PHYSICS for the V/VI- Semester - end exams

SEMESTER – V/VI	PAPER CODE : 7B
PAPER TITLE : Solar Energy and Applications ACADEMIC YEAR-2022-2023	

Weightage for the question paper :

syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (20 Marks)	2	1
Unit-2 (25Marks)	1	2
Unit-3 (25Marks)	2	1
Unit-4 (30Marks)	2	2
Unit-5 (15 Marks)	1	2

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

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III B.Sc , PHYSICS **SEMESTER – V/VI**	**PAPER CODE : 7B**
PAPER TITLE : SOLAR ENERGY AND APPLICATIONS **ACADEMIC YEAR-2022-2023**	

Time: 3Hours Maximum marks: 70 Minimum marks: 28

MODEL PAPER

Section - A

Answer any **Four** of the following (4X5=20M)

1. Distinguish direct and diffuse radiations. L2, CO1
2. How can you measure direct radiation? L3, CO1
3. What is collector heat removal factor and collector flow factor ? L3, CO2
4. Explain Testing of Flat Plate Collector . L1, CO2
5. What is schottky barrier? L1, CO3
6. Explain about I-V characteristics of solar cell. L1, CO3
7. Explain Advantages and Limitations of solar cells. L3, CO4
8. Write about super capacitor. L1, CO5

Section - B

Answer any **FIVE** of the following (5X10=50M)

9. Explain spectral distribution of solar radiation. L1, CO1
10. Describe the working of pyroheliometer. L1, CO1
11. Write about Flat plate collector and its efficiency. L1, CO2
12. What are the types of solar water heating system? Explain natural circulation type. L2, CO2
13. Define homo junction and hetero junction. What are the advantages and drawbacks? L2, CO3
14. Explain the effect of light intensity, inclination and temperature on efficiency of PVcell. L1, CO3
15 . What are the types of solar cells? Write about CdTe/Cds solar cell. L2, CO4
16 . Write about various energy storage modes. L2, CO5

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Domain Subject: **PHYSICS**

Title of the Paper : APPLICATIONS OF ELECTRICITY & ELECTRONICS Semester: V/VI

[Skill Enhancement Course (Elective)] **Offered to : III B.Sc (MPC & MPCs) Course Type:** Core (TH)

Course Code	**SECPHY501C**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	**30**
No. of Lecture Hours / Week	**3**	Semester End Exam Marks	**70**
Total Number of Lecture Hours	**45**	Total Marks	**100**
Year of Introduction : 2022-23	Year of Offering: 2022-23	Year of Revision: --------	Percentage of Revision: -----

Course Objectives:

- To help students to understand the principles and laws of electricity which is essential to constantly emerging newest technologies
- To create interest among the students about the communication systems by studying electricity and electronics
- Students will be able to understand applications of passive elements, AC, DC circuits and power supplies

Course Outcomes:

At the end of this course, students should be able to:

CO1 Understand the types of resistors, Inductors and capacitors and its applications

CO2 Distinguish between AC and DC sources and understand about the batteries and Network theorems for DC circuits

CO3 Explain the working principle and construction of Generators and transformers

CO4 Learn the applications of EM induction and power supplies

SYLLABUS

Unit	Learning Units	Lecture Hours
I	**UNIT-I: INTRODUCTION TO PASSIVE ELEMENTS** **a) Passive elements** Resistor - Types of Resistors, Color coding, Combination of Resistors – Series combination (Voltage division), Parallel combination (Current division), Ohms Law and its limitation. Inductor - Principle, Types of Inductors. Capacitor - Principle, Charging and discharging of a Capacitor, Types of Capacitors. **b) Applications of Passive elements:** Applications of a Resistor as a heating element in heaters and as a fuse element. Applications of Inductors, Application of choke in a fan and in a radio tuning circuit, Series resonance circuit as a Radio tuning circuit. Applications of Capacitor in power supplies, motors (Fans).	9
II	**UNIT-II: POWER SOURCES (BATTERIES)** **a) Power sources:** Types of power sources-DC & AC sources, Different types of batteries, Rechargeable batteries - Lead acid batteries, Li-ion batteries, Series, Parallel & Series-Parallel configuration of batteries **b) Network Theorems for DC circuits** Thevenin's theorem, Norton's theorem, Maximum Power transfer theorem, Constant Voltage source - Constant Current Source-Applications of Current sources & Voltage sources.	9
III	**UNIT-III: ALTERNATING & DIRECT CURRENTS** **a)** A.C Generator, Construction and its working principle, DC Generator, Construction and its working principle, advantages and disadvantages, Differences between DC and AC generators **b)** Transformers- Construction and its working principle, Open circuit and short circuit tests, Types of Transformers - Step-down and Step-up Transformers, Relation between primary and secondary turns of the transformer with emf, Use of Transformer in a regulated Power supply	9
IV	**UNIT-IV: MODULATION CIRCUITS** (Skill Based) **a) Amplitude modulation:** Amplitude modulation, modulation index, Waveforms, Power relations, AM transmitter, AM Receiver, Demodulation, Diode detector **b) Frequency modulation:** Frequency modulation, modulation index, Waveforms, FM Transmitter, FM Receiver	9
V	**Unit-V: Applications of EM Induction & Power Supplies (Skill Based)** **a)** DC motor – Construction and operating principle, Calculation of power, voltage and current in a DC motor, Design of a simple Motor (Fan) with suitable turns of coil **b)** Working of a DC regulated power supply, Construction of 5 volts regulated power supply, Design of a step-down (ex:220-12V) and step-up (ex:120-240V) transformers-Simple Design of FM Radio circuit using LCR series resonance (tuning) circuit, Design of a simple 5 volts DC charger	9

References:

1. Grob's Basic Electronics by Mitchel Schultz , TMH or McGraw Hill
2. Electronic and Electrical Servicing by Ian Robertson Sinclair, John Dunton, Elsevier Publications
3. Troubleshooting Electronic Equipment by R.S.Khandapur ,TMH
4. Web sources suggested by the teacher concerned and the college librarian including reading material.

Course : Applications of Electricity & Electronics

PRACTICAL (Laboratory) SYLLABUS *(Max Marks:50)*

EXPERIMENTS LIST

Minimum SIX experiments are to be done and recorded

1. Measurement of R using Color coding of Resistors and measurement of R using multimeter **- Resistors of different values, Multimeters**
2. Connect two or three resistors or capacitors or inductors and measure the Series, Parallel Combination values using a Multimeter and compare the values with the calculated values **- Capacitors of different values**
3. Use the Digital Multimeter and Analog Multimeter to measure the output voltage of an AC & DC power supply - **Digital Multimeters, Analog Multimeters**
4. Use the Multimeter to check the functionality of a Diode and Transistor. Also test whether the given transistor is PNP or NPN - **Different types of Transistors and Diodes**
5. Construct a series electric circuit with R, L and C having an AC source and study the frequency response of this circuit. Find the Resonance Frequency. **– Series Resonance Experiment (Function generators)**
6. Construct a Parallel electric circuit with R, L & C having an AC source and study the frequency response of this circuit .Find the resonant frequency. **– Parallel Resonance Experiment (Function generators)**
7. Test whether a circuit is a Open circuit or Short Circuit by measuring continuity with Multimeter and record your readings. **– Experimental Kit to do the tests**
8. AM Generation Kit
9. FM generation Kit

Project Work:

1. Acquainting with the soldering techniques
2. Design and Construction of a 5 Volts DC unregulated power supply
3. Construction of a Step down Transformer and measurement of its output voltage. And to compare it with the calculated value.

Lab References:

1. Laboratory Manual for Introductory Electronics Experiments by Maheshwari, L.K. Anand, M.M.S., New Age International (P) Ltd.
2. Electricity-Electronics Fundamentals: A Text-lab Manual by Paul B. Zbar, Joseph Sloop, & Joseph G. Sloop , McGraw-Hill Education
3. Laboratory Manual Basic Electrical Engineering by Umesh Agarwal, Notion Press
4. Basic Electrical and Electronics Engineering by S.K. Bhattacharya , Pearson Publishers.
5. Web sources suggested by the teacher concerned.

The Guidelines to be followed by the question paper setters in PHYSICS for the V/VI- Semester - end exams

SEMESTER – V/VI	PAPER CODE : SECPHY501C
PAPER TITLE : Applications of Electricity & Electronics ACADEMIC YEAR-2022-2023	

Weightage for the question paper :

syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (30 Marks)	2	2
Unit-2 (30Marks)	2	2
Unit-3 (30Marks)	2	2
Unit-4 (15Marks)	1	1
Unit-5 (15 Marks)	1	1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

(AUTONOMOUS), VUYYURU.

(Accredited at "A" Grade by NAAC, Bangalore)

III B.Sc ,PHYSICS SEMESTER – V/VI	**PAPER CODE : SECPHY501C**
PAPER TITLE : APPLICATIONS OF ELECTRICITY & ELECTRONICS **ACADEMIC YEAR-2022-2023**	

Time: 3Hours Maximum marks: 70 Minimum marks: 28

MODEL PAPER

Section – A

Answer any **Four** of the following (4X5=20M)

1. What is Ohm's law? Explain. (CO1, L1)
2.. Explain the Series resonance circuit as a Radio tuning circuit. (CO1, L1)
3. Explain series-parallel configuration of batteries. (CO2, L1)
4. Write the applications of current and voltage sources. (CO2, L1)
5. Write the Differences between DC and AC generators. (CO3, L2)
6. Explain the use of a Transformer in a regulated Power supply. (CO3, L1)
7. Briefly explain the concept of demodulation. (CO4, L1)
8. Write a short note on step-down and step-up transformers. (CO5, L1)

Section - B

Answer any **FIVE** of the following (5X10 = 50M)

9. Briefly explain the different types of resistors and capacitors. (CO1, L1)
10. Write a note on applications of passive and active elements. (CO1, L1)
11. Describe Li- ion batteries. (CO2, L2)
12. Briefly explain the Thevenin's theorem. (CO2, L2)
13. Explain the construction and working principle of AC generator. (CO3, L1)
14. Explain the construction and working principle of Transformers. (CO3, L1)
15. What is amplitude modulation? Explain. (CO4, L2)
16. Explain the construction and operating principle of DC motor. (CO5, L1)

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Domain Subject: **PHYSICS**

Title of the Paper : ELECTRONIC INSTRUMENTATION Semester: V/VI

[Skill Enhancement Course (Elective)] **Offered to : III** B.Sc (MPC & MPCs)**Course Type:** Core (TH)

Course Code	**SECPHY502C**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	**30**
No. of Lecture Hours / Week	**3**	Semester End Exam Marks	**70**
Total Number of Lecture Hours per semester	**45**	Total Marks	**100**
Year of Introduction : 2022-23	Year of Offering: 2022-23	Year of Revision: --------	Percentage of Revision: -----

Course Objectives:

- Explain basic concepts and definitions in measurement.
- Describe the bridge configurations and their applications.
- Elaborate discussion about the importance of electronic instruments

COURSE OUTCOMES

On successful completion of this course, the students will be able to:

CO1 Understand the basic measurements of Instruments (accuracy, precision, range, resolution, sensitivity and errors). Understand the theory, working principle, specifications and significance of Multimeter.

CO2 Describe the function of basic building blocks of Cathode Ray Oscilloscope. Measure the appropriate parameters (Voltage, Time Period, Frequency and Phase angle)

CO3 Understand the A/D & D/A converters and display instruments

CO4 Gain knowledge about amplifiers, oscillators and biomedical instruments

CO5 Understand the fundamental theory of Transducers and bridges

SYLLABUS

Unit	Learning Units	Lecture Hours
I	**UNIT-I INTRODUCTION TO INSTRUMENTS** **a)** Basic of measurements: Instruments accuracy, precision, sensitivity, resolution, range, errors in measurement, Classification of Instruments, Analog instruments & Digital Instruments, Construction and working of an Analog Multimeter and Digital Multimeter (Block diagram approach), DC Voltmeter and AC Voltmeter, Sensitivity, Sources of errors in the Measurement of resistance, voltage and current **b)** Specifications of multimeter and their significance, Basic ideas on Function generator (brief explanation)Balancing and damping Moving iron instruments &PMMC instruments - extension of range.	9
II	**UNIT-II OSCILLOSCOPE** **a)** Cathode ray oscilloscope – Principle and block diagram of CRO - Cathode Ray Tube – functioning – various controls **b)** Applications CRO: Measurement of voltage (dc and ac), frequency& time period, Different types of oscilloscopes and their uses, Digital storage Oscilloscope	9
III	**UNIT-III TRANSDUCERS AND BRIDGES** **a)** Classification of Transducers, Resistive, Capacitive & Inductive transducers, Piezoelectric transducer, Photo transducer, Digital transducer. b)DC bridge – Wheatstone's bridge, AC Bridges - Measurement of Inductance and Capacitance – Maxwell's bridge, Hays bridge	9
IV	**UNIT-IV ADC AND DAC &DISPLAY INSTRUMENTS** **a)**A/D & D/A converters - Binary ladder, A/D converters – continuous type, integrating type, successive approximation type. b)Introduction to Display devices, LED Displays, Seven Segment Displays, Construction and operation (Display of numbers).	9
V	**UNIT-V AMPLIFIERS, OSCILLATORS & BIOMEDICAL INSTRUMENTS** (9hrs) **a)** Amplifiers – Classification of amplifiers, Coupling amplifiers – RC Coupled amplifier – frequency response characteristics (no derivation), Feedback in Electronic circuits – Positive and Negative feedback, Barkhausen criteria, RC phase shift oscillator **b)** Basic operating principles and uses of (i) Clinical thermometer (ii) Stethoscope (iii) ECG machine (iv) Radiography (v) Ultrasound scanning	9

Reference Books:

1. Electronic Instrumentation by H.S.Kalsi ,TMH Publishers
2. Electronic Instrument Hand Book by Clyde F. Coombs ,McGraw Hill
3. Introduction to Biomedical Instrumentation byMandeep Singh, PHI Learning.
4. Electronic Instrumentation – WD Cooper
5. Electrical and Electronic Instrumentation – AK Sawhany
6. A text book in electrical technology by B.L.Thereja (S.Chand&Co)
7. *Biomedical Instrumentation* and Measurements by Leslie *Cromwell ,Prentice Hall India.*
8. Electronic Measurements and Instrumentation by Kishor, K Lal, Pearson, New Delhi
9. Electrical and Electronic Measurements by Sahan, A.K., Dhanpat Rai, New Delhi
10. Electronic Instruments and Measurement Techniques by Cooper, W.D. Halfrick, A.B., PHI Learning, New Delhi
11. Web sources suggested by the teacher concerned and the college librarian including reading material.

Course : Electronic Instrumentation– PRACTICAL SYLLABUS

Practical (Laboratory) Syllabus:*(Max Marks:50)*

Minimum SIX experiments are to be done and recorded

1. Familiarization of digital multimeter and its usage in the measurements of (i) resistance (ii) current, (iii) AC & DC voltages
2. Measure the AC and DC voltages, frequency using a CRO and compare the values measured with other instruments like Digital multimeter.
3. Formation of Sine, Square wave signals on the CRO using Function Generator and measure their frequencies. Compare the measured values with actual values.
4. Display the numbers from 0 to 9 on a single Seven Segment Display module by applying voltages.
5. Displacement transducer - LVDT
6. A.C - Impedance and Power Factor.
7. Maxwell's Bridge – Determination of Inductance.
8. Measurement of body temperature using a digital thermometer and list out the error and corrections.
9. Measurement of Blood Pressure of a person using a B.P. meter and record your values and analyze them.
10. Display the letters **a** to **h** on a single Seven Segment Display module by applying voltages.
11. Get acquainted with an available ECG machine and study the ECG pattern to understand the meaning of various peaks
12. Observe and understand the operation of a Digital Pulseoxymeter and measure the pulse rate of different people and understand the working of the meter.

VI. Lab References:

1.Electronic Measurement and Instrumentation by J.P. Navani. ,S Chand & Co Ltd
2.Principles of Electronic Instrumentation by A De Sa, Elsevier Science Publ.
3. Electronic Measurements and Instrumentation by S.P.Bihari, YogitaKumari, Dr. Vinay
Kakka, Vayu Education of India .
4.Laboratory Manual For Introductory Electronics Experiments by Maheshwari, New Age
International (P) Ltd., Publishers.
5.Electricity-Electronics Fundamentals: A Text-lab Manual by Paul B. Zbar ,Joseph Sloop, & Joseph G. Sloop , McGraw-Hill Education.
6.Web sources suggested by the teacher concerned.

The Guidelines to be followed by the question paper setters in PHYSICS for the V/VI- Semester - end exams

SEMESTER – V/VI	**PAPER CODE : SECPHY502C**
PAPER TITLE : ELECTRONIC INSTRUMENTATION **ACADEMIC YEAR-2022-2023**	

Weightage for the question paper :

syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (30 Marks)	2	2
Unit-2 (25Marks)	1	2
Unit-3 (30Marks)	2	2
Unit-4 (15Marks)	1	1
Unit-5 (20 Marks)	2	1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU.

(Accredited at "A" Grade by NAAC, Bangalore)

III B.Sc ,PHYSICS , SEMESTER – V/VI	**PAPER CODE : SECPHY502C**
PAPER TITLE : ELECTRONIC INSTRUMENTATION **ACADEMIC YEAR-2022-2023**	

Time: 3Hours Maximum marks: 70 Minimum marks: 28

MODEL PAPER

Section - A

Answer any **Four** of the following (4X5=20M)

1. Mention the difference between accuracy and precession of a measurement.(CO1, L1)
2. Write the uses of function generator. (CO1, L2)
3. Write a short note on digital transducer. (CO2, L1)
4. What are the various applications of CRO?(CO2, L2)
5. Explain about DC bridge ?
6. Explain LED display systems. (CO4, L1)
7. What is Barkhausen criteria? (CO5, L1)
8. Explain the importance of ultrasound scanning. (CO5, L1)

Section -B

Answer any **FIVE** of the following : (5X10 = 50 M)

9. Define error. Mention different types of Errors. Explain any three types of errors associated with measurements. (CO1, L2)

10. What is a multimeter? What are the advantages of analog multimeter? How do we measure voltage using analog multimeter? (CO1, L2)

11.Describe the principle and working of CRO.(CO2, L1)

12. Write a brief note on different types of oscilloscopes and their uses.(CO2, L1)

13. Explain in brief Piezoelectric transducer and Photo transducer.(CO3, L1)

14. Discuss about Wheatstone's bridge.(CO3, L1)

15. Explain A/D and D/A converters.(CO4, L1)

16. What is an amplifier? Explain RC coupled amplifier.(CO5, L2)

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VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF PHYSICS

MINUTES OF BOARD OF STUDIES

EVEN SEMESTER

01-04-2023

Minutes of the meeting of Board of studies in Physics for the Autonomous course of A.G. & S.G. Siddhartha Degree College of Arts & Science, Vuyyuru held at 11.00 A.M on 01-04-2023 in the Department of Physics.

Sri J. Hareesh Chandra — **Presiding**

Members Present:

1) ..... **(Sri. J. Hareesh Chandra)**	Chairman	**Head, Department of Physics** A.G. &S.G.S. Degree College of Arts & Science, Vuyyuru - 521165
2) ..... **(Dr. M. Rami Reddy)**	University Nominee	**Registrar** Krishna University, Machilipatnam.
3) ..... **(Dr. P.V. Ramana)**	Academic Council Nominee	**H.O.D. Dept. of Physics,** SRI DNR Women's College, Palakollu.
4) ..... **(Dr. T. Srinivasa Krishna)**	Academic Council Nominee	**Associate Professor,** H.O.D, Dept. of Physics, P.B.Siddhartha College of Arts & Science, Vijayawada
5) ..... **(Sri I. Chittibabu)**	Representative from Industry	**Sub Divisional Engineer** BSNL , Vijayawada.
6) ..... **(Sri B. Dileep Kumar)**	Alumni	**Lecturer in Physics,** Dept.ofPhysics,IIIT, Nuzivid.
7) ..... **(Sri M. Sateesh)**	Member	**Lecturer in Physics,** A.G.&S.G.S.Degree College of Arts & Science, Vuyyuru - 521165.
8) ..... **(Smt. M.P.D. Parimala)**	Member	**Lecturer in Physics** A.G. & S.G.S.Degree College of Arts & Science, Vuyyuru - 521165.
9) ..... **(Sri J. Dileep)**	Member	**Lecturer in Physics** A.G.&S.G.S.Degree College of Arts & Science, Vuyyuru - 521165.
10) ..... **(Sri U.Ram prasad)**	Member	**Lecturer in Physics,** A .G.& S.G.S.Degree, College of Art. & Science,Vuyyuru -521165

Agenda for B.O.S Meeting :- PHYSICS

1. To recommend the syllabi (Theory & Practical), Model question paper for II Semester of I B.Sc (MPCS) for the academic year 2022 - 2023.
2. To recommend the syllabi (Theory & Practical), Model question paper for IV Semester of II B.Sc (MPC,MPCS) for the academic year 2022 - 2023.
3. To recommend the Blue print for the semester end exam for II & IV semester of I & II B.Sc (MPC,MPCS) for the academic year 2022 - 2023.
4. To recommend the Guidelines to be followed by the question paper setters in Physics for II, IV Semester – end exams.
5. To recommend the teaching and evaluation methods to be followed under Autonomous status.
6. Any suggestions regarding seminars, workshops, Guest lecture to be organized.
7. Any other matter.

J. Hareeshchandra

Chairman.

(J. Hareesh Chandra)

RESOLUTIONS

1. It is resolved to continue the same syllabi (Theory & Practical), guide lines to be followed by the question paper setters of physics of II semester of I B.Sc. (MPCS) under Choice Based Credit System (CBCS) approved by the Academic Council of 2022 – 2023. Model question paper pattern changed.
2. It is resolved to continue the same syllabi (Theory & Practical), model paper, guide lines to be followed by the question papers under Choice Based Credit System (CBCS) setters of PHYSICS of IV Semester of II B.Sc. (MPC&MPCS) approved by the Academic Council of 2022 –2023.
3. It is resolved to Continue the same Blue prints of II & IV Semesters of B.Sc PHYSICS for the Academic year 2022-2023.
4. It is resolved to continue the following teaching & evaluation methods for the Academic year 2022-23.
5. Any other matter.

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. Using of OHP and LCD projector to display on U boards etc; for better understanding of concepts.

Evaluation of a student is done by the following procedure:

Internal Assessment Examination:

- Out of maximum 100 marks in each paper for I B.Sc, 30 marks shall be allocated for internal assessment.
- Out of these 30 marks, 20 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the assignment for I B.SC.
- Out of maximum 100 marks in each paper for II B.Sc, 25 marks shall be allocated for internal assessment.
- Out of these 25 marks, 15 marks are allocated for announced tests (i.e . IA-1& IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5marks allocated on assignment and reaming 5 marks seminar for IV semester.
- There is no pass minimum for internal assessment for I & II B.Sc.

Semester – End Examination:

- The maximum mark for I (MPCS) semester – End examination shall be 70 marks and duration of the examination shall be 3 hours.
- The maximum mark for II B.Sc semester- End examination shall be 75 marks and duration of the examination shall be 3 hours. Even through the candidate is absent for two IA exams / obtain zero marks the external marks are considered (if the candidate gets 40/70) and the result shall be declared as "PASS"
- Semester – End examination shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of II & IV semester for I & II B.Sc.
- Discussed and recommended for organizing Seminars, Guest lectures, Work – Shops to upgrade the Knowledge of students, for the approval of the Academic Council.

T. Harischandra

Chairman

ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt., A.P. (AUTONOMOUS).

ALLOCATION OF CREDITS

For the Papers offered during II & IV Semesters

SEMESTER – II

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
PHYT21B	WAVE OPTICS	4	3	30	70	3 Hrs.
PHYP21B	WAVE OPTICS	2	2	10	40	3 Hrs.

SEMESTER- IV

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
PHYT41A	ELECTRICITY, MAGNETISM AND ELECTRONICS	4	3	25	75	3 Hrs.
PHYP41A	ELECTRICITY, MAGNETISM AND ELECTRONICS	2	2	10	40	3 Hrs.
PHYT01	MODERN PHYSICS	4	3	25	75	3 Hrs.
PHYP01	MODERN PHYSICS	2	2	10	40	3 Hrs.

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TITLE OF THE PAPER: Wave Optics

Semester : II

Course Code	**PHYT21C**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**3**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**4**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**60**	**Total Marks**	**100**
Year of Introduction: 2020-21	**Year of Offering: 2021 -22**	**Year of Revision: 2021-22**	**Percentage of Deviation : 20%**
CLASS:	**I MPCs**		

. Course Objectives :

- To help students to understand the nature of light, its propagation and interaction with matter which is essential to constantly emerging newest technologies.
- To create interest among the students about the modern communication systems by studying wave optics.
- Students will be able to understand applications of interference, diffraction, lasers in real life situations .

Course outcomes :

At the end of this course, students should be able to:

- Understand the phenomenon of interference of light and its formation in (i) Lloyd's single, Newton's rings and Michelson interferometer.
- Distinguish between Fresnel's diffraction and Fraunhofer diffraction and observe the diffraction patterns in the case of a single slit and the diffraction grating.
- Explain the various methods of production of plane, circularly and polarized light and their detection and the concept of opticalactivity.
- Comprehend the basic principle of laser, the working of He-Ne laser and Ruby lasers and their applications in different fields.

Syllabus
WAVE OPTICS

Course Details

Unit	Learning Units	Lecture Hours
I	**Interference of light: (Problem)** **A) Division of Wavefront:** Introduction, Conditions for the interference of light, Interference of light by division of wavefront and amplitude, Phase change on reflection- Stokes' treatment, Fresnel's Bi-Prism-Determination of Wavelength of Light. **B) Division of Amplitude**: Cosine law - colours in thin films, Newton's rings in reflected light-Theory and experiment - Determination of wavelength of monochromatic light, Michelson interferometer and determination of wavelength.	12
II	**Diffraction of light(Problem)** **A) Fraunhofer Class**: Distinction between Fresnel and Fraunhofer diffraction,Fraunhofer diffraction at a single slit, Double slit and N-slits (No Derivation for N-Slits), Determination of wavelength of light using a diffraction grating, Resolving power of grating, **B) Fresnel's Class: Fresnel's half-period zones, Zone plate, comparison of zone plate with a convexlens**	12
III	**Polarisation of light(Problem)** **A) Polarized light: Methods of production of plane-polarized light - Polarisation by reflection (Brewster's law), Malus law,Double refraction, Nicol prism, Nicol prism as polarizer and analyzer,** Quarter wave plate, Half wave plate **B) Types and production of polarized Light:** **Plane, Circularly and Elliptically polarized light-Production and detection, Optical activity, Laurent's half shade polarimeter: determination of the specific rotation**	12
IV	**A) Aberrations**: **(Problem)** Monochromatic aberrations - Spherical aberration, Methods of minimizing spherical aberration, Coma& Astigmatism -minimization methods, Chromatic aberration-the achromatic doublet; Achromatism for two lenses (i) in contact and (ii) separated by a distance. **B) FibreOptics:(No Problem)** Fibre optics: Introduction to Fibers, different types of fibers, rays and modes in an optical fiber, Principles of fiber communication (qualitative treatment only), Advantages of fiber optic communication.	12
V	**Lasers and Holography (No Problem)** **A) Lasers**: Introduction, Spontaneous emission, stimulated emission, Population Inversion, Laser principle, Einstein coefficients, Types of lasers-He-Ne laser, Ruby laser, Applications of lasers **B) Holography**: Basic principle of holography, Applications of holography	12

REFERENCE BOOKS:

- 1) BSc Physics, Vol.2, Telugu Akademy, Hyderabad
- 2) A Text Book of Optics-N Subramanyam, L Brijlal, S.Chand&Co.
- 3) Optics-Murugeshan, S.Chand&Co.
- 4) Unified Physics Vol.II Optics, Jai PrakashNath&Co.Ltd.,Meerut
- 5) Optics,F.A. Jenkins and H.G.White,McGraw-Hill
- 6) Optics,AjoyGhatak,TataMcGraw-Hill.
- 7)Introduction of Lasers – Avadhanulu, S.Chand&Co.
- 8) Principles of Optics- BK Mathur, Gopala Printing Press,1995

STUDENT ACTIVITY

1. Seminars
2. Assignments.

LIBRARY ACTIVITY

Students visit the library to refer and gather information regarding seminar topics and assignments.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

MEASURABLE

- Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual andchallenging)
- Student seminars (on topics of the syllabus and related aspects (individualactivity)
- Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups asteams)
- Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

GENERAL

- Group Discussion
- Visit to Research Stations/laboratories and related industries

RECOMMENDED ASSESSMENT METHODS

Some of the following suggested assessment methodologies could be adopted;

- The oral and written examinations (Scheduled and surprisetests),
- Practical assignments and laboratory reports,
- Efficient delivery using seminarpresentations , Viva voce interviews.

(AUTONOMOUS) , VUYYURU – 521 165

New Question Paper Pattern

Semester End Examination-2022-23

With effect from 2022-23 and onwards

Max. Marks : 70 **Max. Time : 3 Hrs**

Answer all Questions.

SECTION A (20MARKS)

1.	(a)	4M	L1
		OR	
	(b)	4M	L1
2.	(a)	4M	L1
		OR	
	(b)	4M	L1
3.	(a)	4M	L2
		OR	
	(b)	4M	L2
4.	(a)	4M	L2
		OR	
	(b)	4M	L2
5.	(a)	4M	L3
		OR	
	(b)	4M	L3

SECTION B (50MARKS)

Answer all Questions.

6.	(a)	10M	L1
		OR	
	(b)	10M	L1
7.	(a)	10M	L1
		OR	
	(b)	10M	L1
8.	(a)	10M	L2
		OR	
	(b)	10M	L2
9.	(a)	10M	L2
		OR	
	(b)	10M	L2
10.	(a)	10M	L3
		OR	
	(b)	10M	L3

***

Practical Course II : Wave Optics

Workload : 30 hrs **CREDITS -2** **2 hrs/week**

Course outcomes (Practicals) :

On successful completion of this practical course the student will be able to,

1. Gain hands-on experience of using various optical instruments like spectrometer, polarimeterand making finer measurements of wavelength of light using Newton Rings experiment, diffraction grating etc.
2. Understand the principle of working of polarimeter and the measurement of specific rotatory power of sugar solution .
3. Know the techniques involved in measuring the resolving power of telescope and dispersive power of the material of the prism.
4. Be familiar with the determination of refractive index of liquid by Boy's methodand the determination of thickness of a thin wire by wedge method.

Minimum of 6 experiments to be done and recorded

1. Determination of radius of curvature of a given convex lens-Newton'srings.
2. Resolving power of grating.
3. Study of optical rotation– polarimeter.
4. Dispersive power of a prism.
5. Determination of wavelength of light using diffraction grating-minimum deviation method.
6. Determination of wavelength of light using diffraction grating-normal incidence method.
7. Resolving power of a telescope.
8. Refractive index of a liquid-hallowprism
9. Determination of thickness of a thin wire by wedge method
10. Determination of refractive index of liquid-Boy's method.

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TITLE OF THE PAPER**: ELECTRICITY, MAGNETISM AND ELECTRONICS**
Semester: IV

Course Code	**PHYT41A**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**3**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**4**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**60**	**Total Marks**	**100**
Year of Introduction: 2021-22	**Year of Offering: 2021-22**	**Year of Revision: ------**	**Percentage of deviation: ------**
CLASS:	**II . B.Sc. (MPC&MPCs)**	**2021-22**	

Course Objective :

1. Understand the magnetic effects of electric current.
2. Study the unification of electric and magnetic phenomena.
3. To gain knowledge about Maxwell's equations and EM waves

4. develop competence in using laboratory instruments to carry out experiments to study different electromagnetic phenomena, that will enhance student's class room learning .

Course outcomes :-

On successful completion of this course, the students will be able to:

CO1 Remember and recollect of basic electrodynamic definitions and apply in daily life.

CO2 Understanding of electrodynamics and relativity.

CO3 Ability to define and derive expressions for the energy both for the electrostatic and magnetostatic fields and derive Poynting's theorem from Maxwell's equations and physical interpret.

CO4 Analyze Maxwell's equation in different forms (differential and integral) and apply them to diverse engineering problems.

Syllabus
ELECTRICITY, MAGNETISM AND ELECTRONICS
Course Details

Unit	Learning Units	Lecture Hours
I	**A) Electrostatics: (6hrs)** Gauss's law-Statement and its proof, Electric field intensity due to (i) uniformly charged solid sphere and (ii) an infinite conducting sheet of charge, Deduction of Coulomb's law from Gauss law, Electrical potential–Equipotential surfaces, Potential due to a (i)point charge (ii)uniformly charged sphere **B) Dielectrics: (6 hrs)** Polar and Non-polar dielectrics- Electric displacement D, electric polarization P,Relation between D, E and P, Dielectric constant and electric susceptibility.	12
II	**A) Magnetostatics: (6 hrs)** Biot-Savart's law and its applications: (i) calculation of B due to long straight wire and (ii) solenoid, Ampere's Circuital Law and its application to Solenoid,Hall effect, determination of Hall coefficient and applications. **B) Electromagnetic Induction: (6 hrs)** Faraday's laws of electromagnetic induction, Lenz's law, Self-induction and Mutual induction, Self-inductance of a long solenoid, Mutual inductance of two coils, Energy stored in a magnetic field, Eddy currents and Electromagnetic damping	12
III	**A) Alternating currents: (6 hrs)** Alternating current - Relation between current and voltage in LR and CR circuits,Phasor and Vector diagrams, LCR series and parallel resonant circuit, Q –factor, Power in ac circuits, Power factor. **B) Electromagnetic waves-Maxwell's equations: (6 hrs)** Idea of displacement current,Maxwell's Equations-Derivation, Maxwell's wave equation (with derivation), Transverse nature of electromagnetic waves, Poynting theorem (Statement and proof)	12
IV	**Basic Electronic devices:** **A) Diodes**: PN junction diode, Zener diode andLight Emitting Diode (LED) and their I-V characteristics, Zener diode as a regulator **B) Transistors**: Transistors and its operation, CB, CE and CC configurations, Input and output characteristicsofa transistor in CE mode, Relation between alpha, beta and gamma; Hybrid parameters, Determination of hybrid parameters from transistor characteristics; Transistor as an amplifier	12
V	**Digital Electronics:** Number systems, Conversion of binary to decimal system and vice versa, Binary addition & Binary subtraction (1's and 2's complement methods), Laws of Boolean algebra, Basic logic gates, DeMorgan's laws-Statements and Proofs, NAND and NOR as universal gates, Exclusive-OR gate, Half adder and Full adder circuits.	12

TEXT BOOKS

1. BSc Physics, Vol.3, Telugu Akademy, Hyderabad.
2. Electricity and Magnetism, D.N. Vasudeva. S. Chand & Co.

REFERENCE BOOKS

1. Electricity, Magnetism with Electronics, K. K. Tewari, R. Chand& Co.,
2. Principles of Electronics, V.K. Mehta, S. Chand& Co.,
3. Digital Principles and Applications, A. P. Malvino and D. P. Leach, Mc Graw Hill Edition.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

MEASURABLE

- Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
- Student seminars (on topics of the syllabus and related aspects (individual activity))
- Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)
- Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)
- Study projects (by very small groups of students on selected local real-time problems pertaining to the syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

GENERAL

- Group Discussion
- Visit Research Stations/laboratories and related industries
- Others

RECOMMENDED ASSESSMENT METHODS

Some of the following suggested assessment methodologies could be adoptee

- The oral and written examinations (Scheduled and surprise tests),
- Practical assignments and laboratory reports,
- Observation of practical skills,
- Efficient delivery using seminar presentations,
- Viva voce interviews.

***

MODEL QUESTION PAPER

Title of the Paper: ELECTRICITY, MAGNETISM & ELECTRONICS

Section-A

Answer the following: (5X10=50M)

1 a) State Gauss law in electrostatics. Obtain an expression for potential due to point charge. (CO1, L1)

OR

b) Define D, E and P. Derive the relation between them. Hence deduce the relation between dielectric constant and susceptibility (CO3, L1)

2. a) Explain Biot-Savert Law. Derive an expression for the magnetic induction for infinite long straight wire. (CO2, L2)

OR

b) State Faraday's and Lenz's Law. Derive an expression for a long solenoid.(CO2, L2)

3 a) Derive an expression for the current flowing in an LCR series circuit. Explain resonance condition (CO3, L3)

OR

b) Write Maxwell's equations in differential form. Derive the equation of electromagnetic wave and hence evaluate the velocity of light in free space. (CO1, L3)

4 a) Explain the working and V-I characteristic of PN junction diode. (CO4, L2)

OR

b) Explain the working of PNP and NPN transistors. (CO3, L2)

5 a) State and prove De Morgan laws. (CO4, L2)

OR

b) Discuss the construction and working of Half Adder and Full Adder and give their truth tables. (CO3, L2)

SECTION- B

Answer any THREE of the following (3X5=15M)

6. Define electric potential. Write a note on equi potential surfaces. (CO1, L1)
7. What is Halll effect? Write its applications.(CO2, L1)
8. Explain about Q-factor (CO2, L2)
9. Derive the relation between α and β (CO3, L2)
10. Explain how NAND gate can act as universal gate. (CO4, L1)

SECTION - C

Answer any TWO of the following. (2X5=10M)

11. Find the resonant frequency of LCR series with L = 2mH, C=0.8μf and R = 100KΩ (CO4, L3)
12. In a transistor base current and emitter current are 0.09mA and 9.09mA respectively. Calculate current gains α and β (CO4, L3)
12. Find the binary equivalent of 625. (CO4, L3)
13. Add binary numbers 110, 111 and 101 (CO4, L3)

A. G & S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE VUYYURU-521165.

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Title of the Paper: ELECTRICITY, MAGNETISM & ELECTRONICS

(PRACTICALS)

Offered to: B.Sc. (MPC&MPCs)

Course Type: Core (L) PHYP**41A**

Year of Introduction: 2021-22 **Year of Revision: NIL** **Percentage of Revision: 100**

Semester: IV **Credits: 02**

Hours Taught: 30 hrs. per Semester **Max.Time**: 2 Hours

After successful completion of the course, the student will be able to:

CO1	Learn how a sonometer can be used to determine the frequency of AC-supply.
CO2	Observe the variation of magnetic field along the axis of a circular coil carrying current using Stewart and Gee's apparatus.
CO3	Understand the operation of PN junction diode, Zener diode and a transistor and their V-I characteristics.
CO4	Construct the basic logic gates, half adder and full adder and verify their truth tables. Further, the student will understand how NAND and NOR gates can be used as universal building blocks.
CO5	Observe the resonance condition in LCR series and parallel circuit

Minimum of 6 experiments to be done and recorded

1. LCR circuit series -resonance, Q factor.
2. LCR parallel circuit - resonance, Q factor.
3. Determination of ac-frequency –Sonometer.
4. Verification of Kirchoff's laws
5. Field along the axis of a circular coil carrying current-Stewart & Gee's apparatus.
6. PN Junction Diode V-I Characteristics
7. Zener Diode –V-I Characteristics
8. Logic Gates- OR, AND, NOT and NAND gates. Verification of Truth Tables.

9. Verification of De Morgan's Theorems.
10. Construction of Half adder and Full adder-Verification of truth tables
11. Zener Diode as a voltage regulator
12. Transistor CE Characteristics- Determination of hybrid parameters
13. Figure of merit of a moving coil galvanometer.

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TITLE OF THE PAPER : MODERN PHYSICS

Semester: IV

Course Code	PHYT01	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**3**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**4**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**60**	**Total Marks**	**100**
Year of Introduction: 2020-21	**Year of Offering:**	**Year of Revision : 2022-23**	**Percentage of Deviation : 10 %**
CLASS:	**II. B.Sc. (MPC&MPCs)**	**2021-22**	

Course Description:

Students would know about the basic principles in the development of modern physics. The topics covered in the course build a basic foundation of undergraduate physics students to study the advance branches: quantum physics, nuclear physics and particle physics. The course contains the study of atomic models, spectroscopy, matter waves, Schrodinger wave equations, brief idea of nuclear physics, and superconductivity. The students have the opportunity to use the basic principles of condensed matter physics in frontier areas of research and development in the field of material science, nanoscience and nanotechnology.

Course Objectives:

1. To learn the concepts in Atomic Physics.
2. Review the experiments that led development of quantum theory
3. Understand the underlying foundations and basic principles of quantum mechanics
4. impart knowledge of the nuclear processes that yield nuclear energy
5. Acquire the knowledge of Nano materials

Course outcomes:

On successful completion of this course, the students will be able to:

CO1	Remember the different atomic models and basic knowledge of spectroscopy
CO2	Understand the theory and application of microwave, infrared and Raman spectroscopy
CO3	Apply non- relativistic Schrödinger wave mechanics to a variety of potentials in one and three dimensions.
CO4	Analyse the prerequisite in a molecule towards its Rotational and vibrational activity
CO5	Examine the basic properties of nuclei, characteristics of Nuclear forces, salient features of particle physics.

Syllabus

MODERN PHYSICS

Course Details

Unit	Learning Units	Lecture Hours
I	1. **Atomic Physics**: (07 hrs) Vector atom model and Stern-Gerlach experiment, Quantum numbers associated with it, Angular momentum of the atom, Coupling schemes, Selection rules, Intensity rules, Spectral terms and spectral notations. 2. **Molecular Physics** (05 hrs) Raman effect, Characteristics of Raman effect, Experimental study of Raman effect, Quantum theory of Raman effect, Applications of Raman effect.	12
II	3. **Matter waves & de-Broglie's hypothesis** (06 hrs) **Failures of Classical Mechanics**, Matter waves – de-Broglie's hypothesis, Derivation for de-Broglie wave length of matter waves, Properties of matter waves, Davisson and Germer's experiment, Phase and group velocities (**Qualitative**), 4. **Uncertainty Principle and Quantization** (06 hrs) Heisenberg's uncertainty principle for position and momentum (x and p), & energy and time (E and t), Illustration of uncertainty principle using diffraction of beam of electrons (Diffraction by a single slit) and photons (Gamma ray microscope), Bohr's principle of complementarily.	12
III	**5. Quantum (Wave) Mechanics**:(12 hrs) Basic postulates of quantum mechanics, Schrodinger time independent and time dependent wave equations - Derivations, Physical interpretation of wave function, Eigen functions, Eigen values, Application of Schrodinger wave equation to one dimensional potential box of infinite height (Infinite Potential Well)	12
IV	. 6. **Structure of Nuclei and Nuclear Models**: (06 hrs) Nuclear Structure: General Properties of Nuclei, Mass defect, Binding energy; Nuclear forces, Characteristics of nuclear forces, Nuclear Models: Liquid drop model, Shell model, Magic numbers. 7. **Elementary Particle Physics** (06 hrs) Elementary Particles and their classification, Fundamental Interactions – gravitational, electromagnetic, strong & week; Properties of Leptons, Mesons and Baryons	12
V	8. **Crystal Structure** Amorphous and crystalline materials, unit cell, Miller indices, reciprocal lattice, types of lattices, diffraction of X-rays by crystals, Bragg's law, Laue's method and powder diffraction method 9. **Superconductivity**: (05 hrs)	12

	Introduction – **Properties of superconductors**- critical temperature (T_c), critical magnetic field (T_m), Meissner effect, Type I and Type II superconductors, BCS theory (Qualitative),Applications of superconductors.	

TEXT BOOKS

1. BSc Physics, Vol.4, Telugu Akademy, Hyderabad
2. Modern Physics by R. Murugeshan and Kiruthiga Siva Prasath. S. Chand & Co.
3. Nano materials, A K Bandopadhyay, New Age International Pvt Ltd (2007)

REFERENCE BOOKS:

1. Atomic Physics by J.B. Rajam; S. Chand& Co.,
2. Concepts of Modern Physics by Arthur Beiser. Tata McGraw-Hill Edition.
3. Nuclear Physics, D.C. Tayal, Himalaya Publishing House.
4. S.K. Kulkarni, Nanotechnology: Principles & Practices (Capital Publ.Co.)
5. K. K. Chattopadhyay & A.N. Banerjee, Introd.to Nanoscience and Technology (PHI Learning Priv. Limited).
6. Textbook of Nanoscience and Nanotechnology, BS Murthy, P Shankar, Baldev Raj, BB Rath and J Murday-Universities Press-IIM

LIBRARY ACTIVITY

Student visit library to refer and gather information regarding seminar topics and assignments.

Course Delivery method: Face-to-face / Blended

Course has focus on: Foundation & Employability

Course has focus on: Employability

Websites of Interest:

Co-curricular Activities:

1. Assignments
2. Student seminars
3. Quiz

Model Question Paper

Title of the Paper: Modern physics

Section-A

Answer the following: (5X10=50M)

1 a) Explain briefly the salient features of vector atom model. Explain the quantum numbers Associated with vector atom model (CO1, L1)

OR

b) What is Raman effect? Describe the experimental arrangement to study Raman effect in liquids. Write any two applications of Raman effect.(CO1, L1)

2. a) What are matter waves? Describe the Davisson and Germer experiment on electron diffraction (CO2, L2)

OR

b) State and explain Heisenberg's uncertainty principal. Describe an experiment for verification
of uncertainty principle.(CO2, L2)

3 a) Derive Schrodinger time dependent wave equation.(CO3, L1)

OR

b) Derive an expression for energy offree particle in one dimensional box of infinite height.(CO3, L2)

4. a) Write Liquid drop model (CO4, L2)

OR

b) Write a detailed note on elementary particles (CO4, L2)

5. a) Derive Bragg's X ray diffraction condition. (CO5, L1)

OR

b) What is super conductivity? Give a qualitative description ofthe BCS theory. Write any three applications of super conductors(CO5, L1)

Section-B

Answer any **THREE** of the following: (3X5=15M)

6. Explain the coupling schemes (CO1, L1)
7. Write the properties ofmatter waves.(CO2, L1)
8. State the basic postulates of Quantum mechanics.(CO3, L1)
9. Write any three properties of nucleus (CO5, L2)
10. Explain Meissner effect.(CO5, L1)

Section-C

Answer any **TWO** of the following: (2X5=10M)

11. If the uncertainty in position of an electron is $4x10^{-10}$m. Calculate the uncertainty in its momentum.
(CO1, L3)

12. Find the kinetic energy of an electron whose de-Broglie wavelength is 0.3A°. (Mass of electron = 9.1 X 10^{-31} kg, Planck's constant h = 6.6 X 10^{-34} J-s) (CO2, L3)
13. Find the least energy of an electron moving in the dimension in an infinitely high potential box of width 1 A° (given mass of electron = 9.1 X 10^{-31}kg, Planck's constant h = 6.6 X 10^{-34} J-s)(CO3, L3)
14. Compute the approximate nuclear radius of Al^{27}. (Given r_0 = 1.2 fermi) (CO4, L3)

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Title of the Paper: MODERN PHYSICS

(PRACTICALS)

Offered to: B.Sc. (MPC&MPCs)
Course Type: Core (L) PHYP**01**
Year of Introduction: 2020-21 **Year of Revision: NIL** **Percentage of Revision: NIL**
Semester: III **Credits: 02**
Hours Taught: 30 hrs. per Semester **Max.Time**: 2 Hours

Course Description

In this course students would be able to understand Basic experiments of modern physics such as: Determination of Plank's and Boltzmann's constants, Determination of Range of β-particles, energy gap of semiconductor, Photo electric effect and determination of e/m

Objectives:

The primary objective of this course is to provide the fundamental knowledge and able to write down the band theory of Solids

Describe the characteristics of semiconductors on the basis of band theory of solids

Relate Cosmic activity and the environmental effect on the earth‟s surface

COURSE OUTCOMES

Upon successful completion of this course, students should have the knowledge and skills to:

CO1	Measure the charge of an electron ande/m value of an electron by Thomson method.
CO2	Understand how the Planck's constant can be determined using Photocell and LEDs.
CO3	Study the absorption of α-rays and β-rays, Range of β-particles and the characteristics of GM counter
CO4	knowledge of Energy gap of a semiconductor using thermistor and junction diode.

List of experiments

1. Determination of M & H.
2. Energy gap of a semiconductor using junction diode.
3. Energy gap of a semiconductor using thermistor
4. Verification of inverse square law of light using photovoltaic cell.
5. Determination of the Planck's constant using LEDs of at least 3 different colours.
6. e/m of an electron by Thomson method.
7. Determination of Planck's Constant (photocell).
8. Analysis of powder X-ray diffraction pattern to determine properties of crystals.
9. GM counter characteristics
10. Determination of work function of material of filament of directly heated vacuum diode.
11. Study of absorption of α-rays.
12. Study of absorption of β-rays.
13. Determination of Range of β-particles.

Note :

1. 9 (NINE) experiments are to be done and recorded in the lab. These experiments will be evaluated in CIA.
2. For certification minimum of 7(Seven) experiments must be done and recorded by student who had put in 75 % of attendance in the lab.
3. **Best 6 experiments are to be considered for CIA**.
4. 10 marks for CIA.
5. 40 marks for practical exam.

The marks distribution for the Semester End practical examination is as follows:

Formula/ Principle / Statement with explanation of symbols	05
Diagram/Circuit Diagram / Tabular Columns	05
Setting up of the experiment and taking readings/Observations	10
Calculations (explicitly shown) + Graph + Result with Units	05
Procedure and precautions	05
Viva-voce	05
Record	05
Total Marks:	40

A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF CHEMISTRY

MINUTES OF BOARD OF STUDIES

ODD SEMESTER

27-10-2022

Minutes of the Meeting of Board of Studies in Chemistry for the Autonomous Course A.G. & S.G. Siddhartha Degree College of Arts & Science, Vuyyuru held at 11.00 A.M on 27-10-2022 in the Department of Chemistry

Sri. K.RAMESH *Presiding*

Members Present:

1)..... (Sri. K.RAMESH)	Chairman	HOD, Dept. of Chemistry, A.G. & S.G.S.Degree College,Vuyyuru.
2)..... (Prof.D.Ramasekhar Reddy)	University Nominee	Assistant Professor, Dept. of Chemistry,Krishna University, MTM.
3)..... (Dr. S. Kalpana)	Academic Council Nominee	HOD, Dept. of Chemistry, SDMS M College, Vijayawada.
4)..... (Smt. A. Indira)	Academic Council Nominee	Lecturer in Chemistry, G.D.C, Dumpagadapa.
5)..... (Dr. G Raja)	Industrialist	Manager, Q.A, Biophore india Pharmaceuticals pvt ltd Hyd.
6)..... (Smt. M. Sowjanya)	Student Nominee	Lecturer in Chemistry, ANR College Gudivada.
7)..... (Dr. G.Giri prasad)	Member	Lecturer in Chemistry, A.GS.G.S.Degree College,Vuyyuru
8)..... (Smt. M.V.Santhi)	Member	Lecturer in Chemistry, A.G. & S.G.S.Degree College,Vuyyuru.
9)..... (Sri. P.Suresh)	Member	Lecturer in Chemistry, A.G.& S.G.S.Degree College, Vuyyuru.
10)..... (MS. M.Santhi)	Member	Lecturer in Chemistry, A.G.& S.G.S.Degree College,Vuyyuru.
11)..... (Sri. J.Nageswara Rao)	Member	Rtd.Lecturer in Chemistry, A.G.& S.G.S.Degree College,Vuyyuru.

Agenda for B.O.S Meeting

1. To recommend the syllabus and model paper for I semester of I Degree B.Sc., Chemistry for the Academic year 2022-2023.
2. To recommend the syllabus and model papers for III semester of II Degree B.Sc., Chemistry for the Academic year 2022-2023.
3. To recommend the syllabus and model papers for V semester of III Degree B.Sc. Chemistry for the Academic year 2022-2023.
4. To recommend the Blue print of I,III,V semesters of B.Sc. Chemistry for the Academic year 2022--2023.
5. To recommend the Guidelines to be followed by the question paper setters in Chemistry forI,III,V Semester – end exams.
6. To recommend the teaching and evaluation methods to be followed under Autonomous status.
7. Any suggestions regarding certificate course, seminars, workshops, Guest lecture to be organized.
8. Recommend the panel of paper setters and Examiners to the controller of Examinations of
9. Any other matter.

K. Ramesh
Chairman

RESOLUTIONS

1. It is resolved to follow the **syllabus of APSCHE (theory and practical) for I semesters of I B.Sc.** under Choice Based Credit System (CBCS) for the Academic year 2022--2023.
2. It is resolved to follow the **syllabus of APSCHE (theory and practical) for III semesters of II B.Sc.** under Choice Based Credit System (CBCS) for the Academic year 2022--2023.
3. It is resolved to follow the **syllabus of APSCHE (theory and practical) for V semesters of III B.Sc.** under Choice Based Credit System (CBCS) for the Academic year 2022--2023.
4. It is resolved to follow the **Blue prints** as proposed by members of BOS I,III & V semester of Degree B.Sc. for the Academic year 2022-2023.
5. It is resolved to follow the **guidelines** to be followed by the question paper setters of Chemistry for I,III & V semesters of Degree B.Sc. for the Academic Year 2022-2023.
6. It is resolved to continue the following teaching and evolution methods for Academic year 2022-23.

   Teaching Methods:

   - Besides the conventional methods of teaching, we use modern technology i.e. using of LCD projector to display on U boards etc, for better understanding of concepts.
   - **Evaluation of a student is done by the following procedure:**
   - **Internal Assessment Examinations:**
   - Out of maximum 100 marks in each paper for I B.Sc, 30 marks shall be allocated for internal assessment. Out of these 30 marks, 20 marks are allocated for announced tests (i.e.IA-1 & IA-2).
   - Out of maximum 100 marks in each paper for II B.Sc, 25 marks shall be allocated for internal assessment. Out of these 25 marks, 15 marks are allocated for announced tests (i.e.IA-1 & IA-2).
   - Out of maximum 100 marks in each paper for III B.Sc, 30 marks shall be allocated for internal assessment. Out of these 30 marks, 20 marks are allocated for announced tests (i.e.IA-1 & IA-2).
   - Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the innovative component like assignment/quiz/seminars for I,II,III B.Sc.
   - There is no pass minimum for internal assessment for I, II, III B.Sc.
   - **Semester – End Examination:**
   - The maximum marks for I,III,V B.Sc Semester – End examination shall be 70/75/70 marks duration of the examination shall be 3 hours. Even though the candidate is absent for two IA exams /obtain Zero marks the external marks are considered (if the candidate gets 40/70/75) and the result shall be declared as "PASS".
   - Semester – End examinations shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of I,III &V semesters for I, II & III B.Sc for 50 marks.
7. Discussed and recommended for organizing certificate course, seminars, Guest lecturers, workshops to upgrade the knowledge of students, for the approval of the academic council.
8. Discussed and empowered the Head of the department of Chemistry to suggest the panel of paper setters and examiners to the controller of examinations
9. NIL.

K. Ramesh

Chairman

RESOLUTIONS

1. It is resolved to follow the **syllabus of APSCHE (theory and practical) for I semesters of I B.Sc.** under Choice Based Credit System (CBCS) for the Academic year 2022--2023.
2. It is resolved to follow the **syllabus of APSCHE (theory and practical) for III semesters of II B.Sc.** under Choice Based Credit System (CBCS) for the Academic year 2022--2023.
3. It is resolved to follow the **syllabus of APSCHE (theory and practical) for V semesters of III B.Sc.** under Choice Based Credit System (CBCS) for the Academic year 2022--2023.
4. It is resolved to follow the **Blue prints** as proposed by members of BOS I,III & V semester of Degree B.Sc. for the Academic year 2022-2023.
5. It is resolved to follow the **guidelines** to be followed by the question paper setters of Chemistry for I,III & V semesters of Degree B.Sc. for the Academic Year 2022-2023.
6. It is resolved to continue the following teaching and evolution methods for Academic year 2022-23.

Teaching Methods:

- Besides the conventional methods of teaching, we use modern technology i.e. using of LCD projector to display on U boards etc, for better understanding of concepts.
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- Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the innovative component like assignment/quiz/seminars for I,II,III B.Sc.
- There is no pass minimum for internal assessment for I, II, III B.Sc.
- **Semester – End Examination:**
- The maximum marks for I,III,V B.Sc Semester – End examination shall be 70/75/70 marks duration of the examination shall be 3 hours. Even though the candidate is absent for two IA exams /obtain Zero marks the external marks are considered (if the candidate gets 40/70/75) and the result shall be declared as "PASS".
- Semester – End examinations shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of I,III &V semesters for I, II & III B.Sc for 50 marks.

7. Discussed and recommended for organizing certificate course, seminars, Guest lecturers, workshops to upgrade the knowledge of students, for the approval of the academic council.
8. Discussed and empowered the Head of the department of Chemistry to suggest the panel of paper setters and examiners to the controller of examinations
9. NIL.

K. Ramesh

Chairman

A.G & S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

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Title of the Paper: Inorganic &Physical Chemistry **Semester: I (60 Hr)**

Course Code	**CHET11A**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	30
No. of Lecture Hours / Week	**4**	Semester End Exam Marks	**70**
Total Number of Lecture Hours	**60**	Total Marks	**100**
Year of Introduction : 2021 - 22	Year of Offering: 2022 - 23	Year of Revision: ----------	Percentage of Revision: 0

Course outcomes:

- At the end of the course, the student will be able to;
- **CO1**. Understand the basic concepts of p-block elements.
- **CO2**. To compare the periodic properties of d and f block elements and explain the bonding and structures of metal carbonyls.
- **CO3**. To understand the properties and structure of Solid state.
- **CO4**. To understand the properties of gaseous and liquid states.
- **CO5**. To explain the properties of Solutions.

Learning Objectives:

- To understand the preparation and structure of complex compounds.
- To explain the properties and structure of d and f block elements and understand the theories of bonding in metals
- To understand the symmetry in crystals and properties and structure of Solid state.
- To understand the properties and structure of gaseous and liquid states.
- To understand the properties of solutions.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
	INORGANIC CHEMISTRY	**24h**
I	**Chemistry of** **8h** 1.1 Group 13: Preparation & structure of Diborane, Borazine 1.2 Group 14: Preparation, classification and uses of silicones 1.3 Group 15: Preparation & structures of Phosphonitrilic halides {(PNCl2) nwhere n=3, 4 1.4 Group 16: Oxides and Oxoacids of Sulphur (structures only) 1.5 Group 17: Pseudohalogens, Structures of Interhalogen compounds.	**8h**
II	**Chemistry** **6h** **2.1** Characteristics of d-block elements with special reference to electronic configuration, **2.2** variable valence, magnetic properties, catalytic properties **2.3** and ability to form complexes. Stability of various oxidation states.	**6h**
	Chemistry **6h** **2.4** Chemistry of lanthanides - electronic structure, oxidation states, lanthanide contraction, consequences of lanthanide contraction, **2.5** Magnetic properties. Chemistry of actinides - electronic configuration, oxidation states, 2.6 actinide contraction, comparison of lanthanides and actinides.	**6h**
	Theories **4h** **2.7** Valence bond theory and free electron theory, explanation of thermal and electrical conductivity of metals based on these theories, **2.8** Band theory- formation of bands, **2.9** Explanations of conductors, semiconductors and insulators.	**4h**
	Physical Chemistry	**36h**
III	**Solid State** **3.1** Symmetry in crystals. Law of constancy of interfacial angles. **3.2** The law of rationality of indices. The law of symmetry. Miller indices, **3.3** Definition of lattice point, space lattice, unit cell. Bravais lattices and crystal systems. **3.4** X-ray diffraction and crystal structure. Bragg's law. Powder method. Defects in crystals.	**10h**

	3.5 Stoichiometric and non-stoichiometric defects.	
IV	**Gaseous state** **4.1** van der Waal's equation of state. Andrew's isotherms of carbon dioxide, continuity of state. **4.2** Critical phenomena. Relationship between critical constants and vander Waal's constants. **4.3** Law of corresponding states. Joule- Thomson effect. Inversion temperature.	**6h**
	Liquid state **4.4** Liquid crystals,mesomorphicstate. Differences between liquid crystal and solid/liquid. **4.5** Classification of liquid crystals into Smectic and Nematic. **4.6** Application of liquid crystals as LCD devices.	**4h**
V	**Solutions, Ionic equilibrium& dilute solutions** **Solutions** **5.1** Azeotropes-HCl-H2O system and ethanol-water system. Partially miscible liquids-phenol- water system. **5.2** Critical solution temperature (CST), Effect of impurity on consulate temperature. Immiscible liquids and steam distillation.Nernst distribution law. **5.3** Calculation of the partition coefficient. Applications of distribution law.	**6h**
	Ionic equilibrium **5.4** Ionic product, common ion effect, solubility and solubility product. **5.5** Calculations based on solubility product.	**3h**
	Dilute solutions **5.6** Colligative properties- RLVP, Osmotic pressure, Elevation in boing point and depression in freezing point. **5.7** Experimental methods for the determination of molar mass of a non-volatile solute using osmotic pressure, **5.8** Elevation in boiling point and depression in freezing point. Abnormal colligative properties. Van't Hoff factor.	**7h**

Co-curricular activities and Assessment Methods

1. Continuous Evaluation: Monitoring the progress of student's learning
2. Class Tests, Worksheets and Quizzes
3. Presentations, Projects and Assignments and Group Discussions: Enhances critical thinking skills and personality
4. Semester- end Examination: critical indicator of student's learning and teaching methods adopted by teachers throughout the semester.

List of Reference Books

1. Principles of physical chemistry by Prutton and Marron
2. Solid State Chemistry and its applications by Anthony R. West
3. Text book of physical chemistry by K L Kapoor
4. Text book of physical chemistry by S Glasstone
5. Advanced physical chemistry by Bahl and Tuli
6. Inorganic Chemistry by J.E.Huheey
7. Basic Inorganic Chemistry by Cotton and Wilkinson
8. A textbook of qualitative inorganic analysis by A.I. Vogel
9. Atkins,P.W.&Paula,J.deAtkin'sPhysicalChemistryEd., OxfordUniversityPress 10thEd(2014).
10. Castellan,G.W.PhysicalChemistry4thEd.Narosa(2004).
11. Mortimer,R. G.PhysicalChemistry3rdEd. Elsevier:NOIDA,UP(2009).
12. Barrow,G.M.PhysicalChemistry

WEB Links:

https://ncert.nic.in/ncerts/l/kech204.pdf
https://www.askiitians.com/iit-jee-chemistry/general-properties-of-the-transition-elements-d-block/
https://www.nptel.ac.in/courses/104/104/104104101/
https://physicscatalyst.com/chemistry/vander-waals-equations.php

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU.
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MODEL PAPER

FIRST YEAR B.Sc., DEGREE EXAMINATION

SEMESTER-I

CHEMISTRY Course-I: INORGANIC & PHYSICAL CHEMISTRY

Time: 3 hours Maximum Marks: 75

PART- A 5 X 5 = 25 Marks

Answer any **FIVE** of the following questions. Each carries **FIVE** marks

1. Explain the preparation & structures of Phosphonitrilic compounds.**L1**
2. Explain in brief, catalytic properties & stability of various oxidation states of d- block elements.-**L1**
3. Write short note on Bravais lattices and crystal systems.**-L2**
4. What are Smectic & Nematic liquid Crystals? Explain.-**L1**
5. Write account on Common ion effect & Solubility product.-**L1**
6. Describe Andrew's isotherms of carbon dioxide. **-L2**
7. Explain Actinide Constraction. **-L2**
8. Explain the structure of Borazine. **-L2**

PART- B 5 X 10 = 50 Marks

Answer **ALL** the questions. Each arries **TEN** marks

9 (a). Explain Classification, Preparations & uses of Silicones**-L1**

(or)

(b). (i) What are Pseudohalogens. **-L1**
(ii) Explain the Structures of any one AX3& AX_5interhalogen compounds. **-L1**

10 (a). What is Lanthanide Contraction? Explain the Consequences of Lanthanide Contraction. **-L1**

(or)

(b). (i) Explain the magnetic properties of d- block elements.

(ii) Explain about Conductors, Semi-Conductors& Insulators using Band Theory. **–L1**

11.(a). Write an essay on Crystal defects. **–L2**

(or)

(b). What is Bragg's Law. Explain the determination of structure of a crystal by powder method. **–L2**

12.(a). Derive the relationship between Critical constants &Vanderwaal constants**-L2**

(or)

(b).(i) Write any 5 differences between liquid crystals & liquids, solids

(ii) Write the applications of Liquid crystals. **–L2**

13.(a). Explain Nernst distribution Law. Explain its applications**-L2**

(or)

(b). What are colligative properties. Write experimental methods for determination of molar mass of a non-volatile solute by using Elevation in boiling point & depression in freezing point. –

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MODEL PAPER

FIRST YEAR B.Sc., DEGREE EXAMINATION

SEMESTER-I

CHEMISTRY Course-I: INORGANIC & PHYSICAL CHEMISTRY

Time: 3 hours Maximum Marks: 70

Answer all questions

1. (a) -10M L1
   (b) – 4M L2
   (or)
   (c) -10M L1
   (d) – 4M L2
2. (a) -10M L3
   (b) – 4M L2
   (or)
   (c) -10M L2
   (d) – 4M L3
3. (a) -10M L1
   (b) – 4M L2
   (or)
   (c) -10M L1
   (d) – 4M L2
4. (a) -10M L3
   (b) – 4M L1
   (or)
   (c) -10M L1
   (d) – 4M L3
5. (a) -10M L2
   (b) – 4M L2
   (or)
   (c) -10M L2
   (d) – 4M L2

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MODEL PAPER

FIRST YEAR B.Sc., DEGREE EXAMINATION

SEMESTER-I

CHEMISTRY Course-I: INORGANIC & PHYSICAL CHEMISTRY

Time: 3 hours Maximum Marks: 70

Section-A

Answer all questions .Each question carries 4 marks ……..5 X 4 =20M

1. 4M
   (OR)
   4M
2. 4M
   (OR)
   4M
3. 4M
   (OR)
   4M
4. 4M
   (OR)
   4M
5. 4M
   (OR)
   4M

Section-B

Answer all questions .Each question carries 10 marks …… …… 5 X 10 =50M

6. 10M
   (OR)
   10M
7. 10M
   (OR)
   10M
8. 10M
   (OR)
   10M
9. 10M
   (OR)
   10M
10. 10M
    (OR)
    10M

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LABORATORY COURSE –I

Practical-I **ANALYSIS OF SALT MIXTURE** (At the end of Semester-I)
(Minimum of Six mixtures should be analyzed)

Credits:2

30 hrs (2 h / w)

10M+40M =50M

Course outcomes:

At the end of the course, the student will be able to;

2. Understand the basic concepts of qualitative analysis of inorganic mixture
3. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
4. Apply the concepts of common ion effect, solubility product and concepts related to qualitative analysis

Analysis of Salt Mixture

Analysis of mixture salt containing two anions and two cations (From two different groups) from the following:
Anions: Carbonate, Sulphate, Chloride, Bromide, Acetate, Nitrate, Borate, Phosphate.
Cations: Lead, Copper, Iron, Aluminium, Zinc, Nickel, Manganese, Calcium, Strontium, Barium, Potassium and Ammonium.

Co-curricular activities:

1. To attain skill in semi-micro inorganic qualitative analysis students are made to analyze the same on chemicals used in everyday life.

Reference Books :

1.Dr.V.V. Ramanujan inorganic semi micro qualitative analysis, The National publishing company.
2. Vogels text book of qualitative inorganic analysis, addition Wesley longman 7th edition 2001.

A.G & S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

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Title of the Paper: ORGANIC CHEMISTRY & SPECTROSCOPY

Semester: III (60 Hr)

Course Code	**CHET31A**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	25
No. of Lecture Hours / Week	**4**	Semester End Exam Marks	**75**
Total Number of Lecture Hours	**60**	Total Marks	**100**
Year of Introduction : 2021 - 22	Year of Offering: 2022 - 23	Year of Revision: ----------	Percentage of Revision:

Course out comes:

Topics will include structure, stereochemistry, nomenclature, synthesis, properties, and reactions of the major classes of organic compounds. A mechanistic approach is used in the course to explain the reactions of these compounds.

Spectroscopy is general term used for the instrumental process by which information about molecular structure is obtained through careful analysis of absorption, scattering or emission of electromagnetic radiation by compounds.

Learning Objectives:

1. Student will know the preparation, properties and reactions of halo alkanes, halo arenes and oxygen containing functional groups

2. Student Use the synthetic chemistry learnt in this course to do functional group transformations.
3. Will know the different types of carboxylic acids their preparations & properties
4. Knowing various applications of spectroscopy methods
5. Learn to apply spectroscopy to simple organic compounds

Course Outcomes:

At the end of this course, students should be able to:

CO1: Remember the preparations, properties and reactions of halo alkanes, halo arenes and oxygen containing functional groups.-**PO1**

CO2: Understand preparation, properties and reactions of carbonyl compounds -**PO1**

CO3: Apply preparation methods for carboxylic acids and their derivatives-**PO1**

CO4: Analyze various molecules and polyatomic molecules using different spectroscopy methods-**PO1, PO7**

CO5: Evaluate the functional groups of different organic compounds- **PO1, PO7**

CO6: Create applications of spectroscopy for various organic molecules- **PO1, PO7**

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Chemistry of Halogenated Hydrocarbons** Alkyl halides: Methods of preparation and properties, nucleophilic substitution reactions– SN^1, SN^2 and SN^i mechanisms with stereo chemical aspects and effect of solvent etc.; nucleophilic substitution vs. elimination, Williamson's synthesis. Arylhalides: Preparation (including preparation from diazonium salts) and properties, nucleophilic aromatic substitution; SNAr, Benzyne mechanism. Relative reactivity of alkyl, allyl, benzyl,vinyl and aryl halides towards nucleophilic substitution reactions. **Alcohols & Phenols** Alcohols: preparation, properties and relative reactivity of 1°, 2°, 3° alcohols, Bouvaelt Blanc Reduction; Oxidation of diols by periodic acid and lead tetra acetate,Pinacol- Pinacolone rearrangement; Lucas Reagent Phenols: Preparation and properties; Acidity and factors effecting it, Ring substitution reactions, Reimer–Tiemannand Kolbe's–Schmidt Reactions, Fries and Claisen rearrangements with mechanism;	**12 Hrs**
II	**Carbonyl Compounds** Structure, reactivity, preparation and properties; Nucleophilic additions, with $NaHSO_3$, Formation of alcohols, HCN , Grignard's Reagent(Rmgx), hemi acetol's, Fehling's, Tollen's, 2 4 Di Nitro Phenyl hydrazine (2 4 DNPH) and formation of oximes Nucleophilic addition-elimination reactions with ammonia derivatives Mechanisms of Aldol and Benzoin condensation, Claisan-Schmidt, Perkin, Cannizzaro and Wittig reaction, Beckmann halo form reaction and Baeyer Villiger oxidation, α- substitution reactions,oxidations and reductions (Clemmensen, wolf – kishner, with LiAlH4 & NaBH4). Addition reactions of α,β-unsaturated carbonyl compounds: Michael addition. Active methylene compounds: Keto- Enolt automerism. Preparation and synthetic applications of diethyl malonate and ethyl aceto acetate.	**10 hrs**
	Carboxylic Acids and their Derivatives	

III	General methods of preparation, physical properties and reactions of mono carboxylic acids, effect of Substituents on acidic strength. Typical reactions of dicarboxylic acids, hydroxyl acids and unsaturated acids. Preparation and reactions of acid chlorides, anhydrides, esters and amides; Comparative study of nucleophilic substitution at acyl group-Mechanism of acidic and alkaline hydrolysis of esters, Claisen condensation, Reform at sky reactions and Curtius rearrangement Reactions involving H, OH and COOH groups-salt formation, anhydride formation, acid chloride formation, amide formation and esterification (mechanism). Degradation of carboxylic acids by Huns-Diecker reaction, de carboxylation by Schimdt reaction, Arndt-Eistert synthesis, halogenation by Hell- Volhard- Zelinsky reaction.	**12 hrs**
IV	**Molecular Spectroscopy**: Interaction of electromagnetic radiation with molecules and various types of spectra; **Rotation spectroscopy:** Selection rules, intensities of spectral lines, determination of bond lengths of diatomic and linear triatomic molecules, isotopic substitution. **Vibrational spectroscopy:** Classical equation of vibration, computation of force constant, Harmonic and an harmonic oscillator, Morse potential curve,vibrational degrees of freedom molecules, modes of vibration. Selection rules for vibrational transitions, Fundamental frequencies, overtones and hot bands. **Electronic spectroscopy:** Energy levels of molecular orbitals (σ, π, n). Selection rules for electronic spectra. Types of electronic transitions in molecules, effect of conjugation. Concept of chromophore. Bathochromic and hypsochromic shifts.Beer-Lambert's law and its limitations. **Nuclear Magnetic Resonance (NMR) spectroscopy:** Principles of nuclear magnetic resonance, equivalent and non-equivalent protons, position of signals. Chemical shift, NMR splitting of signals - spin-spin coupling, coupling constants. Applications of NMR with suitable examples - ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromo ethane, ethyl acetate, toluene and acetophenone.	**18 hrs**
	Application of Spectroscopy to Simple Organic MoleculesApplication of visible, ultraviolet and Infrared	

V	**spectroscopy in organic molecules.** Application of electronic spectroscopy and Woodward rules for calculating λmax of conjugated dienes and α,β – unsaturated compounds. Infrared radiation and types of molecular vibrations, functional group and fingerprint region. IR spectra of alkanes, alkenes and simple alcohols (inter and intramolecular hydrogen bonding), aldehydes, ketones, carboxylic acids and their derivatives (effect of substitution on >C=O stretching absorptions).	**8 hrs**

Textbook:

1. B.S.Bhal, Arun Bhal Advanced Organic Chemistry, Ramnagar, New Delhi 2001
2. P K Bruice. Organic Chemistry by Bruice, Pearson Education, Patparganj, Delhi-2001
3. Jonathan Clyden, Nick Greaves, Oganic Chemistry by Clyden, Oxford University press
4. William Kemph, Spectroscopy by William Kemp, Palgrave, USA-3rd edition
5. Y R Sharma, Elementary Organic Spectroscopy, S Chand, 4th revised edition.

Recommended Reference book:

1. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)
2. Furniss, B.S., Hannaford, A.J., Smith, P.W.G. &Tatchell, A.R. Practical Organic Chemistry,
5th Ed. Pearson (2012)
3. Ahluwalia, V.K. & Aggarwal, R. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis, University Press (2000).

Course Delivery method: Face-to-face / Blended

Course has focus on:

Employability / **E**ntrepreneurship

Websites of Interest:

1. **https://www.sydney.edu.au/science/chemistry/~george/halides.html**
2. **https://chem.libretexts.org/Bookshelves/Organic_Chemistry/Organic_Chemistry_(McMurry)/17%3A_Alcohols_and_Phenols/17.00%3A_Introduction**
3. **https://nptel.ac.in/content/storage2/courses/104101005/downloads/LectureNotes/chapter%2010.pdf**
4. **https://www.khanacademy.org/science/organic-chemistry/carboxylic-acids-derivatives/formation-carboxylic-acid-derivatives-sal/v/fisher-esterification?modal=1**
5. **https://byjus.com/chemistry/infrared-spectroscopy/**
6. **https://www.lehigh.edu/~kjs0/carey-13.PDF**

Co-curricular Activities:

Continuous Evaluation: Monitoring the progress of student's learning Class Tests Work sheets and Quizzes Presentations, Assignments and Group Discussions.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU.
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SEMESTER-III
CHEMISTRY COURSE-III: ORGANIC CHEMISTRY & SPECTROSCOPY

Time: 3 hours Maximum Marks: 75

PART- A

5 X 5 = 25 Marks

Answer any **FIVE** of the following questions. Each carries **FIVE** marks

1. Tell any two methods for preparation of aryl halides- **L1-CO1**

2. Summarize the mechanism for Pinacol-Pinacolone rearrangement-**L2-CO2**

3. Interpret the mechanism for Bayer-villiger oxidation reaction.-**L2-CO2**

4. Explain the effect of substituents on acidic strength of mono-carboxylic acids.-**L1-CO3**

5. Interpret the mechanism for Claisen Condensation reaction. **L2-CO3**

6. Tell the selection rules in rotational spectroscopy.-**L1-CO4**

7. Explain Spin – Spin coupling and Coupling Constant.-**L1-CO4**

8. Classify types of electronic transitions in UV spectroscopy.**L2- CO4**

PART- B

5 X 10 = 50 Marks

Answer **ALL** the questions. Each carries **TEN** marks

9 (a). Explain the mechanism & stereochemistry of SN1& SN2 reactions of alkyl halides with suitable example.**L1-CO1**

(or)

(b). Explain the following reactions with mechanism. **L1-CO1**

(i) Reimer-Tiemann reaction (ii) Fries rearrangement.

10 (a). Interpret the mechanism for following reactions.**L2-CO2**

(i) Perkin reaction. (ii) Cannizaro reaction

(or)

(b). Summarize the preparation and any three synthetic applications of diethyl malonate.**L2-CO2**

11. (a). Explain acid and base hydrolysis reaction of esters with mechanism. **L1-CO3**

(or)

(b). Explain the mechanisms of Curtius rearrangement & Arndt –Eistert reaction.**L1-CO3**

12. (a). (i) Tell a note on vibrational degrees of freedom for polyatomic molecules.**L1-CO4**

(ii) Explain different modes of vibrations & selection rules in IR spectroscopy.

(or)

(b). (i) Define Bathochromic shift. Explain the effect of conjugation in U.V. spectroscopy.**L1-CO4**

(ii) Describe the principle of NMR spectroscopy.

13. (a). Relate Woodward-Fieser rules for calculating λmax for conjugated dienes and α,β – unsaturated carbonyl compounds , and apply them for one example each. **L2-CO5**

(or)

(b). (i) Summerize Fingerprint region and its significance with an example.(ii) Write IR spectral data for any one alcohol, aldehyde and ketone –**L2-CO5**

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU.

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Title of the Paper

(ORGANIC PREPARATIONS AND IR SPECTRAL ANALYSIS)

Laboratory Course-III

Semester: III **Credits: 1**

Hours Taught: 30 hrs. (2hr/W) **Max.Time** : 2 Hours

Course Prerequisites (if any): Basics of Organic Preparations and IR Spectroscopy

Course Description: Preparation of different organic compounds using conventional, Green approach methods and IR spectral analysis for different functional groups

Course Objectives:

1. Student will know the safe laboratory practices by handling laboratory glassware, equipment, and chemical reagents appropriately.
2. Dispose of chemicals in a safe and responsible manner
3. Create and carry out work up and separation procedures

Course Outcomes: At the end of this course, students should be able to:

CO1: How to calculate limiting reagent, theoretical yield, and percent yield
CO2: How to perform common laboratory techniques including reflux, distillation, recrystallization, vacuum filtration.
CO3: How to critically evaluate data collected to determine the identity, purity, and percent yield of products and to summarize findings in writing in a clear and concise manner

Syllabus

Course Details

Unit	Learning Units	Practical Hours
I	**Organic preparations:** i. Acetylation of one of the following compounds: amines (aniline, o-, m-, ptoluidines and o-, m-, p-anisidine) and phenols (β-naphthol, vanillin, salicylic acid) by any one method: a. Using conventional method. b. Using green approach ii. Benzolyation of one of the following amines (aniline, o-, m-, p- toluidines and o-, m-, p-anisidine) iii. Nitration of any one of the following: a. Acetanilide/nitrobenzene by conventional method b. Salicylic acid by green approach (using ceric ammonium nitrate).	**20 Hr**
II	**IR Spectral Analysis** IR Spectral Analysis of the following functional groups with examples a) Hydroxyl groups b) Carbonyl groups c) Amino groups d) Aromatic groups	**10Hr**

Text Book

Laboratory Manual

Course Delivery method: Demonstration of Practical

Course has focus on:

Employability / **E**ntrepreneurship

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION REVISED
UG SYLLABUS UNDER CBCS
(Implemented from Academic Year, 2020-21)
PROGRAMME: FOUR YEAR B.Sc.(Hons)
Domain Subject: CHEMISTRY
Skill Enhancement Courses (SECs) for Semester V, from 2022-23
(Syllabus with Learning Outcomes, References, Co-curricular Activities & Model Q.P. Pattern)
Structure of SECs for Semester–V (To choose One pair from the Five alternate pairs of SECs)

Univ. Code	Course NO. 6&7	Name of Course	Th. Hrs ./ Week	IE Marks	EE Mar-ks	Credits	Prac. Hrs./ Wk	Mar-ks	Credits
	6A	Synthetic Organic Chemistry	**3**	**25**	**75**	**3**	**3**	**50**	**2**
	7A	Analysis of Organic Compounds	**3**	**25**	**75**	**3**	**3**	**50**	**2**
		OR							
	6B	Analytical Methods in Chemistry-1	**3**	**25**	**75**	**3**	**3**	**50**	**2**
	7B	Analytical Methods in Chemistry-1	**3**	**25**	**75**	**3**	**3**	**50**	**2**
		OR							
	6C	Industrial Chemistry-1	**3**	**25**	**75**	**3**	**3**	**50**	**2**
	7C	Industrial Chemistry-2	**3**	**25**	**75**	**3**	**3**	**50**	**2**
		OR							
	6D	Environmental Chemistry	**3**	**25**	**75**	**3**	**3**	**50**	**2**
	7D	Green Chemistry and Nanotechnology	**3**	**25**	**75**	**3**	**3**	**50**	**2**
		OR							
	6E	Analytical Methods in Chemistry	**3**	**25**	**75**	**3**	**3**	**50**	**2**
	7E	Cosmetics and Pharmaceutical Chemistry	**3**	**25**	**75**	**3**	**3**	**50**	**2**

Note-1: For Semester–V, for the domain subject Chemistry, any one of the five pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A&7A or 6B&7B or 6C&7C or 6D&7D or 6E&7E.The pair shall not be broken (ABC allotment is random, not on any priority basis).
Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations

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Title of the Paper: Analytical Methods in Chemistry-I **Semester: V**

Course Code	**CHE-501C-6B**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	30
No. of Lecture Hours / Week	**3**	Semester End Exam Marks	**70**
Total Number of Lecture Hours	**45**	Total Marks	**100**
Year of Introduction : 2022-23	Year of Offering: 2022-23	Year of Revision: --------	Percentage of Revision: 0

Course Outcomes:

Students after successful completion of the course will be able to:

CO1. Remember the basic concepts of .quantitative analysis data treatment, separation techniques and analysis of water (PO7)

CO2. Acquire knowledge on the concepts quantitative analysis data treatment, separation techniques and analysis of water (PO1, PO7)

CO3. Apply the conceptual knowledge gained in the areas of quantitative analysis data treatment, separation techniques and analysis of water in the chosen job role (PO1)

CO4. Analyse that how far the quantitative methods, data treatment methods separation techniques and Analysis of water

(PO1).

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Quantitative analysis-1** **(Marks Weightage-10+5+5)** 1. A brief introduction to analytical methods in chemistry 2. Principles of volumetric analysis, concentration terms- Molarity, Normality, v/v, w/v, ppm and ppb, preparing solutions- Standard solution, primary standards and secondary standards. 3. Description and use of common laboratory apparatus- volumetric flask, burette, pipette,beakers, measuring cylinders.	**10 Hr**
II	**Quantitative analysis-2** **(Marks Weightage-10+10+5)** 1. Principles of volumetric analysis: Theories of acid-base (including study of acid-base titration curves), redox, complexometric, iodometric and precipitation titrations-choice of indicators for the saturations. 2. Principles of gravimetric analysis: precipitation, coagulation, peptization, co-precipitation, post precipitation, digestion, filtration, and washing of precipitate, drying and ignition.	**12 Hr**
III	**Treatment of analytical data** **(Marks Weightage-10+10+5)** Types of errors- Relative and absolute, significant figures and its importance, accuracy – methods of expressing accuracy, errors- Determinate and indeterminate and minimization of errors, precision-methods of expressing precision, standard deviation and confidence limit.	**8 Hr**
IV	**Separation techniques** **(Marks Weightage-10+10+5+5)**	**5 Hr**

	1. Solvent Extraction: Introduction, principle, techniques, factors affecting solvent extraction, Batch extraction, continuous extraction and counter current extraction. Synergism. Application-Determination of Iron (III). 2. Ion Exchange method: Introduction, action of ion exchange resins, applications	
V	**Analysis of water (Marks weightage 10+5)** Determination of dissolved solids, total hardness of water, turbidity, alkalinity, Dissolved oxygen, COD, determination of chloride using Mohr's method	**10Hr**

III References

1. Analytical Chemistry by Gary D.Christian, Purnendu K.Dasgupta and KevinA.Schug,Seventh edition, Wiley.

2. Text book of Vogel's Quantitative Chemical Analysis, Sixth edition, Pearson.

3. Text book of Environmental Chemistry and Pollution Control by S.S.Dara andD.D.Mishra, Revised edition, S Chand & Co Ltd.

Text Books:

1. Instrumental methods of chemical analysis by B K Sharma

2. Separation methods MN Sastry

Reference materials on the web/web links:

1.https://chem.libretexts.org/Bookshelves/Analytical_Chemistry/Supplemental_Modules_(Analytical_Chemistry)/Quantifying_Nature/Volumetric_Chemical_Analysis_(Shiundu)/14.1%3A_Sampling_and_Statistical_Analysis_of_Data

2. https://vlab.amrita.edu/?sub=2&brch=190&sim=338&cnt=1

IV Co-Curricular Activities:

a) Mandatory (Lab/field training of students by teacher (lab: 10 + field: 05) :

1.For Teacher: Training of students by the teacher in laboratory and field for not less than 15 hours on the field techniques/skills of calibration of pH meter, Strong acid vs strong base titration using pH meter, determination of chloride ion, estimation of water quality parameters and estimation of Iron(II).

Google classroom created during instruction of course by the teacher concerned for sharing relevant material and conducting exams.

2. For Student: Student shall visit a related industry/chemistry laboratory in universities/research organizations/private sector facility and observe. Write their observations and submit a hand written fieldwork/project work report not exceeding10 pages in the given format to the teacher.

3. Max marks for Fieldwork/project work Report: 05.

4. Suggested Format for Fieldwork/project work**:** Title page, student details, index page, details of place visited, observations, findings, and acknowledgements.

5. Unit tests (IE).

b) Suggested Co-Curricular Activities

1. Training of students' by related industrial experts.
2. Assignments, Seminars and Quiz (on related topics).
3. Visits to facilities, firms, research organizations etc.
4. Invited lectures and presentations on related topics by field/industrial experts.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

(AUTONOMOUS), VUYYURU.

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Model Paper

SEMESTER – V PAPER-V	**PAPER CODE : CHE-501C**
PAPER TITLE : Analytical Methods in Chemistry-I Paper 6B **ACADEMIC YEAR-2022-2023**	

Time: 3Hours Maximum marks: 70 Minimum marks: 28

Answer any FOUR of the following. Each question carries 5 marks. 4X5=20

1. Explain the preparation of v/v based with suitable examples
2. Discuss the detail about primary and secondary standards with suitable examples
3. Explain the need of drying the precipitate in gravimetric analysis
4. Define accuracy and explain the methods of expressing accuracy
5. Discuss the principal and theory involved in solvent extraction
6. Explain about resins
7. Explain about COD

SECTION-B

Answer any FIVE questions. Each question carries 10 marks. 5X10=50

8. Describe the role of the following apparatus in analytical chemistry I) Volumetric flask II) Burette III) Pipette

9. Elaborate the theory involved in complexometric and acid base titrations

10. Write a note on the following terms in gravimetric analysis I)Precipitation II) Digestion III) Filteration

11. Define error, discuss in detail about various types of errors encountered in quantitative analysis

12. Elaborate the methods used for minimization of errors

13. Discuss the various factors which effect solvent extraction

14. Explain in detail about role of Ion exchange resins in separation of compounds
15. Explain the following (a) turbidity (b) alkalinity

The Guidelines to be followed by the question paper setters in chemistry for the V- Semester - end exams

SEMESTER – V PAPER-V	**PAPER CODE : CHE-501-6B**
PAPER TITLE : Analytical Methods in Chemistry-I Paper 6B **ACADEMIC YEAR-2022-2023**	

Weightage for the question paper

syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (20 Marks)	1+1	1
Unit-2 (25Marks)	1	1+1
Unit-3 (25Marks)	1	1+1
Unit-4 (30Marks)	1+1	1+1
Unit-5 (15 Marks)	1	1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

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PRACTICAL SYLLABUS

Laboratory Course-VI

Practical Paper – V **Analytical methods in chemistry-I** **Practical syllabus**	**PAPER CODE : CHE-501 P** **ACADEMIC YEAR-2022-2023**

Analytical methods in Chemistry-1-PRACTICAL SYLLABUS

(Skill Enhancement Course (Elective), Credits: 02)

Practical Hrs ;45 (3hr/W)

I Learning Outcomes: On successful completion of this practical course, student shall be able to:

CO1. Estimate Iron (II) using standard Potassium dichromate solution (PO1)

CO2. Learn the procedure for the estimation of total hardness of water (PO7)

CO3. Demonstrate the determination of chloride using Mohr's method (PO1, PO7)

CO4. Acquire skills in the operation and calibration of pH meter (PO1)

II Practical (Laboratory) Syllabus :(**30hrs**)

1. Estimation of Iron (II) using standard Potassium dichromate solution (using DPA indicator)
2. Estimation of total hardness of water using EDTA
3. Determination of chloride ion by Mohr's method
4. Study the effect on pH of addition of HCl/NaOH to solutions of acetic acid, sodium acetate and theirmixtures.
5. Preparation of buffer solutions of different pH (i) Sodium acetate-acetic acid, (ii) Ammonium chloride-ammonium hydroxide.
6. pH metric titration of (i) strong acid vs. strong base, (ii) weak acid vs. strong base.
7. Determination of dissociation constant of a weak acid.

II Lab References:

1. Text book of Vogel's Quantitative Chemical Analysis, Sixth edition, Pearson.

SCHEME OF VALUATION

INTERNAL MARKS- Record-10M

1. **EXTERNAL MAKS-40**
   - **Practical -30M**
   - **Viva questions = 10 M**

TOTAL = 50 M_

A.G & S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

Vuyyuru-521165

NAAC reaccredited at "A" level

Autonomous -ISO 9001 – 2015 Certified

Title of the Paper: Analytical Methods in Chemistry-2 **Semester: V**

Course Code	**CHE-502C-7B**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	30
No. of Lecture Hours / Week	**3**	Semester End Exam Marks	**70**
Total Number of Lecture Hours	**45**	Total Marks	**100**
Year of Introduction : 2022 - 23	Year of Offering: 2022 - 23	Year of Revision: --------	Percentage of Revision: 0

Learning Outcomes: Students after successful completion of the course will be able to:

CO1. Remember the basic concepts of Chromatography like paper, TLC, Column, GC & HPLC (PO7)

CO2. Understand the significance of paper, TLC, Column, GC & HPLC in separation and identification of compounds (PO1, PO7) .

CO3. Apply the conceptual knowledge gained in the techniques of chromatography in separating and identifying the chemical compounds as and when required (PO1).

CO4. Analyse that how far one chromatographic technique is much use full in separation and identification of compounds over the other chromatographic technique (PO1, PO7).

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Chromatography-Introduction and classification** **(Marks weightage 10+5)** Principle, Classification of chromatographic methods, Nature of adsorbents, eluents, R_f values, factors affecting R_f values.	**7 hr**
II	**TLC and paper chromatography** **(Marks weightage 10+10+5+5)** 1. Thin layer chromatography: Principle, Experimental procedure, preparation of plates, adsorbents and solvents, development of chromatogram, detection of spots, applicationsand advantages. 2. Paper Chromatography: Principle, Experimental procedure, choice of paper andsolvents, various modes of development- ascending, descending, radial and two dimensional, applications.	**12** hr
III	**Column chromatography** **(Marks weightage 10+10+5)** 1. Column chromatography: Principle, classification, Experimental procedure, stationary and mobile phases, development of the Chromatogram, applications, factors affecting the column efficiency. 2. Applications:- Separation of .Methylene Blue and Flurocene by column chromatography.	**10 Hr**
IV	**Gas chromatography:** **(Marks weightage 10+5+5)** Basic principles. Different types of GC techniques. Selection of columns and carrier gases. Instrumentation. Detectors-Thermal conductivity detector, Flame ionization detector, R_f values. Applications in the separation of amino acids & estrogens	**8 hr**

V	**High Performance liquid chromatography (HPLC)** **(Marks weightage 10+10+5)** Basic principles. Normal and reversed Phases. Selection of column and mobile phase. Instrumentation. Detectors-RID, UV detector R_f values. Applications in the separation, separation of anions, barbiturates, tropane alkaloids.	**8 Hr**

III References

1.Fundamental so Analytical Chemistry by F.James Holler, Stanley R Crouch, Donald M.Westand Douglas A.Skoog, Ninth edition, Cengage.

2. Analytical Chemistry by Gary D.Christian, Purnendu K.Dasgupta and KevinA.Schug, Seventh edition, Wiley.

3. Quantitative analysis by R.A.Day Jr. and A.L.Underwood, Sixth edition, Pearson.

4. Text book of Vogel's Quantitative Chemical Analysis, Sixth edition/ Pearson.

Text Books:

1. Instrumental methods of chemical analysis by B K Sharma

2. Instrumental methods of chemical analysis by Gurudeep & Chatwal Anand

Reference materials on the web/web links:

1.https://chem.libretexts.org/Bookshelves/Analytical_Chemistry/Supplemental_Modules_(Analytical_Chemistry)/Instrumental_Analysis/Chromatography/Gas_Chromatography

2. https://lab-training.com/hplc-high-performance-liquid-chromatography/

VI Co-Curricular Activities:

a) Mandatory :(Lab/field training of students by teacher (lab: 10+ fields: 05):

1. For Teacher: Training of students by the teacher in laboratory and field for not lessthan15 hours on the field techniques/skills of determination of hardness of water, using the calorimeter and or Spectrophotometer, preparation of TLC plate, identification of spots in TLC and Paper chromatographic techniques, loading of column, selection of solvent system, separation of amino acids and dyes mixture usingchromatographic techniques.

Google classroom created during instruction of course by the teacher concerned for sharing relevant material and conducting exams.

2. For Student: Student shall visit a related industry/chemistry laboratory in universities/research organizations/private sector facility and observe the chromatographic

techniques used for the separation of compounds. Write their observations and submit a hand written fieldwork/project work report not exceeding10 pages in the given format to the teacher.

3. Max marks for Fieldwork/project work Report: 05.

4. Suggested Format for Fieldwork/project work**:** Title page, student details, index page, details of place visited, observations, findings, and acknowledgements.

5. Unit tests (IE).

b) Suggested Co-Curricular Activities

1. Training of students by related industrial experts.
2. Assignments, Seminars and Quiz (on related topics).
3. Visits to facilities, firms, research organizations etc.
4. Invited lectures and presentations on related topics by field/industrial experts.

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Model Paper

SEMESTER – V PAPER-V	PAPER CODE : CHE-502-7B
PAPER TITLE : Analytical Methods in Chemistry-2 Paper 7B ACADEMIC YEAR-2022-2023	

Time: 3Hours Maximum marks: 70 Minimum marks: 28

SECTION-A

Answer any FOUR of the following. Each question carries 5 marks. 4X5=20

1. What is the basic principle involved in chromatography, explain nature of adsorbents
2. How to prepare TLC plates
3. Explain Ascending and descending techniques in paper chromatography
4. Explain the classification of column chromatography
5. Explain the schematic diagram of G.C
6. Explain about detectors in G.C
7. Explain schematic diagram of HPLC

SECTION-B

Answer any FIVE questions. Each question carries 10 marks. 5X10=50

8. How do the chromatographic methods are classified? Explain any one
9. Discuss the applications of TLC
10. Explain the applications of paper chromatography
11 Explain the factors effecting the column efficiency in CC
12. Discuss the separation of methylene blue and fluorescein by C C
13. Explain the separation of Amino acids by G.C
14. Explain the different detectors used in HPLC
15. Explain the separation of Anions and Barbiturates by HPLC

The Guidelines to be followed by the question paper setters in chemistry for the V- Semester - end exams

SEMESTER – V PAPER-V	**PAPER CODE : CHE-502C-7B**
PAPER TITLE : Analytical Methods in Chemistry-2 Paper 7B **ACADEMIC YEAR-2022-2023**	

Weightage for the question paper

syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (15Marks)	1	1
Unit-2 (30Marks)	1+1	1+1
Unit-3 (25 Marks)	1	1+1
Unit-4 (20Marks)	1+1	1
Unit-5 (25 Marks)	1	1+1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

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PRACTICAL SYLLABUS

Laboratory Course-VII

Practical Paper – V **Analytical methods in chemistry-2** **Practical syllabus**	**PAPER CODE : CHE-502 P** **ACADEMIC YEAR-2022-2023**

Analytical methods in Chemistry-2

PRACTICAL SYLLABUS

(Skill Enhancement Course (Elective), Credits: 02)

Practical Hrs./Week: 3

Learning Outcomes:

On successful completion of this practical course, student shall be able to:

CO1. Perform the separation of a given dye mixture using TLC (PO1)

CO2. Learn the preparation of TLC plates (PO1, PO7)

CO3. Demonstrate the separation of mixture of amino acids using paper chromatography (PO1)

CO4. Acquire skills in using column chromatography for the separation of dye mixture (PO7)

II Practical (Laboratory) Syllabus: (**30hrs**)

1. Separation of a given dye mixture (methyl orange and methylene blue) using TLC (using alumina as adsorbent).
2. **Separation of different amino acids using paper chromatography.**
3. Separation of given mixture of amino acids (glycine and phenyl alanine) using ascending paper chromatography.
4. **Estimation of Fe^{+2} by using thiocynate by calorimeter.**
5. **Separation of sugars using TLC**
6. Verification of Beer lambert's law. (Using potassium permanganate solution) using colorimeter /spectrophotometer.

III Lab References:

1. Text book of Vogel's Quantitative Chemical Analysis, Sixth edition, Pearson.

2. Vogel A. I. Practical Organic Chemistry, Longman Group Ltd.

3. Bansal R.K. Laboratory Manual of Organic Chemistry, Wiley- Eastern.

4. Ahluwalia V. K. and Aggarwal R. Comprehensive Practical Organic Chemistry, University press.

5. Mann F.Gand Saunders B.C, Practical Organic Chemistry, Pearson Education.

SCHEME OF VALUATION

1. **INTERNAL MARKS- Record-10M**
2. **EXTERNAL MAKS-40**
   - **Practical-30M**
   - **Viva questions = 10 M**

TOTAL = 50 M

A.G.&S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE(AUTONOMOUS),VUYYURU
(Accredited at "A" Grade by NAAC) ACADEMIC YEAR-2022-23

SEMESTER – III (SDC)	**PAPERCODE:SDCCHET01**
PAPER TITLE : FOOD ADULTERATION	

UNIT-I: Total: 30Hrs (2h/week) 02 Credits

Common Foods and Adulteration (10+10+5+5) 10Hrs

Common Foods subjected to Adulteration-Adulteration-Definition –Types; Poisonous substances, Foreign matter, cheap substitutes, Spoiled parts. Adulteration through Food Additives –Intentional and incidental. General Impact on Human Health.

UNIT-II :

Adulteration of Common Foods and Methods of Detection (10+10+5+5) 10Hrs

Means of Adulteration Methods of Detection Adulterants in the following Foods; Milk, Oil, Grain, Sugar, Spices and Condiments, Processed Food, Fruits and Vegetables. Additives and Sweetening agents (at least three methods of detection for each food item).

UNIT-III:

Present Laws and Procedures on Adulteration (10+10) 10Hrs

Highlights of Food Safety and Standards Act 2006 (FSSA) –Food Safety and Standards Authority of India- Rules and Procedures of Local Authorities.Role of Voluntary Agencies Suchas, Agmark, I.S.I. Quality control laboratories of Companies, Private testing laboratories, Quality control laboratories of Consumer co-operatives.

Consumer Education, Consumer's problems, rights and responsibilities, COPRA2019-Offenses and Penalities-Procedures to Complain –Compensation to Victims.

Reference books and Websites:

1.A first course in Food Analysis – A.Y. Sathe,New Age International (p) Ltd, 1999

2. Food Safety, case studies –Ramesh.V.Bhat,NIN,1992

3.https://old.fssai.gov.in/Portals/0/Pdf/ Draft Manuals/ Beverages and Confectionary.pdf

4.https://www.fssai.gov.in/

5.https://indianlegalsolution.com/laws-on-food-adulteration/

6.https://fssai.gov.in/dart/

7.https://byjus.com/biology/food-adulteration/

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU.
ACADEMIC YEAR-2022-23

SEMESTER – III (SDC)	COURSE CODE:SDCCHET01
PAPER TITLE : FOOD ADULTERATION	

Time: 2 Hours Maximum marks: 40 Pass marks:

SECTION-A

Answer any TWO Questions. Each question carries 5 marks. 2X5=10Marks

1.
2.
3.
4.

SECTION-B

Answer any THREE Questions. Each question carries 10 marks. 3X10=30M

5.
6.
7.
8.
9.
10.

The Guidelines to be followed by the question paper setters in Chemistry for the II-Semester - end exams. ACADEMIC YEAR-2022-23

Weightage for the question paper-FOOD ADULTERATION

syllabus	Section-A (Short answer questions)	Section-B (Essay questions)
Unit-1 (30 Marks)	1+1	1+1
Unit-2 (30 Marks)	1+1	1+1
Unit-3 (20 Marks)	-----	1+1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF CHEMISTRY

MINUTES OF BOARD OF STUDIES

EVEN SEMESTER

29-03-2023

(151)

Minutes of the Meeting of Board of Studies in Chemistry for the Autonomous Course

A.G. & S.G. Siddhartha Degree College of Arts & Science, Vuyyuru held at 11.00 A.M on 29-03-2023 in the Department of Chemistry

Sri. K.RAMESH *Presiding*

Members Present:

1)..... (Sri. K.RAMESH)	Chairman	HOD, Dept. of Chemistry, A.G. & S.G.S.Degree College,Vuyyuru.
2)..... (Prof.D.Ramasekhar Reddy)	University Nominee	Assistant Professor, Dept. of Chemistry,Krishna University, MTM.
3)..... (Dr. S. Kalpana)	Academic Council Nominee	HOD, Dept. of Chemistry, SDMS M College, Vijayawada.
4)..... (Dr. A. Indira)	Academic Council Nominee	Lecturer in Chemistry, G.D.C, Dumpagadapa.
5)..... (Dr. G Raja)	Industrialist	Manager, Q.A, Biophore india Pharmaceuticals pvt ltd Hyd.
6)..... (Smt. M. Sowjanya)	Student Nominee	Lecturer in Chemistry, ANR College Gudivada.
7)..... (Dr. G.Giri prasad)	Member	Lecturer in Chemistry, A.GS.G.S.Degree College,Vuyyuru
8)..... (Smt. M.V.Santhi)	Member	Lecturer in Chemistry, A.G. & S.G.S.Degree College,Vuyyuru.
9)..... (Sri. P.Suresh)	Member	Lecturer in Chemistry, A.G.& S.G.S.Degree College, Vuyyuru.
10)..... (MS. M.Santhi)	Member	Lecturer in Chemistry, A.G.& S.G.S.Degree College,Vuyyuru.
11)..... (Sri. J.Nageswara Rao)	Member	Rtd.Lecturer in Chemistry, A.G.& S.G.S.Degree College,Vuyyuru.

Agenda for B.O.S Meeting

1. To recommend the syllabus and model paper for II semester of I Degree B.Sc., Chemistry for the Academic year 2022-2023.
2. To recommend the syllabus and model papers for IV semester of II Degree B.Sc., Chemistry for the Academic year 2022-2023.
3. To recommend the syllabus and model papers for V/VI semester of III Degree B.Sc. Chemistry for the Academic year 2022-2023.
4. To recommend the Blue print ofV/VIsemesters of B.Sc. Chemistry for the Academic year 2022-2023.
5. To recommend the Guidelines to be followed by the question paper setters in Chemistry forII, IV,V/VISemester – end exams.
6. To introduce SDC programme
7. To recommend the teaching and evaluation methods to be followed under Autonomous status.
8. Any suggestions regarding certificate course, seminars, workshops, Guest lecture to be organized.
9. Recommend the panel of paper setters and Examiners to the controller of Examinations of
10. Any other matter.

K. Ramesh
Chairman

RESOLUTIONS

1. It is resolved to follow the **syllabus of APSCHE (theory and practical) for II semesters of I B.Sc.** under Choice Based Credit System (CBCS) for the Academic year 2022--2023.
2. It is resolved to follow the **syllabus of APSCHE (theory and practical) for IV semesters of II B.Sc.** under Choice Based Credit System (CBCS) for the Academic year 2022--2023.
3. It is resolved to change the **syllabus of APSCHE (theory and practical) for V/VI semesters of III B.Sc.** under Choice Based Credit System (CBCS) for the Academic year 2022--2023.
4. It is resolved to follow the **Blue printsas** proposed by members of BOS Vsemester of Degree B.Sc.for the Academic year 2022-2023.
5. It is resolved to follow the **guidelines** to be followed by the question paper setters of Chemistry for II,IV& V/VI semesters of Degree B.Sc. for the Academic Year 2022-2023.
6. It is resolved to follow the SDC (FA) **syllabus of APSCHE (theory) for II semesters of I B.Sc.** under Choice Based Credit System (CBCS) for the Academic year 2022--2023.
7. It is resolved to continue the following teaching and evolution methods for Academic year 2022-23.

   Teaching Methods:

   - Besides the conventional methods of teaching, we use modern technology i.e. using of LCD projector to display on U boards etc, for better understanding of concepts.
   - **Evaluation of a student is done by the following procedure:**
   - **Internal Assessment Examinations:**
   - Out of maximum 100 marks in each paper for I B.Sc, 30marks shall be allocated for internal assessment.Out of these 30marks, 20 marks are allocated for announced tests (i.e.IA-1 & IA-2).
   - Out of maximum 100 marks in each paper for II B.Sc, 25 marks shall be allocated for internal assessment. Out of these 25 marks, 15 marks are allocated for announced tests (i.e.IA-1 & IA-2).
   - Out of maximum 100 marks in each paper for IIIB.Sc, 30 marks shall be allocated for internal assessment.Out of these 30 marks,20 marks are allocated for announced tests (i.e.IA-1 & IA-2).
   - Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks are allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the innovative component like assignment/quiz/seminars for I,II,IIIB.Sc.
   - There is no pass minimum for internal assessment for I, II,III B.Sc.
   - **Semester – End Examination:**
   - The maximum marks for II,IV,VB.ScSemester – End examination shall be 70/75/70 marks duration of the examination shall be 3 hours. Even though the candidate is absent for two IA exams /obtain Zero marks the external marks are considered (if the candidate gets 40/70/75) and the result shall be declared as "PASS".
   - Semester – End examinations shall be conducted in theory papers at the end of every semester, while in practical papers, these examinations are conducted at the end of II,IV&V/VI semesters for I, II & III B.Sc for 50 marks.
8. Discussed and recommended for organizing certificate course, seminars, Guest lecturers,workshops to upgrade the knowledge of students, for the approval of the academic council.
9. Discussed and empowered the Head of the department of Chemistry to suggest the panel of paper setters and examiners to the controller of examinations
10. NIL.

K. Ramesh
Chairman

A.G & S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

Vuyyuru-521165

NAAC reaccredited at "A" level

Autonomous -ISO 9001 – 2015 Certified

Title of the Paper: ORGANIC AND GENERALCHEMISTRY **Semester: II**

Course Code	**CHE-201C**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	30
No. of Lecture Hours / Week	**4**	Semester End Exam Marks	**70**
Total Number of Lecture Hours	**60**	Total Marks	**100**
Year of Introduction : 2021-22	Year of Offering: 2022-23	Year of Revision: 2022-23	Percentage of Revision: 0

Course outcomes:

At the end of the course, the student will be able to;

CO1. Understand and explain the differential behaviour of organic compounds based on fundamental concepts learnt.

CO2. Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved.

CO3. Learn and identify many organic reaction mechanisms including Free Radical Substitution, Electrophilic Addition and Electrophilic Aromatic Substitution.

CO4. Understand the concepts of absorption and adsorption, colloidal chemistry and nature of Chemical Bonding.

CO5. Correlate and describe the stereo chemical properties of organic compounds and reactions.

Learning Objectives:

1. To understand the basic concepts of alkanes & cycloalkanes.
2. To identify the difference between saturated and unsaturated hydrocarbons.
3. To learn the basic concepts of aromatic compounds and its reactivity.
4. To understand the chemistry of adsorption, colloid chemistry, HSAB principle and Molecular Orbital theory.
5. To learn the fundamental aspects of stereo chemistry.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
	ORGANIC CHEMISTRY	
I	**Recapitulation of Basics of Organic Chemistry Carbon-Carbon sigma bonds (Alkanes and Cycloalkanes)** **1.1**General methods of preparation of alkanes- Wurtz and Wurtz - Fittig reaction, Corey House synthesis, physical and chemical properties of alkanes, Isomerism and its effect on properties. **1.2** Free radical substitutions; Halogenation, concept of relative reactivity v/s selectivity. **1.3** Conformational analysis of alkanes (Conformations, relative stability and energy diagrams of Ethane, Propane and butane). **1.4** General molecular formulae of cycloalkanes and relative stability, Baeyer strain theory, Cyclohexane conformations with energy diagram,Conformations of mono substituted cyclohexane.	**12h**
II	**Carbon-CarbonpiBonds(AlkenesandAlkynes)** **2.1** Generalmethodsofpreparation,physicaland chemicalproperties. **2.2** Mechanism ofE1,E2,E1CB reactions,SaytzeffandHoffmanneliminations, Electrophilic Additions,mechanism(Markownikoff/Antimarkownikoffaddition) with suitable examples, *syn*and*anti*-addition;additionofH_2,X_2, HX. oxymercuration-9, demercuration, hydroboration-oxidation, ozonolysis, Hydroxylation , Diels alder reaction , 1,2 and 1,4 addition reaction in Conjugated Dienes. **2.3** Reactionsofalkynes;acidity,electrophilic andnucleophilicadditions,hydrationtoformcarbonyl compounds,Alkylationof terminalalkynes.	**12h**
III	**Benzene and its reactivity** **3.1** Concept of aromaticity, Huckel's rule - application to	12h

	Benzenoid (Benzene, Naphthalene) and Non - Benzenoid compounds (cyclopropenylcation, cyclopentadienyl anion and tropyliumcation) **3.2** Reactions - General mechanism of electrophilic aromatic substitution, mechanism of nitration, Friedel- Craft's alkylation and acylation. **3.3** Orientation of aromatic substitution - ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO_2 and Phenolic). Orientation of (i) Amino, methoxy and methyl groups (ii) Carboxy, nitro, nitrile, carbonyl and sulphonic acid groups (iii) Halogens (Explanation by taking minimum of one example from each type)	
	GENERAL CHEMISTRY	
IV	**Surface chemistry and chemical bonding** **1. Surface chemistry** **4.1 Colloids**- Coagulation of colloids- Hardy-Schulze rule. Stability of colloids, Protection of Colloids, Gold number. **4.2 Adsorption**-Physical and chemical adsorption, Langmuir adsorption isotherm, applications of adsorption. **2. Chemical Bonding** **4.3** Valence bond theory, hybridization, VB theory as applied to ClF_3, $Ni(CO)_4$ **4.4** Molecular orbital theory -LCAO method, construction of M.O. diagrams for homo-nuclear and hetero-nuclear diatomic molecules (N2, O2, CO and NO). **3. HSAB** **4.5** Pearson's concept, HSAB principle & its importance, bonding in Hard-Hard and Soft-Soft combinations.	14h
V	**Stereochemistry of carbon compounds** **5.**1 Molecular representations- Wedge, Fischer, Newman and Saw-Horse formulae.	10h

	5.2 Optical isomerism: Optical activity- wave nature of light, plane polarised light, optical rotation and specific rotation. **5.3** Chiral molecules- definition and criteria(Symmetry elements)- Definition of enantiomers and diastereomers – Explanation of optical isomerism with examples- Glyceraldehyde, Lactic acid, Alanine, Tartaric acid, 2,3-dibromopentane. **5.4** D, L, R,S and E,Z- configuration with examples. Definition of Racemic mixture – Resolution of racemic mixtures (any 3 techniques)	

Co-curricular activities and Assessment Methods

Continuous Evaluation: Monitoring the progress of student's learning

Class Tests, Worksheets and Quizzes

Presentations, Projects and Assignments and Group Discussions: Enhances critical thinking skillsand personality

Semester-end Examination: critical indicator of student's learning and teaching methods adopted by teachers throughout the semester.

List of Text Books

1. A Text book of Organic Chemistry by Lloyd.N.Ferguson
2. A Text book of Organic Chemistry by RakeshK.Parashar&V.K.Ahluwalia
3. Telugu Academy Book
4. Unified Chemistry by O.P.Agarwal-Vol-I

List of Reference Books

Theory:

Morrison, R. N. & Boyd, R. N. Organic Chemistry, Dorling Kindersley (India) Pvt. Ltd. (PearsonEducation).
Finar, I. L. Organic Chemistry (Volume 1), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
Finar, I. L. Organic Chemistry (Volume 2: Stereochemistry and the Chemistry of Natural Products), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).
Eliel, E. L. &Wilen, S. H. Stereochemistry of Organic Compounds; Wiley: London, 1994.
Kalsi, P. S. Stereochemistry Conformation and Mechanism; New Age International, 2005.

Practical: 11 Ahluwalia, V.K. &Aggarwal, R. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis, University Press (2000).
Ahluwalia, V.K. &Dhingra, S. Comprehensive Practical Organic Chemistry: Qualitative Analysis, University Press (2000).

Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic Chemistry, 5th Ed., Pearson (2012)

Additional Resources:

Solomons, T. W. G.; Fryhle, C. B. &Snyder, S. A. Organic Chemistry, 12th Edition, Wiley.

Bruice, P. Y. Organic Chemistry, Eighth Edition, Pearson.

Clayden, J.; Greeves, N.&Warren, S. Organic Chemistry, Oxford.

Nasipuri, D. Stereochemistry of Organic Compounds: Principles and Applications, Third Edition, NewAge International.

Gunstone, F. D. Guidebook to Stereochemistry, Prentice Hall Press, 1975.

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SEMESTER – II PAPER-II	PAPER CODE : CHET-22
PAPER TITLE: ORGANIC & GENERAL CHEMISTRY -I ACADEMIC YEAR-2022-23	

Time: 3 Hours **Max. Marks: 70M**

Answer all questions

1. (a) -10M
   (or)
   10M
   (b) – 4M
   (or)
   4M
2. (a) -10M
   (or)
   10M
   (b) – 4M
   (or)
   4M
3. (a) -10M
   (or)
   10M
   (b) – 4M
   (or)
   4M
4. (a) -10M
   (or)
   10M
   (b) – 4M
   (or)
   4M

5. (a) -10M
   (or)
   10M
   (b) – 4M
   (or)
   4M

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PRACTICAL SYLLABUS.

Practical Paper – II **Volumetric Analysis**	**PAPER CODE : CHEP-21A** **ACADEMIC YEAR-2022-23**

30 hrs (2h/w) **Credits-2**

Course outcomes:

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory

2. Understand and explain the volumetric analysis based on fundamental concepts learnt in ionic Equilibria

3. Learn and identify the concepts of a standard solutions, primary and secondary standards

4. Facilitate the learner to make solutions of various molar concentrations. This may include: The concept of the mole; Converting moles to grams; Converting grams to moles; Defining concentration; Dilution of Solutions; Making different molar concentrations.

Volumetric analysis 50 M

1. Estimation of sodium carbonate and sodium hydrogen carbonate present in a mixture.
2. Determination of Fe (II) using KMnO4 with oxalic acid as primary standard.
3. Determination of Cu (II) using Na2S2O3 with K2Cr2O7 as primary standard
4. Estimation of water of crystallization in Mohr's salt by titrating with KMnO4

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Autonomous -ISO 9001 – 2015 Certified

Title of the Paper: INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY

Semester: IV

Course Code	**CHE-401C**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	25
No. of Lecture Hours / Week	**4**	Semester End Exam Marks	**75**
Total Number of Lecture Hours	**60**	Total Marks	**100**
Year of Introduction : 2021-22	Year of Offering: 2022-23	Year of Revision: 2022-23	Percentage of Revision: 0

Course Outcomes:

At the end of the course, the student will be able to:

1. To learn about the laws of absorption of light energy by molecules and the subsequent photochemicalreactions.
2. To understand the concept of quantum efficiency and mechanisms of photochemical reactions

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
	INORGANIC CHEMISTRY	
I	**Organometallic Compounds** Definition and classification of organometallic Compounds on the basis of bond type, Concept of hapticityof organic ligands. Metal carbonyls: 18electronrule,electron count of mononuclear, poly nuclear and substituted metal carbonylsof 3d series. General methods of preparation of mono and binuclear carbonyls of 3d series. P-acceptor behavior of carbon monoxide. Synergic effects (VB approach) - (MO diagram of CO can be referred to for synergic effect to IR frequencies).	**8h**
	ORGANIC CHEMISTRY	
II	**Carbohydrates** Occurrence,classificationandtheirbiologicalimportance,Monosaccharides: Constitutionand absolute configurationofglucoseandfructose,epimersandanomers,mutarotation,determination ofring sizeof glucose andfructose,Haworthprojectionsandconformationalstructures;Interconversions ofaldosesand ketoses; Killiani-Fischer synthesis and Ruff degradation; Disaccharides– Elementarytreatmentofmaltose, lactoseand sucrose.Polysaccharides–Elementarytreatmentof starch.	**8h**
III	**1. Amino acidsandproteins** **6h** Introduction: Definition of Amino acids, classification of Amino acids into alpha, beta, and gamma amino acids. Natural and essential amino acids - definition and examples, classification of alpha amino acids into acidic, basic and neutral amino acids with examples. Methods of synthesis: General methods of synthesis of alpha amino acids (specific examples - Glycine, Alanine, valine and leucine) by following methods: a) from halogenated	**6h**

	carboxylic acid b) Gabriel Phthalimide synthesis c) strecker's synthesis. Physical properties: Zwitter ion structure - salt like character - solubility, melting points, amphoteric character, definition of isoelectric point. Chemical properties: General reactions due to amino and carboxyl groups - lactams from gamma and delta amino acids by heating- peptide bond (amide linkage). Structure and nomenclature of peptides and proteins. **2. Heterocyclic Compounds** Introduction and definition: Simple five membered ring compounds with one hetero atom Ex. Furan. Thiophene and pyrrole - Aromatic character – Preparation from 1, 4, -dicarbonyl compounds, Paul-Knorr synthesis. Properties: Acidic character of pyrrole - electrophillic substitution at 2 or 5 position, Halogenation, Nitration and Sulphonation under mild conditions - Diels Alder reaction in furan. Pyridine – Structure - Basicity - Aromaticity- Comparison with pyrrole- one method of preparation and properties - Reactivity towards Nucleophilic substitution reaction	**7h**
IV	**Nitrogen Containing Functional Groups** Preparation, properties and important reactions of nitro compounds, amines and diazonium salts. **1. Nitrohydrocarbons** **3h** Nomenclature and classification-nitro hydrocarbons, structure -Tautomerism of nitroalkanes leading to aci and keto form, Preparation of Nitroalkanes, reactivity -halogenation, reaction with HONO (Nitrous acid),Nef reaction and Mannich reaction leading to Micheal addition and reduction. **2. Amines** Introduction, classification, chirality in amines (pyramidal inversion), importance and general methods of preparation. **Properties :** Physical properties, Basicity of amines: Effect of substituent, solvent and steric effects. Distinction between Primary,Secondary and tertiary amines using Hinsberg's method and nitrous acid. Discussion of the following reactions with emphasis on the mechanistic pathway: Gabriel Phthalimide synthesis, Hoffmann-Bromamide reaction, Carbylamine reaction, Mannich reaction, Hoffmann'sexhaustive methylation, Hofmann-elimination reaction and Cope-elimination.	**3h** **11h**

	Diazonium Salts: Preparation and Synthetic applications of diazonium salts including preparation of arenes, haloarenes, phenols, cyano and nitro compounds. Coupling reactions of diazonium salts (preparation of azo dyes).	
V	**1.Photochemistry** Difference between thermal and photochemical processes, Laws of photochemistry- Grothus- Draper's law and Stark-Einstein's law of photochemical equivalence, Quantum yield- Photochemical reaction mechanism- hydrogen- chlorine and hydrogen- bromine reaction. Qualitative description of fluorescence, phosphorescence, Jablonski diagram, Photosensitized reactions- energy transfer processes (simple example). **Thermodynamics** The first law of thermodynamics-statement, definition of internal energy and enthalpy, Heat capacities and their relationship, Joule-Thomson effect-coefficient, Calculation of work for the expansion of perfect gas under isothermal and adiabatic conditions for reversible processes, State function. Temperature dependence of enthalpy of formation- Kirchoff s equation, Second law of thermodynamics Different Statements of the law, Carnot cycle and its efficiency, Carnot theorem, Concept of entropy, entropy as a state function, entropy changes in reversible and irreversible processes. Entropy changes in spontaneous and equilibrium processes. Third law of thermodynamics, Nernst heat theorem, Spontaneous and non- spontaneous processes, Helmholtz and Gibbs energies-Criteria forspontaneity.	**5h** **12h**

List of Reference Books

1. Concise coordination chemistry by Gopalan andRamalingam
2. Coordination Chemistry by Basalo andJohnson
3. Organic Chemistry by G.Mareloudan, PurdueUniv
4. Text book of physical chemistry by SGlasstone
5. Concise Inorganic Chemistry byJ.D.Lee
6. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu andMadan
7. A Text Book of Organic Chemistry by Bahl andArunbahl
8. A Text Book of Organic chemistry by I L FinarVolI
9. A Text Book of Organic chemistry by I L FinarVolII

10. Advanced physical chemistry by GurudeepRaj

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SEMESTER – IV PAPER-IV	PAPER CODE : CHE-401C
PAPER TITLE: INORGANIC, ORGANIC & PHYSICAL CHEMISTRY ACADEMIC YEAR-2022-23	

Time: 3 hours Maximum Marks: 75

Time: 3 hours Maximum Marks: 75

PART-A 5 X 5 = 25Marks

Answer any **FIVE** of the following questions. Each carries **FIVE** marks

1. Describe the 18 electron rule of mono nuclear and polynuclear metal carbonyls with suitableexamples.**L1-CO1**
2. What are epimers and anomers. Giveexamples. **L1-CO2**
3. Discuss about isoelectric point and zwitterion. **L2-CO3**
4. Discuss the Paul-Knorr synthesis of five membered heterocycliccompounds. **L2-CO4**
5. Explain Tautomerism shown by nitroalkanes **L2-CO5**
6. Discuss the basic nature ofamines. **L2-CO5**
7. Write the differences between thermal and photochemicalreactions. **L4-CO6**
8. Derive heat capacities and derive Cp – Cv =R **L1-CO7**

PART-B 5 X 10 = 50Marks

Answer **ALL** the questions. Each carries **TEN** marks

9 (a). What are organometallic compounds? Discuss their Classification on the basis of type of bonds withexamples.**L1-CO1**

(or)

(b). Discuss the general methods of preparations of mono & bi-nuclear carbonyls of 3dseries.**L2-CO1**

10 (a). Discuss the constitution, configuration and ring size of glucose. Draw the Haworth and Conformational

structure ofglucose.**L2-CO2**

(or)

(b). (i) Explain Ruff's degradation.
(ii) Explain Kiliani- Fischer synthesis.**L2-CO2**

11.(a). What are amino acids? Write any three general methods of preparation of amino acids.**L1-CO3**

(or)

b)Discuss the aromatic character of Furan, Thiophene

andPyrrole. **L2-CO4**

12.(a). Write the mechanism for thefollowing.**L3-O5**

i)Nefreaction(ii) Mannichreaction

(or)

(b).(i) Explain Hinsberg separation of amines.
(i) Discuss any three synthetic applications of diazoniumsalts.**L2-CO5**

13.(a). What is quantum yield? Explain the photochemical combination of Hydrogen- Chlorine and Hydrogen - Bromine.**L2-CO6**

(or)

(b).Define entropy. Describe entropy changes in the reversible and irreversible process.**L1-CO7**

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PRACTICAL SYLLABUS.

Practical Paper – IV **OrganicQualitativeanalysis**	**PAPER CODE :** **ACADEMIC YEAR-2022-23**

30 hrs (2h/w) **Credits-2**

Course outcomes:

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory.
2. Determine melting and boiling points of organic compounds
3. Understand the applicationofconceptsofdifferentorganicreactionsstudiedintheory part of organicchemistry.

OrganicQualitativeanalysis **50 M**

Analysis of an organic compound through systematic qualitative procedure for functional group identification including the determination of melting point and boiling point with suitable derivatives.

Alcohols, Phenols, Aldehydes, Ketones, Carboxylic acids, Aromatic primary amines, amides and simple sugars.

SCHEME OF VALUATION

1. **INTERNAL MARKS- Record-10M**
2. **EXTERNAL MAKS-40**
    - **Analysis of an organic compound and preparation of suitable derivative-30M**
    - **Viva questions = 10 M**

TOTAL = 50 M

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Title of the Paper: INORGANIC&PHYSICALCHEMISTRY

Semester: IV

Course Code	**CHE-402C**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	25
No. of Lecture Hours / Week	**4**	Semester End Exam Marks	**75**
Total Number of Lecture Hours	**60**	Total Marks	**100**
Year of Introduction : 2021-22	Year of Offering: 2022-23	Year of Revision: 2022-23	Percentage of Revision: 0

Program outcomes:

Course outcomes:

At the end of the course, the student will be able to;

1. Understand concepts of boundary conditions and quantization, probability distribution, most probable values, uncertainty and expectation value
2. Application of quantization to spectroscopy.
3. Various types of spectra and their use in structure determination.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
	INORGANICCHEMISTRY 26h	
I	**Coordination Chemistry** IUPAC nomenclature of coordination compounds, Structural and stereoisomerism in complexes with coordination numbers 4 and 6. Valence Bond Theory (VBT): Inner and outer orbital complexes. Limitations of VBT, Crystal field effect, octahedral symmetry. Crystal field stabilization energy (CFSE), Crystal field effects for weak and strong fields. Tetrahedral symmetry, Factors affecting the magnitude of crystal field splitting energy, Spectro chemical series, Comparison of CFSE for Octahedral and Tetrahedral complexes, Tetragonal distortion of octahedral geometry, Jahn-Teller distortion, square planar coordination.	**12h**
II	**1. Inorganic Reaction Mechanism** **4h** Introduction to inorganic reaction mechanisms. Concept of reaction pathways, transition state, intermediate and activated complex. Labile and inert complexes, ligand substitution reactions $SN^1$and SN^2, Substitution reactions in square planar complexes, Trans-effect, theories of trans effect and itsapplications **2. Stability ofmetalcomplexes** Thermodynamic stability and kinetic stability, factors affecting the stability of metal complexes, chelate effect, determination of composition of complex by Job's method and mole ratio method. **3. Bioinorganic Chemistry** Metal ions present in biological systems, classification of elements according to their action in biological system**.** Geochemical effect on the distribution of metals, Sodium K- pump, carbonic anhydrase andcarboxy peptidase. Excess and deficiency of some trace metals.	**4h** **2h** **8h**

	Toxicity of metal ions (Hg,Pb,Cd and As), reasons for toxicity, Use of chelating agents in medicine, Cis-platin as an anti-cancer drug. Iron and its application in bio-systems, Hemoglobin, Myoglobin.Storage and transfer of iron.	
	PHYSICALCHEMISTRY	**34h**
III	**1 .Phase rule** Concept of phase, components, degrees of freedom. Thermodynamic derivation of Gibbs phase rule. Phase diagram of one component system - water system, Study of Phase diagrams of Simple eutectic systems i) Pb-Ag system, desilverisation of lead ii) NaCl-Water system, Congruent and incongruent melting point- Definition and examples for systems having congruent and incongruent melting point , freezing mixtures.	**6h**
IV	**Electrochemistry** Specific conductance, equivalent conductance and molar conductance- Definition and effect of dilution. Cell constant. Strong and weak electrolytes, Kohlrausch's law and its applications, Definition of transport number, determination of transport number by Hittorf's method. Debye-Huckel-Onsagar's equation for strong electrolytes (elementary treatment only), Application of conductivity measurements- conductometrictitrations. Electrochemical Cells- Single electrode potential, Types of electrodes with examples: Metal- metal ion, Gas electrode, Inert electrode, Redox electrode, Metal-metal insoluble salt- salt anion. Determination of EMF of a cell, Nernst equation, Applications of EMF measurements - Potentiometric titrations. Fuel cells- Basic concepts, examples and applications	**14h**
V	**Chemical Kinetics:** The concept of reaction rates. Effect of temperature, pressure, catalyst and other factors on reaction rates. Order and molecularity of a reaction, Derivation of integrated rate equations for zero, first and second order reactions (both for equal and unequal concentrations of reactants). Half–life of a reaction. General	**14h**

	methods for determination of order of a reaction. Concept of activation energy and its calculation from Arrhenius equation. Theories of Reaction Rates: Collision theory and Activated Complex theory of bimolecular reactions. Comparison of the two theories (qualitative treatment only). Enzyme catalysis- Specificity, factors affecting enzyme catalysis, Inhibitors and Lock & key model. Michaels- Menten equation- derivation, significance of Michaelis-Menten constant.	

List of Reference Books

1. Text book of physical chemistry by SGlasstone
2. Concise Inorganic Chemistry byJ.D.Lee
3. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu andMadan
4. Advanced physical chemistry by GurudeepRaj
5. Principles of physical chemistry by Prutton andMarron
6. Advanced physical chemistry by Bahl andTuli
7. Inorganic Chemistry byJ.E.Huheey
8. Basic Inorganic Chemistry by Cotton andWilkinson
9. A textbook of qualitative inorganic analysis by A.I.Vogel
10. Atkins,P.W.&Paula,J.deAtkin'sPhysicalChemistryEd.,OxfordUniversityPress 10thEd(2014).
11. Castellan,G.W.Physical Chemistry 4thEd.Narosa(2004).
12. Mortimer,R. G.PhysicalChemistry 3rdEd.Elsevier:NOIDA,UP(2009).
13. Barrow,G.M.Physical Chemistry

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SEMESTER – IV PAPER-V	PAPER CODE : CHE-402C
PAPER TITLE : INORGANIC & PHYSICAL CHEMISTRY ACADEMIC YEAR-2022-23	

Time: 3 hours Maximum Marks: 75

PART- A 5 X 5 = 25 Marks

Answer any **FIVE** of the following questions. Each carries **FIVE** marks

1. Write note on John-Tellerdistortion. **L2-CO1**
2. Explain Labile & inertcomplexes. **L2-CO2**
3. Explain Job's method for determination of composition ofcomplex. **L2-CO2**
4. Explain Thermodynamic derivation of Gibb's phaserule. **L2-CO4**
5. Explain any two conductometrictitrations. **L2-CO5**
6. Write note on Fuel Cells with examples andapplications. **L2-CO5**
7. What is enzyme catalysis? Write any three factors effecting enzymecatalysis. **L1-CO6**
8. Derive Michaels- Mentenequation. **L1-CO6**

PART-B 5 X 10 =50 Marks

Answer **ALL** the questions. Each carries **TEN** marks

9 (a). Explain Valence Bond theory with Inner and Outer orbital complexes. Write limitations ofVBT. **L2-CO1**

(or)

(b). Define CFSE. Explain the factors effecting the magnitude of crystalfield splittingenergy. **L1-CO1**

10 (a). Explain Trans effect. Explain the theories of trans effect

and write any two applications of trans effect. **L2-CO2**

(or)

(b). (i) Write the biological functions of Haemoglobin and Myoglobin.
(ii) Write note on use of chelating agents in medicines. **L2-CO3**

11.(a). Define Phase rule and terms involved in it. Explain phase diagram of Pb-Ag system.**L1-CO4**

(or)

(b). (i) Explain phase diagram for NaCl-watersystem.
(ii) Explain briefly about Freezing mixtures.**L2-CO4**

12.(a). Define Transport number. Write experimental method for the determination of transport number by Hittorf method.**L1-CO5**

(or)

(b).(i) Define single electrode potential.
(ii) Explain four types of electrodes with examples.**L1-CO5**

13.(a). Explain general methods for determination of order of a reaction. **L2-CO6**

(or)

(b).Explain Collision theory and Activated complex theory of bimolecular reactions.**L2-CO6**

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PRACTICAL SYLLABUS

Practical Paper – V Conductometric andPotentiometric Titrimetry	**PAPER CODE : CHE-402P** **ACADEMIC YEAR-2022-23**

30 hrs (2 h/W) Credits: 2

Practical-Course –V

Conductometric andPotentiometric Titrimetry 50 M

Course outcomes:

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. Apply concepts of electrochemistry inexperiments
3. Be familiar with electro analytical methods and techniques in analytical chemistry which study an analyte by measuring the potential (volts) and/or current (amperes) in an electrochemical cell containing theanalyte

Conductometric andPotentiometricTitrimetry50 M

2. Conductometric titration- Determination of concentration of HCl solution using standard NaOHsolution.
3. Conductometric titration- Determination of concentration of CH3COOH Solution using standard NaOHsolution.
4. Conductometric titration- Determination of concentration of CH3COOH and HCl in a mixture using standard NaOHsolution.
5. Potentiometric titration- Determination of Fe (II) using standard $K_2Cr_2O_7$solution.

Determination of rate constant for acid catalyzed esterhydrolysis

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION REVISED
UG SYLLABUS UNDER CBCS
(Implemented from Academic Year, 2020-21)
PROGRAMME: FOUR YEAR B.Sc.(Hons)
Domain Subject: CHEMISTRY
Skill Enhancement Courses (SECs) for Semester V/VI, from 2022-23
(Syllabus with Learning Outcomes, References, Co-curricular Activities & Model Q.P. Pattern)
Structure of SECs for Semester–V (To choose One pair from the Five alternate pairs of SECs)

Univ.Code	Course NO. 6&7	Name of Course	Th. Hrs ./ Week	IE Marks	EE Marks	Credits	Prac. Hrs./Wk	Marks	Credits
	6A	Synthetic Organic Chemistry	3	25	75	3	3	50	2
	7A	Analysis of Organic Compounds	3	25	75	3	3	50	2
		OR							
	6B	Analytical Methods in Chemistry-1	3	25	75	3	3	50	2
	7B	Analytical Methods in Chemistry-1	3	25	75	3	3	50	2
		OR							
	6C	Industrial Chemistry-1	3	25	75	3	3	50	2
	7C	Industrial Chemistry-2	3	25	75	3	3	50	2
		OR							
	6D	EnvironmentalChemistry	3	25	75	3	3	50	2
	7D	Green Chemistry and Nanotechnology	3	25	75	3	3	50	2
		OR							
	6E	Analytical Methods in Chemistry	3	25	75	3	3	50	2
	7E	Cosmetics and Pharmaceutical Chemistry	3	25	75	3	3	50	2

Note-1: For Semester–V/VI, for the domain subject Chemistry, any one of the five pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A&7A or 6B&7B or 6C&7C or 6D&7D or 6E&7E.The pair shall not be broken (ABC allotment is random, not on any priority basis).
Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations

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Title of the Paper: Analytical Methods in Chemistry-I Semester: V/VI

Course Code	**CHE-501C-6B**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	30
No. of Lecture Hours / Week	**3**	Semester End Exam Marks	**70**
Total Number of Lecture Hours	**45**	Total Marks	**100**
Year of Introduction : 2022-23	Year of Offering: 2022-23	Year of Revision: -------	Percentage of Revision: 0

CourseOutcomes:

Studentsaftersuccessfulcompletion ofthecourse willbeableto:

CO1. Remember the basic concepts of .quantitative analysis data treatment, separation techniques and analysis of water (PO7)

CO2. Acquireknowledgeon theconcepts quantitative analysis data treatment, separation techniques and analysis of water(PO1, PO7)

CO3. Apply the conceptual knowledge gained in the areas of quantitative analysis data treatment, separation techniques and analysis of water in the chosen job role (PO1)

CO4. Analyse that how far the quantitative methods, data treatment methods separation techniques and Analysis of water

(PO1).

Syllabus

Course Details

Unit	Learning Units
I	**Quantitativeanalysis-1** 1. Abriefintroduction to analytical methodsinchemistry 2. Principles of volumetric analysis, concentration terms- Molarity, Normality,v/v, w/v, ppm and ppb, andsecondarystandards. 3. Description and use of common laboratory apparatus- volumetric flask, burette, pipette,beakers,mea
II	**Quantitativeanalysis-2** 1. Principles of volumetric analysis: Theories of acid-base (including study of acid-basetitration choiceofindicators for thesaturations. 2. Principlesofgravimetricanalysis:precipitation,coagulation,peptization,co-precipitation, post precipit
III	**Treatmentofanalyticaldata** Types of errors- Relative and absolute, significant figures and its importance, accuracy –metho minimization oferrors,precision-methodsofexpressingprecision,standarddeviation and confidencelimit
IV	**Separationtechniques** 1. SolventExtraction:Introduction,principle,techniques,factorsaffectingsolventextraction,Batchextraction Determination ofIron(III). 2. IonExchangemethod:Introduction,actionofionexchangeresins,applications
V	**Analysis of water (Marks weightage 10+5)** Determination of dissolved solids, total hardness of water, turbidity, alkalinity, Dissolved oxygen, CO

III References

1. Analytical Chemistry by Gary D.Christian, PurnenduK.Dasgupta andKevinA.Schug,Seventhedition, Wiley.

2. TextbookofVogel'sQuantitativeChemical Analysis,Sixthedition,Pearson.

3. Text book of Environmental Chemistry and Pollution Control by S.S.Dara andD.D.Mishra,Revised edition, SChand &Co Ltd.

Text Books:

1. Instrumental methods of chemical analysis by B K Sharma

2. Separation methods MN Sastry

Reference materials on the web/web links:

1.https://chem.libretexts.org/Bookshelves/Analytical_Chemistry/Supplemental_Modules_(Analytical_Chemistry)/Quantifying_Nature/Volumetric_Chemical_Analysis_(Shiundu)/14.1%3A_Sampling_and_Statistical_Analysis_of_Data

2. https://vlab.amrita.edu/?sub=2&brch=190&sim=338&cnt=1

IV Co-CurricularActivities:

a) Mandatory (Lab/fieldtrainingofstudentsbyteacher (lab: 10 + field: 05) :

1.For Teacher: Training of students by the teacher in laboratory and field for not lessthan 15 hours on the field techniques/skills of calibration of pH meter, Strong acidvs strong base titration using pH meter, determination of chloride ion, estimation of water quality parameters andestimation ofIron(II).

Google classroom created during instruction of course by the teacher concerned for sharing relevant material and conducting exams.

2. ForStudent: Studentshallvisitarelatedindustry/chemistrylaboratoryinuniversities/research organizations/private sector facility and observe. Write their observations and submit a hand writtenfieldwork/projectworkreportnotexceeding10pagesinthegivenformattotheteacher.

3. Max marksforFieldwork/projectworkReport: 05.

4. Suggested Format for Fieldwork/project work**:** Title page, student details, indexpage,detailsofplacevisited, observations,findings,andacknowledgements.

5. Unittests(IE).

b) SuggestedCo-CurricularActivities

1. Trainingofstudents'byrelatedindustrial experts.

2. Assignments,SeminarsandQuiz(onrelatedtopics).

3. Visitstofacilities, firms,researchorganizations etc.

4. Invitedlecturesandpresentations onrelatedtopicsbyfield/industrial experts.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

(AUTONOMOUS), VUYYURU.

(Accredited at "A" Grade by NAAC, Bangalore)

Model Paper

SEMESTER – V PAPER-V	**PAPER CODE : CHE-501C**
PAPER TITLE : Analytical Methods in Chemistry-I Paper 6B **ACADEMIC YEAR-2022-2023**	

Time: 3Hours Maximum marks: 70 Minimum marks: 28

Answer any FOUR of the following. Each question carries 5 marks. 4X5=20

1. Explain the preparation of v/v based with suitable examples
2. Discuss the detail about primary and secondary standards with suitable examples
3. Explain the need of drying the precipitate in gravimetric analysis
4. Define accuracy and explain the methods of expressing accuracy
5. Discuss the principal and theory involved in solvent extraction

6.Explain about resins

7.Explain about COD

SECTION-B

Answer any FIVE questions. Each question carries 10 marks. 5X10=50

8.Describe the role of the following apparatus in analytical chemistry I) Volumetric flask II) Burette III) Pipette

9.Elaborate the theory involved in complexometric and acid base titrations

10.Write a note on the following terms in gravimetric analysis I)Precipitation II) Digestion III) Filteration

11.Define error, discuss in detail about various types of errors encountered in quantitative analysis

12.Elaborate the methods used for minimization of errors

13.Discuss the various factors which effect solvent extraction

14.Explain in detail about role of Ion exchange resins in separation of compounds

15.Explain the following (a) turbidity (b) alkalinity

The Guidelines to be followed by the question paper setters in chemistry for the V- Semester - end exams

SEMESTER – V PAPER-V	**PAPER CODE : CHE-501-6B**
PAPER TITLE : Analytical Methods in Chemistry-I Paper 6B **ACADEMIC YEAR-2022-2023**	

Weightage for the question paper

syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (20 Marks)	1+1	1
Unit-2 (25Marks)	1	1+1
Unit-3 (25Marks)	1	1+1
Unit-4 (30Marks)	1+1	1+1

Unit-5 (15 Marks)	1	1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU.

(Accredited at "A" Grade by NAAC, Bangalore)

PRACTICAL SYLLABUS

Laboratory Course-VI

Practical Paper – V **Analytical methods in chemistry-I** **Practical syllabus**	**PAPER CODE : CHE-501 P** **ACADEMIC YEAR-2022-2023**

AnalyticalmethodsinChemistry-1-PRACTICALSYLLABUS

(SkillEnhancementCourse(Elective),Credits:02)

Practical Hrs ;45 (3hr/W)

I LearningOutcomes: Onsuccessfulcompletion ofthispractical course, studentshall beableto:

CO1. EstimateIron (II)usingstandardPotassium dichromatesolution (PO1)

CO2. Learntheprocedurefortheestimationoftotal hardness ofwater (PO7)

CO3. DemonstratethedeterminationofchlorideusingMohr'smethod (PO1, PO7)

CO4. Acquireskills intheoperationandcalibrationofpHmeter (PO1)

II Practical(Laboratory) Syllabus :(**30hrs**)

1. Estimationof Iron(II)usingstandardPotassium dichromatesolution (usingDPAindicator)
2. Estimationoftotal hardnessof waterusingEDTA
3. DeterminationofchlorideionbyMohr'smethod
4. Study the effect on pH of addition of HCl/NaOH to solutions of acetic acid, sodium acetate and theirmixtures.
5. Preparation of buffer solutions of different pH (i) Sodium acetate-acetic acid, (ii) Ammonium chloride-ammoniumhydroxide.
6. pHmetrictitrationof(i)strongacid vs.strongbase,(ii)weakacidvs. strongbase.
7. Determinationofdissociationconstantofaweakacid.

II LabReferences:

1. TextbookofVogel'sQuantitativeChemicalAnalysis,Sixth edition,Pearson.

SCHEME OF VALUATION

INTERNAL MARKS- Record-10M

1. **EXTERNAL MAKS-40**
   - **Practical -30M**
   - **Viva questions = 10 M**

TOTAL = 50 M

A.G & S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

Vuyyuru-521165

NAAC reaccredited at "A" level

Autonomous -ISO 9001 – 2015 Certified

Title of the Paper: Analytical Methods in Chemistry-2Semester: V/VI

Course Code	**CHE-502C-7B**	**Course Delivery Method**	**Class Room / Blended Mode**
Credits	**3**	CIA Marks	30
No. of Lecture Hours / Week	**3**	Semester End Exam Marks	**70**
Total Number of Lecture Hours	**45**	Total Marks	**100**
Year of Introduction : 2022 - 23	Year of Offering: 2022 - 23	Year of Revision: -------	Percentage of Revision: 0

LearningOutcomes: Studentsaftersuccessfulcompletion ofthecourse willbeableto:

CO1. Remember the basic concepts of Chromatography like paper, TLC, Column, GC & HPLC (PO7)

CO2. Understand the significance of paper, TLC, Column, GC & HPLC in separation and identification of compounds (PO1, PO7) .

CO3. Apply the conceptual knowledge gained in the techniques of chromatography in separating and identifying the chemical compounds as and when required (PO1).

CO4. Analyse that how far one chromatographic technique is much use full in separation and identification of compounds over the other chromatographic technique (PO1,PO7).

Syllabus

Course Details

Unit	Learning Units
I	**Chromatography-Introductionandclassification** **(Marks weightage 10+5)** Principle,Classificationofchromatographicmethods,Natureofadsorbents,eluents,$R_f$values,factors affecting$R_f$values.
II	**TLCand paperchromatography** **(Marks weightage 10+10+5+5)** 1. Thin layer chromatography: Principle, Experimental procedure, preparation of plates,adsorbents and solvents, development of chromatogram, detection of spots, applicationsandadvantages. 2. Paper Chromatography: Principle, Experimental procedure, choice of paper andsolvents, various modes of development- ascending, descending, radial and twodimensional, applications.
III	**Columnchromatography** **(Marks weightage 10+10+5)** 1. Column chromatography: Principle, classification, Experimental procedure, stationaryandmobilephases, developmentoftheChromatogram,applications, factors affecting the column efficiency. 2. Applications:- Separation of .Methylene Blue and Flurocene by column chromatography.
IV	**Gaschromatography:** **(Marks weightage 10+5+5)** Basic principles. Different types of GC techniques. Selection of columns and carrier gases.Instrumentation. Detectors-Thermal conductivity detector, Flame ionization detector,$R_f$values.Applicationsintheseparationof amino acids &estrogens
V	**HighPerformanceliquidchromatography (HPLC)** **(Marks weightage 10+10+5)** Basic principles.NormalandreversedPhases.Selectionofcolumnandmobilephase.Instrumentation.Detectors-RID, UV detector$R_f$values.Applicationsintheseparation,separation of anions, barbiturates, tropane alkaloids.

III References

1.Fundamental so Analytical Chemistry by F.James Holler, Stanley R Crouch, DonaldM.WestandDouglasA.Skoog, Ninth edition, Cengage.

2. Analytical Chemistry by Gary D.Christian, PurnenduK.Dasgupta and KevinA.Schug,Seventhedition, Wiley.

3. Quantitativeanalysis byR.A.DayJr.and A.L.Underwood,Sixthedition,Pearson.

4. TextbookofVogel'sQuantitativeChemical Analysis, Sixthedition/Pearson.

Text Books:

1. Instrumental methods of chemical analysis by B K Sharma

2. Instrumental methods of chemical analysis by Gurudeep&ChatwalAnand

Reference materials on the web/weblinks:

1.https://chem.libretexts.org/Bookshelves/Analytical_Chemistry/Supplemental_Modules_(Analytical_Chemistry)/Instrumental_Analysis/Chromatography/Gas_Chromatography

2.https://lab-training.com/hplc-high-performance-liquid-chromatography/

VICo-CurricularActivities:

a)Mandatory :(Lab/fieldtrainingofstudentsbyteacher(lab: 10+ fields: 05):

1. For Teacher: Training of students by the teacher in laboratory and field for notlessthan15 hours on the field techniques/skills of determination of hardness of water,usingthecalorimeterandorSpectrophotometer,preparationofTLCplate,identificationofspotsinTLCandPaper chromatographic techniques,loading ofcolumn, selection of solvent system, separation of amino acids and dyes mixture usingchromatographictechniques.

Google classroom created during instruction of course by the teacher concerned for sharing relevant material and conducting exams.

2.

ForStudent:Studentshallvisitarelatedindustry/chemistrylaboratoryinuniversities/researchorganizations/privatesectorfacilityandobservethechromatographictechniquesusedfortheseparationofcompounds.Writetheirobservationsandsubmitahandwrittenfieldwork/projectworkreportnotexceeding10pages in thegivenformat to theteacher.

3. Max marksforFieldwork/projectworkReport:05.

4. Suggested Format for Fieldwork/project work**:** Title page, student details, indexpage,detailsofplacevisited, observations,findings,andacknowledgements.

5.Unittests(IE).

b) SuggestedCo-CurricularActivities

1. Trainingof students byrelated industrial experts.

2. Assignments,SeminarsandQuiz(onrelatedtopics).

3. Visitstofacilities, firms,researchorganizations etc.

4. Invitedlecturesand presentations onrelatedtopicsbyfield/industrial experts.

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Model Paper

SEMESTER – V PAPER-V	PAPER CODE : CHE-502-7B
PAPER TITLE : Analytical Methods in Chemistry-2 Paper 7B ACADEMIC YEAR-2022-2023	

Time: 3Hours Maximum marks: 70Minimum marks: 28

SECTION-A

Answer any FOUR of the following. Each question carries 5 marks. 4X5=20

1. What is the basic principle involved in chromatography, explain nature of adsorbents
2. How to prepare TLC plates
3. Explain Ascending and descending techniques in paper chromatography
4. Explain the classification of column chromatography
5. Explain the schematic diagram of G.C
6. Explain about detectors in G.C
7. Explain schematic diagram of HPLC

SECTION-B

Answer any FIVE questions. Each question carries 10 marks. 5X10=50

8.How dothe chromatographic methods are classified?Explain any one

9.Discuss the applications of TLC

10.Explain the applications of paper chromatography

11Explain the factors effecting the column efficiency in CC

12.Discuss the separation of methylene blue and fluorescein by C C

13.Explain the separation of Amino acids by G.C

14.Explain the different detectors used in HPLC

15.Explain the separation of Anions and Barbiturates by HPLC

The Guidelines to be followed by the question paper setters in chemistry for the V- Semester - end exams

SEMESTER – V PAPER-V	PAPER CODE : CHE-502C-7B
PAPER TITLE : Analytical Methods in Chemistry-2 Paper 7B ACADEMIC YEAR-2022-2023	

Weightage for the question paper

syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (15Marks)	1	1
Unit-2 (30Marks)	1+1	1+1
Unit-3 (25 Marks)	1	1+1
Unit-4 (20Marks)	1+1	1
Unit-5 (25 Marks)	1	1+1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

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PRACTICAL SYLLABUS

Laboratory Course-VII

Practical Paper – V **Analytical methods in chemistry-2** **Practical syllabus**	**PAPER CODE : CHE-502 P** **ACADEMIC YEAR-2022-2023**

AnalyticalmethodsinChemistry-2

PRACTICALSYLLABUS

(SkillEnhancementCourse(Elective),Credits:02)

Practical Hrs./Week: 3

LearningOutcomes:

Onsuccessfulcompletion ofthispractical course, studentshall beableto:

CO1. Performtheseparation of agivendyemixtureusingTLC (PO1)

CO2. LearnthepreparationofTLC plates (PO1, PO7)

CO3. Demonstratethe separation ofmixtureofamino acids usingpaper chromatography (PO1)

CO4. Acquireskillsin usingcolumn chromatographyfortheseparation of dyemixture (PO7)

II Practical(Laboratory)Syllabus:(**30hrs**)

1. Separation of a given dye mixture (methyl orange and methylene blue) using TLC (usingaluminaas adsorbent).

2. **Separationof different amino acids using paperchromatography.**

3. Separation of given mixture of amino acids (glycine and phenyl alanine) using ascendingpaperchromatography.

4. **Estimation of Fe^{+2} by using thiocynate by calorimeter.**

5. **SeparationofsugarsusingTLC**

6. Verification of Beer lambert's law. (Using potassium permanganate solution) usingcolorimeter/spectrophotometer.

III LabReferences:

1.TextbookofVogel'sQuantitativeChemical Analysis,Sixthedition,Pearson.

2. VogelA.I.PracticalOrganicChemistry, LongmanGroup Ltd.

3. BansalR.K. LaboratoryManualofOrganicChemistry,Wiley-Eastern.

4. Ahluwalia V. K. and Aggarwal R. Comprehensive Practical Organic Chemistry, Universitypress.

5. MannF.GandSaunders B.C,PracticalOrganicChemistry,PearsonEducation.

SCHEME OF VALUATION

1. **INTERNAL MARKS- Record-10M**
2. **EXTERNAL MAKS-40**
   - **Practical-30M**
   - **Viva questions = 10 M**

     TOTAL = 50 M

SEMESTER – III (SDC)	PAPERCODE:SDCCHET01
PAPER TITLE : FOOD ADULTERATION	

UNIT-I: Total: 30Hrs (2h/week) 02 Credits

CommonFoodsandAdulteration(10+10+5+5) 10Hrs

Common Foods subjected to Adulteration-Adulteration-Definition –Types;Poisonous substances,Foreign matter, cheapsubstitutes, Spoiled parts.Adulteration through Food Additives –Intentional and incidental.General Impact on Human Health.

UNIT-II :

Adulteration of Common Foods and Methods of Detection (10+10+5+5) 10Hrs

Means of Adulteration Methods of Detection Adulterants in the following Foods; Milk,Oil, Grain, Sugar,Spices and Condiments, Processed Food, Fruits and Vegetables.Additives and Sweetening agents (at least three methods of detection for each food item).

UNIT-III:

PresentLawsandProceduresonAdulteration(10+10) 10Hrs

Highlights of Food Safety and Standards Act 2006 (FSSA) –Food Safety and Standards Authority of India- Rules and Procedures of Local Authorities.Role of Voluntary Agencies Suchas,Agmark, I.S.I. Quality control laboratories of Companies, Private testing laboratories, Quality control laboratories of Consumer co-operatives.

Consumer Education, Consumer's problems, rights and responsibilities, COPRA2019-Offenses and Penalities-Procedures to Complain –Compensation to Victims.

Reference books and Websites:

1.A first course in Food Analysis – A.Y. Sathe,New Age International (p) Ltd, 1999

2. Food Safety, case studies –Ramesh.V.Bhat,NIN,1992

3.https://old.fssai.gov.in/Portals/0/Pdf/ Draft Manuals/ Beverages and Confectionary.pdf

4.https://www.fssai.gov.in/

5.https://indianlegalsolution.com/laws-on-food-adulteration/

6.https://fssai.gov.in/dart/

7.https://byjus.com/biology/food-adulteration/

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU.
ACADEMIC YEAR-2022-23

SEMESTER – III (SDC)	COURSE CODE:
PAPER TITLE : FOOD ADULTERATION	

Time: 2 Hours Maximum marks: 35 Pass marks:16

SECTION-A

Answer any THREE Questions. Each question carries 5 marks 3X5=15Marks

1.
2.
3.
4.
5.
6.

SECTION-B

Answer any TWO Questions. Each question carries 10 marks. 2X10=20M

7.
8.
9.
10.

The Guidelines to be followed by the question paper setters in Chemistry for the II-Semester - end exams. ACADEMIC YEAR-2022-23

Weightage for the question paper-FOOD ADULTERATION

syllabus	Section-A (Short answer questions)	Section-B (Essay questions)
Unit-1 (30Marks)	1+1	1+1
Unit-2 (30 Marks)	1+1	1+1
Unit-3 (20 Marks)	-----	1+1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.

A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF COMPUTER SCIENCE

MINUTES OF BOARD OF STUDIES

ODD SEMESTER

26-10-2023

Minutes of the meeting of Board of Studies in Computer Science for Semester I, III & V of I, II & III years B.Sc. (MPCs, MCCs, MSCs), B.Com. (C.A.) and B.Com (e-Commerce) Life Skill Course and Skill Development Course of AG & SG Siddhartha Degree College of Arts &Science, Vuyyuru, held at 3.00 P.M on 26-10-2022 in the Department of Computer Science.

Sri T.NagaPrasadaRao ... Presiding

Members Present:

1) ..... (T.Naga Prasada Rao)	Chairman	Head, Department of Computer Science, AG&SG Siddhartha Degree College of Arts & Science.
2) ---------- (Dr. M. Babu Reddy)	University Nomine	Principal, Krishna University College of Engineering and Technology, Machilipatnam.
3). ---------- (Dr. P. J. S Kumar)	Subject Expert	Principal, HOD of Department of Computer Science A.N.R College Gudivada.
4) ---------- (Mr. K. Sridhar)	Subject Expert	TPO, Department of Computer Science PB Siddhartha College of Arts & Science,VJA
5) ---------- (R. Sowjanya)	Industrial Expert	.Net Developer, Maven Soft System Pvt. Ltd Madaapur, Hyderabad.
6) S. prabhavathi (S. Prabhavathi)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
7) ..... (A. Sravani)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
8) ..... (A. Naga Srinivasa Rao)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
9) G. Katyayini (G.Katyayini)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
10) ..... (O.Teja Sri)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
11) K. Z. K. Teja (K.Znana Krishna Teja)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
12) G. Lavanya (G.Lavanya)	Member	Student in M.Sc. CS, AG& SG Siddhartha Degree College of Arts & Science, Vuyyuru-521165
13) G. Jahnavi (G.Jahnavi)	Member	Student in B.Sc. MPCs, AG& SG Siddhartha Degree College of Arts & Science, Vuyyuru-521165

Agenda for B.O.S Meeting.

1. To discuss introducing Syllabi and Model papers for Elective Skill Enhancement Courses (SEC) for B.Sc. (MPCs, MCCs) & B.Com (C.A) programmes in Fifth/Sixth Semester adopting COs in line with guidelines of OBE following Blooms Taxonomy for the students admitted in the Academic year 2020-2021 and onwards.

2. To Discuss and approve the Structure and Syllabi and model papers of B. Sc. (MPCs, MCCs, MSCs), B.Com (C.A) & B.Com(e-commerce-Computers) programme in First and Third semesters for the student admitted in the academic year 2022-23 and onwards.

3. To recommend any changes in the syllabi for I, III, V & VI Semesters of I, II, III year Degree B.Sc.(MPCs, MCCs, MSCs), B.Com.(C.A.) and B.Com(e-commerce-Computers).

4. To Introduce a Life Skill Course and Skill Development Course for all B.Sc and B.Com from the Academic Year 2022-23.

5. To recommend the teaching and evaluation methods to be followed under Autonomous status.

6. To recommend the panel of paper setters and examiners to the controller of the examinations of autonomous courses of AG & SG Siddhartha Degree College of Arts & Science College, Vuyyuru.

7. Any other matter

Resolutions.

1. It is Resolved and Recommended to adopt the same structure, syllabi & Model papers for Elective Skill Enhancement Courses (SEC) for B.Sc. (MPCs, MCCs) & B.Com (C.A) programmes with titles Big Data Analytics using R, Data science using Python in Fifth/Sixth Semester adopting COs in line with guidelines of OBE following Blooms Taxonomy for the students admitted in the Academic year 2020-2021 and onwards.
2. It is Resolved and recommend to continue the syllabi without any changes, but only changes on Model Paper i.e. for I Semester of I Year & V/VI Semester of III year B.Sc. (MPCs, MCCs, MSCs), B.Com.(CA) & B.Com(e-commerce- Computers).
3. It is Resolved and Recommend to introduce new Syllabi and Model Question paper as per new regulations in III Semester of II Year Degree B.Sc. (MPCs, MCCs) and B.Com(CA).
4. It is Resolved to implements Life Skill Course and Skill Development Course for all B.Sc and B.Com from the Academic Year 2022-23.
5. It is resolved to continue the teaching and evaluation methods to be followed under Autonomous status.
6. It is resolved to continue the panel of paper setters and examiners to the controller of the examinations of autonomous courses of AG & SG Siddhartha Degree College of Arts & Science College, Vuyyuru.
7. Any other matter

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. Using of LMS and LCD projector to display on power board etc..for better understanding of concepts.

Evaluation of a student is done by the following procedure:

There are two components in the Valuation and Assessment of a student – Internal Assessment (**IA**) Semester Examinations (**SE). For the Batch of Students Admitted from 2022-23.**

Internal Assessment (IA)

- The maximum mark for IA is 30 and SE is 70 for theory; and for practical marks for IA 10 and 40 Marks for External Exam.
- Each IA written examination is of 1 hour 30 minutes duration for 20 marks. The tests will be conducted centrally. The average of two such IA is calculated for 20 marks.
- Attendance will be for 5 Marks. The other innovative component is for 5 marks, conducted during the class hours by the staff member/ in charge of the subject, in the form of assignments/ quiz/ seminars /PPT/Online- assignments/Open Book/Viva Voce/ Group work/ Mini Project/ Exhibition, etc. The topic and time for submission/ presentation will be announced by the staff member/ in charge of the subject in advance. Each student should explain and defend his/her presentation.
- The semester examination will be of 3 hours with maximum 70 marks.

Internal Assessment (IA) **For the Batch of Students Admitted from 2021-22.**

- The maximum mark for IA is 25 and SE is 75 for theory; and for practical marks for IA 10 and 40 Marks for External Exam.
- Each IA written examination is of 1 hour duration for 15 marks. The tests will be conducted centrally. The average of two such IA is calculated for 15 marks.

- Other Innovative Components will be for 5 Marks. The innovative component is for 5 marks, conducted during the class hours by the staff member/ in charge of the subject, in the form of
- assignments/ quiz/ seminars /PPT/Online- assignments/Open Book/Viva Voce/ Group work/ Mini Project/ Exhibition, etc. The topic and time for submission/ presentation will be announced by the staff member/ in charge of the subject in advance. Each student should explain and defend his/her presentation.
- The semester examination will be of 3 hours with maximum 75 marks.

***Internal Assessment (IA)* For the Batch of Students Admitted from 2020-21.**

- The maximum mark for IA is 30 and SE is 70 for theory; and for practical marks for IA 10 and 40 Marks for External Exam.
- Each IA written examination is of 1 hour 30 minutes duration for 20 marks. The tests will be conducted centrally. The average of two such IA is calculated for 20 marks.
- Attendance will be for 5 Marks. The other innovative component is for 5 marks, conducted during the class hours by the staff member/ in charge of the subject, in the form of assignments/ quiz/ seminars /PPT/Online- assignments/Open Book/Viva Voce/ Group work/ Mini Project/ Exhibition, etc. The topic and time for submission/ presentation will be announced by the staff member/ in charge of the subject in advance. Each student should explain and defend his/her presentation.
- The semester examination will be of 3 hours with maximum 70 marks.

Semester Examinations (SE)

- A student should register himself/herself to appear for the Semester Examinations by payment of the prescribed fee.
- The Semester Examinations will be in the form of a comprehensive examination covering the entire syllabus in each subject. It will be of 3 hours duration & Foundation course 2 hours irrespective of the number of credits allotted to it.
- If a candidate fails to obtain pass marks even after the due to less mark in the IA examination, the marks of the next examination will be converted to be out of 100.
- Even though the candidate is absent for two IA exams/obtain zero marks the external marks are considered (if he/she gets 40/100) and the result shall be declared as 'PASS'.
- The maximum marks for each Paper shall be 100.

Question paper guide lines for Practical Examinations at the end of Semesters I, III & V Two Practical Programs to be conducted out of 15 programs at the end of Semester I, III & V Practical Examination time 3Hrs and Maximum Marks 50 Scheme of valuation Semesters – I, III & V B.Sc.& B.Com.(C.A), B.Com.(e-commerce-Computers).

Computer Science Practical's - External (Time: 3 hrs.) Total Marks: 40M

1. Programs writing (2):20 marks,
2. Viva voice : 5 marks
3. Execution &Result : 15 marks

Total Marks : 40

Computer Science Practical's- Internal Total Marks: 10 M

1. Record : 10 marks

6.) Discussed and recommended for organizing Seminars, Guest lectures, Work-shops to upgrade the knowledge of students, for the approval of the Academic Council.

7)Discussed and empowered the HOD to suggest the panel of the paper setters and examiners to the controller of the examinations.

8). We implemented online certificate courses & Internships such as NPTL, APSSDC - PYTHON, R-Programming, Amazon Web services and JAVA------ etc. To fill the curriculum gaps from II year Degree on words

9). Suggestions

Chairman

Appendix-I

LIST OF THE COURSES REVISED/ INTRODUCED IN V/VI SEMESTERS (2022 – 2023) BSC(MPCS,MCCS), I ,III SEMESTERS OF B.Sc (MPCs,MCCs,MSCs)										
SEM NO	**Course Code**	**Course No.**	**Title of Course**	**Hrs. / Week**		**Credits**		**Marks**		
				Th.	**Lab**	**Th.**	**Lab**	**Int. Max. Marks**	**SEE**	**Total Marks**
V/VI	SECCSCT01	6A	Web Interface Designing Technologies	3		3		30	70	100
	SECCSCP01		Web Interface Designing Technologies Lab		3		2	10	40	50
	SECCSCT02	7A	Web Applications Development using PHP& MYSQL	3		3		30	70	100
	SECCSCP02		Web Applications Development using PHP& MYSQL Lab		3		2	10	40	50
OR										
V/VI	SECCSCT03	6B	Internet of Things	3		3		30	70	100
	SECCSCP03		Internet of Things Lab		3		2	10	40	50
	SECCSCT04	7B	Application Development using Python	3		3		30	70	100
	SECCSCP04		Application Development using Python Lab		3		2	10	40	50
	OR									
	SECCSCT05	6C	Data science	3		3		30	70	100
	SECCSCP05		Data science Lab		3		2	10	40	50
	SECCSCT06	7C	Python for Data Science	3		3		30	70	100
	SECCSCP06		Python for Data Science Lab		3		2	10	40	50
III	CSCT37	3A	Data Base Management System	3		3		25	75	100
III	CSCP37	3A	Data Base Management System Lab		2		1	10	40	50
I	CSCT11B	IA	Problem solving in C	3		3		30	70	100
I	CSCP11B	IA	Problem solving in C Lab		2		1	10	40	50

Appendix-II

LIST OF THE COURSES REVISED/ INTRODUCED IN V/VI SEMESTERS (2022 – 2023) B.COM (C.A) I,III SEMESTERS OF B.Com(C.A)& B.Com(e-commerce-Computers)										
SEM NO	**Course Code**	**Course No.**	**Title of Course**	**Hrs. / Week**		**Credits**		**Marks**		
				Th.	**Lab**	**Th.**	**Lab**	**Int. Max. Marks**	**SEE**	**Total Marks**
V/VI	SECCAT01	6A	Big data Analytics using R	3		3		30	70	100
	SECCAP01		Big data Analytics using R Lab		3		2	10	40	50
	SECCAT07	7A	Data Science using Python	3		3		30	70	100
	SECCAP07		Data Science using Python Lab		3		2	10	40	50
	OR									
	SECCAT03	6B	Mobile application development	3		3		30	70	100
	SECCAP03		Mobile application development Lab		3		2	10	40	50
	SECCAT04	7B	Cyber Security and Malware Analysis	3		3		30	70	100
	SECCAP04		Cyber Security and Malware Analysis Lab		3		2	10	40	50
	OR									
	SECCAT05	6C	E Commerce Application Development	3		3		30	70	100
	SECCAP05		E Commerce Application Development Lab		3		2	10	40	50
	SECCAT06	7C	Real time governance system (RTGS)	3		3		30	70	100
	SECCAP06		Real time governance system (RTGS) Lab		3		2	10	40	50
	OR									
V/VI	SECCAT07	6D	Multimedia Tools and Applications	3		3		30	70	100
	SECCAP07		Multimedia Tools and Applications Lab		3		2	10	40	50
	SECCAT08	7D	Digital Imaging	3		3		30	70	100

	SECCAP08		Digital Imaging Lab		3		2	10	40	50
III	CABT31A	3A	Programming with C & C++	3		3		25	75	100
III	CABP31A	3A	Programming with C & C++ Lab		2		1	10	40	50
III	CSCT11B	3B	Problem Solving in 'C'	3		3		25	75	100
III	CSCP11B	3B	Problem Solving in 'C' LAB		2		1	10	40	50
I	CSBT11A	IA	Information Technology	5		4		30	70	100
I	CABT22A	IB	Computer Applications	3		3		30	70	100
I	CABP22A	IB	Computer Applications		2		1	10	40	50

Note-1: For Semester–V, for the domain subject Computer Science any one of the three pairs of SECs shall be chosen as courses 16,17,18,19,20 and 21, i.e., 16A & 17A or 16B &; 17B or 16C &; 17C and so on. The pair shall not be broken (ABCD allotment is random, not on any priority basis).

Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate field related skills of the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations.

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Title of the Paper: WEB INTERFACE DESIGNING TECHNOLOGIES

Semester: V/VI

Course Code	SECCSCT01	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: To create web elements like buttons, banners & Bars and of course complete UI designs. Forms and validations for your website. Setting up page layout, color schemes, contract, and typography in the designs. Writing valid and concise code for web pages.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Understand web application and static web page using Html. (PO5)
CO2	Gain knowledge about various designing of style sheets. (PO5)
CO3	Demonstrate skills regarding creation of an interface to dynamic website.(PO7)
CO4	Gain knowledge about various advantages of XML and validating schema(PO5)
CO5	Learn how to install word press and gain the knowledge of installing various plugins to use in their websites. (PO5,PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Web Designing, HTML** **Web Designing:** Introduction To Web Designing, Difference Between Web Applications And Desktop Applications. **HTML:** Introduction To HTML, Introduction To HTML, Headings, Paragraphs Styles &Colors, HTML Formatting, Quotations, Comments, Hyperlinks, Lists, Using colors and images, Tables, Multimedia Objects - Video, Audio, Plugins, You Tube, Frames, Forms	12
II	**CSS, HTML API'S** **CSS**: Introduction, Using Styles, Simple Examples, Defining Your Own Styles, Properties and Values in Styles, Style Sheets, Formatting blocks of information, Layers, CSS Combinators, Pseudo Class, Pseudo Elements, Opacity, ToolTips, Image Gallery, CSS Forms, CSS Counters, CSS Responsive.**HTML API'S:** Geolocation, Drag/drop, local storage, HTML SSE	12
III	**Client side Validation:**Introduction to JavaScript: What Is DHTML?, JavaScript Basics,Variables,StringManipulations,MathematicalFunctions,Statements,Operators,Arrays,Functions.Objects in JavaScript –Data and Objects In JavaScript, Regular Expressions, Exception Handling. DHTML with JavaScript :Data Validation, Opening a New Window, Messages and Confirmations, The Status Bar, Different Frames, Rollover Buttons, Moving Images	14
IV	**XML:** Introduction to xml, How to write a xml document, Elements and attributes, Comments in xml, Namespace in xml, Xml css, Advantages of xml, Uses of xml, xml schema, data types, simple types, complex types ,Validating DTD,XSD.	12
V	**Word press** Introduction to word press, servers like wamp, bitnami e.tc, installing and configuring word press, understanding admin panel, working with posts and pages, using editor, text formatting with shortcuts, working with media-Adding, editing, deleting media elements, working with widgets, menus.	10

Text Book/ references / e-books/websites

1. Chris Bates, Web Programming Building Internet Applications, Second Edition, Wiley
2. Web technologies by A.A.Puntambekar
3. Web Technologies by N.P.Gopalan,Eastern Economy Edition,2nd edition
4. Paul S.WangSanda S. Katila, an Introduction to Web Design plus Programming, Thomson
5. Head First HTML and CSS, Elisabeth Robson, Eric Freeman, O'Reilly Media Inc.
6. An Introduction to HTML and JavaScript: for Scientists and Engineers, David R. Brooks.
7. Schaum's Easy Outline HTML, David Mercer, Mcgraw Hill Professional.
8. Word press for Beginners, Dr.Andy Williams.
9. Professional word press, Brad Williams, David damstra, Hanstern.
10. Web resources:
    a. http://www.codecademy.com/tracks/web
    b. http://www.w3schools.com
    c. https://www.w3schools.in/wordpress-tutorial/ d.http://www.homeandlearn.co.uk

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(With Effect from Academic Year 2022-23)

COMPUTER SCIENCE	SECCSCT01	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 70**

Model Paper: WEB INTERFACE DESIGNING TECHNOLOGIES

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION – A
Short Answer Questions

Answer any Four questions. (At least 1 question should be given from each Unit)

(4x5=20Marks)

1.What is HTML? Explain features and structure of HTML program with example(CO1,L1)
2. What is layer? How are they described with HTML code?(CO1,L1)
3.Explain hyperlinks in HTML.(CO2,L5)
4.What is java script? Explain the features ,advantages and disadvantages of java script(CO3,L1)
5. What are the elements and attributes used in XML(CO4,L1)
6. Explain text formatting in word Press.(CO5,L5)

SECTION-B

Answer all questions.

(5 x 10 = 50 Marks)

9(a) What is list? Explain various types of lists in HTML.(CO1,L1)

OR

9(b)Explain Frames and forms in HTML(CO1,L2)

10(a)Define CSS, Explain various styles sheets in HTML(CO2,L1)

OR

10(b). Explain HTML APIs.(CO1,L2)

11(a).What is DHTML? Explain about various string and mathematical functions(CO3,L2)

OR

11(b) Explain Exception handling and rollover buttons in java script(CO3,L2)

12(a).What are the advantages of using XML and CSS? How to validate XML schema.(CO4,L1)

OR

12(b) Explain about DTD in XML(CO4,L2)

13(a) What is admin panel, what are the steps involved in working with post and pages (CO5,L1)

OR

13(b) Explain how we can add, edit and deleting media elements in word press(CO5,L2)

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COMPUTER SCIENCE	SECCSCT01	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 50**

Lab List: WEB INTERFACE DESIGNING TECHNOLOGIES LAB

No. of Hours per week: 3 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Create a basic website with the help of HTML and CSS.(PO5)

CO2: Acquire the skill of installing word press and various plugins of Word press.(PO5)

CO3: Create a static website with the help of Word press..(PO5,PO7)

CO4: Create an interface for a dynamic website.(PO5,PO7)

CO5: Apply various themes for their websites using Word press.(PO7)

II. Practical (Laboratory) Syllabus: (30 periods)

HTML and CSS:

1. Create an HTML document with the following formatting options:
(a)Bold, (b) Italics, (c) Underline, (d) Headings (Using H1 to H6 heading styles), (e) Font (Type, Size and Color), (f) Background (Colored background/Image in background), (g) Paragraph, (h) Line Break, (i) Horizontal Rule, (j) Pre tag
2. Create an HTML document which consists of:
(a) Ordered List (b) Unordered List (c) Nested List (d) Image
3. Create a form using HTML which has the following types of controls:
(a) Text Box (b) Option/radio buttons (c) Check boxes (d) Reset and Submit buttons
4. Embed a calendar object in your web page.
5. Create an applet that accepts two numbers and perform all the arithmetic operations on them.
6. Create nested table to store your curriculum with image.
7. Create a form that accepts the information from the subscriber of a mailing system.
8. Create a help file as follows:

9. Write a html program including style sheets.
10. Write a html program to layers of information in web page.
11. Develop a Java script to determine whether the given number is a “PERFECT NUMBER “or not.
12. Develop a Java script to generate “ARMSTRONG NUMBERS” between the ranges 1 to 100.
13. Write a java script that reads an integer and displays whether it is a prime number or not.
14. Write a java script which accepts the text in lower case and displays the text in upper case
15. Write a java script program for user name and password validation using on click event.

Word press:

16. Installation and configuration of word press.
17. Create five pages on COVID – 19 and link them to the home page.
18. Add an external video link with size 640 X 360.
19. Create a user and assign a role to him.
20. Create a login page to word press using custom links

III. Lab References:

1. Web technologies by A.A.Puntambekar
2. Web Technologies by N.P.Gopalan,Eastern Economy Edition,2nd edition
3. Word press for Beginners, Dr.Andy Williams.
4. Professional word press, Brad Williams, David damstra, Hanstern.

Reference Materials on the Web/web-links:

1. https://onlinecourses.nptel.ac.in/noc17_cs22/course
2. http://www.codecademy.com/tracks/web
3. http://www.w3schools.com
4. https://www.w3schools.in/wordpress-tutorial/

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Title of the Paper: WEB APPLICATIONS DEVELOPMENT USING PHP AND MYSQL

Semester: V/VI

Course Code	SECCSCT02	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2015-16	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 30%

Course Objective: Upon successful completion of the course, participants should be able to: **List the major elements of the PHP & MySQL work and explain why PHP is good for web development**. Learn how to take a static website and turn it into a dynamic website run from a database using PHP and MySQL.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Learn basic structure and key concepts in PHP, Control statements and functions concept and related programs (PO5)
CO2	Know What is an Array concept related programs, What is an Object, various objects, Formatting strings, Date and time and related programs (PO5)
CO3	Learn importance of Forms, Combining HTML with PHP code. Importance of Cookies and Sessions related programs of forms cookies and sessions. (PO5)
CO4	Know importance of File concept in PHP how to Create, Open, Read and write data in file related programs, Knowing about Image creation, drawing, and modification image (PO7)
CO5	Know about Database concept of MySQL, Connection, Creation of Database, Table adding Record into it related programs (PO7)

PHP Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**The Building blocks of PHP :** Variables, Data Types, Operators and Expressions, Constants. **Flow Control Functions in PHP:** Switching Flow, Loops, Code Blocks and Browser Output. **Working with Functions:** What is function? ,Calling functions, Functions, Returning the values from User-Defined Functions, Variable Scope.	12
II	**Working with Arrays:** What are Arrays?, Creating Arrays, **Working with Objects** Creating Objects, Object Inheritance, **Working with Strings, Dates and Time**-Formatting strings with PHP, Investigating Strings with PHP, Manipulating Strings with PHP, Using Date and Time Functions in PHP.	12
III	**Working with Forms**-Creating Forms, Accessing Form Input with User defined Arrays, Combining HTML and PHP code on a single Page, **Working with Cookies and User Sessions**-Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables	14
IV	**Working with Files and Directories:** Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from File, Writing or Appending to a File. **Working with Images** -Understanding the Image-Creation Process, Drawing a New Image ,Modifying Existing Images ,Image Creation from User Input.	12
V	**Interacting with MySQL using PHP** -MySQL versus MySQLi Functions, Connecting to MySQL with PHP ,Working with MySQL Data, **Creating an Online Address Book** -Planning and Creating Database Tables, Creating Menu, Creating Record, Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record.	10

Textbooks and References

1. JulieC.Meloni, SAMS Teach yourself PHP MySQL and Apache, Pearson education
2. Steven Holzner, PHP: The Complete Reference, McGraw-Hill
3. RobinNixon,LearningPHP,MySQL,JavaScript,CSS&HTML5,ThirdEditionO'reilly,2014
4. XueBaiMichaelEkedahl, The web warrior guide to Web Programming, Thomson (2006).
5. Web resources:
    e. http://www.codecademy.com/tracks/php
    f. http://www.w3schools.com/PHP
    g. http://www.tutorialpoint.com

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COMPUTER SCIENCE	**SECCSCT02**	**2022-23**	**B.SC(MPCS,MCCS)**

SEMESTER – V/VI **PAPER – VII** **Max. Marks 70**

Model Paper: Web Applications Development using PHP & MYSQL

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION – A

Short Answer Questions **(4 x 5=20 Marks)**

Answer any Four questions. (At least 1 question should be given from each Unit)

1) Define Structure of PHP.(CO1,L1)
2) Differentiate Conditional statement and Looping statement with syntax.(CO1,L4)
3) Define Array concept explain about it.(CO2,L1)
4) Explain about Cookies concept.(CO3,L2)
5) Explain about Image creation.(CO4,L2)
6) Write short note on Mysqli.(CO5,L1)

SECTION B

(5 x 10=50 Marks)

Answer all questions. (Two questions should be given from each unit with internal choice)

9(a) Explain about Control Statements.(CO1,L2)

OR

9(b) Discuss about Function define, Call and return value with example.(CO1,L6)

10(a) List various types of Formatting strings explain them.(CO2,L2)

OR

10(b) Define Array function with example.(CO2,L1)

11(a) Write names of Form objects explain them with example.(CO3,L2)

OR

11(b) Compare and Contrast Session and Cookies.(CO3,L4)

12(a) Explain File concept about file creation, Open file, Write file and Delete file with example(CO4,L2)

OR

12(b) Construct steps for Interfacing complete image concept explain them with one example.(CO4,L3)

13(a) Discuss about DDL commands and DML commands in Mysqli with syntaxes (CO5,L6)

OR

13(b) Write code to Create table of Employee by adding any four columns with example.(CO5,L6)

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COMPUTER SCIENCE	**SECCSCT02**	**2022-23**	**B.SC(MPCS,MCCS)**

SEMESTER – V/VI **PAPER – VII** **Max. Marks 50**

Lab List: **Web Applications Development using PHP & MYSQL lab**

No. of Hours per week: 3 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Learn and implement basic programs in PHP, Control statements and functions concept (PO5)

CO2: Implement Basic programs in Object, various objects, Formatting strings, Date and time (PO5)

CO3: Learn and implement important programs of Forms, Combining HTML with PHP code. Importance of Cookies and Sessions..(PO5)

CO4: Implement programs on Files concept in PHP and on Image creation, drawing, and modification image (P05 & PO7)

CO5: Implement Database programs on MySQLi, Connection, Creation of Database, Table adding Record into it related programs (PO7)

II: Practical (Laboratory) Syllabus: (30 Periods): At least 8 Practical's.

1. Write a PHP program to Display "Hello"
2. Write a PHP Program to display today's date.
3. Write a PHP program to display Fibonacci series.
4. Write a PHP Program to read the employee details.
5. Write a PHP program to prepare the student marks list.
6. Write a PHP program to generate the multiplication of two matrices.
7. Create student registration form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.
8. Create Website Registration Form using text box, check box, radio button, select, submit button. And display user inserted value in the new PHP page.
9. Write a PHP script to demonstrate passing variables with cookies.
10. Write a program to keep track of how many times a visitor has loaded the page.
11. Write a PHP application to add, Modify, delete and fetch the rows in a Table.
12. Develop a PHP application to implement the following Operations
    a. Registration of Users.b.Insert the details of the Users.c.Modify the Details.
    d.Transaction Maintenance.

i.No of times Logged in (ii).Time Spent on each login. Ii. Restrict the user for three trials only.

iii. Delete the user if he spent more than 100 Hrs of transaction.

13. Write a PHP script to connect to the MySQL server from your website.
14. Write a program to read customer information like cust-no, cust-name, item purchased, and mob-no, from customer table and display all this information in table format on the output screen.
15. Write a program to edit the name of a customer to "Kiran" with cust-no =1, and to delete record with cust-no=3.
16. Write a program to read employee information like emp-no, emp-name, designation and salary from the EMP table and display all this information using table format in your website.
17. Create a dynamic web site using PHP and MySQL.

Textbooks and References: 1. JulieC.Meloni,SAMS Teach yourself PHP MySQL and Apache, Pearson Education(2007).

1. Steven Holzner, PHP: The Complete Reference, McGraw-Hill

2. RobinNixon,LearningPHP,MySQL,JavaScript,CSS&HTML5,ThirdEditionO'reilly.

Web resources: a.http://www.codecademy.com/tracks/php

b.http://www.w3schools.com/PHP

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Title of the Paper: INTERNET OF THINGS

Semester: V/VI

Course Code	SECCSCT03	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: This course gives a foundation in the Internet of Things, including the components, tools, and analysis by teaching the concepts behind the IoT and a look at real-world solutions.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Understand architecture and applications of IoT systems.(PO5)
CO2	Gain knowledge of various development boards used for IoT.(PO5)
CO3	Understand various Wireless Technologies used in IoT.(PO5)
CO4	Learn how to use various sensors and actuators for design of IoT.(PO7)
CO5	Learn how to connect various things to Internet and develop simple IOT Devices. (PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	Fundamentals of IoT: Introduction, Definitions & Characteristics of IoT, IoT Architectures, Physical & Logical Design of IoT, Enabling Technologies in IoT, History of IoT, About Things in IoT, The Identifiers in IoT, About the Internet in IoT, IoT frameworks, IoT andM2M.**Applications of IoT:** Home Automation, Smart Cities, Energy, Retail Management, Logistics, Agriculture, Health and Lifestyle, Industrial IoT, Legal challenges, IoT design Ethics, IoT in Environmental Protection.	12
II	Sensors Networks: Definition, Types of Sensors, Types of Actuators, Examples and Working, IoT Development Boards: Arduino IDE and Board Types, Raspberry Pi Development Kit, RFID Principles and components, Wireless Sensor Networks: History and Context, The node, Connecting nodes, Networking Nodes, WSN and IoT.	12
III	Wireless Technologies for IoT: WPAN Technologies for IoT: IEEE802.15.4, Zigbee, HART, NFC, ZWave, BLE, Bacnet And Modbus. IP Based Protocols for IoTIPv6, 6LowPAN, LoRA, RPL, REST, AMPQ, CoAP, MQTT. Edge connectivity and protocols.	14
IV	Arduino Simulation Environment: Arduino Uno Architecture, Setting up the IDE, Writing Arduino Software, Arduino Libraries, Basics of Embedded C programming for Arduino, Interfacing LED, push button and buzzer with Arduino, Interfacing Arduino with LCD. **Sensor & Actuators with Arduino**: Overview of Sensors working, Analog and Digital Sensors, Interfacing of Temperature, Humidity, Motion, Light and Gas Sensors with Arduino, Interfacing of Actuators with Arduino, Interfacing of Relay Switch and Servo Motor with Arduino.	12
V	Developing IOT's: Implementation of IoT with Arduino, Connecting and using various IoT Cloud Based Platforms such as Blynk, Thing speak, AWS IoT, Google Cloud IoT Core etc. Cloud Computing, Fog Computing, Privacy and Security Issues in IoT.	10

Text Book/References

1. Internet of hings - A Hands-on Approach, Arshdeep Bahga and Vijay Madisetti,UniversitiesPress, 2015, ISBN: 9788173719547
2. Vijay Madisetti and ArshdeepBahga, "Internet of Things (A Hands-onApproach)", 1stEdition, VPT, 2014

Reference Materials on the Web/web-links:

1. https://github.com/connectIOT/iottoolkit2.https://github.com/connectIOT/iottoolkithttps://www.arduino.cc/

3.https://onlinecourses.nptel.ac.in/noc17_cs22/course 4.https://blynk.io(Mobileapp)

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COMPUTER SCIENCE	SECCSCT03	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 70**

Model Paper: Internet Of Things

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION – A

Short Answer Questions **(4x5=20Marks)**

Answer any Four questions. (At least 1 question should be given from each Unit)

1) Define IOT and write characteristics of IOT.(CO1,L1)
2) Differentiate IOT and M2M.(CO1,L4)
3) Define Actuator and explain about it.(CO2,L1)
4) Explain about wireless technology Zigbee.(CO3,L2)
5) Explain about light and gas sensors.(CO4,L2)
6) Write short note on Fog Computing.(CO5,L1)

SECTION B **(5x10=50Marks)**

Answer all questions. (Two questions should be given from each unit with internal choice)

9 (a) Explain IOT architecture with neat diagram.(CO1,L2)

OR

9(b) Discuss about Applications of IOT.(CO1,L6)

10(a) List various types of sensors in IOT and explain any 3 of them.(CO2,L2)

OR

10(b) List RFID components and explain them..(CO2,L2)

11(a) Write names of wireless technologies used in IOT and describe any 2 of them.(CO3,L2)

OR

11(b) Compare and Contrast MQTT and CoAP protocols.(CO3,L4)

12(a) Explain Arduino Uno Architecture.(CO4,L2)

OR

12(b) Construct steps for Interfacing Arduino with LCD and explain them.(CO4,L3)

13(a) Discuss about Privacy and security issues in IOT.(CO5,L6)

OR

13(b) Write code to Design any App of your choice using Thingspeak.(CO5,L6)

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COMPUTER SCIENCE	**SECCSCT03**	**2022-23**	**B.SC(MPCS,MCCS)**

SEMESTER – V/VI **PAPER – VI** **Max. Marks 50**

Lab List: **INTERNET OF THINGS LAB**

No. of Hours per week: 2 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1:Acquiretheskillsto design a small IoT device.(PO5)

CO2:Connectvarioussensors, actuators, etc to Arduino board.(PO5)

CO3:Connectthethingsto Internet.(PO5)

CO4:Designasmallmobile app to control the sensors.(PO5,PO7)

CO5:Deployasimple IoT device.(PO5,PO7)

II: Practical (Laboratory) Syllabus: (30 Periods)

1. Understanding Arduino UNO Board and Components
2. Installing and work with Arduino IDE
3. Blinking LED sketch with Arduino
4. Simulationof4-WayTrafficLightwithArduino
5. Using Pulse Width Modulation
6. LEDF ade Sketch and Button Sketch
7. Analog Input Sketch(Bar Graph with LEDs and Potentiometre)
8. Digital Read Serial Sketch (Working with DHT/I R/Gas or Any other Sensor)
9. Working with Adafruit Librariesin Arduino
10. Spinninga DC Motorand Motor Speed Control Sketch
11. Working with Shields
12. Design APP using Blink Appor Thing speak API and connectit LED bulb.
13. Design APP Using Blynk Appand Connect to Temperature, magnetic Sensors.

II. Lab References:

1. Internet of Things - A Hands-on Approach, ArshdeepBahga and Vijay Madisetti,UniversitiesPress, 2015, ISBN: 9788173719547
2. Vijay Madisetti and Arshdeep Bahga, "Internet of Things (A Hands-on Approach)", 1stEdition, VPT, 2014
3. DanielMinoli,—"BuildingtheInternetofThingswithIPv6andMIPv6:TheEvolvingWorldof M2MCommunications",ISBN:978-1-118-47347-4,WillyPublications

Reference Materials on the Web/web-links:

1. https://github.com/connectIOT/iottoolkithttps://www.arduino.cc/
2. https://onlinecourses.nptel.ac.in/noc17_cs22/course
3. https://blynk.io(Mobileapp)

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Autonomous -ISO 9001 – 2015 Certified

Title of the Paper: APPLICATION DEVELOPMENT USING PYTHON

Semester: V/VI

Course Code	SECCSCT04	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: To further your software development career, you need to understand why and how Python executes your code so that you can create clean code that compiles in time. This Course unleashes the power of Python's functionalities to create compelling applications!

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Understand basics of python and write applications using strings, tuples, lists, sets.(PO5,PO7)
CO2	Understand and use exceptions and packages for different applications.(PO5,PO7)
CO3	Create, run and manipulate Python Programs using threads and Regular Expressions.(PO5,PO7)
CO4	Apply concepts of Python programming in various fields related to IOT, Web Services and Databases in Python.(PO5,PO7)
CO5	write applications in python to perform various database operations.(PO5,PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Python basics, Objects-** Python Objects, Standard Types, Other Built-in Types, Internal Types, Standard Type Operators, Standard Type Built-in Functions, **Sequences-**Strings, Lists, and Tuples, Mapping and Set Types. **Numbers-**Introduction to Numbers, Integers, Floating Point Real Numbers, Complex Numbers, Operators, Related Modules.	12
II	**Files:** File Objects, File Built-in Function [open()], File Built-in Methods, File Built-in Attributes, Command-line Arguments, File System, File Execution, Persistent Storage Modules, Related Modules. **Exceptions:** Exceptions in Python, Detecting and Handling Exceptions, Context Management, Exceptions as Strings, Raising Exceptions, Assertions, Standard Exceptions , Creating Exceptions. **Modules:** Modules and Files, Name spaces ,Importing Modules, Importing Module Attributes ,Module Built-in Functions ,Packages.	12
III	**Regular Expressions:** Introduction , Special Symbols and Characters, Resand Python Multithreaded Programming: Introduction, Threads and Processes, Python, Threads, and the Global Interpreter Lock, Thread Module, Threading Module.	14
IV	**GUI Programming:** Introduction, Tkinter and Python Programming, Brief Tour of Other GUIs, Related Modules and Other GUIs. **Web Programming:** Introduction, Web Surfing with Python, Creating Simple Web Clients, Advanced Web Clients, CGI Helping Servers Process Client Data, Building CGI Application, Web (HTTP) Servers.	12
V	**DatabaseProgramming:**Introduction,PythonDatabaseApplicationProgrammer'sInterface (DBAPI), Object Relational Managers(ORMs).	10

Text Book/References:1 ThinkPython,AllenDowney,GreenTeaPress.

2.IntroductiontoPython, KennethA. Lambert, Cengage.

3.PythonProgramming:A Modern Approach, Vamsi Kurama ,Pearson.

4.LearningPython,Mark Lutz, O' Really.

5.**C**ore Python Programming,WesleyJ. Chun,Second Edition, Pearson

Reference Materials on the Web/web-links:

- https://www.tutorialspoint.com/python/index.htm
- https://www.w3schools.com/python/

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COMPUTER SCIENCE	SECCSCT04	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 70**

Model Paper: Application Development Using Python

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION – A

Short Answer Questions **(4 x 5=20Marks)**

Answer any Four questions. (At least 1 question should be given from each Unit)

1) Give classification of various built in data types in python .(CO1,L2)
2) Compare tuples and sets in python.(CO1,L4)
3) What is need of assertions in python? Give simple example.(CO2,L1)
4) Write 5 special symbols used in python and their purpose.(CO3,L1)
5) Write short note on web surfing with python.(CO4,L1)
6) Why do we use Global Interpreter lock in Python?(CO5,L1)

SECTION B **(5 x 10=50 Marks)**

Answer all questions. (Two questions should be given from each unit with internal choice)

9 (a) Write names of ten built in functions in python and explain them.(CO1,L2)

OR

9(b) Create a list in python and apply five list methods on it.(CO1,L6)

10(a) Create a program in python to demonstrate exception handling.(CO2,L6)

OR

10(b) Develop a program in python for user defined module creation and importing.(CO2,L6)

11(a) Develop multithreaded program in python.(CO3,L6)

OR

11(b) Explain about threading module with an example program.(CO3,L2)

12(a) Discuss with steps building CGI application in Python.(CO4,L6)

OR

12(b) Explain with example creating simple web client in python.(CO4,L6)

13(a) Explain about Python database Application programmers interface.(CO5,L2)

OR

13(b) Create database application in python to insert and delete student records.(CO5,L6).

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COMPUTER SCIENCE	**SECCSCT04**	**2022-23**	**B.SC(MPCS,MCCS)**

SEMESTER – V/VI **PAPER – VII** **Max. Marks 50**

Lab List: **APPLICATION DEVELOPMENT USING PYTHON LAB**

No. of Hours per week: 2 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1:Acquiretheskillsto write simple programs in python.(PO5,PO7)

CO2:Implementprogramsrelatedtovariousdatastructureslikelists,setsetc. .(PO5,PO7)

CO3:Implementprogramsrelatedtofiles.(PO5,PO7)

CO4:Implement Exception handling programs in python.(PO5,PO7)

CO5:Implement programs to insert, delete, display data in databases.(PO5,PO7)

II: Practical (Laboratory) Syllabus: (30 Periods)

1. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and viceversa depending up on user's choice.
2. Write a python program to calculate total marks, percentage and grade of a student .Marks obtained in each of the three subjects are to be input by the user. Assign grades according to the following criteria:

GradeA: Percentage>=80 **Grade B**: Percentage>=70 and <80 **Grade C**: Percentage>=60 and <70 **Grade D:** Percentage>=40 and <60 **GradeE**: Percentage<40

3. Write a python program to display the first nterm so f Fibonacci series.
4. Write a python program to calculate the sum and product of two compatible matrices.
5. Write a function that takes a character and returns True if it is a vowel and False otherwise.
6. Writeamenu-drivenprogramtocreatemathematical3Dobjects
   1.Curve 2.sphere 3.cone 4.arrow 5.ring6.Cylinder.
7. Write a python program to readn integers and display them as a histogram.
8. Write a python program to display sine, cosine, polynomial and exponential curves.
9. Write a python program to plot a graph of people with pulse rate p vs. height h. The values of P and H are to be entered by the user.
10. Write a python program to calculate the mass m in a chemical reaction. The mass m(in gms) disintegrates according to the formula m=60/ (t+2), where t is the time in hours .Sketch a graph fort vs. m, where t>=0.
11. A population of 1000 bacteria is introduced into a nutrient medium. The population pgrows as follows:P(t) =(15000(1+t))/ (15+e)
12. Where the time t is measured in hours. WAP to determine the size of the population at given time t and plot a graph for P vs t for the specified time interval.
13. Input initial velocity and acceleration, and plot the following graphs depicting equations of motion:1.Velocity wrt time (v=u+at)2.Distance wrt time(s=u*t+0.5*a*t*t)
    Distance wrt velocity(s=(v*v-u*u)/2*a)
14. Write a program that takes two lists and returns True if they have at least one common member.

15. Write a Python program to print a specified list after removing the 0th, 2nd, 4th and5th elements.
16. Write a program to implement exception handling.
17. Trytoconfigurethewidgetwithvariousoptionslike:bg=”green”,family=”times”,size=20.
18. Write a Python program to read last 5linesofafile.
19. Design a simple database application that stores the records and retrieve the same
20. Design a database application search the specified record from the database.
21. Design a database application to that allows the user to add, delete and modify the records.

III. Lab References:

1. **C**orePython Programming,WesleyJ. Chun,Second Edition, Pearson.
2. ThinkPython, AllenDowney,GreenTeaPress.

Reference Materials on the Web/web-links:

https://www.tutorialspoint.com/python/index.htm
https://www.w3schools.com/python/

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Title of the Paper: DATA SCIENCE

Semester: V/VI

Course Code	SECCSCT05	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: Develop in depth understanding of the key technologies in data science and business analytics: data mining, machine learning, visualization techniques, predictive modeling, and statistics. Practice problem analysis and decision-making.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Analyze the data and their type to build programs using lists and tuples in Python.(PO5)
CO2	Understand the concept of getting data, cleaning and manipulating data(PO5)
CO3	Be capable of understanding the concepts of K-Nearest Neighbors, Naïve Baye's.(PO5,PO7)
CO4	Understand the concepts of Simple, Multiple & Logistic regressions.(PO5,PO7)
CO5	Acquire knowledge on Decision Trees and Neural Networks.(PO5,PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction**: The Ascendance of Data, What is Data Science?, Finding key Connectors- Data Scientists You May Know, Salaries and Experience - Paid Accounts ,Topics of Interest, Onward. **Python:** Getting Python, The Zen of Python, Whitespace Formatting, Modules , Arithmetic, Functions, Strings, Exceptions, Lists, Tuples, Dictionaries, Sets, Control Flow, Truthiness, Sorting, List Comprehensions.**Visualizing Data :**Matplotlib, Bar charts, Line charts ,Scatterplots	12
II	**Getting Data:** stdin and stdout, Reading Files – The Basics of Text Files, Delimited Files, Scraping the Web - HTML and the parsing Thereof, Example: O'Reilly Books about Data, Using APIs – JSON (and XML), Using an Unauthenticated API, Finding APIs. **Working with Data :**Exploring Your Data, Exploring One-Dimensional Data, Two Dimensions Many Dimensions ,Cleaning and Munging, Manipulating Data ,Rescaling, Dimensionality Reduction.	12
III	**Machine Learning**: Modeling, What Is Machine Learning? Over fitting and under fitting, Correctness, The Bias-Variance Trade-off, Feature Extraction and Selection. **K-Nearest Neighbors:** The Model, Example: Favorite Languages, The Curse of Dimensionality. **Naive Bayes :**A Really Dumb Spam Filter, A More Sophisticated Spam Filter, Implementation, Testing Our Model.	14
IV	**Simple Linear Regression:** The Model, Using Gradient Descent, Maximum Likelihood Estimation. **Multiple Regression: The** Model, Further Assumptions of the Least Squares Model, Fitting the Model, Interpreting the Model, Goodness of F.**LogisticRegression:** The Problem, the Logistic Function, Applying the Model, Goodness of Fit Support Vector Machines.	12
V	**Decision Trees**:What Is a Decision Tree? Entropy, the Entropy of a Partition, Creating a Decision Tree, Putting It All Together, Random Forests.**Neural Networks:** Perceptron, Feed-Forward Neul Networks and Back propagation,Example: Defeating a CAPTCHA.	10

References/ Text Book/ e-books/websites

Text Books:

1. Data Science from Scratch by Joel Grus O'ReillyMedia
2. Wes McKinney, "Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython", O'Reilly, 2nd Edition,2018.

Reference Books:

1. Jake VanderPlas, "Python Data Science Handbook: Essential Tools for Working with Data", O'Reilly,2017.

Webresources:https://www.edx.org/course/analyzing-data-with-python

http://math.ecnu.edu.cn/~lfzhou/seminar/[Joel_Grus]_Data_Science_from_Scratch_First_Princ.pdf

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COMPUTER SCIENCE	SECCSCT05	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 70**

Model Paper: Data Science

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION – A

Short Answer Questions **(4 x 5=20Marks)**

Answer any Four questions. (At least 1 question should be given from each Unit)

1. What is Data Science? Explain key connectors in data science? (CO1, L1)
2. Explain a) stdin b) stdout with examples? (CO2, L2)
3. Explain Simple Linear Regression using Gradient Descent? (CO4, L2)
4. Explain briefly about Logistic Regression? (CO5, L2)
5. Explain a) Lists b) Tuples c) Dictionaries in Python? (CO1, L2)
6. Explain in detail about Manipulating data? (CO3, L2)

SECTION B

Answer all questions. **(5 x 10 = 50 Marks)**

9. (A) Explain in detail about Visualizing Data? (CO_1, L2)
   (OR)
   (B) Explain the concept of functions and strings in python with example? (CO1, L2)

10. (A) Explain the concept of reading files? (CO3, L2)
    (OR)
    (B) Explain about Exploring One-Dimensional and Two- Dimensional data? (CO3, L2)

11. (A) Explain Machine learning with over fitting and under fitting in detail? (CO3, L2).
    (OR)

    (B) Explain K- Nearest Neighbors Model with an example? (CO4, L2)

12. (A) Explain Maximum Likelihood Estimation with example? (CO4, L2)
    (OR)
    (B) Explain in detail about Multiple Regression Model? (CO4, L2)

13. (A) Explain in detail about the concept of Decision Trees? (CO5, L2)
    (OR)

    (B) Explain the concept of Neural Networks with an example? (CO5, L2)

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COMPUTER SCIENCE	SECCSCT05	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 50**

Lab List: **Data Science LAB**

No. of Hours per week: 3 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Implement the programs to get the required data, process it and present the outputs using Python language.(PO5)

CO2: Execute statistical analyses with Open-source Python software.(PO5)

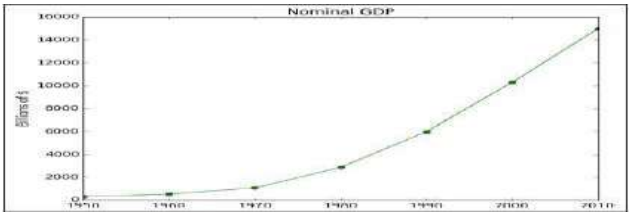
CO3: Apply data science solutions to real world problems.(PO5)

CO4: Implement Plot Distribution Curve in Python.(PO5)

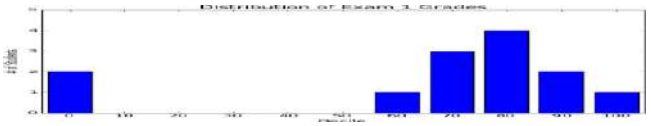
CO5: Implement rainfall data importing of some location with the help of packages available in R Studio and plot a chart of your choice.(PO5)

II: Practical (Laboratory) Syllabus: **(30 Periods)**.

LAB EXERCISES



3. **Practical (Laboratory) Syllabus**: *(30hrs.*)
4. Write a Python program to create a line chart for values of year and GDP asgiven below.
5. Write a Python program to create a bar chart to display number of students secured different grading as given below



6. Write a Python program to create a time series chart by taking one year month wise stock data in a CSV file
7. Write a Python program to plot distribution curve
8. Import a CSV file and perform various Statistical and Comparison operations on rows/columns. Write a python program to plot a graph of people with pulse rate pvs. height h. The values of P and H are to be entered by the user.
9. Import rainfall data of some location with the help of packages available in R Studio and plot a chart of your choice.

Lab References: 1. Data Science from Scratch by Joel Grus O'Reilly Media

2.Wes McKinney, "Python for Data Analysis: Data Wrangling with Pandas, Num Py, and I Python", O'Reilly, 2nd Edition,2018.

Reference Materials on the Web/web:

a. https://swcarpentry.github.io/python-novice-gapminder/09-plotting/index.html /

b. https://www.geeksforgeeks.org/visualize-data-from-csv-file-in-python/

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Title of the Paper: PYTHON FOR DATASCIENCE

Semester: V/VI

Course Code	SECCSCT06	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: The main objective of the course is to provide students with the basic concepts of Python, its syntax, functions and packages to enable them to write scripts for data manipulation and analysis. The course develops skills of writing and running a code using Python.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Identify the need for data science and solve basic problems using Python built-in data types and their methods.(PO5)
CO2	Design an application with user-defined modules and packages using OOP concepts.(PO5)
CO3	Deploy efficient storage and data operations using NumPy arrays.(PO5)
CO4	Apply powerful data manipulations using Pandas.(PO5)
CO5	Do data pre-processing and visualization using Pandas.(PO5,PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	Basics of python programming-Features of Python, History of Python, Literal constants, Data Types, Input Operation, Reserved words, Operators and Expressions, Other Data Types, Lists, Dictionary, Type Conversion.	12
II	Decision Control Statements- Selection/conditional branching statements, Basic Loop Structures/Iterative Statements, Functions and Modules-Introduction, Function Definition, Function Call, Modules- Packages in Python, Python strings Revisited, Introduction, Built in String methods and functions, File Handling-Introduction, Opening and closing Files, Reading and writing Files, Directory Methods	12
III	Classes and Objects- Introduction, Classes and Objects, Class method and self argument, The init() method(the class constructor), Inheritance- Introduction, Inheriting classes in python, Types of Inheritance, Error and Exception Handling-Introduction to errors and exceptions, Handling Exceptions,Multiple except blocks ,NumPy Basics- Arrays and Vectorized Computation, The NumPyndarray, Creating ndarrays, Data Types for ndarrays, Arithmetic with NumPy Arrays, Basic Indexing and Slicing, Boolean Indexing, Transposing Arrays and Swapping Axes.	14
IV	Universal Functions: Fast Element, Wise Array Functions, Mathematical and Statistical Methods, Sorting, Unique and Other Set Logic, Introduction to pandas Data Structures-Series, Data Frame and Essential Functionality, Dropping Entries-Indexing, Selection, and Filtering, Function Application and Mapping, Sorting and Ranking.	12
V	Summarizing and Computing Descriptive Statistics, Unique Values, Value Counts, and Membership, Reading and Writing Data in Text Format, Data Cleaning and Preparation: Handling Missing Data, Data Transformation: Removing Duplicates, Transforming Data Using a Function or Mapping, Replacing Values, Detecting and Filtering Outliers, String Manipulation-Vectorized String Functions in pandas.	10

References/ Text Book/ e-books/websites

Text Books:

1. Reemathareja—Python Programming using problem solving approach, Oxford Publication
2. Wes McKinney, "Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython", O'Reilly, 2nd Edition, 2018.

Reference Books:

1. JakeVanderPlas, "Python Data Science Handbook: Essential Tools for Working with 2.Data", O'Reilly, 2017.
3. Wesley J. Chun, "Core Python Programming", Prentice Hall, 2006.
4. Mark Lutz, "Learning Python", O'Reilly, 4th Edition, 2009.

Reference Materials on the Web/web-links:

a. https://www.edx.org/course/python-basics-for-data-science
b. https://www.edx.org/course/analyzing-data-with-python
c. https://www.coursera.org/learn/python-plotting?specialization=data-science- python
d. https://www.programmer-books.com/introducing-data-science-pdf/

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COMPUTER SCIENCE	SECCSCT06	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 70**

Model Paper: : PYTHON FOR DATASCIENCE

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION – A

Short Answer Questions **(4 x 5=20Marks)**

Answer any Four questions. (At least 1 question should be given from each Unit)

1) State any four applications where python is more popular(CO1,L1)

2) List out the main differences between lists and tuples.(CO1,L2)

3) What are the uses of File object?(CO2,L1)

4) Differentiate between an error and exception(CO3,L3)

5) Write Array Functions(CO4,L1)

6) How to read and write data in text format(CO5,L4)

SECTION - B **(5 x 10=50Marks)**

Answer all questions. (Two questions should be given from each unit with internal choice)

9 .(a). Write in brief about the applications of Python.(CO1,L1)

OR

(b). Explain Various data types in python with Examples(CO2,L2)

10 (a). List different conditional statements in python with appropriate examples.(CO2,L2)

OR

(b). Explain the following file built-in functions and method with clear syntax, description and illustration: a) open ( ) b) file ( ) c) seek ( ) d) tell ( ) e)read ( )(CO3,L2)

11 (a). How does try-except statement work? Demonstrate with an example python code. (CO3,L4)

OR

(b). Explain NumPy arrays with suitable example(CO3,L2)

12 (a).Write Briefly Pandas Data structure(CO4,L1)

OR

(b).Write a python program to read data from CSV files using pandas(CO4,L1)

13 (a). How to remove duplicates from data transformation(CO5,L4)

OR

(b). Explain Python for Data Visualisation(CO5,L2).

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(**With Effect from Academic Year 2022-23**)

COMPUTER SCIENCE	SECCSCT06	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 50**

Lab List: PYTHON FOR DATA SCIENCE LAB

No. of Hours per week: 3 **External: 40** **Internal: 10**

Credits: 2

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1:Understand the basic concepts of python programs and perform List, Tuple and Dictionary(PO5,PO7)

CO2: Understand the program of functions (PO5,PO7)

CO3: Able to Understand file handling techniques.(PO5,PO7)

CO4: Understand concepts of OOPS (PO5,PO7)

CO5: Able to Solving of data frames (PO5,PO7)

II: Practical (Laboratory) Syllabus: (30 Periods)

1. Perform Creation, indexing, slicing, concatenation and repetition operations on Python built-in data types: Strings, List, Tuples, Dictionary
2. Apply Python built-in data types: List, Tuples, Dictionary and their methods to solve any given problem.
3. Handle numerical operations using math and random number functions
4. Create user-defined functions with different types of function arguments.
5. Create packages and import modules from packages.
6. Perform File manipulations- open, close, read, write, append and copy from one file to another.
7. Write a program for Handle Exceptions using Python Built-in Exceptions
8. Write a program to implement OOP concepts
9. Create NumPy arrays from Python Data Structures, Intrinsic NumPy objects and Random Functions.
10. Manipulation of NumPy arrays- Indexing, Slicing, Reshaping, Joining and Splitting.
11. Computation on NumPy arrays using Universal Functions and Mathematical methods.
12. Load an image file and do crop and flip operation using NumPy Indexing.
13. Create Pandas Series and Data Frame from various inputs.
14. Import any CSV file to Pandas Data Frame and perform the following:
    (a) Visualize the first and last 10 records (b)Get the shape, index and column details
    (c) Select/Delete the records (rows)/columns based on conditions. (d) Perform ranking and sorting operations.(e)Do required statistical operations on the given columns.
    (f)Find the count and uniqueness of the given categorical values.
    (g)Rename single/multiple columns
15. Import any CSV file to Pandas Data Frame and perform the following:
    (a) Handle missing data by detecting and dropping/ filling missing values.
    (b) Transform data using apply () and map() method.
    (c) Detect and filter outliers.
    (d) Perform Vectorized String operations on Pandas Series.

III. Lab References: Wesley J. Chun, "Core Python Programming", Prentice Hall, 2006. Jake Vander Plas, "Python Data Science Handbook: Essential Tools for Working with Data", O'Reilly, 2017.

Reference Materials on the Web/web-links:

https://www.coursera.org/learn/python-plotting?specialization=data-science- python

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Title of the Paper: BIG DATA ANALYTICS USING R

Semester: V/VI

Course Code	SECCAT01	Course Delivery Method	Class Room / Blended Mode – Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022-23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: Big data analytics examines large amounts of data to uncover hidden patterns, correlations and other insights. With today's technology, it's possible to analyze your data and get answers from it almost immediately – an effort that's slower and less efficient with more traditional business intelligence solutions.

Course Outcomes:

CO_1	Understand data and classification of digital data. (PO5)
CO2	Gain knowledge of technologies used in bigdata Analytics. (PO5, PO7)
CO3	Understand basics of R and control structures in R. (PO5)
CO4	Load data into R objects and manipulate them as needed. (PO5)
CO5	Create and edit visualizations with R (PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction to Big data:** What is data, Classification of Digital Data-Structured Unstructured, semi-structured data, Characteristics of data, Evaluation of big data, Definition and challenges of big data**,** what is big data and why to use big data?	12
II	**Big data Analytics:** What is and isn't big data analytics? Classification of analytics, Importance of big data analytics, Technologies needed to meet challenges of big data, data science, Data scientist	12
III	**Introduction to R and getting started with R:** What is R? Why R? Advantages of R over other programming languages**,** Data types in R - logical, numeric, integer, character, double, Complex, raw, coercion, ls () command, Expressions, Variables and functions, control structures, Array, Matrix, Vectors, Factors, R packages	14
IV	**Exploring data in R**– Data frames-data frame access, Ordering data frames, functions for data frames dim(), nrow(), ncol(), str(), summary(), names(), head(), tail(), edit()**,** Load data frames—reading from .CSV files, Sub setting data frames, reading from tab separated value files, Reading from tables, merging data frames	12
V	**Data Visualization using R**: Reading and getting data into R (External Data),Using CSV files, XML files, Web Data, JSON files, Databases, Excel files**,** Working with R Charts and Graphs: Histograms, Boxplots, Bar Charts, Line Graphs, Scatter plots, Pie Chart	10

Prescribed Text Book:

1. Seema Acharya--Data Analytics using R, McGraw Hill education (India) Private Limited.

2. Big Data Analytics, Introduction to Hadoop, Spark, and Machine-Learning, Raj Kamal, PreetiSaxena, McGraw Hill, 2018

Reference Books:

1. SeemaAcharya, SubhashiniChellappan --- Big Data and Analytics second edition, Wiley
2. Big Data, Big Analytics: Emerging Business intelligence and Analytic trends for Today's Business, Michael Minnelli, Michelle Chambers, and AmbigaDhiraj, John Wiley & Sons, 2013
3. An Introduction to R, Notes on R: A Programming Environment for Data Analysis and Graphics. W. N. Venables, D.M. Smith and the R Development Core Team

Course Focus: R for data science focuses on the language's statistical and graphical uses. When you learn R for data science, you'll learn how to use the language to perform statistical analyses and develop data visualizations. R's statistical functions also make it easy to clean, import and analyze data.

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COMPUTER SCIENCE	SECCAT01	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – IV** **Max. Marks 70**

Model Paper: **BIGDATA ANALYTICS USING R**

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

Section-A

Answer any Four questions.
(At least 1 question should be given from each Unit) **(4 x 5=25Marks)**

1. What is big data and why to use a big data? (CO1, L1)
2. What is big data analytics? (CO2, L1)
3. Explain ls () command in R. (CO3, L2)
4. Write a short note on charts. (CO5, L1)
5. Develop R script to load data into data frames from files. (CO4, L6)
6. Write about the control structures in R with examples. (CO3, L1)

Section-B

Answer all questions. **(5X10=50Marks)**
(Two questions should be given from each unit with internal choice)

9.(a) Give Classification of Digital Data and explain it. (CO1, L2)

OR

(b) Explain Characteristics of Data with an example. (CO1, L2)

10.(a) Write about Importance of big Data Analytics. (CO2, L1)

OR

(b) Explain Classification of Analytics. (CO2, L2)

11.(a) Write about the Data types in Explain with examples. (CO3, L1)

OR

(b) Construct Vector in R and explain various operations on it. (CO3, L3)

12. (a) What are the data frames? Write its significance in R-Language. (CO4, L1)

OR

(b) Demonstrate various functions used in data frames. (CO4, L2)

13.(a) Build a code in R for reading and getting data into R from databases. (CO5, L6)

OR

(b) Develop below plots in R (CO5, L6)
a) Box Whisker plots b)Scatter plots c)Pairs plots

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(**With Effect from Academic Year 2020-21)**

COMPUTER SCIENCE	SECCAT01	2022-23	B.COM (CA)

SEMESTER – V **PAPER – VI** **Max. Marks 50**

Title**: BIG Data Analysis using Python lab**

No. of Hours per week: 3 External: 40 Internal: 10 Credits: 2 Pass Marks 20

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Implement simple scripts or programs in R. (PO5)

CO2: Access online resources for R and import new function packages into the R workspace. (PO5, PO7)

CO3: Import, review, manipulate and summarize data-sets in R (PO5, PO7)

CO4: Explore data-sets to create testable hypotheses and identify appropriate statistical tests. (PO5, PO7)

CO5: Create and edit visualizations with R. (PO5, PO7)

II: Practical (Laboratory) Syllabus: (30 Periods)

1. Create a vector in R and perform operations on it (arithmetic operations, combining Vectors, retrieving elements of vector, assign names to vector elements).
2. Create integer, complex, logical, character data type objects in R and print their values And their class using print and class functions.
3. Create a matrix of values in R and extract data from matrix. (Ex. Second row thirdetc.) find transpose of matrix and combine two matrices using Rbind and Cbind functions.
4. Create a list in R and perform operations on it like list slicing, sum and mean functions, head and tail functions and finally delete list using rm() function.
5. Create data frame in R and perform operations on it
6. Write code in R to find out whether a number is prime or not.
7. Print numbers from 1 to 100 using while loop and for loop in R.
8. Find the factorial of a number using recursion in R.
9. Perform arithmetic operations in R using switch case
10. Write a code in R to find out whether the number is Armstrong or not.
11. Program to find Multiplication table from 1 to 10 number input by user.
12. Import data into R from text and excel files using read.table() and read.csv() function.
13. Create a dataset and draw different types of graphics using plot, box plot, histogram, pair plot functions.
14. Create a dataset and draw different types of graphs using bar charts, pie chart functions.
15. Create custom contingency in R and perform operations on it.

III. Lab References:

1. Seema Acharya--Data Analytics using R, McGraw Hill education (India) Private Limited.
2. Big Data Analytics, Introduction to Hadoop, Spark, and Machine-Learning, Raj kamal, PreetiSaxena, McGraw Hill, 2018

Reference Materials on the Web/web-links:

1. **https://www.wiley.com/enbd/Big+Data,+Big+Analytics:+Emerging+Business+Intelligence+and+Analytic+Trends+for+Today's+Businesses-p-9781118147603**

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Title of the Paper: Data Science using Python

Semester: V/VI

Course Code	SECCAT02	Course Delivery Method	Class Room / Blended Mode – Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 - 23	Year of Revision: ---	Percentage of Revision: 0%

Course Objective: The main objective of the course is to provide students with the basic concepts of Python, its syntax, functions and packages to enable them to write scripts for data manipulation and analysis. The course develops skills of writing and running a code using Python.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Understand the need and importance of data science.(PO5,PO7)
CO_2	Understand basic concepts of python and implementing control structures in python.(PO5)
CO_3	Implement strings and other data structures in python(PO5,PO7)
CO_4	Learn and Implement functions and modules in python.(PO5)
CO_5	Learn and Implement data cleaning and plotting using pandas.(PO5,PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**INTRODUCTION TODATA SCIENCE** Data science and its importance, Advantages of data science, The process of data science , Responsibilities of a data scientist, Qualifications of data scientists, Would you be a good data scientist?, Why to use python for data science?	12
II	**INTRODUCTION TO PYTHON** What is python?, Features of python, History of python, Writing and executing the python program, Basic syntax, Variables, Keywords, Data types , Operators, Indentation, Control Structures-Conditional statements—If, If-else, Nested if-else, Looping statements—For, While, Nested Loops, Break, Continue, Pass	12
III	**STRINGS AND DATA STRUCTURES** Strings - definition, accessing, slicing and basic operations, Lists - introduction, accessing list, operations, working with lists, functions and methods, Tuples - introduction, accessing tuple, operations, Dictionaries- introduction, accessing values in dictionaries, working with dictionaries.	14
IV	**FUNCTIONSANDMODULES** Functions- Defining a function, Calling a function, Types of functions, Function arguments, Local and global variables, Lambda and recursive functions, Modules---Math, Random, OS, Date and Time	10
V	**PANDAS** What is Pandas?, Series, Data Frame, Read CSV Files, Analyzing Data Frames, Data Correlations, Data Cleaning---Empty cells, Data in wrong format, Wrong data, Duplicates, Pandas Plotting-- plot () method, bar plot, hist plot, box plot, area plot, scatter plot, pie plot	12

Prescribed Books:

1. Steven cooper--- Data Science from Scratch, Kindle edition
2. Reemathareja—Python Programming using problem solving approach, Oxford Publication

Reference Books:

1.Wes McKinney--- Python for Data Analysis ,O'REILLY

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COMPUTER SCIENCE	SECCAT02	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 70**

Model Paper: Data Analysis using Python

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

Section – A

Answer any Four questions.
(At least 1 question should be given from each Unit) **(4 x 5=20Marks)**

1. Write advantages of data science. (CO1, L1)
2. What are the qualifications of data scientist? (CO1, L2)
3. Explain about the history of python.(CO2, L1)
4. Explain about string operations in python.(CO3, L1)
5. Explain about the date and time module in python.(CO4, L1)
6. What is data cleaning? Explain about duplicates in pandas.(CO5, L1)

Section – B

Answer all questions.
(Two questions should be given from each unit with internal choice) **(5x10=50Marks)**

9. (a) What is Data Science? Explain the Responsibilities of a data scientist.(CO1, L2)

OR

9. (b) Explain the use of python for data science?(CO1, L1)

10. (a) Explain different types of conditional statements with examples.(CO2, L1)

OR

10. (b) Explain different types of Looping statements with examples.(CO2, L1)

11. (a) What is a list? Explain different operations of lists with examples in python. (CO3, L2)

OR

11. (b)What is a Dictionary? Explain accessing values in it with examples in python (CO3, L2)

12. (a) Explain Function definition, calling & different types in python with example.(CO4, L1)

OR

12. (b) Explain about random and math module in python with an example.(CO4, L1)

13. (a) What is a data frame? Illustrate the concept of analysing the data frames.(CO5, L2)

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COMPUTER SCIENCE	SECCAT02	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 50**

Lab List: DATASCIENCE USING PYTHON LAB

No. of Hours per week: 3 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Implement simple programs in basics of python.(PO5)
CO2: Implement control structures in python.(PO5)
CO3: Implement data structures like strings, list, tuples, dictionaries in python.(PO5,PO7)
CO4:Implementation of data frames, data cleaning and plotting in pandas.(PO5,PO7)

II: Practical (Laboratory) Syllabus: (30 Periods)

1. Python Program to Find the Square Root
2. Python Program to Swap Two Variables
3. Python Program to Generate a Random Number
4. Python Program to check if a Number is odd or Even
5. Python Program to Find the Largest Among Four Numbers
6. Python Program to Check Prime Number
7. Python Program to Display the multiplication Table
8. Python Program to Print the Fibonacci sequence
9. Python Program to Check Armstrong Number
10. Python Program to Find the Sum of Natural Numbers
11. Python Program to Make a Simple Calculator
12. Python Program to Find Factorial of Number Using Recursion
13. Python Program to Add Two Matrices
14. Python Program to Multiply Two Matrices
15. Python Program to Check Whether a String is Palindrome or Not
16. Python Program to perform operations on strings.
17. Python Program to create a list and perform operations on its contents.
18. Python Program to perform operations on tuples.
19. Python Program to create a dictionary and print its content.
20. Python program to import data from CSV file using pandas.
21. Python program to demonstrate plots

III. Lab References:

1. Reemathareja—Python Programming using problem solving approach,Oxford Publication

Reference Materials on the Web/web-links:

1. https://www.w3schools.com/python/
2. https://www.geeksforgeeks.org/python-basics/

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Title of the Paper: MOBILE APPLICATION DEVELOPMENT

Semester: V/VI

Course Code	SECCAT03	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 - 23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: Covers introductory mobile application development for the Android Operating System using XML and Java. Includes developing simple applications that could run on Android phones and tablets. Covers Android application development phases, terminologies, application design, and coding.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Identify basic terms, tools and software related to android systems.(PO5)
CO_2	Describe components of IDE, understand features of android development tools.(PO5)
CO_3	Describe the layouts and controls and different views available.(PO5,PO7)
CO_4	Understand Android system architecture and security model.(PO5)
CO_5	Understand the features of services and able to publish android Application.(PO5,PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	Introduction to android, Open headset Alliance, Android ecosystem, Need of android, Features of android, Tools and Software required For developing an Application, Android architecture.	10
II	Operating system, java JDK, Android SDK, Android development tools, Android virtual devices, Steps to install and configure Android studio and sdk.	14
III	Control flow, directory structure, Components of a screen, Fundamental UI design, Linear layout, absolute layout, table layout, relative layout, Text view, Edit text, Button image button, radio button, toggle button, Radio group, checkbox, and progress bar ,List view, grid view, image view, scroll view, Time and date picker	12
IV	Android platform services, Android system Architecture, Android Security model, Applications development: creating small application.	12
V	Introduction of MIT App Inventor, Application Coding, Programming Basics & Dialog, More Programming Basics, Alarm Clock Application, Audio & Video, Drawing Application, File, Game, Device Location, Web Browsing.	12

References/ Text Book/ e-books/websites

Text Books:

1. Erik Hellman,"AndroidProgramming–Pushing theLimits",1stEdition,WileyIndiaPvtLtd,2014.
2. App Inventor:create our own Android apps byWolber,David(DavidWayne)

Reference Books:

1. DawnGriffithsandDavidGriffiths,"HeadFirstAndroidDevelopment",1stEdition,O'ReillySPDPublishers,2015.
2. JFDiMarzio,"BeginningAndroidProgrammingwithAndroidStudio",4thEdition,WileyIndia PvtLtd, 2016.ISBN-13: 978-8126565580

Web resources:

https://www.udacity.com/course/developing-android-appsfundamentals--ud853-nd
http://www.appinventor.mit.edu/

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(**With Effect from Academic Year 2022-23**)

COMPUTER SCIENCE	**SECCAT03**	**2022-23**	**B. Com (CA)**

SEMESTER – V/VI **PAPER – VI** **Max. Marks 70**

Syllabus: Mobile Application Development

NO. Of. Hours: 3 **NO. Of Credits: 3** **Pass Marks 28**

Section- A

Answer any Four questions.

(At least 1 question should be given from each Unit) **(4 x 5 = 20Marks)**

1. What is the Need of Android?(CO1,L1)
2. Explain the Steps to install and configure Android studio and sdk.(CO2,L2)
3. What are the Components of a screen?(CO3,L1)
4. What are the Android platform services?(CO4,L1)
5. How to write Application Coding?(CO5,L1)
6. Explain image button and radio button with an example.(CO3,L2)

Section- B

Answer all questions. (Two questions should be given from each unit with internal choice)

(5X10=50Marks)

9. (a) Explain Android Architecture.(CO1,L2)

OR

(b) Write Features of Android.(CO1,L1)

10. (a) Explain Android development tools.(CO2,L2)

OR

(b) Explain Android virtual devices.(CO2,L2)

11.(a)Explain about Linear layout, absolute layout, table layout and relative layout.(CO3,L2)

OR

(b) Discuss about List view, grid view, image view, scroll view.(CO3,L6)

12. (a) How to create a small application using Android Application?(CO4,L6)

OR

(b) Describe Android system Architecture.(CO5,L6)

13. (a)Explain Audio &Video Concepts.(CO5,L2)

OR

(b) Develop Alarm clock application.(CO5,L6)

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(**With Effect from Academic Year 2022-23**)

COMPUTER SCIENCE	SECCAT03	2022-23	B. Com (CA)

SEMESTER – V/VI **PAPER – VI** **Pass Marks 25** **Max Marks:50**

Lab List: MOBILE APPLICATION DEVELOPMENT LAB

No. of Hours per week: 2 **External: 25** **Internal: 25** **Credits: 2**

Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Understand the android platform.(PO5,PO7)

CO2: Design and implementation of various mobile applications.(PO5,PO7)

Practical (Laboratory) Syllabus: **(30 Periods)**

Lab Exercises

1. Demonstrate mobile technologies and devices.
2. Demonstrate Android platform and applications overview.
3. Implement User interface design layouts.
4. Working with texts, shapes, buttons and lists.
5. Develop a calculator application.
6. Develop application in android using different views.
7. Implement an application that creates a alarm clock.
8. Develop audio and video drawing application.

Lab References:

1. Erik Hellman, "Android Programming–Pushing theLimits",1stEdition,WileyIndiaPvt Ltd,2014.
2. App Inventor:create your own Android apps by Wolber, David (DavidWayne).

Reference Materials on the Web/web

1. https://www.udacity.com/course/developing-android-appsfundamentals--ud853-nd
2. http://www.appinventor.mit.edu/

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Title of the Paper: CYBER SECURITY AND MALWARE ANALYSIS

Semester: V/VI

Course Code	SECCAT04	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022-23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: This programme aims to provide a foundational platform for Cyber Security Aspirants by providing Cyber Security Awareness and Training that heighten the chances of catching a scam or attack before it is fully enacted, minimizing damage to the resources and ensuring the protection of information technology assets.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Understand the computer networks, networking tools and cyber security.(PO6,PO7)
CO_2	Learn about NIST Cyber Security Framework.(PO6,P07)
CO_3	Understand the OWASP Vulnerabilities.(PO6, PO7)
CO_4	Implement various Malware analysis tools.(PO6,P07)
CO_5	Understand about Information Technology act2000.(PO6,P07)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction to Networks & cyber security:** Computer Network Basics, Computer network types, OSI Reference model, TCP/IP Protocol suite, Difference between OSI and TCP/IP, What is cyber, cyber-crime and cyber-security, All Layer wise attacks, Networking devices: router, bridge, switch, server, firewall, How to configure :router, How to create LAN, Network tools, IP scanner, Port scanner, Vulnerability scanner, Command tools—net stack ,trace route, lookup, tcp view.	13
II	**NISTN Cyber security framework**: Introduction to the components of the framework, Cyber security Framework Tiers, What is NIST Cyber security framework, Features of NIST Cyber security framework, Functions of NIST Cyber security framework, Turn the NIST Cyber security Frame work into Reality/implementing the framework.	12
III	**OWASP** : What is OWASP? OWASP Top10Vulnerabilities, Injection, Broken Authentication, Sensitive Data Exposure, XML External Entities (XXE), Broken Access Control, Security Misconfiguration, Cross-Site Scripting(XSS), Insecure Deserialization, Using Components with Known Vulnerabilities, Insufficient Logging and Monitoring, OWASP Juice Shop, Web application firewall.	13
IV	**MALWARE ANALYSIS :** What is malware, Types of malware, Key loggers, Trojans, Ransom ware, Root kits, Antivirus, Firewalls, Malware analysis, VMware, How to uses and box, How to create virtual machine, Process explorer, Process monitor, SYS-internals Suite, SOC-security operations controls-Solar winds (study the tools), Network intrusion detection, Wire shark, IDS, IPS, Snort.	12
V	**CYBER SECURITY Legal Perspectives :** Cyber crime and the legal landscape around the world, IndianITACT2000—CybercrimeandPunishments, Weak areas of ITACT2000, Challenges to Indian law and cybercrime scenario in India, Amendments of the Indian IT Act.	10

References/ Text Book/ e-books/websites

TEXTBOOKS:

1. Computer Networks | Fifth Edition | By Pearson (6th Edition) |Tanenbaum, Feamster ,Wetherall
2. Computer Networking | A Top-Down Approach | Sixth Edition | By Pearson | KuroseJamesF. Ross Keith W.
3. Cyber SecuritybySunitBelapure,NinaGodbole|WileyPublications
4. TCP/IP ProtocolSuite |Mcgraw-hill|Forouzan|FourthEdition

WEBSITEREFERENCES:

1. https://csrc.nist.gov/Projects/cybersecurity-framework/nist-cybersecurity-framework-a-quick-start-
2. https://owasp.org/www-project-top-ten/
3. https://owasp.org/www-project-juice-shop/

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COMPUTER SCIENCE	SECCAT04	2022-23	B.Sc.(MPCs)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 70**

Title: CYBER SECURITY AND MALWARE ANALYSIS

No of Credits: 3 **No.of.Hours:3** **Pass Marks 28**

Section-A

Answer any Four questions.
(At least 1 question should be given from each Unit) **(4X5=20Marks)**

1. Discuss all Layer wise attacks.(CO1,L6)
2. Explain about Cyber, Cyber-Crime and Cyber-Attacks.(CO1,L2)
3. Explain Features of NIST Cyber Security framework.(CO2,L2)
4. Write about Web Application firewalls in OWASP.(CO3,L1)
5. Discuss about Key loggers, Trojans, Root kits.(CO4,L6)
6. Explain Weak areas of IT ACT 2000.(CO5,l2)

Section-B

Answer all questions. (Two questions should be given from each unit with internal choice)

(5x10=50Marks)

9(a). Describe in detail TCP/IP Protocol Suite with diagrammatic representation.(CO1,L6)

OR

9(b). Explain different types of Network Tools with examples.(CO1,L2)

10(a). Discuss about components of framework and functions of NIST Cyber Security frameworks.(CO2,L6)

OR

10(b). Explain how to turn NIST Cyber Security framework into reality framework. (CO2,L6)

11(a). Explain OWASD Juice shop in detail. (CO3,L2)

OR

11(b). Explain any 6 OWASP vulnerabilities.(CO3,L2)

12(a). Discuss about different types of Malware analysis in detail. (CO4,L6)

OR

12(b). How to detect Network intrusion? Explain?(CO4,L1)

13(a). Explain what are the Challenges are to Indian law and cybercrime scenario in India. (CO5,L2)

OR

13(b). Discuss Indian IT-ACT 2000.Explain different Cybercrime and Punishments respectively.(CO5,L6)

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(**With Effect from Academic Year 2022-23**)

COMPUTER SCIENCE	**SECCAT04**	**2022-23**	**B. COM(CA)**

SEMESTER – V/VI **PAPER – VII** **Max. Marks 50**

Lab List: MULTIMEDIA TOOLS AND APPLICATIONS LAB

No. of Hours per week: 3 **External: 40** **Internal: 10** **Credits: 2**

Title :CYBER SECURITY AND MALWARE ANALYSYS LAB

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Implement LAN by using a switch and Router.(PO5)

CO2: Implement the task of creating mail messages by using fake mail id by using the "Fake mailer" website.(PO5)

CO3: Implement port scanning mechanism.(PO5)

CO4: Implement SQL Injection attack.(PO5)

CO5: Implement to access a locked computer.(PO5)

II: Practical (Laboratory) Syllabus: **(30 Periods)**.

Lab Exercises

The purpose of this course is to impart practical understanding on Cyber security and protection of electronic systems and information from malware attacks.

1. Configure LAN by using a switch
2. Configure a LAN by using Router
3. Steps to attack a victim computer by using "Pro Rat" Trojan tool
4. Perform the packet sniffing mechanism by download the “wire shark” tool and extract the packets
5. Perform the task of creating mail messages by using fake email id by using the "fake mailer" website(https://emkei.cz)
6. Perform the IP scanning mechanism by using “tracert” and “arp” commands
7. Perform the port scanning mechanism by using NMAP tool
8. Perform an SQL Injection attack and its preventive measure to avoid Injection attack
9. Perform an activity to access a locked computer without knowing the user's password.

III. Lab References:

1. Computer Networks | Fifth Edition | By Pearson (6th Edition) |Tanenbaum, Feamster &Wetherall
2. Computer Networking | A Top-Down Approach | Sixth Edition | By Pearson | KuroseJamesF. Ross Keith W.

IV. Reference Materials on the Web/web

1. https://csrc.nist.gov/Projects/cybersecurity-framework/nist-cybersecurity-framework-a-quick-start-guide

https://owasp.org/www-project-top-ten/

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Autonomous -ISO 9001 – 2015 Certified

Title of the Paper: E – COMMERCE APPLICATION DEVELOPMENT

Semester: V/VI

Course Code	SECCAT05	Course Delivery Method	Class Room / Blended Mode – Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022-23	Year of Revision: ---------	Percentage of Revision: 0%

Course Objective:

To educate students in ecommerce and ecommerce applications.

Course Outcomes: Upon successful completion of the course, a student will be able to:

CO_1	To apply in an integrative and summative fashion the students' knowledge in all fields of business studies by drafting a website presence plan.
CO2	To understand the factors needed in order to be a successful in ecommerce
CO3	To gain the skills to bring together knowledge gathered about the different components of building a web presence
CO4	To critically think about problems and issues that might pop up during the establishment of the web presence
CO5	To apply Word Press as a content management system (CMS), Plan their website by choosing color schemes, fonts, layouts, and more

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	Introduction to E– commerce: Meaning and concept – E– commerce , E– commerce v/s Traditional Commerce , E– Business & E– Commerce – History of E– Commerce , EDI – Importance, features & benefits of E– Commerce , Impacts, Challenges & Limitations of E– Commerce	12
II	Business models of E – Commerce: Business to Business , Business to customers ,Customers to Customers , Business to Government , Business to Employee , Influencing factors of successful E– Commerce , Architectural framework of Electronic Commerce , Web based E Commerce Architecture. Internet Commerce	12
III	Electronic data Interchange , EDI Technology ,EDl- Communications , EDI Agreements , E– Commerce payment system. Digital Economy	12
IV	A Page on the web - HTML Basics , Client Side scripting -JAVA SCRIPT basics , Server side Scripting- PHP basics	12
V	Logging in to Your Word press Site , word press dash board , creating your first post , adding photos and images , creating hyper link , adding categories and tags	12

Textbooks:

1. Turban, Rainer, and Potter, Introduction to E-Commerce, second edition, 2003
2. H. M. Deitel, P. J. Deitel and T. R. Nieto, E-Business and E-Commerce: How to Programe, Prentice hall, 2001
3. Word Press All-in-One For Dummies -written by Lisa Sabin Wilson with contributions by Michael Torbert, Andrea Rennick, Cory Miller, and Kevin Palmer

Reference Books:

1. Elias. M. Awad, “Electronic Commerce", Prentice-Hall of India Pvt Ltd.
2. Ravi Kalakota, Andrew B. Whinston, "Electronic Commerce-A Manager's guide", Addison-Wesley
3. https://w3cschools.com
4. David Whitely, E-Commerce: Strategy, Technologies and Applications, Tata McGraw Hill.

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COMPUTER SCIENCE	SECCAT05	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 70**

Model Paper: **E – COMMERCE APPLICATION DEVELOPMENT**

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION - A

Answer any Four of the following
(At least 1 question should be given from each Unit) **(4X5=20Marks)**

1. Differentiate e commerce vs. traditional commerce. (CO1, L4)
2. Write about limitations of e commerce (CO1, L6)
3. Write about B2C. (CO2, L1)
4. Write a short note on EDI. (CO3, L1)
5. Briefly write about CSS. (CO4, L1)
6. Discuss about the need of word press. (CO5, L2)

SECTION – B

Answer *all* the following questions **(5X10=50Marks)**

9. (a) Explain about challenges of E - Commerce.(CO1, L1)

OR

(b) Explain about features and benefits of E - Commerce. (CO1, L1)

10. (a) Summarize the influencing factors of successful E - Commerce. (CO2, L2)

OR

(b) Summarize B2B, B2G Models. (CO2, L2)

11. (a) Explain about EDI communication. (CO3, L1)

OR

(b) Describe about E – Commerce payment System. (CO3, L1)

12. (a) Explain about various HTML tags. (CO4, L1)

OR

(b) Explain about server side scripting with example. (CO4, L1)

13. (a) Explain about adding categories and tags in word press. (CO5, L2)

OR

(b) Explain about adding photos and images in word press. (CO5, L2)

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COMPUTER SCIENCE	SECCAT05	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 50**

Lab List: **E – COMMERCE APPLICATION DEVELOPMENT Lab**

No. of Hours per week:3 **External: 40** **Internal: 10** **Credits: 2**

I. Course objectives:

To educate students in developing commerce applications.

Course outcomes:

By the end of the course, students will be:

CO1: Able to design home page for an e commerce web application. (PO6, PO7)

CO2: Able to perform validation using PHP. (PO6, PO7)

CO3: Able to design catalogue. (PO6, PO7)

CO4: Able to implement access control mechanisms in web applications. (PO6, PO7)

CO5: Able to design application for any given e-commerce scenario. (PO6, PO7)

II: Practical (Laboratory) Syllabus: (30 Periods)

(Since, the proposed SECs are connected to Computer Programming/Software Tools and Skill enhancement, the students need to get exposure on the syllabus content by practicing on the computer even though there is no formal assignment of credits and laboratory hours for practical sessions. So, as part of the Co-curricular activities and continuous assessment, students should be engaged in practicing on computer for at least 30 hours per semester.)

Case study of e –commerce

1. Home page design of web site
2. Validation using PHP
3. Implement Catalogue design
4. Implement Access control mechanism(eg: username and password)
5. Case study on business model of online E-Commerce store

Note: The list of experiments need not be restricted to the above list. Detailed list of Programming/software tool based exercises can be prepared by the concerned faculty members.

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Title of the Paper: REAL TIME GOVERNANCE SYSTEM (RTGS)

Semester: V/VI

Course Code	SECCAT06	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 - 23	Year of Revision: ----	Percentage of Revision: 0% (shuffled from 4th to 3rdsem)

Course Objective:

To educate students in terms of e governance, its infrastructure and implementation.

Course Outcomes: Upon successful completion of this course, students will have the knowledge and skills to:

CO_1	Understand the terms regarding Governance, E-Governance and RTGS (PO6, PO7)
CO2	Learn about E-Governance Infrastructure (PO6, PO7)
CO3	Understand the E-Governance implementation in several countries (PO6, PO7)
CO4	Understand the E-Governance implementation in several Indian states (PO6, PO7)
CO5	Understand the applications of RTG (PO6, PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction to E-Governance** Government, Governance and Good Governance, What is E-Governance or Electronic Governance? E-Government and E-Governance: A conceptual Analysis , Objectives , Components , application domains , four phase model , implementing E-Governance ,issues while implementing E-Governance , Opportunities and challenges . Types of E-Governance , What is Real-Time Governance (RTG) , Real Time Governance Society (RTGS)	12
II	**E-Governance Infrastructure** Data Systems infrastructure , Executive Information Systems , Management Information Systems ,Knowledge Management Systems , Transaction Processing Systems . Legal Infrastructural preparedness , IT Act 2000 , Challenges to Indian law and cybercrime scenario in India , Amendments of the Indian IT Act . Institutional Infrastructural preparedness , Internet , intranet , extranet • Human Infrastructural preparedness , Top-level management , Middle-level management, Low-level management • Technological Infrastructural preparedness ,Information and communications technology , Data Warehousing , Cloud Computing.	12
III	**E-Governance: Country Experience** INDIA ,US, UK ,AUSTRALIA , DUBAI	12
IV	**E-Governance in India** Andhra Pradesh , Karnataka , Kerala , Uttar Pradesh , Madhya Pradesh , West Bengal ,Gujarat UNIT 5: Latest Applications in Real Time Governance 10hrs Agriculture ,Rural Development ,Health care ,Education ,Tourism , Commerce and Trade	12
V	**Latest Applications in Real Time Governance** Agriculture ,Rural Development ,Health care ,Education ,Tourism , Commerce and Trade	12

III Textbooks:

1. E-Governance: concepts and case studies| CSR Prabhu| Prentice-Hall|
2. E-Governance| Niranjanpani, Sanhari Mishra | Himalaya Publishing House

Website References:

1. http://www.egov4dev.org/success/case/
2. https://vikaspedia.in/e-governance/resources-for-vles
3. https://altametrics.com/en/information-systems/information-system-types.html
4. https://core.ap.gov.in/CMDashBoard/Index.aspx

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COMPUTER SCIENCE	SECCAT06	2022-23	B.Com.(C.A.)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 70**

Model Paper: REAL TIME GOVERNANCE SYSTEM (RTGS)

No.of Hours:3 **No.of Credits:3** **Pass Marks 28**

SECTION - A

Answer any Four of the following:
(At least 1 question should be given from each Unit) **(4X5=20Marks)**

1. Discuss the need of RTGS. (CO1, L2)
2. Write about MIS. (CO2, L6)
3. Describe the goals of e – governance. (CO2,L1)
4. Write a short note on e – governance in US. (CO3, L1)
5. Describe implementation of e – governance in Gujarat. (CO4, L1)
6. Discuss about applications of RTGS.(CO5, L2)

SECTION – B

Answer all the following questions

(5X10=50Marks)

9. (a) Explain about types of e governance. (CO1, L1)

OR

(b) Explain about objectives and components of e governance. (CO1, L1)

10. (a) Explain about Indian IT ACT 2000 (CO2, L1)

OR

(b) Explain about various levels of management. (CO2, L1)

11. (a) Explain about E – governance policy of India. (CO3, L1)

OR

(b) Explain about E – governance policy of Australia. (CO3, L1)

12. (a) Explain about E – Governance policy of Andhra Pradesh. (CO4, L1)

OR

(b) Explain about E – Governance policy of Kerala. (CO4, L1)

13. (a) Explain the role of real time governance in agriculture sector. (CO5, L1)

OR

(b) Explain the role of real time governance in health sector. (CO5, L2)

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COMPUTER SCIENCE	SECCAT06	2022-23	B.Com.(C.A.)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 50**

LAB LIST:REAL TIME GOVERNANCE SYSTEM (RTGS) Lab

No. of Hours per week: 2 **External: 40** **Internal: 10** **Credits: 2**

I. Course objectives:
To educate students in developing e commerce applications.

Course outcomes:
By the end of the course, students will be:

CO1: Able to design home page for an e commerce web application. (PO6, PO7)
CO2: Able to perform validation using PHP. (PO6, PO7)
CO3: Able to design catalogue. (PO6, PO7)
CO4: Able to implement access control mechanisms in web applications. (PO6, PO7)
CO5: Able to design application for any given e-commerce scenario. (PO6, PO7)

II: Practical (Laboratory) Syllabus: (30 Periods)

(Since, the proposed SECs are connected to Computer Programming/Software Tools and Skill enhancement, the students need to get exposure on the syllabus content by practicing on the computer even though there is no formal assignment of credits and laboratory hours for practical sessions. So, as part of the Co-curricular activities and continuous assessment, students should be engaged in practicing on computer for at least 15 hours per semester.)

Note: Here the students have to gather the details in computer lab by surfing several websites & Google Search Engines and submit the report to the class/lab instructor before leaving the lab.

1. Write a Report on the role of Nationwide Networking in E-Governance
2. Write a Report on SETU: A Citizen Facilitation Centre in India, regarding it's successful or failure journey.
3. Write a Report on National Cyber Security Policy, how it is useful to Indian citizens.
4. Write a Report on mee-seva/Village Secretariat/Ward secretariat, a new paradigm in citizen services.
5. Write a Report on how Andhra Pradesh is implementing RTGS in Agriculture.
6. Write a Report on how Andhra Pradesh is implementing RTGS in social welfare schemes
7. Write a Report on how Andhra Pradesh is implementing RTGS in waste lands, agricultural lands and house properties.
8. Write a Report on Electronic Birth Registration in any one state of our country.

Note: The list of experiments need not be restricted to the above list. Detailed list of Programming/software tool based exercises can be prepared by the concerned faculty members.

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Title of the Paper: MULTIMEDIA TOOLS AND APPLICATIONS

Semester: V/VI

Course Code	SECCAT07	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: Multimedia is a technology engaging variety of media .Multimedia is the collection of Text, audio, video, animation, and graphics. The concept of paperless society is effective with the invention of multimedia. Multimedia helps the user in providing information from different media on one platform. It's enhanced the concept of networking and resource sharing.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Gain knowledge on the concepts related to Multimedia.**(PO5)**
CO2	Understand the concepts like image data representation and color modes.**(PO5)**
CO3	Understand the different types of video signals and digital audio.**(PO5)**
CO4	Know about multimedia data compression types and audio compression standards **(PO5)**
CO5	Know about basic video compression techniques**.(PO5,P07**)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction to multimedia** What is Multimedia? , Components of Multimedia System, Multimedia Research Topics and Projects, Multimedia and Hypermedia, Multimedia Authoring metaphors, Multimedia Production, Multimedia Presentation, Some Technical Design Issues, Automatic Authoring.	12
II	**Image Data Representations and color models** Color science Human vision Image data types, **Black & white images**-1-bit images (Binary image), 8 -bit (Gray -level images), **Color images**- 24-bit color images, 8-bit color images, Color models. Color science Human vision Image data types, **Black & white images**-1-bit images (Binary image), 8 -bit (Gray -level images), **Color images**- 24-bit color images, 8-bit color images, Color mo	12
III	**Fundamental concepts in video** Types of Video Signals- Analog Video, Digital Video, Basics of Digital Audio: What is Sound?, Digitization of Sound, Quantization and Transmission of Audio, Pulse code modulation, Differential coding of audio, Predictive coding, DPCM.	14
IV	**Multimedia Data Compression** Introduction- Basics of Information Theory, Lossless Compression Algorithms, Fix-Length Coding, Run-length coding, Differential coding, Dictionary-based coding, Variable Length Coding, Shannon-Fano Algorithm, Huffman Coding Algorithm. Audio Compression standards: Introduction, Psychoacoustics model, MPEG Audio	12
V	**Basic Video Compression Techniques** Introduction to Video compression, Video Compression with Motion Compensation, Video compression standard H.261, Video compression standard MPEG-1	10

1. Text Books

Fundamentals of Multimedia by Ze-Nian Li & Mark S. Drew. Publisher: Prentice Hall

2. Reference Books:

1. An introduction to digital multimedia by Savage, T. M. and Vogel, K. E. 2008.
2. Digital Multimedia by Nigel Chapman & Jenny Chapman. 2009.

3. Reference Materials on the Web/web-links:

https://www.tutorialspoint.com/multimedia
https://ksuit342.wordpress.com/lectuers/

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COMPUTER SCIENCE	SECCAT07	2022-23	B.Com.(C.A.)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 70**

Model Paper: Multimedia Tools and Applications

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

Section-A

Answer any FIVE questions.
(At least 1 question should be given from each Unit) **(4 x 5=20Marks)**

1. What is multimedia? Explain components of multimedia system. **(CO1, L1)**
2.Discuss multimedia production.**(CO1, L6)**
3. Explain 8-Bit(gray-level images).**(CO2,L2)**
4. What is sound? Explain digitization of sound. **(CO3, L1)**
5. Discuss Run-length coding. **(CO4, L6)**
6.Compare and contrast H.261 and MPEG-1. **(CO5, L2)**

Section-B

Answer all questions. (Two questions should be given from each unit with internal choice)
(5 x 10 = 50M)

9.(a) Discuss in detail about multimedia and hypermedia. **(CO1, L6)**

OR

(b) Explain about multimedia presentation. **(CO1, L2)**

10.(a) Discuss about 24-bit color images and 8-bit color images. **(CO2, L6)**

OR

(b) Explain Color models in images. **(CO2, L2)**

11.(a) Discuss about PCM(pulse code modulation). **(CO3, L6)**

OR

(b) Explain High-Definition TV(HDTV). **(CO3, L2)**

12.(a) Discuss Huffman- coding algorithm. **(CO4, L6)**

OR

(b) Write about MPEG audio compression algorithm. **(CO4, L1)**

13.(a) Explain video compression based on motion compensation. **(CO5, L2)**

OR

(b) Write about Video compression standard H.261. **(CO5,L1)**

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COMPUTER SCIENCE	SECCAT07	2022-23	B.COM(CA)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 50**

Lab List: MULTIMEDIA TOOLS AND APPLICATIONS LAB

No. of Hours per week: 3 External: 40 **Internal: 10** **Credits: 2 Pass Marks:30**

I. Course Outcomes:

Students at the successful completion of the course will be able to:

CO1: Create/modify a new image with open source applications such as GIMP. (PO5)

CO2: Manipulate images using graphic tools. (PO5)

CO3: Learn basic layer mask essentials. (PO5)

CO4: Compress audio and video files. (PO5, PO7)

CO5: Create a realistic shadow. (PO5)

II: Practical (Laboratory) Syllabus: (30 Periods)

1. Editing images using GIMP
2. Improve the Quality of your Image in GIMP
3. Introduction to Layer Masks.
4. Create an impressive background in GIMP
5. Applying Shadow & Highlight effects in images
6. Black& white and color photo conversion.
8. Using File Seizer Software for Audio compression.
9. Using File seizer Software for Video compression.

III. Lab References:

Fundamentals of Multimedia by Ze-Nian Li & Mark S. Drew. Publisher: Prentice Hall

Reference Materials on the Web/web-links

https://ksuit342.wordpress.com/lectuers/

https://www.tutorialspoint.com/multimedia

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Title of the Paper: DIGITAL IMAGING

Semester: V/VI

Course Code	SECCAT08	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: To introduce the concepts of image processing and basic analytical methods to be used in image processing. To familiarize students with image enhancement and restoration techniques, To explain different image compression techniques.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Gain knowledge about Types of Graphics, Types of Objects, Types of video editing tools**(PO5)**
CO2	Show their skills in editing and altering photographs for through a basic understanding of the tool box.**(PO5)**
CO3	Gain knowledge in using the layers.**(PO5)**
CO4	Gain knowledge in using the selection tools, repair tools.**(PO5)**
CO5	Gain knowledge in using selection tools, applying filters and can show their skills.**(PO5)**

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	Types of Graphics- Raster vs Vector Graphics ,Types of Objects - Audio formats, Video formats , Image formats , Text document formats, Types of video editing , Different color modes, Image Scanner- Types of Image Scanners	12
II	What is GIMP? , GIMP tool box window, Layers Dialog , Tool Options Dialog , Image window ,. Image window menus	12
III	**Improving Digital Photos** - Opening files, Rescaling saving files, Cropping, Brightening & Darkening 1 Rotating, Sharpening, Fixing Red Eye. **Introduction to layers-** What is layer?, Using layer to add text , Using move tool , Changing colors , Simple effects on layers, Linking layers together , Performing operations on layers, Using layers to copy and paste, Tour of layers dialog	14
IV	**Drawing**- Drawing lines and curves , Changing colors and brushes, Erasing , Drawing rectangles, Circles and other shapes, Outlining and filling regions, Filling with patterns and gradients, Importing brushes or gradients or making your own. **Selection**: Working with selections, Select by color and fuzzy, Select Bezier paths, intelligent scissors tool, Modifying selections with selection modes.	12
V	**Erasing and Touching Up**: Dodge and burn tool, Smudging tool , Clone tool , Sharpening using convolve tool, Blurring with Gaussian Blur , Correcting Color Balance, Hue , Saturation , Color balance using curves and levels. **Filters:** Filters , Blur, Enhance , Distort, Noise Filters.	10

References/ Text Book/ e-books/websites

Textbook: Beginning GIMP from Novice to professional by Akkana Peck, Second Edition, A press

Reference Materials on the Web/web-links:

https://www.mygreatlearning.com/gimp/tutorials/gimp-introduction

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(With Effect from Academic Year 2022-23)

COMPUTER SCIENCE	SECCAT08	2022-23	B.Com.(C.A.)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 70**

Model Paper: Digital Imaging

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION – A

Short Answer Questions **(5 x 5=25M)**

Answer any Four questions. (At least 1 question should be given from each Unit)

1. Explain different types of image formats.**(CO1,L2)**
2. Write short notes on Tool box in GIMP.**(CO2, L1)**
3. Explain briefly about gradients in GIMP. **(CO4, L2)**
4. Write short notes on clone tool in GIMP.**(CO5,L1)**
5. Explain rotating ,sharpening in GIMP.**(CO3,L2)**
6. Describe different color modes in GIMP.**(CO1,L5)**

SECTION B

Answer all questions. **(5 x 10 = 50M)**

9(a) Describe the various color modes in GIMP with example.**(CO1,L5)**

OR

9(b) What are various types of audio and video formats in GIMP? Explain with example.**(CO1,L1)**

10(a) Describe image window menu in detail.**(CO2, L5)**

OR

10(b) Explain the window layers dialog in GIMP.**(CO2, L2)**

11(a) Describe Cropping-Brightening and Darkening in GIMP.**(CO3, L5)**

OR

11(b) Explain the steps to solve a fixed–red eye in GIMP.**(CO3,L2)**

12(a) Explain the working with selections in GIMP.**(CO4, L2)**

OR

12(b) Write about filling with patterns and gradients.**(CO4, L1)**

13(a) Describe the steps involved in Dodge, Burn and Smudging tool in GIMP.**(CO5,L5)**

OR

13(b)Write about distort and noise filters in GIMP.**(CO5,L1)**

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(With Effect from Academic Year 2022-23)

COMPUTER SCIENCE	SECCAT08	2022-23	B. COM(CA)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 50**

Lab List: DIGITAL IMAGING LAB

No. of Hours per week: 3 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1:Students will gain a working knowledge of Photoshop (PO5)

CO2:Student will be able to show their skills in editing and altering photographs for through a basic understanding of the tool bar. (PO5)

CO3:Student will gain knowledge in using the layers. (PO5)

CO4:Student will gain knowledge in using the selection tools, repair tools.(PO5,PO7)

CO5:Student will gain knowledge in using filters and can show their skills. (PO5)

II: Practical (Laboratory) Syllabus: (30 Periods)

1. Designing a Visiting card
2. Design Cover page of a book
3. Paper add for calling tenders
4. Passport photo design
5. Design a Pamphlet
6. Brochure designing
7. Titles designing
8. Custom shapes creation
9. Black & white and color photo conversion
10. Image size modification
11. Background changes
12. Texture and patterns designing
13. Filter effects & Eraser effects

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Vuyyuru-521165.NAAC reaccredited at 'A' level
Autonomous -ISO 9001 – 2015 Certified
Title of the Paper: DATABASE MANAGEMENT SYSTEMS
Semester: III

Course Code	CSCT37	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours / Week	4	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2021	Year of Offering: 2021-22	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: The main objective of the database is **to ensure that data can be stored and retrieved easily and effectively**. It is a compilation of data (records) in a structured way. In a database, the information is stored in a tabular form where data may or may not interlinked.

Course Outcomes:

CO_1	Understand database concepts and design. (PO5,P07)
CO2	Create databases using structured query language. (PO5, P07)
CO3	Apply data manipulation commands in SQL. (PO5, P07)
CO4	Learn the programming basics of PL/SQL. (PO5, P07)
CO5	Implementation of cursors in PL/SQL. (PO5, P07)

Syllabus		
Unit	**Learning Units**	**Lecture Hours**
I	**Database Concepts-A Relational approach**: Database - Relationships - DBMS - Relational data model - Integrity rules - Theoretical relational languages. **Database Design**: Data modeling -Dependency - Database design - Normal forms - Dependency diagrams – Denormalization.	12
II	**Structured Query Language (SQL):** Introduction – DDL - Naming rules and conventions - D a t a t ypes-Constraints- C reating a table- Displaying t able information - Altering an existing table – Dropping, renaming, and truncating table - Table types	12
III	**Working with tables**: DML - Adding a new Row/Record - Customized prompts - Updating and deleting an existing rows/records - Retrieving data from table - Arithmetic operations - Restricting data with WHERE clause - Sorting - Substitution variables - DEFINE command - CASE structure. **Functions and Grouping**: Built-in functions - Grouping data. **Joins and Views**: Join - join types-**Views:** Views - Creating a view - Removing a view - Altering a view.	12
IV	**PL/SQL:** Fundamentals - Block structure - comments - Data types – Other data types - Variable declaration - Assignment operation - Bind variables - Substitution variables - Printing. **Control Structures and Embedded SQL**: Control structures - Nested blocks - SQL in PL/SQL - Data manipulation - Transaction control statements	12
V	**PL/SQL Cursors and Exceptions**: Cursors - Implicit & explicit cursors and attributes - cursor FOR loops - SELECT…FOR UPDATE - WHERE CURRENT OF Clause - cursor with parameters - Cursor variables - Exceptions - Types of exceptions - Records - Tables -Procedures -Functions -Triggers	12

Course Delivery method: Face-to-face / Blended

Course has focus on: Skill Development.

Websites of Interest:

- https://www.tutorialspoint.com/dbms/index.htm
- https://www.tutorialspoint.com/plsql/index.htm

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(With Effect from Academic Year 2020-21)
DATABASE MANAGEMENT SYSTEMS
MODEL PAPER

CLASS: B.Sc. (MSCS, MCCS,MPCS) **Max. Marks: 75M**
Course Code: CSCP37 **Min. Pass: 30M**
Semester: III **Time: 3 Hours**

SECTION – A

ANSWER ANY FIVE QUESTIONS **(5 X 5 =25 M).**

1. Define the following terms:
   1.Entity.2.Entity set.3.Attribute.4.Tuple.5Key. (CO1,L2)
2. What are the integrity rules of the relational model? (CO1,L2)
3. Describe the naming rules and conventions of SQL. (CO2,L2)
4. List out data types of SQL with a brief description. (CO2,L2)
5. Explain about WHERE clause. (CO3,L2)
6. How to add a record in to table. List various methods. (CO3,L3)
7. Explain the PL/SQL block structure. (CO4,L2)
8. What is the purpose of a Trigger? Give any example. (CO5,L2)

SECTION – B

ANSWER ALL THE QUESTIONS **5 X 10 =50 M.**

9. a) Explain about Normal forms with examples. (CO1, L2)

(Or)

b) What are different types of keys? What is their use? (CO1, L2)

10. a) How to enforce different types of constraints on tables? (CO2,L2)

(or)

b) Write a SQL query to create the following tables with the following fields and constraints and insert 5 records in each table in oracle.

Deptno	Number	Primary key
Dname	Varchar	
Loc	varchar	

Empno	Number	Primary key
Ename	Varchar	Should not null
Job	Varchar	
Hiredate	Date	Default system date
Mgr	Number	Foreign key to empno
Sal	Floating point number	Should not exceed one lakh
Comm	Floating point number	
Deptno	Number	Foreign key to deptno in dept table

Insert 5 records into each table (CO2,L3)

11. a)Give a brief description about joins and explain types of joins with examples. (CO3,L3)

(or)

b) What are the various types of functions available in Oracle? List and explain at least 4 from each category. (CO3,L3)

12. a) Explain about the control structures in PL/SQL. (CO4,L2)

(or)

b) How to manipulate (insert/update/delete) the data in PL/SQL? (CO4,L2)

13. a) Differentiate between implicit and explicit cursors with examples. (CO5, L3)

(or)

b) Explain about built in exceptions in Oracle. (CO5,L2)

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(With Effect from Academic Year 2020-21)

DATABASE MANAGEMENT SYSTEMS

COMPUTER SCIENCE	CSCP36	**2022-23**	**B.Sc.(MPCS,MCCs, MSCS)**

Year of Introduction: 2021 **Year of offering: 2021**
Semester: III **Credits: 1**
Hours Taught: 30 hrs. Per Semester **Max.Time**: 3 Hours

Course Prerequisites (if any): Basic knowledge in computers and internet concepts.

Course Description: This course focuses towards Database System Concepts and Architecture, ER models, relational algebra relational calculus, SQL and PL/SQL.

Course Objectives:

1. Enhance the knowledge and understanding of Database concepts and design.
2. Enhance the knowledge of the processes of Database Development using SQL
3. Enhance the knowledge of the processes of Database manipulation using SQL
4. Develop efficient PL/SQL programs to access Oracle databases

Course Outcomes: At the end of this course, students should be able to:

CO1: Understand database concepts and design. (PO5, P07)

CO2: Create databases using structured query language. (PO5, P07)

CO3: Apply data manipulation commands in SQL. (PO5, P07)

CO4: Learn the programming basics of PL/SQL. (PO5, P07)

CO5: Implementation of cursors in PL/SQL. (PO5, P07)

LAB LIST

1. Using Different operators
2. Using Control Structures
3. Implement Built-in functions
4. Implement update and Alter table
5. Implementing PL/SQL Block
6. Implement PL/SQL table and record
7. Using Functions
8. Using Cursors
9. Using Triggers

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(With Effect from Academic Year 2021-22)

Title of the Paper: Problem solving in C

Semester: III **CLASS B.Com(E-Commerce- Computers)**

Course Code	**CSCT11B**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours / Week	4	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

Course Objective

This course aims to provide exposure to problem-solving through programming and introduce the concepts of the C Programming language.

Course Learning Outcomes:

Course Outcome No	Upon successful completion of the course, a student will be able to:	Program Outcome No.
CO1	Understand the evolution & functionality of Digital Computers and develop an algorithm for solving a given problem.	PO1, PO7, PSO1, PSO4
CO2	Understand tokens and control structures in C.	PO1, PO7, PSO1, PSO4
CO3	Understand arrays and strings and implement them.	PO1, PO7, PSO1, PSO4
CO4	Understand the right way of using functions, pointers, structures and unions in C	PO1, PO7, PSO1, PSO4
CO5	Develop and test programs written in C files	PO1, PO7, PSO1, PSO4

UNIT I **12 periods**

General Fundamentals: Introduction to computers: Block diagram of a computer, characteristics and limitations of computers, applications of computers, types of computers, computer generations.

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms, Flow Charts, Programming Languages – Generations of Programming Languages – Structured Programming Language-Design and Implementation of Correct, Efficient and Maintainable Programs.

UNIT II **12 periods**

Introduction to C: Introduction – Structure of C Program – Writing the first C Program –File used in C Program – Compiling and Executing C Programs – Using Comments –
Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C-Programming Examples.

Decision Control and Looping Statements: Introduction to Decision Control Statements– Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – goto Statement.

UNIT III **10 periods**

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array– Operations on Arrays – one dimensional, two dimensional and multi-dimensional arrays, character handling and strings.

UNIT IV **14 periods**

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions.

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions– Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types.

UNIT V **12 periods**

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.

BOOKS

1. E Balagurusamy – Programming in ANSIC – Tata McGraw-Hill publications.
2. Brain W Kernighan and Dennis M Ritchie - The 'C' Programming language" - Pearson publications.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publications.
4. YashavantKanetkar - Let Us 'C' – BPB Publications.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

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MODEL Question Paper:

TITLE: Problem solving in C **COURSE CODE: CSCT11B**
CLASS B.Com(E-Commerce-Computers) **SEMESTER: III**
TIME: 3 Hrs. **MAX: 75M**

SECTION –A

ANSWER ANY FIVE QUESTIONS **5 X 5 =25 M.**

1. What is a flowchart? Utilize flowchart symbols and draw a flowchart to find biggest of two numbers. **(CO1, L3)**
2. Write a short note on block diagram of computers. **(CO1, L2)**
3. Explain do…while loop with an example program. **(CO2 , L2)**
4. Develop a C program to find largest number in a given integer list. **(CO3 ,L3)**
5. Classify data types in C. Write a short note on any two data types. **(CO2 , L2)**
6. How to declare and initialize 1D arrays. **(CO3, L1)**
7. Construct a student structure to accept student details and write a C program to calculate grade of a student. (**CO4 , L3)**
8. Illustrate command line arguments with an example program. **(CO5, L2)**

SECTION – B

ANSWER ALL THE QUESTIONS **5 X 10 =50 M.**

9 A) Define Algorithm. Demonstrate Key features of algorithm with examples. **(CO1, L2)**

(or)

B) List out the characteristics and limitations of computers. **(CO1, L1)**

10 A) Give Classification of Control statements in C. Explain multi-way decision making statements in C with examples. **(CO2, L2)**

(or)

B) Write a program to check whether the given number is Armstrong or not. **(CO2, L3)**

11 A) Develop a program in C for matrix multiplication. **(CO3, L3)**

(or)

B) Demonstrate various String handling functions in C with examples. **(CO3, L2)**

12 A) Compare and contrast structures with unions. **(CO4, L4)**

(or)

B) Explain the types of functions in C. **(CO4, L2)**

13 A) List different file handling functions in C. Explain with examples. **(CO5, L2)**

(or)

B) Explain call by value and call by reference with example. **(CO4, L2)**

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MODEL Question Paper:

TITLE: Problem solving in C **COURSE CODE: CSCT11B**
CLASS B.Com(E-Commerce-Computers) **SEMESTER: III**
TIME: 3 Hrs. **MAX: 75M**

SECTION-A

ANSWER ANY FIVE QUESTIONS **5X5=25M**

1. Unit 1
2. Unit 1
3. Unit 2
4. Unit 3
5. Unit 2
6. Unit 3
7. Unit 4
8. Unit 5

SECTION – B

ANSWER ALL THE QUESTIONS **5 X 10 =50 M.**

9 A) Unit 1.
(or)
B) Unit 1.

10 A) Unit 2.
(or)
B) Unit 2.

11 A) Unit 3.
(or)
B) Unit 3.

12 A) Unit 4.
(or)
B) Unit 4.

13 A) Unit 5.
(or)
B) Unit 5.

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(With Effect from Academic Year 2022-23)

Semester III	Course Code	Course Title	Credits	Prds
B.Com.(E-Commerce-Computers)	**CSCP11B**	**Problem Solving in CLab**	**1**	**30**

Course Outcome No	Upon successful completion of this course, students should have the knowledge and skills to:	Program Outcome No
CO1	Apply logical skills to analyse a given problem	PO1, PO7, PSO1, PSO4, PSO2
CO2	Design an algorithmic solution for a given problem	PO1, PO7, PSO1, PSO4, PSO2
CO3	Write a maintainable C program according to coding standards for a given algorithm	PO1, PO7, PSO1, PSO4, PSO2
CO4	Debug a given program	PO1, PO7, PSO1, PSO4, PSO2
CO5	Execute the C program	PO1, PO7, PSO1, PSO4, PSO2

Experiments List
Cycle-I

Week 1:
Write a C program to check whether the given two numbers are equal, bigger or smaller?
Week 2:
Write a C program to perform arithmetic operations using Switch...case?
Week 3:

- Write a program to find the sum of individual digits of a positive integer.
- Write a program to check whether the given number is Armstrong or not.

Week 4:
Write a program to generate the first N terms of the Fibonacci sequence.
Week 5:
Write a program to find both the largest and smallest number in a list of integer values
Week 6:

- Write a program that uses functions to add two matrices.
- Write a program for multiplication of two n X n matrices.

Week 7:

Write a program to demonstrate refection of parameters in swapping of two integer values using Call by Value& Call by Address.
Week 8:
Write a program to calculate factorial of given integer value using recursive functions.

Cycle-II

Week 9:
Write a program to search an element in a given list of values.
Week 10:
Write a program to illustrate pointer arithmetic.
Week 11:
Write a program to sort a given list of integers in ascending order.
Week 12:
Write a program to calculate the salaries of all employees using Employee (ID, Name, Designation, Basic Pay, DA, HRA, Gross Salary, Deduction, Net Salary) structure.

a. DA is 30 % of Basic Pay
b. HRA is 15% of Basic Pay
c. Deduction is 10% of (Basic Pay + DA)
d. Gross Salary = Basic Pay + DA+ HRA
e. Net Salary = Gross Salary - Deduction

Week 13:
Write a program to perform various string operations.
Week 14:
Write a program to read the data character by character from a file.
Week 15:
Write a program to create Book (ISBN, Title, Author, Price, Pages, Publisher) structure and store book details in a file and perform the following operations

a. Add book details
b. Search a book details for a given ISBN and display book details, if available
c. Update a book details using ISBN
d. Delete book details for a given ISBN and display list of remaining Books.

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Autonomous -ISO 9001 – 2015 Certified

Title of the Paper PROGRAMMING WITH C & C++

Semester: III

Course Code	CABT31A	Course Delivery Method	Class Room / Blended Mode - Both
Credits	**3**	CIA Marks	25
No. of Lecture Hours / Week	4	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2021	Year of Offering: 2021-22	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: To learn the fundamental programming concepts and methodologies which are essential to building good C/C++ programs.

Course Outcomes:

CO_1	To understand the meaning and generations of a programming language and to learn about c tokens.(PO5, PO7)
CO2	To learn about operators and conditional statements in C. (PO5, PO7)
CO3	To Gain knowledge about functions and to learn how to work with arrays- knowledge about strings and its functions. (PO5, PO7)
CO4	To learn about the concepts of structures and unions. (PO5, PO7)
CO5	To understand about Object-Oriented Programming concepts using CPP (PO5, PO7)

Syllabus		
Unit	**Learning Units**	**Lecture Hours**
I	**INTRODUCTION TO C LANGUAGE, VARIABLES, DATA TYPES** **Introduction:** Introduction to Programming languages and Generations of Programming languages, Structure of C Program , Writing the first C Program, Files used in C Program, Compiling and Executing C- Programs, Using Comments, Keywords, Identifiers, Basic Data Types in C, Variables- Numeric, Character, Declaring, Initializing, Constants- Integer, Float, Character, String Declaring constants, I/O Statements in C- Formatting I/O, Printf (), scanf ().	10
II	**Operators:** Operator and its types in C - Arithmetic, Relational, Equality, Logical, Unary, Conditional, Bitwise, Assignment, Comma, Size of. **WORKING WITH CONTROL STATEMENTS, LOOPS:** Introduction to Decision Control Statements , Conditional Branching Statements – If, If-Else, If-Else-if, Switch Case, Iterative or Looping Statements – While, Do-While, For , Break and Continue Statement , Go to Statement	10
III	**FUNCTIONS, ARRAYS** **Functions :** Introduction, Using Functions, Function declaration/prototype, Function Definition, Function Call, Scope of variables. **Arrays :** Introduction, Declaration of Arrays, Accessing elements of the Array, One dimensional array declaration and initialization with example, Two-dimensional array declaration and initialization with examples.	15
IV	**STRINGS:** Introduction to strings and string handling functions **Structures & Unions:** Introduction to structures, Structure Declaration, Typedef, Initialization, accessing the members of a structure, Nested structures, Arrays of structures, Unions – Declaring, Accessing and Initialization, Differences between Structures and Unions.	12
V	**OBJECT ORIENTED CONCEPTS USING C++** Introduction to Object Oriented Programming, Object Oriented Concepts, Class-Object-Inheritance-Polymorphism- Encapsulation-Abstraction, Structure of C++ program, Differences between C & CPP, Input and output statements in CPP. **Operators & Data types:** Operators in CPP, Data types in CPP, Operator Overloading	13

Text Books:			
	Author	**Title**	**Publisher**
1	Reema Thareja	Introduction to C programming	Oxford University Press
2	E. Balagurusamy	Objected Oriented Programming with C++	McGraw Hill.

Reference Text Books:			
	Author	**Title**	**Publisher**
1	E Balagurusamy	Computing Fundamentals & C Programming	Tata McGraw-Hill, 2008
2	Ashok N Kamthane	Programming with ANSI and Turbo C	Pearson Publisher, 2002.
3	Y.Kanetkar	Let Us C++:	BPB

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PROGRAMMING WITH C & C++
MODEL PAPER

CLASS: B. Com (C.A) **Max. Marks: 75M**
Course Code: CABT **Min. Pass: 30M**
Semester: III **Time: 3 Hours**

Section A

Answer any Five of the following **5*5=25M**

1. Explain the structure of a C Program. (CO1, L2)
2. Explain the working of go-to statement with example program (CO2, L2)
3. List in detail about the concept of scope of variables. (CO3, L1)
4. Define Union concept in C with example program? (CO4, L1)
5. Explain a) Encapsulation b) Abstraction concepts in CPP. (CO5, L2)
6. Demonstrate a C Program to sort the given numbers in an array. (CO3, L2)
7. Explain different types of files used in C Program. (CO1, L2)
8. Comparison between while and do-while statements. (CO2, L2)

Section B

Answer the following **5*10=50M**

9. a) Explain variables and constants in C with a detailed account of types of variables and constants. (CO1, L2)

(or)

b) Explain in detail about generations of programming languages. (CO1, L2)

10. a) Explain looping statements in C with example programs. (CO2, L2)

(or)

b) Explain different types of operators in C language. (CO2, L2)

11. a) What is a one-dimensional array with an example program. (CO3, L1)

(or)

b) What is a function? Explain function declaration, function definition and function calling with an example program (CO3, L1)

12. a) List any five string handling functions with syntaxes and example programs. (CO4, L1)

(or)

b) Define array of structures in detail with an example program. (CO4, L1)

13. a) Explain structure of a C++ program in detail. (CO5, L2)
b) Comparison between C and C++ (CO5, L2)

(or)

c) Explain the concept of operator overloading in C++ with example. (CO5, L2)

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PROGRAMMING WITH C & C++ LAB

COMPUTER SCIENCE	CABP	**2022-23**	**B. Com (Computer Applications)**

Semester: III **Credits: 1**
Hours Taught: 30 hrs. Per Semester **Max.Time**: 3 Hours

Course Objective:
The purpose of this course is to introduce students to the field of programming using C language and CPP. The students will be able to enhance their analyzing and programming skills and use the same for writing their own programs in C language and Using classes in CPP language.

Course Outcomes: At the end of this course the student is able toCO1:Use various operators in C programming
CO2:Implement decision and looping control statements

CO3:Passing parameters to functions & Accessing elements of an array and creation of one dimensional and two-dimensional arrays.
.CO4:Implementing string functions and structures, unions conceptsCO5:Implement basic OOP concepts in CPP.

LAB LIST

1. Write a C program to calculate the expression: ((a*b)/c)+(a+b+c)
2. Write a C program to calculate (a+b+c)3
3. Write a C program to convert temperature from
   a) Celsius to Fahrenheit
   b) Fahrenheit to Celsius
4. Write a C program to calculate compound Interest
5. Write a C program to find biggest of three numbers
6. Write a C program to read student marks in five subjects and calculate total and average
7. Write a C program to convert hours into seconds
8. Write a C program to display number of days in given month using switch case
9. Write a C program to find biggest of two numbers using switch case
10. Write a C program to find whether the given number is prime or not
11. Write a C program to check whether the given string is palindrome or not12 Write a C program to find the reverse of a given number using functions 13 Write a C program to swap two numbers using functions
14. Write a C program to sort the given numbers in an array
15. Write a C program to perform addition of two matrices
16. Write a C program to display student details using structures
17. Write a CPP program to find addition of three numbers using classes
18. Write a CPP program to find biggest of three numbers using classes
19. Write a CPP program to find whether a person is eligible to vote or not using classes
20. Write a CPP program to implement operator overloading concept

@@@@

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(With Effect from Academic Year 2021-22)

Title of the Paper: Problem solving in C
Semester: I **SECTIONS: B.Sc. (MPCS / MCCS/ MSCS)**

Course Code	**CSCT11B**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: Nil	Percentage of Revision: 0%

Course Objective
This course aims to provide exposure to problem-solving through programming and introduce the concepts of the C Programming language.

Course Learning Outcomes:

Course Outcome No	Upon successful completion of the course, a student will be able to:	Program Outcome No.
CO1	Understand the evolution & functionality of Digital Computers and develop an algorithm for solving a given problem.	PO1, PO7, PSO1, PSO4
CO2	Understand tokens and control structures in C.	PO1, PO7, PSO1, PSO4
CO3	Understand arrays and strings and implement them.	PO1, PO7, PSO1, PSO4
CO4	Understand the right way of using functions, pointers, structures and unions in C	PO1, PO7, PSO1, PSO4
CO5	Develop and test programs written in C files	PO1, PO7, PSO1, PSO4

UNIT I **12 periods**

General Fundamentals: Introduction to computers: Block diagram of a computer, characteristics and limitations of computers, applications of computers, types of computers, computer generations.

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms, Flow Charts, Programming Languages – Generations of Programming Languages – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

UNIT II **12 periods**

Introduction to C: Introduction – Structure of C Program – Writing the first C Program –File used in C Program – Compiling and Executing C Programs – Using Comments –

Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples.

Decision Control and Looping Statements: Introduction to Decision Control Statements– Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – goto Statement.

UNIT III **10 periods Arrays**:

Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array– Operations on Arrays – one dimensional, two dimensional and multi-dimensional arrays, character handling and strings.

UNIT IV **14 periods Functions**:

Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions.

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions– Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types.

UNIT V **12 periods**

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.

BOOKS

1. E Balagurusamy – Programming in ANSIC – Tata McGraw-Hill publications.
2. Brain W Kernighan and Dennis M Ritchie - The 'C' Programming language" - Pearson publications.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publications.
4. YashavantKanetkar - Let Us 'C' – BPB Publications.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

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BLUE PRINT

TITLE: Problem solving in C **COURSE CODE: CSCT11B**
SECTIONS: B.Sc. (MPCS / MCCS / MSCS) **SEMESTER: I**
TIME: 3 Hrs. **MAX: 70M**

SECTION-A

ANSWER ALL QUESTIONS **5X14=70M**

1. a. Unit 1(10M)
   b. Unit 1(4M)
   OR
   c. Unit 1(10M)
   d. Unit 1(4M)

2. a. Unit 2(10M)
   b. Unit 2(4M)
   OR
   c. Unit 2(10M)
   d. Unit 2(4M)

3. a. Unit 3(10M)
   b. Unit 3(4M)
   OR
   c. Unit 3(10M)
   d. Unit 3(4M)

4. a. Unit 4(10M)
   b. Unit (4M)
   OR
   c. Unit 4(10M)
   d. Unit 4(4M)

5. a. Unit 5(10M)
   b. Unit 5(4M)
   OR
   c. Unit 5(10M)
   d. Unit 5(4M)

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Semester I	Course Code	Course Title	Credits	Prds
B.Sc.(MPCS / MCCS/ MSCS)	**CSCP11B**	**Problem Solving in C Lab**	**1**	**30**

Course Outcome No	Upon successful completion of this course, students should have the knowledge and skills to:	Program Outcome No
CO1	Apply logical skills to analyse a given problem	PO1, PO7, PSO1, PSO4, PSO2
CO2	Design an algorithmic solution for a given problem	PO1, PO7, PSO1, PSO4, PSO2
CO3	Write a maintainable C program according to coding standards for a given algorithm	PO1, PO7, PSO1, PSO4, PSO2
CO4	Debug a given program	PO1, PO7, PSO1, PSO4, PSO2
CO5	Execute the C program	PO1, PO7, PSO1, PSO4, PSO2

Experiments List
Cycle-I

Week 1:
Write a C program to check whether the given two numbers are equal, bigger or smaller?
Week 2:
Write a C program to perform arithmetic operations using Switch...case?
Week 3:

- Write a program to find the sum of individual digits of a positive integer.
- Write a program to check whether the given number is Armstrong or not.

Week 4:
Write a program to generate the first N terms of the Fibonacci sequence.
Week 5:
Write a program to find both the largest and smallest number in a list of integer values
Week 6:

- Write a program that uses functions to add two matrices.
- Write a program for multiplication of two n X n matrices.

Week 7:

Write a program to demonstrate refection of parameters in swapping of two integer values using Call by Value& Call by Address.
Week 8:
Write a program to calculate factorial of given integer value using recursive functions.

Cycle-II

Week 9:
Write a program to search an element in a given list of values.
Week 10:
Write a program to illustrate pointer arithmetic.
Week 11:
Write a program to sort a given list of integers in ascending order.
Week 12:
Write a program to calculate the salaries of all employees using Employee (ID, Name, Designation, Basic Pay, DA, HRA, Gross Salary, Deduction, Net Salary) structure.

a. DA is 30 % of Basic Pay
b. HRA is 15% of Basic Pay
c. Deduction is 10% of (Basic Pay + DA)
d. Gross Salary = Basic Pay + DA+ HRA
e. Net Salary = Gross Salary - Deduction

Week 13:
Write a program to perform various string operations.
Week 14:
Write a program to read the data character by character from a file.
Week 15:
Write a program to create Book (ISBN, Title, Author, Price, Pages, Publisher) structure and store book details in a file and perform the following operations

a. Add book details
b. Search a book details for a given ISBN and display book details, if available
c. Update a book details using ISBN
d. Delete book details for a given ISBN and display list of remaining Books.

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Title of the Paper: INFORMATION TECHNOLOGY
Semester: I **SECTIONS: B.Com (CA)**

Course Code	**CSBT11A**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	5	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

INFORMATION TECHNOLOGY

Objective:
It provides to learn computer basics and basic principles of using Windows operation system and be able to access the Internet, data communication, Software, hardware and various new technologies in information technology.

Course Outcomes:

COURSE OUTCOME NO	Upon successful completion of this course, students should have the knowledge and skills to
CO1	Understand fundamental concepts of a computer and its basic components
CO2	Understand basic functioning of an operating system and customizing Windows Desktop
CO3	Analyse type of soft wares and programming languages
CO4	Have knowledge in basic Network and Data Communication Concepts
CO5	Understand the need of data mining and get familiarize with basics of new concepts like KDD, OLAP

UNIT-I: INTRODUCTION: **13Periods**

Introduction to computers
Generations of computers
An overview of computer system - Types of computers
Input & Output Devices.
Hardware: Basic components of a computer system- Control unit– ALU- Input/outputfunctions.
Memory – RAM – ROM – EPROM - PROM and Other types of memory.

UNIT-II: OPERATING SYSTEM (OS): **12Periods**

Meaning - Definition & Functions.
Types of OS - Booting process
DOS – Commands (internal & external) - Wild card characters
Windows: Using the Start Menu –Control Panel – Using multiple
Windows – Customizing the Desktop – Windows accessories (Preferably latest version of windows or Linux Ubuntu).

Unit-III: SOFTWARE: **15Periods**

System software and application software.

Operating system windows OS,

Mobile device operating system and notebook operating systems

Application software Types of personal application software

Spread sheet-data management

Word processing

Desktop publishing

Graphics, CAD, CAM, CIM

Programming Languages

Assembly language

Procedural language, non-procedural language, natural programming language.

Hypertext mark-up language, modelling language, object-oriented programming language.

Unit-IV: DATA COMMUNICATION: **20 Periods**

Telecommunication and Networks Communication media& channel cable media

Broad cast media channels twisted pair

Coaxial cable, fibers optical cable, micro wave, satellite, radio, cellular radio, infrared global positioning system.

Introduction, Analog and Digital signals, modulation need of modulations, modems.

Telecommunication System communication processors:

Modem

Multiplexers

Front –end-processor.

Networks LAN, WAN, VAN, virtual private network (VPN).

Internet, intranet and Extranets

The evolution of the internet, service provided by the internet, World Wide Web.

Unit-V: NEW TECHNOLOGIES: **10 Periods**

New technologies in Information Technology:

Introduction to hyper media, artificial intelligence and business intelligence, knowledgediscovery in database (KDD)

Data warehouse and data marts. Data mining and OLAP.

Student Activity:

Students have to submit assignments and give seminars on various topics allotted to them.

Total of 5 Hrs is allotted for student seminars. Student activity also includes gathering of information related to latest technologies in computers.

Library Activity:

Students will visit library in their allotted time and will refer various text books to gather information for their assignments.

TEXT/ REFERENCE BOOKS:

1. B.E.V.L.Naidu, V.V.. Devi Prasad Konti, Ganti Naga Srikanth, Himalaya publishing House.
2. Introduction to Computers: Peter Norton, McGraw Hill.

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(With Effect from Academic Year 2021-22)

Model Paper

TITLE: INFORMATION TECHNOLOGY **COURSE CODE: CSBT11A**

CLASS B.Com(CA) **SEMESTER: I**

TIME: 3 Hrs. **MAX: 70M**

SECTION-A

ANSWER ALL QUESTIONS **5X14=70M**

6. a. Unit 1(10M)
   e. Unit 1(4M)
   OR
   f. Unit 1(10M)
   g. Unit 1(4M)

7. a. Unit 2(10M)
   e. Unit 2(4M)
   OR
   f. Unit 2(10M)
   g. Unit 2(4M)

8. a. Unit 3(10M)
   e. Unit 3(4M)
   OR
   f. Unit 3(10M)
   g. Unit 3(4M)

9. a. Unit 4(10M)
   e. Unit 4(4M)
   OR
   f. Unit 4(10M)
   g. Unit 4(4M)

10. a. Unit 5(10M)
    e. Unit 5(4M)
    OR
    f. Unit 5(10M)
    g. Unit 5(4M)

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Autonomous -ISO 9001 – 2015 Certified

Title of the Paper: **COMPUTER APPLICATIONS** Semester: I

Course Code	**CCSE101**	Course Delivery Method	Class Room / Blended Mode –
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2022-23	Year of Revision: ----	Percentage of Revision: 0%

COURSE OBJECTIVES:

It provides to learn computer basics and basic principles of using Windows operation system and be able to access the Ms-Office, Power Point, Excel and various new technologies in information technology.

Course Outcomes:

COURSE OUTCOME NO	**Upon successful completion of this course, students should have the knowledge and skills to**
CO1	Understand fundamental concepts of a computer and its basic components
CO2	Understand basic functioning of an Ms-Office and MS-Word Window Components Windows Desktop
CO3	Analyze type of soft ware's and programming languages
CO4	Have knowledge in MS-Excel and MS Access
CO5	Understand the need of Finding, Sorting and Displaying Data and get familiarize

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(With Effect from Academic Year 2021-'22)

COMPUTER SCIENCE	CCSE101	2022-23	B.Com(E-Commerce-Computes)

SEMESTER – I PAPER – I Max. Marks 70 Pass Marks 28 Total Hrs: 60

Syllabus: **Computer Applications NO. Of Hrs**: **4 Credits**: **3**

Unit-I: MS-Word 10 Hrs

Features of MS-Word – MS-Word Window Components – Creating, Editing, Formatting and Printing of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format – Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Equations – Spelling and Grammar – Thesaurus – Mail Merge

Unit-II: MS-PowerPoint 10 Hrs

Features of PowerPoint – Creating a Blank Presentation - Creating a Presentation using a Template - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures - Inserting Other Objects, Audio, Video - Resizing and Scaling of an Object – Slide Transition – Custom Animation

Unit-III: MS-Excel 10Hrs

Overview of Excel features – Creating a new worksheet, Selecting cells, Entering and editing Text, Numbers, Formulae, Referencing cells – Inserting Rows/Columns – Changing column widths and row heights, auto format, changing font sizes, colors, shading and attributes – Data Sorting and Filters – Functions – Functions requiring Addins, Functions by category Creating different types of Charts

Unit-IV: MS Access: 12Hrs

Creating a Simple Database and Tables: Features of Ms-Access, Creating a Database, Parts of Access. Tables: table creation using design view, table wizard, data sheet view, import table, link table. Forms: The Form Wizard, design view, columnar, tabular, data sheet, chart wizard.

Unit- V: Finding, Sorting and Displaying Data: 12Hrs

Queries and Dynasts, Creating and using select queries, Returning to the Query Design, Multi-level sorts, Finding incomplete matches, showing All records after a Query, saving queries - Crosstab Queries. Printing Reports: Form and Database Printing..

Reference Books:

1. Ron Mansfield, Working in Microsoft Office, Tata McGraw Hill(2008)

2. Ed Bott, Woody Leonhard, Using Microsoft Office 2007, Pearson Education(2007)

3. Sanjay Saxsena, Microsoft Office, 4.Microsoft Office, BPB Publications

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Model Paper

TITLE: COMPUTER APPLICATIONS **COURSE CODE: CSCE101**

SECTIONS: B.Com(E-Commerce-Computers) **SEMESTER: I**

TIME: 3 Hrs. **MAX: 70M**

SECTION-A

ANSWER ALL QUESTIONS **5X14=70M**

1. a. Unit 1(10M)
   b. Unit 1(4M)
   OR
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   OR
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   b. Unit 4(4M)
   OR
   c. Unit 4(10M)
   d. Unit 4(4M)

5 a. Unit 5(10M)
   b. Unit 5(4M)
   OR
   c. Unit 5(10M)
   d. Unit 5(4M)

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(With Effect from Academic Year 2019-'20)

COMPUTER SCIENCE	CCSEP-101	2022-23	B.Com. (E-COMMERCE)

SEMESTER – I PAPER – I Max. Marks 50 Pass Marks 20 Total Hrs: 30

COMPUTER APPLICATIONS LAB

Ms-Word

1. Create a vesting Card
2. Create a template for organization using Header & Footer
3. Inserting tables, pictures, Charts
4. Macros
5. Mail merge Procedure

Ms-Excel

1. Create an electronic spreadsheet in which you enter the following decimal numbers and convert into Octal, Hexadecimal and Binary numbers vice versa. Decimal Numbers: 35, 68, 95, 165, 225, 355, 375, 465. Binary Numbers: 101, 1101, 111011, 10001, 110011001, 111011111.

2. The ABC Company shows the sales of different products for 5 years. Create column chart, 3D-column and Bar chart for the following data YEAR PRODUCT-1 PRODUCT-2 PRODUCT-3 PRODUCT-4 2003 1000 800 900 10002004 800 80 500 9002005 1200 190 400 8002006 400 200 300 1000 2007 1800 400 400 1200

3. Create a suitable examination data base and find the sum of the marks(total) of each student and respective class secured by the student rules:
Pass if marks in each subject >=35 Distinction if average>=75 First class if average>=60 but <75 Second class if average>=50 but <60 Third class if average>=35 but <50
Fail if marks in any subject is <35 Display average marks of the class, subject wise and pass percentage

4. Create an electronic spread sheet in which you enter date and time functions in Excel

5. Create a electronic spread sheet in statistical and mathematical functions in Excel

MS-PowerPoint

1. Make a Power point presentation on your strengths, weaknesses, hobbies, factors that waste your time.
2. Make a Power point presentation to represent your College profile.
3. Make a Power point presentation of all the details of the books that you had studied in B.Sc. First Year.
4. Create a Presentation without Animation.

MS-ACCESS

1. Create a database using MS-ACCESS with at least 5 records table1 structure: register number , name, dob, gender, class table2 structure: register number m1 m2 m3 m4 m5 total maintain the relationship between two tables with register number as a primary key and answer the following quarries: show the list of students with the following fields as one query register number name gender total marks

2. Maintain the relationship between above two tables with register number as a primary key and answer the following reports: reports must have following columns report1 with register number, name, marks of all subjects and 90 hrs (3 hrs/ week) computer science 10 of 44 total report2 with register number, total , percentage.

3. Create a database using ms-access with at least 5 records table1 structure: emp-code emp-name age gender dob table2 structure: emp-code basic-pay maintain the relationship between two tables with emp-code as a primary key generate the following reports: report1: emp-code emp-name basic-pay da,hra gross-salary report2: emp-code emp-name age gender gross-salary.

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2022-2023

DEPARTMENT OF COMPUTER SCIENCE

MINUTES OF BOARD OF STUDIES

EVEN SEMESTER

03-04-2023

Minutes of the meeting of Board of Studies in Computer Science for Semester II, IV & VI of I, II & III years B.Sc. (MPCs, MCCs, MSCs), B.Com. (C.A.) and B.Com (e-Commerce-Computers) Life Skill Course and Skill Development Course of AG & SG Siddhartha Degree College of Arts &Science, Vuyyuru, held at 10.00 A.M on 03-04-2023 in the Department of Computer Science.

Sri T.NagaPrasadaRao ... Presiding

Members Present:

1)..... (T.Naga Prasada Rao)	Chairman	Head, Department of Computer Science, AG&SG Siddhartha Degree College of Arts & Science.
2) ---------- (Dr. M. Babu Reddy)	University Nomine	Principal, Krishna University College of Engineering and Technology, Machilipatnam.
3). ---------- (Dr. P. J. S Kumar)	Subject Expert	Principal, HOD of Department of Computer Science A.N.R College Gudivada.
4) ---------- (Mr. K. Sridhar)	Subject Expert	TPO, Department of Computer Science PB Siddhartha College of Arts & Science,VJA
5) ---------- (R. Sowjanya)	Industrial Expert	.Net Developer, Maven Soft System Pvt. Ltd Madaapur, Hyderabad.
6)..... (S. Prabhavathi)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
7)..... (A. Sravani)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
8)..... (A. Naga Srinivasa Rao)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
9)..... (G.Katyayini)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
10)..... (O.Teja Sri)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
11).. (P.Sri Ram Teja)	Member	Lecturer in Computer Science, AG&SG Siddhartha Degree College of Arts &Science, Vuyyuru-521165
12) ---------- (G.Lavanya)	Member	Student in M.Sc. CS, AG& SG Siddhartha Degree College of Arts & Science, Vuyyuru-521165
13) ---------- (G.Jahnavi)	Member	Student in B.Sc. MPCs, AG& SG Siddhartha Degree College of Arts & Science, Vuyyuru-521165

Agenda for B.O.S Meeting.

1. To discuss introducing Syllabi and Model papers for Elective Skill Enhancement Courses (SEC) for B.Sc. (MPCs) & B.Com (C.A) programmes in Fifth/Sixth Semester adopting COs in line with guidelines of OBE following Blooms Taxonomy for the students admitted in the Academic year 2020-2021 and onwards.

2. To Discuss and approve the Structure and Syllabi and model papers of B. Sc. (MPCs, MCCs, MSCs), B.Com (C.A) & B.Com(e-commerce-Computers) programme in Second, Fourth & Six semesters for the student admitted in the academic year 2022-23 and onwards.

3. To recommend any changes in the syllabi for I, III, V & VI Semesters of I, II, III year Degree B.Sc.(MPCs, MCCs, MSCs), B.Com.(C.A.) and B.Com(e-commerce-Computers).

4. To Introduce a Life Skill Course and Skill Development Course for all B.Sc and B.Com from the Academic Year 2022-23.

5. To recommend the teaching and evaluation methods to be followed under Autonomous status.

6. To recommend the panel of paper setters and examiners to the controller of the examinations of autonomous courses of AG & SG Siddhartha Degree College of Arts & Science College, Vuyyuru.

7. Any other matter

Resolutions

1. It is Resolved and Recommended to adopt the structure, syllabi & Model papers for Elective Skill Enhancement Courses (SEC) for B.Sc. (MPCs, MCCs, MSCs) & B.Com (C.A) programmes in Fifth/Sixth Semester adopting COs in line with guidelines of OBE following Blooms Taxonomy for the students admitted in the Academic year 2020-2021 and onwards.
2. It is Resolved and recommend the same syllabi without changes, but only changes on Model Paper for II Semester of I Year B.Sc. (MPCs, MCCs, MSCs), B.Com.(CA) & B.Com(e-commerce-Computers).
3. It is Resolved and Recommend to introduce new Syllabi and Model Question paper as per new regulations in IV Semester of II Year Degree B.Sc. (MPCs, MCCs) and B.Com(CA).
4. It is Resolved to implements Life Skill Course and Skill Development Course for all B.Sc and B.Com from the Academic Year 2022-23.
5. It is resolved to continue the teaching and evaluation methods to be followed under Autonomous status.
6. It is resolved to continue the panel of paper setters and examiners to the controller of the examinations of autonomous courses of AG & SG Siddhartha Degree College of Arts & Science College, Vuyyuru.
7. **Discussed and recommended to introduce Value Added Course on "Deep Learning" with Course Code "DLVAC01" for II B.SC (MSC's)**
8. Any other matter

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. Using of LMS and LCD projector to display on power board etc..for better understanding of concepts.

Evaluation of a student is done by the following procedure:

There are two components in the Valuation and Assessment of a student – Internal Assessment (**IA**) Semester Examinations (**SE). For the Batch of Students Admitted from 2022-23.**

Internal Assessment (IA)

- The maximum mark for IA is 30 and SE is 70 for theory; and for practical marks for IA 10 and 40 Marks for External Exam.
- Each IA written examination is of 1 hour 30 minutes duration for 20 marks. The tests will be conducted centrally. The average of two such IA is calculated for 20 marks.
- Attendance will be for 5 Marks. The other innovative component is for 5 marks, conducted during the class hours by the staff member/ in charge of the subject, in the form of assignments/ quiz/ seminars /PPT/Online- assignments/Open Book/Viva Voce/ Group work/ Mini Project/ Exhibition, etc. The topic and time for submission/ presentation will be announced by the staff member/ in charge of the subject in advance. Each student should explain and defend his/her presentation.
- The semester examination will be of 3 hours with maximum 70 marks.

***Internal Assessment (IA)* For the Batch of Students Admitted from 2021-22.**

- The maximum mark for IA is 25 and SE is 75 for theory; and for practical marks for IA 10 and 40 Marks for External Exam.
- Each IA written examination is of 1 hour duration for 15 marks. The tests will be conducted centrally. The average of two such IA is calculated for 15 marks.

- Other Innovative Components will be for 5 Marks. The innovative component is for 5 marks, conducted during the class hours by the staff member/ in charge of the subject, in the form of
- Assignments/ quiz/ seminars /PPT/Online- assignments/Open Book/Viva Voce/ Group work/ MiniProject/ Exhibition, etc. The topic and time for submission/ presentation will be announced by thestaff member/ in charge of the subject in advance. Each student should explain and defend his/herpresentation.
- The semester examination will be of3 hours with maximum 75 marks.

Internal Assessment (IA) **For the Batch of Students Admitted from 2020-21.**

- The maximum mark for IA is 30 and SE is 70 for theory; and for practical marks for IA 10 and 40 Marks for External Exam.
- Each IA written examination is of1 hour 30 minutes duration for 20 marks. The tests will be conducted centrally. The average of two such IA is calculated for 20 marks.
- Attendance will be for 5 Marks. The other innovative component is for 5 marks, conducted during the class hours by the staff member/ in charge of the subject, in the form of assignments/ quiz/ seminars /PPT/Online- assignments/Open Book/Viva Voce/ Group work/ Mini Project/ Exhibition, etc. The topic and time for submission/ presentation will be announced by the staff member/ in charge of the subject in advance. Each student should explain and defend his/her presentation.
- The semester examination will be of3 hours with maximum 70 marks.

Semester Examinations (SE)

- A student should register himself/herself to appear for the Semester Examinations by payment of the prescribed fee.
- The Semester Examinations will be in the form of a comprehensive examination covering the entire syllabus in each subject. It will be of3 hours duration & Foundation course 2 hours irrespective of the number of credits allotted to it.
- If a candidate fails to obtain pass marks even after the due to less mark in the IA examination, the marks of the next examination will be converted to be out of 100.
- Even though the candidate is absent for two IA exams/obtain zero marks the external marks are considered (if he/she gets 40/100) and the result shall be declared as 'PASS'.
- The maximum marks for each Paper shall be 100.

Question paper guide lines for Practical Examinations at the end of Semesters II, IV & VI Two Practical Programs to be conducted out of 15 programs at the end of Semester II, IV, VI Practical Examination time 3Hrs and Maximum Marks 50 Scheme of valuation Semesters – II, IV, VI B.Sc.& B.Com.(C.A), B.Com.(e-commerce-Computers).

Computer Science Practical's - External (Time: 3 hrs.) Total Marks: 40M

1. Programs writing (2):20 marks,
2. Viva voice : 5 marks
3. Execution &Result : 15 marks

Total Marks : 40

Computer Science Practical's- Internal **Total Marks: 10 M**

1. Record : 10 marks

6) Discussed and recommended for organizing Seminars, Guest lectures, Work-shops to upgrade the knowledge of students, for the approval of the Academic Council.

7) Discussed and empowered the HOD to suggest the panel of the paper setters and examiners to the controller of the examinations.

8). We implemented online certificate courses & Internships such as NPTL, APSSDC - PYTHON, R-Programming, Amazon Web services and JAVA------ etc. To fill the curriculum gaps from II year Degree on words

9). Suggestions

Chairman

LIST OF THE COURSES REVISED/ INTRODUCED IN V/VI SEMESTERS (2022 – 2023) BSC(MPCs & MCCs)										
SEM NO	**Course Code**	**Course No.**	**Title of Course**	**Hrs. / Week**		**Credits**		**Marks**		
				Th.	**Lab**	**Th.**	**Lab**	**Int. Max. Marks**	**SEE**	**Total Marks**
V/VI	SECCSCT01	6A	Web Interface Designing Technologies	3		3		30	70	100
	SECCSCP01		Web Interface Designing Technologies Lab		3		2	10	40	50
	SECCSCT02	7A	Web Applications Development using PHP& MYSQL	3		3		30	70	100
	SECCSCP02		Web Applications Development using PHP& MYSQL Lab		3		2	10	40	50
OR										
V/VI	SECCSCT03	6B	Internet of Things	3		3		30	70	100
	SECCSCP03		Internet of Things Lab		3		2	10	40	50
	SECCSCT04	7B	Application Development using Python	3		3		30	70	100
	SECCSCP04		Application Development using Python Lab		3		2	10	40	50
	OR									
	SECCSCT05	6C	Data science	3		3		30	70	100
	SECCSCP05		Data science Lab		3		2	10	40	50
	SECCSCT06	7C	Python for Data Science	3		3		30	70	100
	SECCSCP06		Python for Data Science Lab		3		2	10	40	50

LIST OF THE COURSES REVISED/ INTRODUCED IN V/VI SEMESTERS(2022 – 2023)
B.COM (C.A) V/VI SEMESTERS OF B.Com(C.A)&
B.Com(e-commerce-Computers)

SEM NO	Course Code	Course No.	Title of Course	Hrs. / Week		Credits		Marks		
				Th.	Lab	Th.	Lab	Int. Max. Marks	SEE	Total Marks
V/VI	SECCAT01	6A	Big data Analytics using R	3		3		30	70	100
	SECCAP01		Big data Analytics using R Lab		3		2	10	40	50
	SECCAT07	7A	Data Science using Python	3		3		30	70	100
	SECCAP07		Data Science using Python Lab		3		2	10	40	50
	OR									
	SECCAT03	6B	Mobile application development	3		3		30	70	100
	SECCAP03		Mobile application development Lab		3		2	10	40	50
	SECCAT04	7B	Cyber Security and Malware Analysis	3		3		30	70	100
	SECCAP04		Cyber Security and Malware Analysis Lab		3		2	10	40	50
	OR									
V/VI	SECCAT05	6C	E Commerce Application Development	3		3		30	70	100
	SECCAP05		E Commerce Application Development Lab		3		2	10	40	50
	SECCAT06	7C	Real time governance system (RTGS)	3		3		30	70	100
	SECCAP06		Real time governance system (RTGS) Lab		3		2	10	40	50
	OR									
	SECCAT07	6D	Multimedia Tools and Applications	3		3		30	70	100
	SECCAP07		Multimedia Tools and Applications Lab		3		2	10	40	50
	SECCAT08	7D	Digital Imaging	3		3		30	70	100
	SECCAP08		Digital Imaging Lab		3		2	10	40	50

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DEPARTMENT OF COMPUTER SCIENCE

LIST OF THE COURSES REVISED/ INTRODUCED IN II & IV SEMESTERS - 2022-23

S. NO	Name of the Course	Course Code	SEM No	Type of the Paper	Total Marks	IA TEST	SEE	Teaching Hours	Credits	Offered to (Name of the Programme)
1	Object Oriented Programming using Java	CSCT01	IV	Core	100	25	75	4	4	B.Sc (MPCs, MCCs)
2	Object Oriented Programming using Java Lab	CSCP01	IV	Core Lab	50	10	40	2	1	B.Sc (MPCs, MCCs)
3	Operating System	CSCT41C	IV	Core	100	25	75	4	4	B.Sc (MPCs, MCCs)
4	Operating system Lab	CSCT41C	IV	Core Lab	50	10	40	2	1	B.Sc (MPCs, MCCs)
5	DBMS	CABT41A	IV	Core	100	25	75	4	3	B.Com(CA)
6	DBMS Lab	CABP41A	IV	Core Lab	50	10	40	2	1	B.Com(CA)
7	Object Oriented Programming using Java	CCSCT42	IV	Core	100	25	75	4	3	B.Com(CA)
8	Object Oriented Programming using Java Lab	CCSCP42	IV	Core Lab	50	10	40	2	1	B.Com(CA)
9	OOP'S using Java	ECCSCT 41	IV	Core	100	25	75	4	3	B.Com(ecommerce-Computers)
10	OOP'S using Java Lab	ECCSCP41	IV	Core Lab	50	10	40	2	1	B.Com(ecommerce-Computers)
11	DBMS	ECCSCT 42	IV	Core	100	25	75	4	3	B.Com(ecommerce-Computers)
12	DBMS Lab	ECCSC P42	IV	Core Lab	50	10	40	2	1	B.Com(ecommerce-Computers)
13	Data Communications& Networks	ECCSCT43	IV	core	100	25	75	5	4	B.Com(ecommerce-Computers)
14	Data Structures	CSCT21B	II	Core	100	30	70	4	3	B.Sc (MPCs, MCCs, MSCs)
15	Data Structures Lab	CSCT21B	II	Core Lab	50	10	40	2	1	B.Sc (MPCs, MCCs, MSCs)

16	**E–COMMERCE & WEB DESIGNING**	**CABT21A**	**II**	**Core**	**100**	**30**	**70**	**4**	**3**	**B.Com(CA)**
17	**Web Design Lab**	**CABT21A**	**II**	**Core Lab**	**50**	**10**	**40**	**2**	**1**	**B.Com(CA)**
18	**Information Technology**	**CABT21A**	**II**	**Core**	**100**	**30**	**70**	**4**	**4**	**B.Com(ecommerce-Computers)**
19	**Programming in C**	**ECCSC21**	**II**	**Core**	**100**	**30**	**70**	**4**	**4**	**B.Com(ecommerce-Computers)**
20	**Programming in C Lab**	**ECCSC21P**	**II**	**Core Lab**	**50**	**10**	**40**	**2**	**1**	**B.Com(ecommerce-Computers**

Note-1: For Semester–V, for the domain subject Computer Science any one of the three pairs of SECs shall be chosen as courses 16,17,18,19,20 and 21, i.e., 16A & 17A or 16B &; 17B or 16C &; 17C and so on. The pair shall not be broken (ABCD allotment is random, not on any priority basis).

Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate field related skills of the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations.

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Title of the Paper: WEB INTERFACE DESIGNING TECHNOLOGIES

Semester: V/VI

Course Code	SECCSCT01	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: To create web elements like buttons, banners & Bars and of course complete UI designs. Forms and validations for your website. Setting up page layout, color schemes, contract, and typography in the designs. Writing valid and concise code for web pages.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Understand web application and static web page using Html. (PO5)
CO2	Gain knowledge about various designing of style sheets. (PO5)
CO3	Demonstrate skills regarding creation of an interface to dynamic website.(PO7)
CO4	Gain knowledge about various advantages of XML and validating schema(PO5)
CO5	Learn how to install word press and gain the knowledge of installing various plugins to use in their websites. (PO5,PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Web Designing, HTML** **Web Designing:** Introduction To Web Designing, Difference Between Web Applications And Desktop Applications. **HTML:** Introduction To HTML, Introduction To HTML, Headings, Paragraphs Styles &Colors, HTML Formatting, Quotations, Comments, Hyperlinks, Lists, Using colors and images, Tables, Multimedia Objects - Video, Audio, Plugins, You Tube, Frames, Forms	12
II	**CSS, HTML API'S** **CSS**: Introduction, Using Styles, Simple Examples, Defining Your Own Styles, Properties and Values in Styles, Style Sheets, Formatting blocks of information, Layers, CSS Combinators, Pseudo Class, Pseudo Elements, Opacity, ToolTips, Image Gallery, CSS Forms, CSS Counters, CSS Responsive.**HTML API'S:** Geolocation, Drag/drop, local storage, HTML SSE	12
III	**Client side Validation:**Introduction to JavaScript: What Is DHTML?, JavaScript Basics,Variables,StringManipulations,MathematicalFunctions,Statements,Operators,Arrays,Functions.Objects in JavaScript –Data and Objects In JavaScript, Regular Expressions, Exception Handling. DHTML with JavaScript :Data Validation, Opening a New Window, Messages and Confirmations, The Status Bar, Different Frames, Rollover Buttons, Moving Images	14
IV	**XML:** Introduction to xml, How to write a xml document, Elements and attributes, Comments in xml, Namespace in xml, Xml css, Advantages of xml, Uses of xml, xml schema, data types, simple types, complex types ,Validating DTD,XSD.	12
V	**Word press** Introduction to word press, servers like wamp, bitnami e.tc, installing and configuring word press, understanding admin panel, working with posts and pages, using editor, text formatting with shortcuts, working with media-Adding, editing, deleting media elements, working with widgets, menus.	10

Text Book/ references / e-books/websites

1. Chris Bates, Web Programming Building Internet Applications, Second Edition, Wiley
2. Web technologies by A.A.Puntambekar
3. Web Technologies by N.P.Gopalan,Eastern Economy Edition,2nd edition
4. Paul S.WangSanda S. Katila, an Introduction to Web Design plus Programming, Thomson
5. Head First HTML and CSS, Elisabeth Robson, Eric Freeman, O'Reilly Media Inc.
6. An Introduction to HTML and JavaScript: for Scientists and Engineers, David R. Brooks.
7. Schaum's Easy Outline HTML, David Mercer, Mcgraw Hill Professional.
8. Word press for Beginners, Dr.Andy Williams.
9. Professional word press, Brad Williams, David damstra, Hanstern.
10. Web resources:
    a. http://www.codecademy.com/tracks/web
    b. http://www.w3schools.com
    c. https://www.w3schools.in/wordpress-tutorial/ d.http://www.homeandlearn.co.uk

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COMPUTER SCIENCE	SECCSCT01	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 70**

Model Paper: WEB INTERFACE DESIGNING TECHNOLOGIES

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION – A
Short Answer Questions

Answer any Four questions. (At least 1 question should be given from each Unit)

(4x5=20Marks)

1.What is HTML? Explain features and structure of HTML program with example(CO1,L1)
2. What is layer? How are they described with HTML code?(CO1,L1)
3.Explain hyperlinks in HTML.(CO2,L5)
4.What is java script? Explain the features ,advantages and disadvantages of java script(CO3,L1)
5. What are the elements and attributes used in XML(CO4,L1)
6. Explain text formatting in word Press.(CO5,L5)

SECTION-B

Answer all questions.

(5 x 10 = 50 Marks)

9(a) What is list? Explain various types of lists in HTML.(CO1,L1)

OR

9(b)Explain Frames and forms in HTML(CO1,L2)

10(a)Define CSS, Explain various styles sheets in HTML(CO2,L1)

OR

10(b). Explain HTML APIs.(CO1,L2)

11(a).What is DHTML? Explain about various string and mathematical functions(CO3,L2)

OR

11(b) Explain Exception handling and rollover buttons in java script(CO3,L2)

12(a).What are the advantages of using XML and CSS? How to validate XML schema.(CO4,L1)

OR

12(b) Explain about DTD in XML(CO4,L2)

13(a) What is admin panel, what are the steps involved in working with post and pages (CO5,L1)

OR

13(b) Explain how we can add, edit and deleting media elements in word press(CO5,L2)

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(**With Effect from Academic Year 2022-23**)

COMPUTER SCIENCE	SECCSCP01	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 50**

Lab List: WEB INTERFACE DESIGNING TECHNOLOGIES LAB

No. of Hours per week: 3 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Create a basic website with the help of HTML and CSS.(PO5)

CO2: Acquire the skill of installing word press and various plugins of Word press.(PO5)

CO3: Create a static website with the help of Word press..(PO5,PO7)

CO4: Create an interface for a dynamic website.(PO5,PO7)

CO5: Apply various themes for their websites using Word press.(PO7)

II.Practical (Laboratory) Syllabus: (30 periods)

HTML and CSS:

1. Create an HTML document with the following formatting options:
(a)Bold, (b) Italics, (c) Underline, (d) Headings (Using H1 to H6 heading styles), (e) Font (Type, Size and Color), (f) Background (Colored background/Image in background), (g) Paragraph, (h) Line Break, (i) Horizontal Rule, (j) Pre tag
2. Create an HTML document which consists of:
(a) Ordered List (b) Unordered List (c) Nested List (d) Image
3. Create a form using HTML which has the following types of controls:
(a) Text Box (b) Option/radio buttons (c) Check boxes (d) Reset and Submit buttons
4.Embed a calendar object in your web page.
5. Create an applet that accepts two numbers and perform all the arithmetic operations on them.
6. Create nested table to store your curriculum with image.
7. Create a form that accepts the information from the subscriber of a mailing system.
8. Create a help file as follows:

9. Write a html program including style sheets.
10. Write a html program to layers of information in web page.
11. Develop a Java script to determine whether the given number is a “PERFECT NUMBER “or not.
12. Develop a Java script to generate “ARMSTRONG NUMBERS” between the ranges 1 to 100.
13. Write a java script that reads an integer and displays whether it is a prime number or not.
14. Write a java script which accepts the text in lower case and displays the text in upper case
15. Write a java script program for user name and password validation using on click event.

Word press:

16. Installation and configuration of word press.
17. Create five pages on COVID – 19 and link them to the home page.
18. Add an external video link with size 640 X 360.
19. Create a user and assign a role to him.
20. Create a login page to word press using custom links

III. Lab References:

1. Web technologies by A.A.Puntambekar
2. Web Technologies by N.P.Gopalan,Eastern Economy Edition,2nd edition
3. Word press for Beginners, Dr.Andy Williams.
4. Professional word press, Brad Williams, David damstra, Hanstern.

Reference Materials on the Web/web-links:

1. https://onlinecourses.nptel.ac.in/noc17_cs22/course
2. http://www.codecademy.com/tracks/web
3. http://www.w3schools.com
4. https://www.w3schools.in/wordpress-tutorial/

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Title of the Paper: WEB APPLICATIONS DEVELOPMENT USING PHP AND MYSQL

Semester: V/VI

Course Code	**SECCSCT02**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2015-16	Year of Offering: 2022 -23	Year of Revision: ----	Percentage of Revision: 30%

Course Objective: Upon successful completion of the course, participants should be able to: **List the major elements of the PHP & MySQL work and explain why PHP is good for web development**. Learn how to take a static website and turn it into a dynamic website run from a database using PHP and MySQL.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Learn basic structure and key concepts in PHP, Control statements and functions concept and related programs (PO5)
CO2	Know What is an Array concept related programs, What is an Object, various objects, Formatting strings, Date and time and related programs (PO5)
CO3	Learn importance of Forms, Combining HTML with PHP code. Importance of Cookies and Sessions related programs of forms cookies and sessions. (PO5)
CO4	Know importance of File concept in PHP how to Create, Open, Read and write data in file related programs, Knowing about Image creation, drawing, and modification image (PO7)
CO5	Know about Database concept of MySQL, Connection, Creation of Database, Table adding Record into it related programs (PO7)

PHP Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**The Building blocks of PHP :** Variables, Data Types, Operators and Expressions, Constants. **Flow Control Functions in PHP:** Switching Flow, Loops, Code Blocks and Browser Output. **Working with Functions:** What is function? ,Calling functions, Functions, Returning the values from User-Defined Functions, Variable Scope.	12
II	**Working with Arrays:** What are Arrays?, Creating Arrays, **Working with Objects** Creating Objects, Object Inheritance, **Working with Strings, Dates and Time-**Formatting strings with PHP, Investigating Strings with PHP, Manipulating Strings with PHP, Using Date and Time Functions in PHP.	12
III	**Working with Forms-**Creating Forms, Accessing Form Input with User defined Arrays, Combining HTML and PHP code on a single Page, **Working with Cookies and User Sessions-**Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables	14
IV	**Working with Files and Directories:** Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from File, Writing or Appending to a File. **Working with Images -**Understanding the Image-Creation Process, Drawing a New Image ,Modifying Existing Images ,Image Creation from User Input.	12
V	**Interacting with MySQL using PHP -**MySQL versus MySQLi Functions, Connecting to MySQL with PHP ,Working with MySQL Data, **Creating an Online Address Book -**Planning and Creating Database Tables, Creating Menu, Creating Record, Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record.	10

Textbooks and References

1. JulieC.Meloni, SAMS Teach yourself PHP MySQL and Apache, Pearson education
2. Steven Holzner, PHP: The Complete Reference, McGraw-Hill
3. RobinNixon,LearningPHP,MySQL,JavaScript,CSS&HTML5,ThirdEditionO'reilly,2014
4. XueBaiMichaelEkedahl, The web warrior guide to Web Programming, Thomson (2006).
5. Web resources:
    e. http://www.codecademy.com/tracks/php
    f. http://www.w3schools.com/PHP
    g. http://www.tutorialpoint.com

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COMPUTER SCIENCE	SECCSCT02	2022-23	B.SC(MPCS,MCCS)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 70**

Model Paper: Web Applications Development using PHP & MYSQL

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

SECTION – A

Short Answer Questions **(4 x 5=20 Marks)**

Answer any Four questions. (At least 1 question should be given from each Unit)

1) Define Structure of PHP.(CO1,L1)
2) Differentiate Conditional statement and Looping statement with syntax.(CO1,L4)
3) Define Array concept explain about it.(CO2,L1)
4) Explain about Cookies concept.(CO3,L2)
5) Explain about Image creation.(CO4,L2)
6) Write short note on Mysqli.(CO5,L1)

SECTION B

(5 x 10=50 Marks)

Answer all questions. (Two questions should be given from each unit with internal choice)

9(a) Explain about Control Statements.(CO1,L2)

OR

9(b) Discuss about Function define, Call and return value with example.(CO1,L6)

10(a) List various types of Formatting strings explain them.(CO2,L2)

OR

10(b) Define Array function with example.(CO2,L1)

11(a) Write names of Form objects explain them with example.(CO3,L2)

OR

11(b) Compare and Contrast Session and Cookies.(CO3,L4)

12(a) Explain File concept about file creation, Open file, Write file and Delete file with example(CO4,L2)

OR

12(b) Construct steps for Interfacing complete image concept explain them with one example.(CO4,L3)

13(a) Discuss about DDL commands and DML commands in Mysqli with syntaxes (CO5,L6)

OR

13(b) Write code to Create table of Employee by adding any four columns with example.(CO5,L6)

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(**With Effect from Academic Year 2015-16**)

COMPUTER SCIENCE	**SECCSCP02**	**2022-23**	**B.SC(MPCS,MCCS)**

SEMESTER – V/VI **PAPER – VII** **Max. Marks 50**

Lab List: **Web Applications Development using PHP & MYSQL lab**

No. of Hours per week: 3 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Learn and implement basic programs in PHP, Control statements and functions concept (PO5)

CO2: Implement Basic programs in Object, various objects, Formatting strings, Date and time (PO5)

CO3: Learn and implement important programs of Forms, Combining HTML with PHP code. Importance of Cookies and Sessions..(PO5)

CO4: Implement programs on Files concept in PHP and on Image creation, drawing, and modification image (P05 & PO7)

CO5: Implement Database programs on MySQLi, Connection, Creation of Database, Table adding Record into it related programs (PO7)

II: Practical (Laboratory) Syllabus: (30 Periods): At least 8 Practical's.

1. Write a PHP program to Display "Hello"
2. Write a PHP Program to display today's date.
3. Write a PHP program to display Fibonacci series.
4. Write a PHP Program to read the employee details.
5. Write a PHP program to prepare the student marks list.
6. Write a PHP program to generate the multiplication of two matrices.
7. Create student registration form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.
8. Create Website Registration Form using text box, check box, radio button, select, submit button. And display user inserted value in the new PHP page.
9. Write a PHP script to demonstrate passing variables with cookies.
10. Write a program to keep track of how many times a visitor has loaded the page.
11. Write a PHP application to add, Modify, delete and fetch the rows in a Table.
12. Develop a PHP application to implement the following Operations
    a. Registration of Users.b.Insert the details of the Users.c.Modify the Details.
    d.Transaction Maintenance.

i.No of times Logged in (ii).Time Spent on each login. Ii. Restrict the user for three trials only.

iii. Delete the user if he spent more than 100 Hrs of transaction.

13. Write a PHP script to connect to the MySQL server from your website.
14. Write a program to read customer information like cust-no, cust-name, item purchased, and mob-no, from customer table and display all this information in table format on the output screen.
15. Write a program to edit the name of a customer to "Kiran" with cust-no =1, and to delete record with cust-no=3.
16. Write a program to read employee information like emp-no, emp-name, designation and salary from the EMP table and display all this information using table format in your website.
17. Create a dynamic web site using PHP and MySQL.

Textbooks and References: 1. JulieC.Meloni,SAMS Teach yourself PHP MySQL and Apache, Pearson Education(2007).

1. Steven Holzner, PHP: The Complete Reference, McGraw-Hill

2. RobinNixon,LearningPHP,MySQL,JavaScript,CSS&HTML5,ThirdEditionO'reilly.

Web resources: a.http://www.codecademy.com/tracks/php

b.http://www.w3schools.com/PHP

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Title of the Paper: BIG DATA ANALYTICS USING R

Semester: V/VI

Course Code	SECCAT01	Course Delivery Method	Class Room / Blended Mode – Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022-23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: Big data analytics examines large amounts of data to uncover hidden patterns, correlations and other insights. With today's technology, it's possible to analyze your data and get answers from it almost immediately – an effort that's slower and less efficient with more traditional business intelligence solutions.

Course Outcomes:

CO_1	Understand data and classification of digital data. (PO5)
CO2	Gain knowledge of technologies used in bigdata Analytics. (PO5, PO7)
CO3	Understand basics of R and control structures in R. (PO5)
CO4	Load data into R objects and manipulate them as needed. (PO5)
CO5	Create and edit visualizations with R (PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction to Big data:** What is data, Classification of Digital Data-Structured Unstructured, semi-structured data, Characteristics of data, Evaluation of big data, Definition and challenges of big data**,** what is big data and why to use big data?	12
II	**Big data Analytics:** What is and isn't big data analytics? Classification of analytics, Importance of big data analytics, Technologies needed to meet challenges of big data, data science, Data scientist	12
III	**Introduction to R and getting started with R:** What is R? Why R? Advantages of R over other programming languages**,** Data types in R - logical, numeric, integer, character, double, Complex, raw, coercion, ls () command, Expressions, Variables and functions, control structures, Array, Matrix, Vectors, Factors, R packages	14
IV	**Exploring data in R**– Data frames-data frame access, Ordering data frames, functions for data frames dim(), nrow(), ncol(), str(), summary(), names(), head(), tail(), edit()**,** Load data frames—reading from .CSV files, Sub setting data frames, reading from tab separated value files, Reading from tables, merging data frames	12
V	**Data Visualization using R**: Reading and getting data into R (External Data),Using CSV files, XML files, Web Data, JSON files, Databases, Excel files**,** Working with R Charts and Graphs: Histograms, Boxplots, Bar Charts, Line Graphs, Scatter plots, Pie Chart	10

Prescribed Text Book:

1. Seema Acharya--Data Analytics using R, McGraw Hill education (India) Private Limited.

2. Big Data Analytics, Introduction to Hadoop, Spark, and Machine-Learning, Raj Kamal, PreetiSaxena, McGraw Hill, 2018

Reference Books:

1. SeemaAcharya, SubhashiniChellappan --- Big Data and Analytics second edition, Wiley
2. Big Data, Big Analytics: Emerging Business intelligence and Analytic trends for Today's Business, Michael Minnelli, Michelle Chambers, and AmbigaDhiraj, John Wiley & Sons, 2013
3. An Introduction to R, Notes on R: A Programming Environment for Data Analysis and Graphics. W. N. Venables, D.M. Smith and the R Development Core Team

Course Focus: R for data science focuses on the language's statistical and graphical uses. When you learn R for data science, you'll learn how to use the language to perform statistical analyses and develop data visualizations. R's statistical functions also make it easy to clean, import and analyze data.

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COMPUTER SCIENCE	SECCAT01	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 70**

Model Paper: **BIGDATA ANALYTICS USING R**

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

Section-A

Answer any Four questions.
(At least 1 question should be given from each Unit) **(4 x 5=20Marks)**

1. What is big data and why to use a big data? (CO1, L1)
2. What is big data analytics? (CO2, L1)
3. Explain ls () command in R. (CO3, L2)
4. Write a short note on charts. (CO5, L1)
5. Develop R script to load data into data frames from files. (CO4, L6)
6. Write about the control structures in R with examples. (CO3, L1)

Section-B

Answer all questions. **(5X10=50Marks)**
(Two questions should be given from each unit with internal choice)

9.(a) Give Classification of Digital Data and explain it. (CO1, L2)

OR

(b) Explain Characteristics of Data with an example. (CO1, L2)

10.(a) Write about Importance of big Data Analytics. (CO2, L1)

OR

(b) Explain Classification of Analytics. (CO2, L2)

11.(a) Write about the Data types in Explain with examples. (CO3, L1)

OR

(b) Construct Vector in R and explain various operations on it. (CO3, L3)

12. (a) What are the data frames? Write its significance in R-Language. (CO4, L1)

OR

(b) Demonstrate various functions used in data frames. (CO4, L2)

13.(a) Build a code in R for reading and getting data into R from databases. (CO5, L6)

OR

(b) Develop below plots in R (CO5, L6)
a) Box Whisker plots b)Scatter plots c)Pairs plots

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(**With Effect from Academic Year 2020-21)**

COMPUTER SCIENCE	SECCAP01	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VI** **Max. Marks 50**

Title**: BIG Data Analysis using Python lab**

No. of Hours per week: 2 External: 40 Internal: 10 Credits: 2 Pass Marks 20

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Implement simple scripts or programs in R. (PO5)

CO2: Access online resources for R and import new function packages into the R workspace. (PO5, PO7)

CO3: Import, review, manipulate and summarize data-sets in R (PO5, PO7)

CO4: Explore data-sets to create testable hypotheses and identify appropriate statistical tests. (PO5, PO7)

CO5: Create and edit visualizations with R. (PO5, PO7)

II: Practical (Laboratory) Syllabus: (30 Periods)

1. Create a vector in R and perform operations on it (arithmetic operations, combining Vectors, retrieving elements of vector, assign names to vector elements).
2. Create integer, complex, logical, character data type objects in R and print their values And their class using print and class functions.
3. Create a matrix of values in R and extract data from matrix. (Ex. Second row thirdetc.) find transpose of matrix and combine two matrices using Rbind and Cbind functions.
4. Create a list in R and perform operations on it like list slicing, sum and mean functions, head and tail functions and finally delete list using rm() function.
5. Create data frame in R and perform operations on it
6. Write code in R to find out whether a number is prime or not.
7. Print numbers from 1 to 100 using while loop and for loop in R.
8. Find the factorial of a number using recursion in R.
9. Perform arithmetic operations in R using switch case
10. Write a code in R to find out whether the number is Armstrong or not.
11. Program to find Multiplication table from 1 to 10 number input by user.
12. Import data into R from text and excel files using read.table() and read.csv() function.
13. Create a dataset and draw different types of graphics using plot, box plot, histogram, pair plot functions.
14. Create a dataset and draw different types of graphs using bar charts, pie chart functions.
15. Create custom contingency in R and perform operations on it.

III. Lab References:

1. Seema Acharya--Data Analytics using R, McGraw Hill education (India) Private Limited.
2. Big Data Analytics, Introduction to Hadoop, Spark, and Machine-Learning, Raj kamal, PreetiSaxena, McGraw Hill, 2018

Reference Materials on the Web/web-links:

1. **https://www.wiley.com/enbd/Big+Data,+Big+Analytics:+Emerging+Business+Intelligence+and+Analytic+Trends+for+Today's+Businesses-p-9781118147603**

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Title of the Paper: Data Science using Python

Semester: V/VI

Course Code	SECCAT07	Course Delivery Method	Class Room / Blended Mode – Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	3	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2022-23	Year of Offering: 2022 - 23	Year of Revision: ---	Percentage of Revision: 0%

Course Objective: The main objective of the course is to provide students with the basic concepts of Python, its syntax, functions and packages to enable them to write scripts for data manipulation and analysis. The course develops skills of writing and running a code using Python.

Course Outcomes: Students at the successful completion of the course will be able to:

CO_1	Understand the need and importance of data science.(PO5,PO7)
CO_2	Understand basic concepts of python and implementing control structures in python.(PO5)
CO_3	Implement strings and other data structures in python(PO5,PO7)
CO_4	Learn and Implement functions and modules in python.(PO5)
CO_5	Learn and Implement data cleaning and plotting using pandas.(PO5,PO7)

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**INTRODUCTION TODATA SCIENCE** Data science and its importance, Advantages of data science, The process of data science, Responsibilities of a data scientist, Qualifications of data scientists, Would you be a good data scientist?, Why to use python for data science?	12
II	**INTRODUCTION TO PYTHON** What is python?, Features of python, History of python, Writing and executing the python program, Basic syntax, Variables, Keywords, Data types , Operators, Indentation, Control Structures-Conditional statements—If, If-else, Nested if-else, Looping statements—For, While, Nested Loops, Break, Continue, Pass	12
III	**STRINGS AND DATA STRUCTURES** Strings - definition, accessing, slicing and basic operations, Lists - introduction, accessing list, operations, working with lists, functions and methods, Tuples - introduction, accessing tuple, operations, Dictionaries- introduction, accessing values in dictionaries, working with dictionaries.	14
IV	**FUNCTIONSANDMODULES** Functions- Defining a function, Calling a function, Types of functions, Function arguments, Local and global variables, Lambda and recursive functions, Modules---Math, Random, OS, Date and Time	10
V	**PANDAS** What is Pandas?, Series, Data Frame, Read CSV Files, Analyzing Data Frames, Data Correlations, Data Cleaning---Empty cells, Data in wrong format, Wrong data, Duplicates, Pandas Plotting-- plot () method, bar plot, hist plot, box plot, area plot, scatter plot, pie plot	12

Prescribed Books:

1. Steven cooper--- Data Science from Scratch, Kindle edition
2. Reemathareja—Python Programming using problem solving approach, Oxford Publication

Reference Books:

1.Wes McKinney--- Python for Data Analysis ,O'REILLY

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COMPUTER SCIENCE	SECCAT07	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 70**

Model Paper: Data Analysis using Python

NO of Hours: 3 **No Of Credits: 3** **Pass Marks 28**

Section – A

Answer any Four questions.
(At least 1 question should be given from each Unit) **(4 x 5=20Marks)**

1. Write advantages of data science. (CO1, L1)
2. What are the qualifications of data scientist? (CO1, L2)
3. Explain about the history of python.(CO2, L1)
4. Explain about string operations in python.(CO3, L1)
5. Explain about the date and time module in python.(CO4, L1)
6. What is data cleaning? Explain about duplicates in pandas.(CO5, L1)

Section – B

Answer all questions.
(Two questions should be given from each unit with internal choice) **(5x10=50Marks)**

9. (a) What is Data Science? Explain the Responsibilities of a data scientist.(CO1, L2)

OR

9. (b) Explain the use of python for data science?(CO1, L1)

10. (a) Explain different types of conditional statements with examples.(CO2, L1)

OR

10. (b) Explain different types of Looping statements with examples.(CO2, L1)

11. (a) What is a list? Explain different operations of lists with examples in python. (CO3, L2)

OR

11. (b)What is a Dictionary? Explain accessing values in it with examples in python (CO3, L2)

12. (a) Explain Function definition, calling & different types in python with example.(CO4, L1)

OR

12. (b) Explain about random and math module in python with an example.(CO4, L1)

13. (a) What is a data frame? Illustrate the concept of analysing the data frames.(CO5, L2)

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COMPUTER SCIENCE	SECCAP07	2022-23	B.COM (CA)

SEMESTER – V/VI **PAPER – VII** **Max. Marks 50**

Lab List: DATASCIENCE USING PYTHON LAB

No. of Hours per week: 2 **External: 40** **Internal: 10** **Credits: 2**

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Implement simple programs in basics of python.(PO5)
CO2: Implement control structures in python.(PO5)
CO3: Implement data structures like strings, list, tuples, dictionaries in python.(PO5,PO7)
CO4:Implementation of data frames, data cleaning and plotting in pandas.(PO5,PO7)

II: Practical (Laboratory) Syllabus: (30 Periods)

1. Python Program to Find the Square Root
2. Python Program to Swap Two Variables
3. Python Program to Generate a Random Number
4. Python Program to check if a Number is odd or Even
5. Python Program to Find the Largest Among Four Numbers
6. Python Program to Check Prime Number
7. Python Program to Display the multiplication Table
8. Python Program to Print the Fibonacci sequence
9. Python Program to Check Armstrong Number
10. Python Program to Find the Sum of Natural Numbers
11. Python Program to Make a Simple Calculator
12. Python Program to Find Factorial of Number Using Recursion
13. Python Program to Add Two Matrices
14. Python Program to Multiply Two Matrices
15. Python Program to Check Whether a String is Palindrome or Not
16. Python Program to perform operations on strings.
17. Python Program to create a list and perform operations on its contents.
18. Python Program to perform operations on tuples.
19. Python Program to create a dictionary and print its content.
20. Python program to import data from CSV file using pandas.
21. Python program to demonstrate plots

III. Lab References:

1. Reemathareja—Python Programming using problem solving approach,Oxford Publication

Reference Materials on the Web/web-links:

1. https://www.w3schools.com/python/
2. https://www.geeksforgeeks.org/python-basics/

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Title of the Paper: **Object Oriented Programming Using JAVA**

Semester: IV PAPER-IV

Offered To:	**B. Sc. (MPCS.MCCS,MSCS)**	**Course Code:**	**CSCT01**
Course Type:	Core (Theory)	**Course:**	Object Oriented Programming using Java
Year of Introduction:	2016 - 2017	**Year of offering:**	2021 – 2022
Year of Revision:	2021	**Percentage of Revision:**	15 %
Semester:	IV	**Credits:**	4
Hours Taught:	60 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Programming Concepts.

Course Description: As the business environment becomes more sophisticated, the software development (software engineering is about managing complexity) is becoming increasingly complex. As of the best programming paradigm which helps to eliminate complexity of large projects, Object Oriented Programming (OOP) has become the predominant technique for writing software in the past decade. Many other important software development techniques are based upon the fundamental ideas captured by object-oriented programming.

Course Objectives:

1. Understand the features of Object Oriented Programming.
2. Understand features of Java programming language.
3. Know how to write and execute java programs in text editors.
4. Apply polymorphism, inheritance, multithreading, exception handling mechanism and packages in real life applications.
5. Write and read data from the files using streams, file handling methods and understand JDBC to perform database operations.

Course Outcomes: At the end of this course, students should be able to:

CO1: Understand the concept and underlying principles of Object-Oriented Programming, Understand how object-oriented concepts are incorporated into the Java programming language. (PO5, PO7).
CO2: Implement Object Oriented Programming Concepts (class, constructor, overloading, inheritance, overriding) in java. (PO5, PO7).
CO3: Analyse inheritance and interfaces in a Java program (PO5, PO7).
CO4: Evaluate Multithreading, exception handling in Java. (PO5, PO7).
CO5: Create applets and packages in a Java program, Use of Input/output Streams in java and use of JDBC with Oracle database. (PO5, PO7).

Syllabus		
Unit	**Learning Units**	**Lecture Hours**
I	**Fundamentals Of Object – Oriented Programming:** Introduction, Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOP, Applications of OOP, Java features **Overview Of Java Language:** Introduction, Simple Java program structure, Java tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command line arguments **Constants, Variables & Datatypes:** Introduction, Constants, Variables, Data Types, Declaration of Variables, Giving Value to Variables, Scope of variables, Symbolic Constants, Type casting, Getting Value of Variables, Standard Default values **Operators & Expressions**	10
II	**Decision Making & Branching:** Introduction,Decision making with if statement, Simple if statement, If - Else statement, Nesting of if- else statements, The else if ladder, The switch statement, The conditional operator. **Looping:** Introduction, The While statement, The do-while statement, The for statement, Jumps in loops. **Classes, Objects & Methods:** Introduction, Defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method overloading, Static members, Nesting of methods.	12
III	**Inheritance:** Extending a class, Overloading methods, Final variables and methods, Final classes, Abstract methods and classes. **Arrays, Strings:** Arrays, One-dimensional arrays, Creating an array, Two – dimensional arrays, Strings, Wrapper classes. **Interfaces:** MULTIPLE INHERITANCE: Introduction, Defining interfaces, Extending interfaces, Implementing interfaces, Assessing interface variables.	12
IV	**Multithreaded Programming:** Introduction, Creating Threads, Extending the Threads, Stopping and Blocking a Thread, Lifecycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface. **Managing Errors And Exceptions:** Types of errors, Compile-time errors, Run-time errors, Exceptions, Exception handling, Multiple Catch Statements, Using finally statement. **Packages:** Introduction, Java API Packages, Creating Packages, Accessing a Package, Using a Package.	13
V	**Applet Programming:** Local and remote applets, Applets and Applications, Building Applet code, Applet Life cycle: Initialization state, Running state, Idle or stopped state, Dead state, Display state. **Managing Input/Output Files In Java:** Introduction, Concept of Streams, Stream classes, Byte Stream Classes, Character Stream classes: Reader stream classes, Writer Stream classes, Reading and writing files. **Java Database Connectivity:** JDBC introduction, Stages in JDBC Program, Working with Oracle Database: Inserting, Deleting and Updating records.	13

Text Books:

1. Programming with Java, E – Balagurusamy, 3e, TMH.
2. Core Java: An Integrated Approach, Dr. R. Nageswara Rao & KogentLearning Solutions Inc.

Reference Books:

1. Programming with Java, 2ed, John R. Hubbard, Schaum's outline Series, TMH
2. Deitel & Deitel, Java TM : How to program, PHI(2007)

Course Delivery method: Face-to-face / Blended
Course has focus on: Employability
Websites of Interest:
[1]. https://www.javatpoint.com/java-tutorial
[2]. https://www.w3schools.com/java/
[3]. https://www.tutorialspoint.com/jdbc/index.htm

Co-curricular Activities : Programming Contests, Assignments & Quiz.

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OBJECT ORIENTED PROGRAMMING USING JAVA
MODEL PAPER

CLASS: B.Sc. (MPCS, MCCS, MSCS) **Max. Marks: 75M**
Course Code: CSCT01 **Min. Pass: 30M**
Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS 5x5M=25M

1. Explain structure of java program.(CO1, L2)
2. Define a class and add methods, variables to it and create objects for it. (CO2,L1)
3. Explain constructors in java with example. (CO2,L2)
4. Explain any five string handling methods in java.(CO3, L2)
5. Illustrate implementing interfaces in java with example. (CO3,L2)
6. Illustrate creating threads in java with example .(CO4,L2)
7. Illustrate Arithmetic Exception in java with example.(CO4, L2)
8. Explain byte stream classes in java. (CO5, L2)

Section-B

ANSWER THE FOLLOWING QUESTIONS 5x10M=50M

9. (A) Explain Object Oriented Programming Principles. (CO_1,L2)

(**OR)**

(B) Explain Java Buzz words. (CO1, L2)

10. (A) Explain the following with programs (CO2, L2)
    i. Method Overloading 5M
    ii. Abstract classes 5M

(OR**)**

(B) Explain the concept of static members in java with an example. (CO2,L2)

11. (A) Explain the concept of final keyword with an example. (CO3,L2)

(**OR)**

(B) List of different types of inheritance in java with examples. (CO3,L4)

12. (A) Explain life cycle of a thread with neat diagram. (CO4,L2)

(OR**)**

(B) Define Exception. Explain Exception handling mechanism in java with examples (CO4, L1,L2)

13. (A) Explain creating and accessing package in java with example. (CO5,L2)

(OR)

(B) Explain different stages in JDBC program with an example..(CO5,L6)

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OBJECT ORIENTED PROGRAMMING USING JAVA

BLUE PRINT

CLASS: B.Sc. (MPCS, MCCS, MSCS) **Max. Marks: 75M**

Course Code: CSCT01 **Min. Pass: 30M**

Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. UNIT -1 ---------- 5M
2. UNIT -2 ---------- 5M
3. UNIT -2 ---------- 5M
4. UNIT -3 ---------- 5M
5. UNIT -3 ---------- 5M
6. UNIT -4 ---------- 5M
7. UNIT -4 ---------- 5M
8. UNIT -5 ---------- 5M

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. UNIT -1 ---------- 10M

OR

UNIT -1 ---------- 10M

10. UNIT -2 ---------- 10M

OR

UNIT -2 ---------- 10M

11. UNIT -3 ---------- 10M

OR

UNIT -3 ---------- 10M

12. UNIT -4 ---------- 10M

OR

UNIT -4 ---------- 10M

13. UNIT -5 ---------- 10M

OR

UNIT -5 ---------- 10M

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Object Oriented Programming Using JAVA Lab

SEMESTER-IV **PAPER-IV**

Offered To:	B. Sc. (MPCS,MCCS,MSCS)	**Course Code:**	**CSCP01**
Course Type:	Core (Practical)	**Course:**	Object Oriented Programming using Java Lab
Year of Introduction:	2016 – 2017	**Year of offering:**	2021 – 2022
Year of Revision:	2021	**Percentage of Revision:**	15%
Semester:	IV	**Credits:**	1
Hours Taught:	30 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Knowledge in OOP & Java concepts, Programming Fundamentals

Course Objective:
To enable students to implement various OOP concepts using Java programming language and also educating students in accessing databases using JDBC connectivity.

Course Outcomes: At the end of this course, students should be able to:
CO1: Implementing class, constructor, method overloading, method overriding in java. (PO5, PO7)
CO2: Implement different types of inheritance and interfaces in a Java program .(PO5, PO7)
CO3: Implement Multithreading, exception handling mechanisms in Java. (PO5, PO7)
CO4: Implement Applets and JDBC connectivity. (PO5, PO7)

Java Lab list

1. Write a program to use command line arguments.
2. Write a program to demonstrate that include a method inside the Rectangular Class.
3. Write a program to demonstrate Parameterized Constructors.
4. Write a program to demonstrate Method Overloading.
5. Write a Program to demonstrate Constructor Overloading.
6. Write a program to demonstrate Method Inheritance.
7. Write a program to demonstrate Method Overriding.
8. Write a program to demonstrate Abstract Classes.
9. Write a program to arrange given Strings in Alphabetical Order.
10. Write a program for implementing interfaces.
11. Write a program on Multiple Inheritance.
12. Write a program to demonstrate the Creating threads using thread class.
13. Write a program to demonstrate using thread methods.
14. Write a program to Implement Thread Priority.
15. Write a program to demonstrate Catch Blocks.
16. Write a program to Import Packages.
17. Write a program to demonstrate Applet Program.
18. Write a program to create table and insert values into table in a database.
19. Write a program to delete values in a table in database.
20. Write a program to update values in a table in database.

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OPERATING SYSTEMS

Semester: IV **PAPER-V**

Offered To:	B. Sc. (MPCS, MCCS, MSCS)	**Course Code:**	CSCT41C
Course Type:	Core (Theory)	**Course:**	Operating systems
Year of Introduction:	2021 – 2022	**Year of offering:**	2021 – 2022
Year of Revision:	-	**Percentage of Revision:**	-
Semester:	IV	**Credits:**	4
Hours Taught:	60 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Basic Knowledge in computers, data structures and C programming language.

Course Description:

This course provides basic knowledge about operating system functions, its architectural design along with implementation of various scheduling algorithms. This course also provides knowledge in handling deadlock situation.

Course Objectives:

The Purpose of this course is to give students an idea of the services provided by the operating system, structure,organization of the file system, process synchronizations, scheduling and memory management.

Course Outcomes: At the end of this course, students should be able to

1. **Understand** Operating System Architectural design and its services. (PO5, PO6, PO7)
2. **Implementation** of Scheduling Algorithms. (PO5, PO6, PO7)
3. **Analyze** memory management techniques, concepts of virtual memory and disk scheduling. (PO5, PO6, PO7)
4. **Understand** the implementation of file systems and directories with the interfacing of IO devices with the operating system. (PO5, PO6, PO7)
5. **Identify** the deadlock situation and provide appropriate solutions so that protection and security of the operating system is also maintained. (PO5, PO6, PO7)

Syllabus		
Unit	**Learning Units**	**Lecture Hours**
	Operating System: Introduction, Operating Systems Objectives and functions, Computer System Architecture, OS Structure, OS Operations. Evolution of Operating Systems , Types of operating system - Simple, Batch, Multi programmed , Time shared , Parallel, Distributed Systems, Real-Time Systems, Operating System services.	11
II	**Process and CPU Scheduling** – Process concepts , The Process, Process State, Process Control Block, Process communication, Threads. Process Scheduling - Scheduling Queues, Schedulers, Context Switch, Preemptive Scheduling,Dispatcher, , Scheduling Criteria, Scheduling algorithms,Case studies: Linux, Windows. Process Synchronization - The Critical section Problem, Synchronization Hardware,Semaphores, Classic Problems of Synchronization,Monitors.	13
III	**Memory Management and Virtual Memory** – Logical & physical Address Space, Swapping, Contiguous Allocation , Paging-Structure of Page Table, Segmentation, Segmentation with Paging, Virtual Memory, Demand Paging, Performance of Demanding Paging, Page Replacement , Page Replacement Algorithms, Allocation of Frames.	13
IV	**File System Interface** – The Concept of a File , Access methods , Directory Structure, ,File System Mounting , File Sharing, Protection, File System Structure, Mass Storage Structure - Overview of Mass Storage Structure , Disk Structure, Disk Attachment, Disk Scheduling.	12
V	**Deadlocks** – System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention,Deadlock Avoidance, Deadlock Detection and Recovery from Deadlock.	11

PrescribedTextBooks			
	Author	**Title**	**Publisher**
1	Silberschatz, Galvin, Gagne	Operating System Concepts, eight Edition	John Willey & Sons INC

ReferenceTextBook			
	Author	**Title**	**Publisher**
1	Abraham Silberchatz, Peter B. Galvin, Greg Gagne	Operating System Principles, 8th Edition	Wiley Student Edition
2	Naresh Chauhan,	Principles of Operating Systems	OXFORD University Press

Course Delivery method : Face-to-face / Blended

Course has focus on : Skill Development

Co-curricular Activities: Programming Contests, Assignments & Quiz

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OPERATING SYSTEMS
MODEL QUESTION PAPER

COURSE CODE: CSCT41C TITLE OF PAPER: OPERATING SYSTEMS
CLASS / GROUP: B.Sc (MPCS, MCCS, MSCS,) SEMESTER: IV
Time: 3 Hrs. Max. Marks: 75
****

SECTION – A

Answer any FIVE questions: 5 X 5 = 25 Marks

1. Explain computer system architecture with a neat diagram. (CO1, L2)
2. Write about process states with a neat diagram. (CO1, L2)
3. Explain about context switching. (CO2, L2)
4. Write short notes on swapping. (CO3, L2)
5. Write about logical and physical address spaces. (CO3, L2)
6. Write about different file access methods. (CO4, L2)
7. What are the necessary conditions for deadlocks? (CO5, L2)
8. Explain how dead locks can be recovered. (CO5, L2)

SECTION – B

Answer ALL questions: 5 X 10 = 50 Marks

9. (a). Define operating system and explain its functions. (CO1, L2)

OR

(b.) Explain about various types of operating systems. (CO1, L2)

10. (a) Explain SJF and priority scheduling algorithms with an example. (CO2, L2)

OR

(b) Explain about inter process communication. (CO2, L2)

11. (a) Discuss the concept of paging with neat diagram. (CO3, L2)

OR

(b) Consider the following page reference string and calculate the number of page faults by using FIFO and LRU with three frames.

7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1 (CO3, L2)

12. (a). Explain in detail file operations. (CO4, L2)

OR

(b). Discuss about FCFS disk scheduling and SSTF scheduling with a suitable example. (CO4,L2)

13. (a) what is deadlock ?explain deadlock preventions methods. (CO5, L2)

OR

(b) Explain banker's algorithm for deadlock avoidance.(CO5, L2)

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OPERATING SYSTEMS

BLUE PRINT

COURSE CODE: CSCT41C TITLE OF PAPER: OPERATING SYSTEMS

CLASS / GROUP: B.Sc (MPCS, MCCS, MSCS,) SEMESTER: IV

Time: 3 Hrs. Max. Marks: 75

Section-A

ANSWER ANY FIVE QUESTIONS 5x5M=25M

1. UNIT -1 ---------- 5M
2. UNIT -1 ---------- 5M
3. UNIT -2 ---------- 5M
4. UNIT -3 ---------- 5M
5. UNIT -3 ---------- 5M
6. UNIT -4 ---------- 5M
7. UNIT -5 ---------- 5M
8. UNIT -5 ---------- 5M

Section-B

ANSWER THE FOLLOWING QUESTIONS 5x10M=50M

9. UNIT -1 ---------- 10M

OR

UNIT -1 ---------- 10M

10. UNIT -2 ---------- 10M

OR

UNIT -2 ---------- 10M

11. UNIT -3 ---------- 10M

OR

UNIT -3 ---------- 10M

12. UNIT -4 ---------- 10M

OR

UNIT -4 ---------- 10M

13. UNIT -5 ---------- 10M

OR

UNIT -5 ---------- 10M

@@@@

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OPERATING SYSTEMS LAB

Semester: IV **PAPER-V**

Offered To:	B. Sc. (MPCS, MCCS, MSCS)	**Course Code:**	**CSCT41C**
Course Type:	Core (Practical)	**Course:**	Operating systems Lab
Year of Introduction:	2021 – 2022	**Year of offering:**	2021 – 2022
Year of Revision:	-	**Percentage of Revision:**	-
Semester:	IV	**Credits:**	1
Hours Taught:	30 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): Basic Knowledge in OS concepts, data structures and C programming language.

Course Description:

This course deals with training students in developing and implementing logics for various OS scheduling algorithms. It also enables students to gain practical knowledge in implementing various UNIX commands.

Course Objective:

The Purpose of this course is to have students understand and the principles in the design and implementation of operating system software.

Course Outcomes: At the end of this course, students should be able to

CO 1. Implementing DOS & UNIX Commands(PO5, PO6, PO7)
CO 2. Implementing CPU Scheduling Algorithms(PO5, PO6, PO7)
CO 3. Implementing CPU Scheduling Algorithms, Deadlocks Avoidance, Prevention & Memory Management Techniques(PO5, PO6, PO7)
CO 4. Implementing Contiguous Memory Allocation Techniques & Page Replacement Algorithms(PO5, PO6, PO7)
CO 5. Implementing File allocation Strategies(PO5, PO6, PO7)

Lab Exercises

1. **DOS** - Internal Commands

2**. UNIX Commands**

1. In your home directory create a directory named DIR
2. Copy all files whose filenames satisfy the following conditions to ~/DIR. The files are in /usr/include directory, their names start with m, end with .h and contain a number.
3. Create a subdirectory called SUBDIR in your DIR directory.
4. The first five lines of each file you have copied from /usr/include copy to file ~/DIR/ SUBDIR/first five.
5. The last lines of files in ~/DIR copy to file ~/DIR/SUBDIR/last.
6. Concatenate the two files in ~/DIR/SUBDIR into one file ~/DIR/SUBDIR/first and last
7. Delete the files in ~/DIR/SUBDIR except first and last.
8. Store the number of files and directories in ~/DIR into a file ~/DIR/SUBDIR/count
9. Output the long information in the ~/DIR/SUBDIR directory. (Not its content, but information on it).
10. Delete the contents of ~/DIR/SUBDIR/first and last file without removing the file itself.
11. Add a line containing just a star sign (i.e. *) to file ~/DIR/SUBDIR/first and last.
12. Delete ~/DIR together with all the files it contains.
13. Output lines number 11-20 from file /etc/passwd.

3. List of Programmes

1. Write a Program to implement First Come First Serve Scheduling algorithm
2. Write a Program to implement Shortest Job First Scheduling algorithm
3. Write a Program to implement Round Robin Scheduling algorithm
4. Write a Program to implement Priority Scheduling algorithm
5. Write a program to implement Worst Fit Contiguous Memory Allocation
6. Write a program to implement Best Fit Contiguous Memory Allocation
7. Write a program to implement First Fit Contiguous Memory Allocation
8. Write a program to implement First In First Out Page replacement Algorithm
9. Write a program to implement First In Least Recently Used Page replacement Algorithm
10. Write a program to implement First In Optimal Page replacement Algorithm

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DATABASE MANAGEMENT SYSTEMS

SEMESTER-IV **PAPER-IV**

Offered To:	B. Com (CA)	**Course Code:**	CABT41A
Course Type:	Core (Theory)	**Course:**	Database Management Systems
Year of Introduction:	2021 – 2022	**Year of offering:**	2021 – 2022
Year of Revision:	-	**Percentage of Revision:**	-
Semester:	IV	**Credits:**	4
Hours Taught:	60 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any):

Course Description: This course focuses towards Database System Concepts and Architecture, ER models, relational algebra relational calculus, SQL and PL/SQL.

Course Objectives:

The objective of the course is to introduce the design and development of databases with special emphasis on relational databases. Design & develop database for large volumes & varieties of data with optimized data processing techniques.

Course Outcomes: At the end of this course, students should be able to:

On completing the subject, students will be able to:

CO1	Understand the Characteristics and basics of Database.(PO5, PO7)
CO2	Understand file system and Architecture of DBMS(PO5, PO7)
CO3	Enlighten ER Diagrams, Relationship, Notation & schema. (PO5, PO7)
CO4	Enlighten EER Diagrams & Applying constraints on data. (PO5, PO7)
CO5	Implementing SQL commands retrieve, insert, modify and update(PO5, PO7)

Syllabus

Unit	Learning Units	Lecture Hours
I	**Databases and Database Users :** Introduction - Data and Information, Characteristics of the Database Approach, Self-Describing Nature of the Database System, Insulation between Programs and Data, Data Abstraction, Support of Multiple Views of the data, Sharing of Data and multiuser Transaction Processing, Evolution of Database System	10
II	Traditional File Processing Systems - Disadvantages of Traditional File Processing Systems, Advantages of the Database Approach, Database system Concepts and Architecture - Data Models, Schemas and Instances, Categories of Data Models, Schemas, Instances and Database State, Three-Schema architecture for database development, Data Independence	10
III	Entity Relationship Model – Introduction, Entity types, Entity sets, Attributes and Keys, Entities and Attributes, Entity Types, Entity Sets, Keys and Value Sets, Relationships, Relationship types, Roles, and Structural Constraints – Relational types, Sets and Instances, Relationship degree, Role names, recursive relationships, constraints on relationship types, Attributes of relationship types. Weak entity types, E R diagrams, Naming conventions, design issues - Summary of Notation for ER Diagrams, Proper Naming of Schema Constructs.	12

IV	Enhanced Entity-Relationship - Subclasses, super classes, and inheritance, Specialization and Generalization, Constraints and characteristics of Specialization and Generalization, Data Abstraction and knowledge representation concepts - Classification and Instantiation, Identification, Aggregation and Association. The Relational Data Model, Relational Constraints - Introduction, Relational Model Concepts, Domains, Attributes, Tuples and Relations , Relational Model Notation, Relational Constraints and Relational Database Schemas, Entity Integrity, Referential , Integrity and Foreign Keys.	13
V	SQL (STRUCTURED QUERY LANGUAGE) Introduction, Data Definition, Constraints and Schema changes in SQL - Schema AND Catalog Concepts in SQL, The CREATE TABLE Command and SQL Data Types and Constraints, The DROP SCHEMA and DROP TABLE Command, The ALTER TABLE Command, Basic Queries in SQL - The SELECT-FROM-WHERE Structure of SQL Queries, Dealing with Ambiguous Attribute Names and Naming (Aliasing), Unspecified WHERE-Clause and Use of Asterisk (*), Tables as sets in SQL, Substring Comparisons, Arithmetic Operators, and Ordering. Aggregate Functions and Grouping 5.5, Insert, Delete, and Update Statements in SQL - The INSERT Command, The DELETE Command, The Update Command.	15

PrescribedTextBook:

	Author	Title	Publisher
1	R.Elmasri and S.Navathe	Fundamentals of Database Systems	
2	Jeffrey A.Hoffer,V.Ramesh, HeikkiTopi	Modern Database Management	Pearson
3	Abraham Silberschatz, Henry Korth, and S. Sudarshan	Database System Concepts	McGrawhill, 2010

ReferenceTextBooks:

	Author	Title	Publisher
1	Raghu Ramakrishnan	Database Management Systems	McGrawhill,2002
2	J .D.Ullman	Prinicples of Database Systems	
3	Bipin C Desai	An Introduction to Database Systems	
4	.Sumathi, S. Esakkirajan	Fundamentals of Relational Database Management Systems	Springer Publications

Course Delivery method: Face-to-face / Blended

Course has focus on: Skill Development

Websites of Interest:

Co-curricular Activities: Certification Courses, Seminars, Quiz.

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DATABASE MANAGEMENT SYSTEMS

MODEL PAPER FOR SEM END EXAMINATION

Class: B.Com (Computer Applications)

Course Code:CABT41A **Max. Marks: 75M**

Semester: IV **Time: 3 Hours**

Section - A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. Explain the difference between data and information. (CO1, L2)
2. List the Disadvantages of Traditional file system? (CO2, L1)
3. What is Data Model, Instance and Database State? (CO2, L1)
4. Explain different types of entities and attributes? (CO3, L2)
5. Explain Relationship Types, Degrees and Role names. (CO3, L2)
6. What is constraint. Explain different type of constraints. (CO4, L1)
7. Demonstrate the features of SQL. (CO5, L2)
8. Show how to join tables explain with an example in SQL. (CO5, L2)

Section - B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

1. A) Outline the characteristics of database management system. (CO1, L2) (OR)

   B) Illustrate the evaluation of database management system. (CO1, L2)

2. A) List advantages of database management system. (CO2, L1)

   (OR)

   B) Explain the concept of Three schema architecture and data independence. (CO2, L1)

3. A) Show ER diagram for hospital management system and identify weak, strong and derived attributes in the above diagram. (CO3, L1)

   (OR)

   B) Define ER diagram, Naming conventions and design issues. (CO3, L1)

4. A) What is Specialization & Generalization in EER. Define Data abstraction and knowledge representation concept. (CO4, L1)

   (OR)

   B) Explain aggregation functions and groupings in relational algebra. (CO4, L1)

5. A) Explain aggregation functions and groupings in SQL. (CO5, L2) (OR)

   B) Explain different types of constraints with examples. (CO5, L2)

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DATABASE MANAGEMENT SYSTEMS LAB

Semester: IV **PAPER-IV**

Offered To:	B. Com (CA)	**Course Code:**	CABP41A
Course Type:	Core (LAB)	**Course:**	Database Management Systems Lab
Year of Introduction:	2021 – 2022	**Year of offering:**	2021 – 2022
Year of Revision:	-	**Percentage of Revision:**	-
Semester:	IV	**Credits:**	1
Hours Taught:	30 hrs. per semester	**Max. Time:**	3 Hrs

Course Prerequisites (if any): A good background in DBMS fundamentals is required. Students should be comfortable with the relational model, SQL, and the basic functions of database systems.

Course Objective:

The major objective of this lab is to provide a strong formal foundation in database concepts, technology and practice to the participants to groom them into well-informed database application developers.

Course Outcomes:

COURSE OUTCOME NO	**Upon successful completion of this course, students should have the knowledge and skills to**
CO1	Construct queries using SQL in database creation. (PO5, PO7)
CO2	Construct queries using SQL in database based on criterion. (PO5, PO7)
CO3	Implement Enforce integrity Constraints in SQL. (PO5, PO7)
CO4	Implementing Aggregate functions in SQL(PO5, PO7)
CO5	Implementing query in database using sql DDL/DML Commands(PO5, PO7)

Lab List

1. Create a Department table with the following fields: DEPTNO, DNAME and LOCATION.
2. Describe the structure of „DEPT" table.
3. Insert values into "DEPT" table.
4. Select all values from „DEPT" table.
5. Create EMPLOYEE table with the following fields: EMPNO, ENAME, JOB, MGR, HIRE DATE, SALARY, COMMISTION and DEPTNO.
6. Describe the structure of „EMP" table.
7. Insert the values into „EMP" table.
8. Select all the values from „EMP" table.
9. Create table GRADE with the following fields: GRADE, LOSAL and HISAL.
10. Insert values into „GRADE" table.
11. Select all the values from „GRADE" table.
12. List all the employee information for department 10.

13. Find out the names of all employees.
14. Retrieve the list of names and salary of all employees.
15. Find the names of employees who have a salary equal to RS3000.
16. List the employee whose names start with "s".
17. List the employee names ending with „s".
18. List the names of employees whose names have exactly 5 characters.
19. List the employee names having D as the second character.
20. List the employee names having two A"S in their name.
21. Display all employee names which have „TH" or „LL" in them.
22. List out EMPNO, ENAME and SALARY of the employees whose salary is between 1500 and 2000.
23. List the names of employees who belong to department 10, 20.
24. List employee number of the employees who don"t have the name of „FORD", "JAMES" (OR)"JONES".
25. Display all the different job types.
26. Retrieve all rows from EMP table for department 30 and order by name.
27. List the employee names and HIREDATES in descending order of HIREDATE.
28. Retrieve department names and no"s in ascending order of DNAME.
29. List all employees" information that has a manager.
30. List name of the employees, job and commission of those employees who do the job of clerk or salesman and get no commission.
31. List the names and jobs of all clerks in department 20.
32. Display current data & time.
33. Display the concatenated string.
34. Display string „SMITH" of first character as capital letter.
35. Display the length of a string „SALESMAN".
36. Display the string „SALESMAN" in lower case.
37. Display all department names in upper case.
38. Display the value using ABS.
39. Displays the value using CEIL.
40. Display the value using FLOOR.
41. Display the value using POWER.
42. Display the value using SQRT.
43. Display all employees who were hired during 1982.
44. List the no of employees working with company.
45. List the no of jobs available in the emp table.
46. List the total salaries payable to employees.
47. List the maximum salary of employee working as a salesman.
48. List the minimum salary of employee from employee table.
49. List the avg salary from Employee table.
50. List the avg salary and no of employees working in the deptno 20.
51. Display the total salary for each department.
52. List the average salary of each job in the EMP table.
53. List the maximum salary for each department.
54. Find the total salary for each job of each department.
55. Display the no of employee in each department.
56. To find the maximum salary of each department, but show only the department that has a maximum salary of more than RS 2900.
57. List the total salary, maximum, minimum and average salary of employees job wise for department no and display only those rows having average salary greater than 1000.

58. Display the job tittle and total monthly salary for each job title with a total pay role exceeding RS 5000 and excludes sales people and sorts the list by the total monthly salary.
59. Display the different job in department 20 and 30.
60. List the employee no and names working in department no 20 and 30.
61. Display the different jobs in department 20 and 30 with union all.
62. Display all the employee names dept no"s and dept names.
63. Display all employees in „DALLAS".
64. Display the employee names where salary is greater than employee no 7566.
65. Display the employee whose job tittle is same as that of employee 7369.
66. Display the employee name where salary is equal to the minimum salary.
67. Find the employees who earn the same salary as the minimum salary for departments.
68. To display all the departments that has a minimum salary greater than that of department 20.

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Title of the Paper: OBJECT ORIENTED PROGRAMMING USING JAVA

Semester: IV **PAPER-V**

Course Code	**CCSCT42**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours / Week	5	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: This Course will enable students to understand the basic concepts of object oriented programming and difference between procedure-oriented programming; get a clear understanding of basics of java programming

Course Outcomes:

CO_1	Able to Understand the concept and underlying principles of Object-Oriented Programming.
CO_2	Able to Understand the Basic concepts of Data types & Operators
CO_3	Able to Implement Decision & Looping Statements
CO_4	Able to Implement Object Oriented Programming Concepts like class, constructor, overloading in java.
CO_5	Able to Understand the concept of Inheritance and Exceptions Object-Oriented Programming.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Fundamentals of Object – Oriented Programming:** Introduction, Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOP, Applications of OOP, Java features:	10
II	**Overview of Java Language**: Introduction, Simple Java program structure, Java tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command line arguments. **Constants, Variables & Data Types:** Introduction, Constants, Variables, Data Types, Declaration of Variables, Giving Value to Variables, Scope of variables, Type casting, Getting Value of Variables, **Operators.**	14
III	**Decision Making & Branching:** Introduction, Decision making with if statement, Simple if statement, if-Else statement, Nesting of if-else statements, the else if ladder, the switch statement, the conditional operator. **Looping**: Introduction, while statement, do-while statement, for statement, Jumps in loops.	12
IV	**Classes, Objects & Methods**: Introduction, defining a class, adding variables, adding methods, creating objects, Accessing class members, Constructors, Method overloading, Method Overriding, Static members, Nesting of methods;	12
V	**Inheritance**: Extending a Class, Overriding Methods, Final Variables and Methods, Final Classes, Abstract Methods and Classes; **Arrays, Strings And Vectors:** Arrays, One-dimensional arrays, Creating an array, Two – dimensional arrays, Strings, Vectors, Wrapper classes; **Interfaces**: **Multiple Inheritance**: Introduction, Defining interfaces, Extending interfaces, Implementing interfaces, Assessing interface variables;	12

Prescribed Text Book:

1. E. Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw-Hill Company.

Reference Books

1. Programming In Java By Sachin Malhotra And Saurabh Choudhary From Oxford University Press
2. Object Oriented Programming Through Java by P. Radha Krishna, Universities Press
3. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series,
4. Deitel&Deitel. Java TM: How to Program, PHI (2007)
5. Java Programming: From Problem Analysis to Program Design- D.S Mallik

Course Focus: OOP focus on the objects that developers want to manipulate rather than the logic required to manipulate them.

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(**With Effect from Academic Year2020-21**)

COMPUTER SCIENCE	**CCSCT42**	**2022-23**	**B. Com (CA)**

SEMESTER – IV PAPER – IV **Max. Marks 75** **Pass Marks :30**

Syllabus: **OBJECT ORIENTED PROGRAMMING USING JAVA**

Total Hrs: 60 **NO. Of. Hours: 4** **Credits: 3**

Unit wise weight age of Marks

	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1	1	2
Unit-2	2	2
Unit-3	1	2
Unit-4	1	1
Unit-5	1	1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weight age given by us

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OBJECT ORIENTED PROGRAMMING USING JAVA
MODEL PAPER

CLASS: B.Com (CA) **Max. Marks: 75M**
Course Code: CCSCT42 **Min. Pass: 30M**
Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1.

2.

3.

4.

5.

6.

7.

8.

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. (A)

(OR)

(B)

10. (A)

(OR)

(B)

11. (A)

(OR)

(B)

12. (A)

(OR)

(B)

13. (A)

(OR)

(B)

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OBJECT ORIENTED PROGRAMMING USING JAVA

BLUE PRINT

CLASS: B.Com (CA) **Max. Marks: 75M**

Course Code: CCSCT42 **Min. Pass: 30M**

Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

9. UNIT -1 ---------- 5M
10. UNIT -2 ---------- 5M
11. UNIT -2 ---------- 5M
12. UNIT -3 ---------- 5M
13. UNIT -3 ---------- 5M
14. UNIT -4 ---------- 5M
15. UNIT -4 ---------- 5M
16. UNIT -5 ---------- 5M

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. UNIT -1 ---------- 10M

OR

UNIT -1 ---------- 10M

10. UNIT -2 ---------- 10M

OR

UNIT -2 ---------- 10M

11. UNIT -3 ---------- 10M

OR

UNIT -3 ---------- 10M

12. UNIT -4 ---------- 10M

OR

UNIT -4 ---------- 10M

13. UNIT -5 ---------- 10M

OR

UNIT -5 ---------- 10M

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COMPUTER SCIENCE	**CCSCP42**	**2022-23**	**B. Com (CA)**

SEMESTER – IV **PAPER – V**

Lab List: OBJECT ORIENTED PROGRAMMING USING JAVA Pass Marks

No. of Hours per week: 2 External: 40 Internal: 10 Credits: 1

1. Write a program to perform various String Operations
2. Write a program to print the given number is Armstrong or not?
3. Prompt for the cost and selling price of an article and display the profit (or) loss
4. Write a program to print the numbers given by command line arguments
5. Write a program on class and object in java
6. Illustrate the method overriding in JAVA
7. Write a program to find the Simple Interest using Multilevel Inheritance
8. Write a program to display matrix multiplication.
9. Write a program on interface in java
10. Write a program on inheritance

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Title of the Paper: OBJECT ORIENTED PROGRAMMING USING JAVA

Semester: IV **PAPER-V**

Course Code	**ECCSCT41**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	3	CIA Marks	25
No. of Lecture Hours / Week	5	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2022 - 23	Year of Revision: ----	Percentage of Revision: 0%

Course Objective: This Course will enable students to understand the basic concepts of object oriented programming and difference between procedure-oriented programming; get a clear understanding of basics of java programming

Course Outcomes:

CO_1	Able to Understand the concept and underlying principles of Object-Oriented Programming.
CO_2	Able to Understand the Basic concepts of Data types & Operators
CO_3	Able to Implement Decision & Looping Statements
CO_4	Able to Implement Object Oriented Programming Concepts like class, constructor, overloading in java.
CO_5	Able to Understand the concept of Inheritance and Exceptions Object-Oriented Programming.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Fundamentals of Object – Oriented Programming:** Introduction, Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOP, Applications of OOP, Java features:	10
II	**Overview of Java Language**: Introduction, Simple Java program structure, Java tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command line arguments. **Constants, Variables & Data Types:** Introduction, Constants, Variables, Data Types, Declaration of Variables, Giving Value to Variables, Scope of variables, Type casting, Getting Value of Variables, **Operators.**	14
III	**Decision Making & Branching:** Introduction, Decision making with if statement, Simple if statement, if-Else statement, Nesting of if-else statements, the else if ladder, the switch statement, the conditional operator. **Looping**: Introduction, while statement, do-while statement, for statement, Jumps in loops.	12
IV	**Classes, Objects & Methods**: Introduction, defining a class, adding variables, adding methods, creating objects, Accessing class members, Constructors, Method overloading, Method Overriding, Static members, Nesting of methods;	12
V	**Inheritance**: Extending a Class, Overriding Methods, Final Variables and Methods, Final Classes, Abstract Methods and Classes; **Arrays, Strings And Vectors:** Arrays, One-dimensional arrays, Creating an array, Two – dimensional arrays, Strings, Vectors, Wrapper classes; **Interfaces**: **Multiple Inheritance**: Introduction, Defining interfaces, Extending interfaces, Implementing interfaces, Assessing interface variables;	12

Prescribed Text Book:

1. E. Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw-Hill Company.

Reference Books

6. Programming In Java By Sachin Malhotra And Saurabh Choudhary From Oxford University Press
7. Object Oriented Programming Through Java by P. Radha Krishna, Universities Press
8. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series,
9. Deitel&Deitel. Java TM: How to Program, PHI (2007)
10. Java Programming: From Problem Analysis to Program Design- D.S Mallik

Course Focus: OOP focus on the objects that developers want to manipulate rather than the logic required to manipulate them.

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OBJECT ORIENTED PROGRAMMING USING JAVA
MODEL PAPER

CLASS: B.Com (e-Com-Computers) **Max. Marks: 75M**
Course Code: ECCSCT41 **Min. Pass: 30M**
Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. What are the benefits and applications of oops?

2. Explain about Structure of java?

3. Explain types of variables in java?

4. Explain about Typecasting

5. Explain about Switch Statement?

6. Explain about Jump Statements in java?

7. Explain types of constructors?

8. Explain about Final keyword?

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. (A) Explain about Basic Concepts of oops?

(OR)

(B) Explain about Java features

10. (A) Explain about primitive data types in java?

(OR)

(B) Explain about operators

11. (A) Explain about Decision making statements in java?

(OR)

(B) Explain about looping statements in java

12. (A) Explain about method overloading and overriding?

(OR)

(B) What is inheritance? Explain types of inheritances?

13. (A) what is an Array? Explain its types?

(OR)

(B) What is String? Explain string handling functions in java?

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OBJECT ORIENTED PROGRAMMING USING JAVA

BLUE PRINT

CLASS: B.Com (e-Com-Computers) **Max. Marks: 75M**

Course Code: ECCSCT41 **Min. Pass: 30M**

Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. UNIT -1 ---------- 5M
2. UNIT -2 ---------- 5M
3. UNIT -2 ---------- 5M
4. UNIT -3 ---------- 5M
5. UNIT -3 ---------- 5M
6. UNIT -4 ---------- 5M
7. UNIT -4 ---------- 5M
8. UNIT -5 ---------- 5M

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. UNIT -1 ---------- 10M

OR

UNIT -1 ---------- 10M

10. UNIT -2 ---------- 10M

OR

UNIT -2 ---------- 10M

11. UNIT -3 ---------- 10M

OR

UNIT -3 ---------- 10M

12. UNIT -4 ---------- 10M

OR

UNIT -4 ---------- 10M

13. UNIT -5 ---------- 10M

OR

UNIT -5 ---------- 10M

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COMPUTER SCIENCE	**ECCSCT41**	**2022-23**	**B. Com (e-Com-Computers)**

SEMESTER – IV PAPER – IV Max. Marks 75 Pass Marks 30

Syllabus: OBJECT ORIENTED PROGRAMMING USING JAVA

Total Hrs: 60 NO. Of. Hours: 4 Credits: 3

Unit wise weight age of Marks

	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1	1	2
Unit-2	2	2
Unit-3	1	2
Unit-4	1	1
Unit-5	1	1

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weight age given by us

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COMPUTER SCIENCE	**ECCSCP41**	**2022-23**	**B. Com (e-Com-Computers)**

SEMESTER – IV **PAPER – V**

Lab List: OBJECT ORIENTED PROGRAMMING USING JAVA Pass Marks 20

No. of Hours per week: 2 **External: 40** **Internal: 10** **Credits: 1**

1. Write a program to perform various String Operations

2. Write a program to print the given number is Armstrong or not?

3. Prompt for the cost and selling price of an article and display the profit (or) loss

4. Write a program to print the numbers given by command line arguments

5. Write a program on class and object in java

6. Illustrate the method overriding in JAVA

7. Write a program to find the Simple Interest using Multilevel Inheritance

8. Write a program to display matrix multiplication.

9. Write a program on interface in java

10. Write a program on inheritance

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(With Effect from Academic Year 2021-22)

COMPUTER SCIENCE	ECCSCT42	2022-'23	B.Com.(E-Commerce)

SEMESTER – IV **PAPER – VI** **Max. Marks: 75**

Syllabus **DATA BASE MANAGEMENT SYSTEMS**

NO Of Hours: 5 **No Of Credits: 3** **Pass Marks: 30**

Course Objective: Design & develop database for large volumes & varieties of data with optimized data processing techniques.

Course Prerequisites (if any):

Course Description: This course focuses towards Database System Concepts and Architecture, ER models, relational algebra relational calculus, SQL and PL/SQL.

Course Objectives:

The objective of the course is to introduce the design and development of databases with special emphasis on relational databases. Design & develop database for large volumes & varieties of data with optimized data processing techniques.

Course Outcomes: At the end of this course, students should be able to:

On completing the subject, students will be able to:

CO1	Understand the Characteristics and basics of Database.(PO5, PO7)
CO2	Understand file system and Architecture of DBMS(PO5, PO7)
CO3	Enlighten ER Diagrams, Relationship, Notation & schema. (PO5, PO7)
CO4	Enlighten EER Diagrams & Applying constraints on data. (PO5, PO7)
CO5	Implementing SQL commands retrieve, insert, modify and update(PO5, PO7)

Unit – 1: Database Systems Introduction **12Hrs**

Database Systems: Introducing the database and DBMS, Why the database is important,
Historical Roots: Files and File Systems, Problems with File System, Data Management, Database Systems.
Data Models: The importance of Data models, Data Model Basic Building Blocks, The evaluation of Data Models.

Unit - II: Relational Database & Data Modelling **12 Hrs**

The Relational Database Model: A logical view of Data, Keys, Integrity Rules, Relational Set Operators, Indexes, Codd's relational database rules.*Entity Relationship Model:* The ER Model
Advanced Data Modelling: The Extended Entity Relationship Model, Entity clustering.

Unit-III: Normalization and Database Design **14 Hrs**

Normalization of database tables: Database Tables and Normalization, The need for Normalization, The Normalization Process, High level Normal Forms, Normalization and database design, de normalization.

Unit-IV: Structured Query Language **12 Hrs**

Introduction to SQL: Data Definition Commands, Data Manipulation Commands, Select queries, Advanced Data Definition Commands, Advanced Select queries, Virtual Tables, SQL Join Operators,

Unit-V: Procedural SQL **10 Hrs**

Introduction to PL/SQL : Triggers, Stored Procedures, Pl/ SQL Stored Functions

Prescribed Text Book:

1. **Peter Rob, Carlos Coronel, Database Systems Design, Implementation and Management, Seventh Edition, Thomson (2007).**

Reference Books:

1. Elimasri / Navathe, Fundamentals of Database Systems, Fifth Edition, Pearson Addison Wesley
2. Raman A Mata – Toledo/Panline K Cushman, Database Management Systems, Schaum'sOutlibe series, Tata McGraw Hill (2007).

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DATABASE MANAGEMENT SYSTEMS

MODEL PAPER FOR SEM END EXAMINATION

Class: B.Com (E-COMMERCE)

Course Code: ECCSCT42 **Max. Marks: 75M**

Semester: IV **Time: 3 Hours**

Section - A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. Explain the difference between data and information. (CO1, L2)
2. List the Disadvantages of Traditional file system? (CO2, L1)
3. Explain Integrity Rules? (CO2, L1)
4. Explain different types of entities and attributes? (CO3, L2)
5. Explain 3NF with example (CO3, L2)
6. What is constraint. Explain different type of constraints. (CO4, L1)
7. Demonstrate the features of SQL. (CO5, L2)
8. Explain PL/SQL Structure. (CO5, L2)

Section - B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. A) Explain Drawbacks of File System. (CO1, L2)

(OR)

B)Explain Different types of Data models. (CO1, L2)

10. A) Explain Codd's Database rules. (CO2, L1)

(OR)

B) Explain EER Model with example (CO2, L1)

11. A) What is Normalization? Explain Different types Normal forms (CO3, L1)

(OR)

B) What is denormalization? Explain denormalization on different tables.(CO3, L1)

12. A) Explain DDL& DML Commands (CO4, L1)

(OR)

B) Explain SQL JOINS (CO4, L1)

13. A) Explain Triggers with example. (CO5, L2)

(OR)

B)Explain Stored procedure with examples. (CO5, L2)

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COMPUTER SCIENCE	**ECCSCP42**	**2022-23**	**B. Com (e-Com-Computers)**

SEMESTER – IV **PAPER – VI**

Lab List: DATA BASE MANAGEMENT SYSTEM **Pass Marks 20**

No. of Hours per week: 2 **External: 40** **Internal: 10** **Credits: 1**

1. Creation of college database and establish relationships between tables
2. Show the structure of the Student table.
3. Show the structure of the Emp table.
4. Show the structure of the DEPT table.

Queries

1. Explain the syntax of SELECT statement.
2. Create a query to display the name, job, hiredate and employee number from emp table.
3. Create a query to display unique jobs from the emp table.
4. Create a query to display the empno as EMP#, ename as EMPLOYEE and Hire_date from emp.
5. Create a query to display all the data from the EMP table. Separate each column by a comma and
6. name the column THE_OUTPUT.
7. Create a query to display the name and salary of employees earning more than 2850.
8. Create a query to display the name and salary for all employees whose salary is not in the range of
9. 1500 and 2850.
10. Display the employee name, job and start date of employees hired between February 20 ,1981
11. and May 1, 1981. Order the query in ascending order of start date
12. Display the employee name and department number of all the employees in departments 10 and 30
13. in alphabetical order by name.
14. List the name and salary of employees who earn more than 1500 & are in department 10 or 30.
15. Display the name, salary and commissions and sort data in descending order of salary and
16. commission.
17. Display the name and job title of all employees who do not have a manager.
18. Display the name, job and salary for all employees whose job is Clerk or Analyst and their salary
19. is not equal to 1000, 3000 or 5000.
20. Display the names of all employees where the third letter of their name is an ‘A’.
21. Display the names of all employees who have two ‘L’s in their name and are in department 30 or
22. their manager is 7782.
23. Display the name , salary and commission for all employees whose commission amount is grater
24. than their salary increased by 10%.

21. Explain all the character functions.
22. Explain all the number functions.
23. Explain all the Date functions.

PL/SQL.

1. Write A Pl/Sql Program To Swap Two Numbers Without Using Third Variable.
2. Write A Pl/Sql Program To Generate Multiplication Tables For Numbers 2,4 And 6
3. Write A Pl/Sql Program To Display Sum Of Even Numbers And Sum Of Odd Numbers In The Given Range.
4. Write A Pl/Sql Program To Check The Given Number Is Pollinndrome Or Not.
5. Write A Pl/Sql Program To Display Top 10 Rows In Emp Table Based On Their Job And Salary.

Reference Books:

1. Oracle Pl/Sql By Example. Benjamin Rosenzweig, Elena Silvestrova, Pearsoneducation 3rd Edition
2. Sql& Pl/Sql For Oracle 10g, Black Book, Dr.P.S. Deshpande

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COMPUTER SCIENCE	ECCSCT43	2022-'23	B.Com.(E-Commerce)

SEMESTER – IV **PAPER – VII** **Max. Marks: 75**

DATA COMMUNICATION & NETWORKS

NO Of Hours: 5 **No Of Credits: 3** **Pass Marks :30**

LEARNING OBJECTIVES:

1. Understand the structure of Data Communications System and its components. Be familiarize with different network terminologies.
2. Familiarize with contemporary issues in network technologies.
3. Know the layered model approach explained in OSI and TCP/IP network models
4. Identify different types of network devices and their functions within a network.
5. Learn basic routing mechanisms, IP addressing scheme and internetworking concepts.
6. Familiarize with IP and TCP Internet protocols.

COURSE OUTCOMES: Upon Completion of the course, the students will be able to:

- Able to understand the fundamentals of computer networks, TCP/IP protocol.
- Able to understand the data communication techniques and multiplexing techniques.
- They will be able to understand the network switching techniques and various access mechanisms.
- Able to understand CSMA/CD protocols, routing algorithms.

UNIT I.:Introduction to Computer Networks and Networking Elements: 12Hrs

Network Definition, Network Topologies, Network Classifications, Network Protocol, Layered Network Architecture, Overview of OSI Reference Model, Overview of TCP/IP Protocol Suite, Hub, Switch (Managed and Unmanaged), Routers

UNIT II.: Data Communication Fundamentals and Techniques: 12 Hrs

Analog and Digital Signal, Data- Rate Limits, Digital to Digital Line Encoding Schemes, Pulse Code Modulation, Parallel and Serial Transmission, Digital to Analog Modulation - Multiplexing Techniques- FDM, TDM, Transmission Media.

UNIT III. Networks Switching Techniques and Access Mechanisms: 12 Hrs

Circuit Switching, Packet Switching- Connectionless Datagram Switching, Connection- Oriented Virtual Circuit Switching; Dial-Up Modems, Digital Subscriber Line, Cable TV for Data Transfer.

UNIT IV. Data Link Layer Functions and Protocol: 12 Hrs

Error Detection and Error Correction Techniques, Data-Link Control- Framing and Flow Control, Error Recovery Protocols-Stop and Wait ARQ, Go-Back-N ARQ, Point to Point Protocol on Internet.

UNIT V. Multiple Access Protocol and Network Layer: 12 Hrs

CSMA/CD Protocols, Ethernet LANS; Connecting LAN and Back-Bone Networks- Repeaters, Hubs, Switches, Bridges,Router and Gateways, Networks Layer Functions and Protocols Routing, Routing Algorithms, Network Layer Protocol of Internet - IP Protocol, Internet Control Protocols.

TEXTBOOKS :

● B. A. Forouzan: Data Communications and Networking, Fourth edition, THM Publishing Company Ltd 2007. ● A. S. Tanenbaum: Computer Networks, Fourth edition, PHI Pvt. Ltd 2002

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DATA COMMUNICATION & NETWORKS

MODEL PAPER

CLASS: B.Com (e-Com-Computers) **Max. Marks: 75M**

Course Code: ECCSCT43 **Min. Pass: 30M**

Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1.

2.

3.

4.

5.

6.

7.

8.

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. (A)

(OR)

(B)

10. (A)

(OR)

(B)

11. (A)

(OR)

(B)

12. (A)

(OR)

(B)

13. (A)

(OR)

(B)

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DATA COMMUNICATION & NETWORKS

BLUE PRINT

CLASS: B.Com (e-Com-Computers) **Max. Marks: 75M**

Course Code: ECCSCT43 **Min. Pass: 30M**

Semester: IV **Time: 3 Hours**

Section-A

ANSWER ANY FIVE QUESTIONS **5x5M=25M**

1. UNIT -1 ---------- 5M
2. UNIT -2 ---------- 5M
3. UNIT -2 ---------- 5M
4. UNIT -3 ---------- 5M
5. UNIT -3 ---------- 5M
6. UNIT -4 ---------- 5M
7. UNIT -4 ---------- 5M
8. UNIT -5 ---------- 5M

Section-B

ANSWER THE FOLLOWING QUESTIONS **5x10M=50M**

9. UNIT -1 ---------- 10M

OR

UNIT -1 ---------- 10M

10. UNIT -2 ---------- 10M

OR

UNIT -2 ---------- 10M

11. UNIT -3 ---------- 10M

OR

UNIT -3 ---------- 10M

12. UNIT -4 ---------- 10M

OR

UNIT -4 ---------- 10M

13. UNIT -5 ---------- 10M

OR

UNIT -5 ---------- 10M

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Title of the Paper: Data Structures

Semester: II **PAPER-II**

Course Code	CSCT21B	Course Delivery Method	Class Room / Blended Mode – Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

Course Objectives

To introduce the fundamental concept of data structures and to emphasize the importance of various data structures in developing and implementing efficient algorithms.

Course Outcomes:

COURSE OUTCOME NO	Upon successful completion of the course, student will be able to:	PROGRAM OUTCOME NO
CO1	Learn the concepts of ADT and understand analysis of algorithms	PO1, PSO1, PSO2, PSO4
CO2	Understand available Data Structures for data storage and processing.	PO1, PSO1, PSO2, PSO4
CO3	Learn stacks, queues and their applications	PO1, PSO1, PSO2, PSO4
CO4	Understand trees, graphs and implement their operations	PO1, PO7, PSO1, PSO2, PSO4
CO5	Develop ability to implement different Sorting and Search methods	PO1, PO7, PSO1, PSO2, PSO4

UNIT – I: 11Periods

Introduction to Data Structures: Introduction to the Theory of Data Structures, Data Representation, Abstract Data Types, Data Types, Primitive Data Types, Data Structure and Structured Type, Atomic Type, Difference between Abstract Data Types, Data Types, and Data Structures, Refinement Stages.

Principles of Programming and Analysis of Algorithms: Software Engineering, Program Design, Algorithms, Different Approaches to Designing an Algorithm, Complexity, Big 'O' Notation, Algorithm Analysis, Recursion.

UNIT – II: 11Periods

Linked Lists: Introduction to Lists and Linked Lists, Basic Linked List Operations, Doubly Linked List, Circular Linked List, Atomic Linked List, Linked List in Arrays, Linked List versus Arrays

UNIT – III: 14Periods

Stacks: Introduction to Stacks, Stack as an Abstract Data Type, Representation of Stacks through Arrays, Representation of Stacks through Linked Lists, Applications of Stacks, Stacks and Recursion

Queues: Introduction, Queue as an Abstract data Type, Representation of Queues, Circular Queues, Double Ended Queues- De-ques, Priority Queues, Application of Queues

UNIT – IV: 10Periods

Binary Trees: Introduction to Non- Linear Data Structures, Introduction Binary Trees, Types of Trees, Basic Definition of Binary Trees, Properties of Binary Trees, Representation of Binary Trees, Operations on a Binary Search Tree, Binary Tree Traversal, Counting Number of nodes in Binary Trees, Applications of Binary Tree

UNIT – V: 14Periods

Searching and sorting: Sorting – An Introduction, Bubble Sort, Insertion Sort, Merge Sort, searching – An Introduction, Linear or Sequential Search, Binary Search, Indexed Sequential Search

Graphs: Introduction to Graphs, Terms Associated with Graphs, Sequential Representation of Graphs, Linked Representation of Graphs, Traversal of Graphs, Spanning Trees, Shortest Path, Application of Graphs.

BOOKS:

- "Data Structures using C", ISRD group Second Edition,TMH
- Data Structures through C", YashavantKanetkar, BPBPublications
- "Data Structures Using C" Balagurusamy E.TMH

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual andchallenging)
2. Student seminars (on topics of the syllabus and related aspects (individualactivity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or

groups asteams))

4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

B. General

1. GroupDiscussion
2. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Programming exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports.
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborativework.

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MODEL Question Paper: 2022-2023

TITLE: DATA STRUCTURES **COURSE CODE:** CSCT21B

SECTIONS: B.Sc. (MPCS / MCCS / MSCS) **SEMESTER: II**

TIME: 3 Hrs. **MAX: 70M** Pass Marks 30

SECTION A (20MARKS)

1.(a) Define ADT? Explain with examples. 4M (CO1,L1)

OR

(b) What are different approaches in designing an algorithm? 4M CO1,L1

2.(a) Write code for deletion in a doubly linked list. 4M CO2,L1

OR

(b) Distinguish between linked lists and arrays. 4M CO2,L1

3.(a) Demonstrate applications of stack. 4M CO3,L2

OR

(b) Develop code for push and pop operations in stacks using linked lists. 4M CO3,L2

4. (a) Explain applications of trees. 4M CO4,L2

OR

(b) Demonstrate types of trees. 4M CO4,L2

5. (a) Build code for bubble sort. 4M CO5,L3

OR

(b)Identify applications of graphs. 4M CO5,L3

SECTION B (50MARKS)

Answer all Questions.

(Restrict to a maximum of 2 subdivisions)

6.(a)Define Data structure, structured type and data type.10M CO1,L1

OR

(b) What is Algorithm analysis and Big O notation ? 10M CO1,L1

7.(a)Show code for insertion and deletion of nodes in a single linked list. 10M CO2,L1

OR

(b)Write code for insertion and display of values in circular linked list . 10M CO2,L1

8. (a)Demonstrate stack. Classify functions for various stack operations using arrays.10M CO3,L2

OR

(b)Interpret code to implement circular queues using arrays. 10M CO3,L2

9.(a) Explain deleting a node in a binary search tree with examples. 10M CO4,L2

OR

(b)Explain binary tree traversals with examples.10M CO4,L2

10. (a)Simplify Merge sort with an example and apply code for it. 10M CO5,L3

OR

(b)Discover Depth first traversal with an example. 10M CO5,L3

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(With Effect from Academic Year 2022-23)

COMPUTER SCIENCE	CSCT21B	2022-'23	B.Sc.(MPCs,MCCs,MSCs)

SEMESTER – II PAPER –II Max. Marks 75 Pass Marks 30

Guidelines for paper setting '**DATA STRUCTURE'**

Unit wise weight age of Marks

	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1	2	2
Unit-2	2	2
Unit-3	2	2
Unit-4	2	2
Unit-5	2	2

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per
  The weight age given by us

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PAPER-II

Semester II	Course Code	Course Title	Hours	Credits
BSC(MPCS/MCCS/MSCS)	CSCT21B	Data Structures Lab	30	1

COURSE OUTCOME NO	Upon successful completion of this course, students should have the knowledge and skills to:	PROGRAM OUTCOME NO
CO1	implement stacks, queues using arrays and linked lists.	PO1, PSO1, PSO2, PSO4
CO2	Write program for conversion from infix to postfix.	PO1, PSO1, PSO2, PSO4
CO3	implement different sorting and searching techniques.	PO 7, PSO1, PSO2, PSO4
CO4	Construct binary trees and binary search trees.	PO 1, PSO1, PSO2, PSO4
CO5	implement binary tree and Graph traversals.	PO1,PO 7, PSO1, PSO2, PSO4

Lab Experiments List

Cycle - I

Week 1: Write a program to read 'N' numbers of elements into an array and also perform the following operation on an array

- Add an element at the beginning of an array
- Insert an element at given index of array
- Update a element using a values and index
- Delete an existing element

Week 2: Write Program to implement the Stack operations using an array.

Week 3: Write a program using stacks to convert a given infix expression to postfix.

Week 4: Write a program for arithmetic expression evaluation.

Week 5: Write Program to implement the Stack operations using Liked List.

Week 6: Write Program to implement the Queue operations using an array.

Week 7: Write Program to implement the Queue operations using Liked List.

Week 8: Write Program to implement circular Queue operations using an array.

Cycle - II

Week 9: Write a program to implement de-queues.

Week 10: Write a program to implement single linked list.

Week 11: Write a program to implement double linked list.

Week 12: Write a program for Binary Search Tree Traversals.

Week 13: Write a program to search an item in a given list using the following Searching Algorithms

- Linear Search
- Binary Search.

Week 14: Write a program for implementation of the following Sorting Algorithms

- Bubble Sort
- Insertion Sort
- Merge sort

Week 15: Write a program for implementation of the following graph traversals.

- BFS
- DFS

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Title of the Paper: **E–COMMERCE & WEB DESIGNING**

Semester: II PAPER-II

Course Code	**CABT21A**	Course Delivery Method	Class Room / Blended Mode – Both
Credits	3	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

COURSE OBJECTIVES:

The main objective of the course is to impart conceptual understanding on business transactions on worldwide web And electronic commerce & Electronic Customer Relationship Management and Web designing concepts for Providing quality content on website.

COURSE OUTCOMES:

COURSE OUTCOME NO	**on successful completion of this course, students should have the knowledge and skills to**
CO1	in knowledge in E- commerce and its business models
CO2	fferentiate traditional and e – marketing and also gain knowledge in E-CRM and EPS
CO3	derstand the structure of HTML its basic tags
CO4	plement various HTML tags for web page development
CO5	derstand about web page designing

Syllabus

UNIT I: An Overview on E-Commerce **(10periods)**

1.1 Introduction E-Commerce

1.1.1 Definition of E- Commerce and its advantages & disadvantages
1.1.2 Electronic Data Interchange (EDI)
1.1.3 E-Commerce transactional issues and challenges
1.1.4 Difference between Commerce and E-Commerce

1.2 Business Models for Ecommerce

1.2.1 B2C -Business to consumer.
1.2.2 B2B – Business to business
1.2.3 C2B – Consumer to business.
1.2.4 C2C – Consumer to consumer.

UNIT II: E-Marketing &E – CRM& Electronic Payment Systems **(10periods)**

2.1 Online Marketing

2.1.1 Traditional Vs. E-Marketing
2.1.2 Online Marketing
2.1.3 E-Advertising
2.1.4 Internet marketing

2.2 E – CRM

2.2.1 Definition of CRM and E-CRM and its Applications
2.2.2 E- CRM Architectural components
2.2.3 Definition & characteristics of E- SCM
2.2.4 Benefits and goals of E – SCM
2.2.5 E-Logistics of UPS

UNIT III: Electronic Payment Systems **(10periods)**

3.1 Types of EPS
3.2 Traditional payment system and modern payment system
3.3 Steps for electronic payment
3.4 Payment security

UNIT IV: Introduction to Web Designing **(12periods)**

4.1 **HTML**
4.1 .1 Define HTML
4.1.2 Structure of HTML
4.1.3 Basic HTML tags
4.1.4 Formatting HTML tags
4.2 **Lists**
4.2.1 Ordered List
4.2.2 Unordered List
4.3**Links**
4.3.1 Link tag
4.3.2 Image tag
4.3.3 Marquee tag
4.4**Tables**
4.4.1 Table Creation
4.4.2 Attributes of Table
4.5**forms& Frames**
4.5.1 Forms creation
4.5.2 Form tag
4.5.3 Input fields of form
4.5.4 Frame Creation
4.5.5 Frameset tag
4.5.6 Frame tag

UNIT V: Introduction to WIX Editor **(18periods)**

5.1 Getting Started with Wix

5.1.1 Adding and Editing Text
5.1.2 Adding a Site Title
5.1.3 Changing Your Text Font
5.1.4 Creating a Clickable URL

5.1.5 Adding Language Fonts
5.1.6 Adding Elements to Your Site
5.1.7 Arranging the Content on Your Site's Pages
5.1.8 About the Header
5.1.9 About the Footer

5.2Adding an Image to Your Page Background

5.2.1 Uploading Your Own Background Image
5.2.2 Adding a Video to Your Page Background
5.2.3 Uploading Your Own Video Page Background
5.2.4 Uploading Your Own Images
5.2.5 Adding a Logo to Your Site
5.2.6 Adding a Link to an Image

5.3 Gallery and Button

5.3.1 Adding a Gallery
5.3.2 Cropping and Editing Gallery Images
5.3.3 Adding and Setting Up an Icon Button
5.3.4 Adding a Link to a Button

5.4 Video

5.4.1 Adding a Video from YouTube
5.4.2 Retrieving a YouTube URL

5.5 Menu

5.5.1 Adding a Site Menu
5.5.2 Customizing Your Menu Design
5.5.3 Adding and Deleting a Menu Folder
5.5.4 Reordering Menu Items
5.5.5 Changing the Direction of Menu Items

Text Book:

1. Uttam Kumar Roy, Web Technologies, Oxford University Press.
2. E-Commerce- A Managerial Perspective- P. T. Joseph, Prentice- Hall of India, New Delhi, 2005.

References:

1. Kogent Learning Solutions Inc.(Author), “Black Book HTML 5.0”, dreamtech.
2.Daniel Amor, E-Bussiness R(Evolution), Pearson Edude, New Delhi, 2005.

Weblink: **https://support.wix.com/en/the-wix-editor/editor-basics**

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Computer Science	**CABT21A**	**2022-23**	**B. Com (Computers Applications)**

Semester - II **PAPER-I** **Credits: 1**

WEB DESIGNING LAB

COURSE OBJECTIVES:

The purpose of this course is to introduce to students to the field of creation web pages using HTML language. The students will be able to enhance their analyzing and help to creation for Web Site Design

COURSE OUTCOMES:

COURSE OUTCOME NO	on successful completion of this course, students should have the knowledge and skills to
CO1	Implement HTML tags.
CO2	plementing lists and tables in web pages.
CO3	plementing frames in web pages.
CO4	plementing frames in web pages.
CO5	eation of CSS in a web page.

Week 1: Write a HTML program to print text in bold and italic font.
Week 2: Write a HTML program to print Heading tags.
Week 3: Write a HTML program using Text formatting tags
Week 4: Write a HTML program to implement unordered lists.Write a HTML program to implement order lists.
Week 5: Write a html file which display 3 images at LEFT, RIGHT and CENTER respectively in the browser.
Week 6: Create a HTML file which contains hyperlinks.
Week 7: Write a HTML program to Create a table
Week 8: Write a HTML program to Create a table using RowSpan and ColSpan.
Week 9: Write a HTML program to Create a simple form
Week 10: Create a Registration form that interacts with the user. Collect login name, password, date of birth, gender, address, qualification.
Week 11: Create a HTML page using frameset tag.

Developing Websites using WIX: https://www.wix.com/blog/2020/05/how-to-design-a-website/
Week 12: An online store to sell your products.
Week 13: A photography website to display and sell prints.
Week 14:A fitness website to book new clients.
Week 15: A restaurant website to help with online orders, delivery and payment.

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Title: E-Commerce & Web Designing
Model Paper

CLASS: B.Com (Computer Applications) **Course Code: CABT21A** **Max. Marks: 75M**
Semester: II **Time: 3 Hours**

SECTION A (20MARKS)

1. (a) Explain the E-Commerce with advantages and disadvantages 4M
   OR
   (b) What are transactional issues in ecommerce? 4M

2. (a) Compare Traditional marketing and E-Marketing. 4M
   OR
   (b) Define CRM and E-CRM and its applications . 4M

3. (a)distinguish between traditional and modern payment system . 4M
   OR
   (b)what are different payment securities in EPS. 4M

4. (a)Define structure of HTML. 4M
   OR
   (b) Explain i) link tag ii)image tag iii) marquee tag . 4M

5. (a)write the procedure to add and edit text in WIX editor. 4M
   OR
   (b)how to add a link to a button. 4M

SECTION B (50MARKS)

Answer all Questions.
(Restrict to a maximum of 2 subdivisions)

6.(a) Explain briefly about EDI..10M
   OR
   (b) Explain different Bussiness models in ecommerce ? 10M

7.(a) Illustrate E- CRM Architectural components 10M
   OR
   (b)explain about E-Advertising . 10M

8. (a)explain different Electronic Payment Systems.10M
   OR
   (b)illustrate various steps involved in electronic payment. 10M

9.(a) Demonstrate the concept of Table creation by apply all Attributes. 10M
   OR
   (b) Define forms in html and creation of form with all input types.10M

10. (a) Explain the steps to add elements to your site. 10M
   OR
   (b) How to add images and logo to your site. 10M

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COMPUTER SCIENCE	CSCT21B	2022-'23	B.Com.(CA)

SEMESTER – II PAPER –II Max. Marks 70 Pass Marks 28

Guidelines for paper setting '**E-Commerce Web Designing'**

Unit wise weight age of Marks

	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1	2	2
Unit-2	2	2
Unit-3	2	2
Unit-4	2	2
Unit-5	2	2

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per
  the weight age given by us

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Title of the Paper: **Information Technology**

Semester: II PAPER-III

Course Code	**CABT21A**	Course Delivery Method	Class Room / Blended Mode – Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

COURSE OBJECTIVES:

It provides to learn computer basics and basic principles of using Windows operation system and be able to access the Internet, data communication, Software, hardware and various new technologies in information technology.

Course Outcomes:

COURSE OUTCOME NO	**Upon successful completion of this course, students should have the knowledge and skills to**
CO1	Understand fundamental concepts of a computer and its basic components
CO2	Understand basic functioning of an operating system and customizing Windows Desktop
CO3	Analyze type of soft ware's and programming languages
CO4	Have knowledge in basic Network and Data Communication Concepts
CO5	Understand the need of data mining and get familiarize with basics of new concepts like KDD, OLAP

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Semester II	Course Code	Course Title	Credits	Periods
B.Com.(E-Commerce)	**CABT21A**	**Information Technology**	**4**	**75**

UNIT-I: INTRODUCTION: 13Periods

1.1 Introduction to computers
1.2 Generations of computers
1.3 An overview of computer system - Types of computers
1.4 Input & Output Devices.
1.5 Hardware: Basic components of a computer system- Control unit– ALU- Input/output functions.

1.6 Memory – RAM – ROM – EPROM - PROM and Other types of memory.

UNIT-II: OPERATING SYSTEM (OS): 12Periods

2.1 Meaning - Definition & Functions.
2.2 Types of OS - Booting process
2.2.1 DOS – Commands (internal & external) - Wild card characters
2.3 Windows: Using the Start Menu –Control Panel – Using multiple
2.3.1 Windows – Customizing the Desktop – Windows accessories (Preferably latest version of windows or Linux Ubuntu).

Unit-III: SOFTWARE: 15Periods

3.1 System software and application software.
3.1.1 Operating system windows OS,
3.1.2 Mobile device operating system and notebook operating systems
3.2 Application software Types of personal application software
3.2.1 Spread sheet-data management
3.2.2 Word processing
3.2.3 Desktop publishing
3.2.4 Graphics, CAD, CAM, CIM
3.3 Programming Languages
3.3.1 Assembly language
3.3.2 Procedural language, non-procedural language, natural programming language.
3.3.3 Hypertext mark-up language, modeling language, object-oriented programming language.

Unit-IV: DATA COMMUNICATION: 20 Periods

4.1 Telecommunication and Networks Communication media& channel cable media

4.1.1 Broad cast media channels twisted pair
4.1.2 Coaxial cable, fibers optical cable, micro wave, satellite, radio, cellular radio, Infrared global positioning system.
4.2 Introduction, Analog and Digital signals, modulation need of modulations, modems.
4.3 Telecommunication System communication processors:
4.3.1 Modem
4.3.2 Multiplexers
4.3.3 Front –end-processor.
4.4 Networks LAN, WAN, VAN, virtual private network (VPN).
4.5 Internet, intranet and Extranets
4.5.1 The evolution of the internet, service provided by the internet, World Wide Web.

Unit-V: NEW TECHNOLOGIES: **10 Periods**

5.1New technologies in Information Technology:

5.1.1 Introduction to hyper media, artificial intelligence and business intelligence, knowledge discovery in database (KDD)

5.2 Data warehouse and data marts. Data mining and OLAP.

Student Activity:

Students have to submit assignments and give seminars on various topics allotted to them.

Total of 5 Hrs is allotted for student seminars. Student activity also includes gathering of information related to latest technologies in computers.

Library Activity:

Students will visit library in their allotted time and will refer various text books to gather information for their assignments.

TEXT/ REFERENCE BOOKS:

1. B.E.V.L.Naidu, V.V.. Devi Prasad Konti, Ganti Naga Srikanth, Himalaya publishing House.
2. Introduction to Computers: Peter Norton, McGraw Hill

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MODEL Question Paper:

PAPER TITLE: INFORMATION TECHNOLOGY **COURSE CODE: CABT21A**
CLASS: B.Com (E-Commerce)
SEMESTER: II
TIME: 3 Hrs. **MAX: 70M**

SECTION – A

Answer ALL of the following **5X4 =20M**

1.A) Illustrate the characteristics of RAM and ROM. (CO1, L2)
(OR)
.B)Explain Block Diagram of computers
2.A)Define Operating system. What are different types of OS? (CO2, L1)
(OR)
B)Explain Windows accessories
3.A)Demonstrate application software and system software. (CO3, L2)
(OR)
B)What are the different types of networks? (CO4, L1)
4.A)Explain the steps involved in the process of KDD. (CO5, L2)
(OR)
B)Explain about input devices. (CO1, L2)
5.A)What are analog and digital signals? (CO4, L1)
(OR)
B)Explain Data warehouse. (CO5, L2)

SECTION –B

Answer the following **5x10=50M**

1. a) Explain the block diagram of computer. (CO1, L2)
OR
b) Explain the generations of computers. (CO1, L2)

2. a) What are the functions of operating system? (CO2, L1)
OR
b) What are DOS Internal and External commands? (CO2, L1)

3. a) Explain the characteristics of various types of programming languages. Give examples. (CO3, L2)
OR
b) Summarize the concepts on CAD, CAM and CIM. (CO3, L2)

4. a) Define the various types of Communication media and channels. (CO4, L1)
OR
b) What are the Advantages and Disadvantages of Internet? (CO4, L1)

5. a) Demonstrate On-Line Analytical process (OLAP). (CO5, L2)
OR
b) Explain about Artificial Intelligence and Business Intelligence. (CO5, L2)

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COMPUTER SCIENCE	**ECCSCT21**	**2022-'23**	**B.Com (E-Commerce)**

SEMESTER – II **PAPER – II** **Max. Marks 70**

Syllabus: Programming in 'C'

NO of Hours: 4 **No Of Credits: 3** **Pass Marks :28**

UNIT-I: General Fundamentals& Programming Languages **10Hrs**

General Fundamentals: Introduction to computers: Block diagram of a computer, characteristics and limitations of computers, applications of computers, types of computers, computer generations. Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms, Flow Charts, **Programming Languages** – Generations of Programming Languages – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

UNIT- II: Introduction To C & Decision Making control Statements **12Hrs**

Introduction to C: Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comment , Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C-Operators in C- Programming Examples.

Decision Control and Looping Statements: Introduction to Decision Control Statements– Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement.

UNIT III: Arrays **10 Hrs**

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array– Operations on Arrays – one dimensional, two dimensional and multi dimensional arrays, character handling and strings.

UNIT-IV:Functions & Structures **13Hrs**

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions.

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions– Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types.

UNIT-V:**Pointes&Files** **15Hrs**

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers -– Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.

BOOKS

1. E Balagurusamy – Programming in ANSIC – Tata McGraw-Hill publications.
2. Brain W Kernighan and Dennis M Ritchie - The 'C' Programming language" -

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Title: Programming in 'C'
Model Paper

CLASS: B.Com (e-Com-Computers) **Course Code: ECCSCT21** **Max. Marks: 75M**
Semester: II **Time: 3 Hours**

SECTION A **(20MARKS)**

Answer all Questions.

1. (a) What is Algorithm ? Explain with Example and Flow Chart? 4M

OR

(b) Explain Programming Methodologies in C. 4M

2. (a) Explain Data Types in C. 4M

OR

(b) Explain the Working of GOTO Statement with Example Program4M

3. (a)What is Array ? Explain in Detail. 4M

OR

(b)Difference Between While and Do-While loop.4M

4. (a)Explain Types of User Defined Functions in C. 4M

OR

(b)Define Union Concept in C with example program. . 4M

5. (a)Define Pointer and write the features of pointers. 4M

OR

(b)Explain Different types of Files used in C Program. 4M

SECTION B (50MARKS)

Answer all Questions.

6.(a) Explain the Structure of C Program? With example program.10M

OR

(b) Explain in detail about Generations of Programming Languages. 10M

7.(a) Explain Looping Statements in C with example Programs. 10M

OR

(b)Expalin Different Types of Operators in C. 10M

8. (a)What Is an Array? Explain One-Dimensional Array with an Example Program in C.10M

OR

(b) What Is an Array? Explain Two-Dimensional Array with an Example Program.10M

9.(a) What Is Function? Explain Function Declaration, Function Definition & Function Calling with an Example Program in C. 10M

OR

(b) What is String? Explain list any five String Handling Functions With Syntaxes& Examples.10M

10. (a) Explain Pointers Concepts in details in C with Example Program. 10M

OR

(b) What is File? Explain any File Handling Functions in C. 10M

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COMPUTER SCIENCE	**ECCSCT21**	2022-'23	B.Com.(e-Com-Computers)

SEMESTER – II PAPER –II Max. Marks 70 Pass Marks 28

Guidelines for paper setting **Programming in'C'**

Unit wise weight age of Marks

	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1	2	2
Unit-2	2	2
Unit-3	2	2
Unit-4	2	2
Unit-5	2	2

- Each Short answer question carries 5 marks in Section –A
- Each Essay question carries 10 marks in Section –B
- The Question papers setters are requested to cover all the topics in the syllabus stipulated as per
  the weight age given by us

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COMPUTER SCIENCE	**ECCSCP21**	**2022-'23**	**B.Com (E-Commerce)**

SEMESTER – II **PAPER – II** **Max. Marks 70**

Syllabus: Programming in 'C' Lab

Cycle-I

Week 1:

Write a C program to check whether the given two numbers are equal, bigger or smaller?

Week 2:

Write a C program to perform arithmetic operations using Switch...case?

Week 3:

- Write a program to find the sum of individual digits of a positive integer.
- Write a program to check whether the given number is Armstrong or not.

Week 4:

Write a program to generate the first N terms of the Fibonacci sequence.

Week 5:

Write a program to find both the largest and smallest number in a list of integer values

Week 6:

- Write a program that uses functions to add two matrices.
- Write a program for multiplication of two n X n matrices.

Week 7:

Write a program to demonstrate refection of parameters in swapping of two integer values using Call by

Value& Call by Address.

Week 8:

Write a program to calculate factorial of given integer value using recursive functions.

Cycle-II

Week 9:

Write a program to search an element in a given list of values.

Week 10:

Write a program to illustrate pointer arithmetic.

Week 11:

Write a program to sort a given list of integers in ascending order.

Week 12:

Write a program to calculate the salaries of all employees using Employee (ID, Name, Designation, Basic Pay, DA, HRA, Gross Salary, Deduction, Net Salary) structure.

a. DA is 30 % of Basic Pay

b. HRA is 15% of Basic Pay

c. Deduction is 10% of (Basic Pay + DA)

d. Gross Salary = Basic Pay + DA+ HRA

e. Net Salary = Gross Salary - Deduction

Week 13:

Write a program to perform various string operations.

Week 14:

Write a program to read the data character by character from a file.

Week 15:

Write a program to create Book (ISBN, Title, Author, Price, Pages, Publisher) structure and store book details in a file and perform the following operations

a. Add book details

b. Search a book details for a given ISBN and display book details, if available

c. Update a book details using ISBN

d. Delete book details for a given ISBN and display list of remaining Books.

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VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF COMMERCE

MINUTES OF BOARD OF STUDIES

ODD SEMESTER

10-02-2023

Minutes of the meeting of Board of studies in Commerce for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at *10.30 A.M on 13-4-2023*

N.Vasanatha Rao ... Presiding

Members Present:

1)..... Chairman — Head, Department of Commerce
(*N.Vasanatha Rao*) AG & SG S Degree College of Arts & Science
Vuyyuru

2)..... University Nominee
(Dr.N.A Francis Xavier)
Head, Department of Commerce
Andhra Loyola College.
Vijayawada (9440524321)
nafrancisxavier@gmail.com

3)..... Subject Expert
(Dr.K.Venkateswarlu,)
Lecturer in Commerce
V.S.R Govt. Degree & P.G College
Movva (9848341412)
gdcjkc.movva@gmail.com

4)..... Subject Expert
(K.Narayanarao)
Lecturer in Commerce
P.B.Siddhartha College of arts and Science
Vijayawada. (9885038196)
hodcommerce@pbsiddhartha.ac.in

5)..... Member
(*Sri* V.Punnarao)
Industrialist
General Manager (Agriculture)
K.C.P & IC Ltd
Vuyyuru.

6)..... Member
(*Sri* V.Balaji)
Alumni
Chartered Accountant
Managing Partner
Balaji V & Co (9052190007)
Vuyyuru (cabalajinco@gmail.com)

7)..... Member
(*Sri* V.GopiChand)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
Vuyyuru

8)..... Member
(*Sri* K.SekharBabu)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
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9)..... Member
(Ms A.N.L Manohari)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
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10)..... Member
(Smt.Y.Swarna latha)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
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11)..... Member
(K.Kiran kumar)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
Vuyyuru

Agenda of B.O.S Meeting:

1. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Commerce for the 2nd Semester as per the guidelines and instruction under CBCS prescribed by APSCHE from the Academic Year 2022-2023.

2. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Commerce for the 4th Semester as per the guidelines and instructions under CBCS prescribed by Krishna University from the Academic Year 2022-2023.

3. To recommend the Blue print of V Semester of B.Com (General & Computers) for the Academic Year 2022-2023.

4. To recommend the Teaching and Evaluation methods to be followed under CBCS

5. Any other suggestions regarding Certificate Course, Seminars, Workshops, Guest Lectures to be organized.

6. Any other matter.

RESOLUTIONS

1. Discussed and recommended the Same syllabi, Model Question Papers and Guidelines for question paper setters in Commerce for the 1st Semester of **I B.Com., (general, computer& e-commerce)** for the Academic year 2022-2023.prescribed by APSCHE

2. Discussed and recommended the Changed syllabi, Model Question Papers for question paper setters in Commerce for the 3rd Semester of **II B.Com., (general, computer& e-commerce)** for the Academic year 2022-2023. There is a change in syllabi of Advanced Accounting A new **"Topic Conversion of single entry into Double Entry System"** Introduced in addition to the syllabus in II Unit. In Business Statistics **"Diagrams and Graphic Presentation of data"** was deleted in Unit I. In Unit III **"Skeweness and Measures of Skeweness"** Introduced and A Topic Named **"Kurtosis"** was deleted. In Unit IV Two New Topics **"Analysis of Time series & Index Numbers"** Introduced.

3. Discussed and recommended the change syllabi, Model Question Papers and Guidelines for question paper setters in Commerce for the 5th Semester of **III B.Com., (general, computers)** for the Academic year 2022-2023.prescribed by APSCHE

4. It is resolved to continue following Teaching and Evaluation methods for Academic year 2022-2023.

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. using of LCD projector, display on U boards etc, for better understanding of concepts.

Evaluation of a student is done by the following procedure:

Internal Assessment (IA)I B.Com (General ,Computers& e-Commerce)

- Out of maximum 100 marks in each paper 30 marks shall be allocated for internal assessment for I.B.Com (General, Computers& e-Commerce). Out of these 30 marks, 20 Marks are allocated for announced tests (i.e. IA-1 & IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, and 5 marks are allocated for the assignment. And reaming 5 marks are allocated for attendance. There is no minimum passing for IA.

Internal Assessment (IA)IIB.Com (General ,Computers& e-Commerce)

- Out of maximum 100 marks in each paper 25 marks shall be allocated for internal assessment for II.B.Com (General ,Computers& e-Commerce). Out of these 25 marks, 20 Marks are allocated for announced tests (i.e. IA-1 & IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, and remaining 5 marks are allocated for the assignment. There is no minimum passing for IA.

Internal Assessment (IA)III B.Com (General & Computers)

- Out of maximum 100 marks in each paper 30 marks shall be allocated for internal assessment B.Com (General & Computers). Out of these 30 marks, 20 Marks are allocated for announced tests (i.e. IA-1 & IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the assignment. There is no minimum passing for IA.

Semester End Examinations (SEE)

- The Semester Examinations will be in the form of a comprehensive examination covering the entire syllabus in each subject. It will be of 3 hours duration, with maximum 70 marks, for 1st year 75 marks for 2nd year and 70 marks for 3rdyear irrespective of the number of credits allotted to it.

- Even though the candidate is absent for two IA exams/obtained zero marks, the external marks are considered (if he/she gets 40/70) and the result shall be declared as 'PASS'

- The pass mark shall be 28 out of 70 in the Semester end examination for I B.Com (General ,Computers & e-Commerce) and 3rd B.com (General&Computers)

- The pass mark shall be 30 out of 75 in the Semester end examination for IIB.Com(General ,Computers & e-Commerce)

- The maximum marks for each Paper shall be 100. (Internal 30 + External 70) for I B.Com (General ,Computers & e-Commerce) and III B.Com (General &Computers)

- The maximum marks for each Paper shall be 100. (Internal 30 + External 75) for II B.Com (General ,Computers & e-Commerce)

- Discussed and recommended to organize certificate course online/offline, seminars, Guest lectures, Online Examinations and Workshops to upgrade the knowledge of students for Competitive Examinations for the approval of the Academic Council.

- It is resolved to follow further changes if any in the Syllabus by the Competent Authority

5. It is resolved Introduce Value added course on Tally Prime in III sem .

Chairman

Program me Specific Outcomes (PSO)

PSO1. Getting the knowledge and the importance of accounting and auditing Standards for the reliability of financial statements.

PSO2 Interpret the legal and environmental aspects of business and Analyze quantitative data in order to take business decisions

PSO3. Empowering the student to understand the accounting practices and Procedures followed by different business entities.

PSO4. Promising the Practical skills for a bright career as accounting officers, computer professionals, audit assistants, businessmen, entrepreneurs, managers with required knowledge in computers.

PSO5. Knowledge of major theories and models in key areas which motivate them to pursue higher studies / face competitive exams like SSC,P.C,BANK,R.R.B/ professional courses like CA,CS, ICWA and other courses.

Program outcomes (Pos)

PO1. Critical Thinking: Knowledgeable in the core disciplines of Commerce, Economics and Business through a number of specializations and practical exposure enables them to face the challenges in the field of Commerce

PO2. Effective Communication: Demonstrate proficiency in communicating competently in groups and organizations in English and in one Indian language,

.

PO3. Effective Citizenship: Ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO4.Value- based development: Recognize values such as justice, trust, equity, fairness, kindness and, understand the moral Dimensions of your decisions, and accept responsibility for them.

PO5. Environment and Sustainability: Understand the issues of environmental contexts and Sustainable development.

PO6. Self-directed and Life-long Learning:promoting continuous development and improvement of the knowledge and skills needed for employment and personal fulfillment

SEMESTER – I

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
COMT11B	Fundamentals of Accounting (Gen, CA& E-Com)	5	4	30	70	3 Hrs.
COMT12A	Business Organization and Management (Gen& CA,)	5	4	30	70	3 Hrs.
COMT13	Business Environment (Gen)	5	4	30	70	3 Hrs.
COM14P	Principles of management (E-Com)	5	4	30	70	3Hrs
COMT15S	Insurance promotion (Gen, CA& E-Com)	2	2	15	35	2Hrs

SEMESTER-III

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
COMT31	Advanced Accounting (Gen & CA, e-com)	5	4	25	75	3 Hrs.
COMT32	Business Statistics (Gen & CA,)	5	4	25	75	3 Hrs.
COMT33	Marketing (Gen)	5	4	25	75	3Hrs.
COMT34	E-Commerce(e-com)	5	4	25	75	3Hrs
COMT 35S	Online Business (Gen & CA, e-com)	2	2	10	40	2Hrs
COM36SI	Insurance promotion (Gen, CA& E-Com)	2	2	10	40	2Hrs

SEMESTER- V / VI

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
CACA-501 G/C	Advanced Corporate Accounting(GEN&CA)	5	4	30	70	3 Hrs.
CSSA-502 G/C	Software Solutions to Accounting(GEN&CA)	5	4	30	70	3 Hrs.
CAMP-503 G/C	Advertising and Media Planning(GEN&CA)	5	4	30	70	3 Hrs.
CSPP -504 G/C	Sales Promotion and Practice(GEN&CA)	5	4	30	70	3 Hrs.
CDM -505 G	Digital Marketing(GEN)	5	4	30	70	3 Hrs.
CSM -506 G	Service Marketing(GEN)	5	4	30	70	3 Hrs.

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TITLE OF THE PAPER: Fundamentals of Accounting

Semester: I

Course Code	**COMT11B**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ---**	**Percentage of Revision: 0%**
CLASS:	**I.B.COM., (gen/computer/E-commerce)**		

Learning Outcomes:

1) The main objective of fundamental accounting is to prepare final accounts, otherwise known as the financial statements
2) To provide information that is useful for making business and economic decisions

3. The students of this course will be active learners and develop awareness of emerging trends in fundamentals of accounting,
4. The course will provide decision making skills to the students in the financial analysis context,
5. This course will enable the students to combine theoretical knowledge andpractice of fundamentals of accounting.

COURSE OUTCOMES:
At the end of the course, the student will able to
CO 1: Identify transactions and events that need to be recorded in the books of accounts.

CO 2: Equip with the knowledge of accounting process and preparation of final accounts of sole trader.

CO 3: Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.

CO 4: Analyze the difference between cash book and pass book in terms of balance and make reconciliation.

CO 5: Critically examine the balance sheets of a sole trader for different accounting periods.

TITLE OF THE PAPER: Fundamentals of Accounting

Semester: I

Syllabus

Unit	Learning Units	Lecture Hours
I	**Introduction :**Need for Accounting – Definition – Objectives, – Accounting Concepts and Conventions – GAAP - Accounting Cycle - Classification of Accounts and its Rules – Bookkeeping and Accounting - Double Entry Book-Keeping - Journalizing - Posting to Ledgers, Balancing of Ledger Accounts (including Problems).	15
II	S**ubsidiary Books:**Types of Subsidiary Books - Cash Book, Three-column Cash Book- Petty Cash Book (including Problems).	15
III	**Trial Balance and Rectification of Errors:**Preparation of Trial balance - Errors – Meaning – Types of Errors – Rectification of Errors – Suspense Account (including Problems)	15
IV	**Bank Reconciliation Statement:**Need for Bank Reconciliation - Reasons for Difference between Cash Book and Pass Book Balances- Preparation of Bank Reconciliation Statement - Problems on both Favourable and Unfavorable Balance (including Problems).	15
V	**Final Accounts:Preparation of Final Accounts:** Trading account – Profit and Loss account – Balance Sheet – Final Accounts with Adjustments (including Problems).	15

Test Book Prefer:

1. Financial Accounting By: S.P.Jain& K.L. Narang. Kalyani Publishers – New Delhi.

Reference text books:

2. Financial Accounting – Himalaya Publishers
3. Financial Accounting – Pragthiprakesh Publishers

Suggested Co-Curricular Activities:

1. Quiz Programs
2. Problem Solving Exercises
3. Seminar
4. Group Discussions on problems relating to topics covered by syllabus
5. Collection of proforma of bills and promissory notes
6. Examinations (Scheduled and surprise test)
7. Bridge Course for Non-commerce Students

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Model Question Paper

Commerce	**I B.Com (Gen, CA &e-Com)**	**Semester-I**		**COMT11B**

Fundamentals of Accounting

Max. Marks: 70

Answer the following **5 x14 = 70**

Unit - I

1. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – II

2. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – III

3. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – IV

4. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit - V

5. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

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TITLE OF THE PAPER: Principles of Management
Semester: I

Course Code	**COMT14P**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2022 - 23**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**I.B.COM., (E-commerce)**		

Course Objectives:

- To understand about the importance of Management in an Organization.
- Knowing about the management thought into reality.
- To learn about the optimal Level of utilization of Resources.

Learning Outcomes:

At the end of the course, the student will be able to

- Understand different forms of business organizations.
- Comprehend the nature of Joint Stock Company and formalities to promote a Company.
- Describe the Social Responsibility of Business towards the society.
- Critically examine the various organizations of the business firms and judge the best amongthem.
- Design and plan to register a business firm. Prepare different documents to register a company at his own.
- Articulate new models of business organizations.

Syllabus

Unit	Learning Units	Lecture Hours
I	**Introduction of Management Definition** - Management - functions of management - principles of management -lcvcls of management- Trends and Challenges of Management in Global Scenario.	15
II	**Planning Nature and purpose of planning** - Planning process - Types of plans - Objectives - Managing by objective (MBO) Strategies - Types of strategies	15
III	**Organizing** Nature and purpose of organizing - Organization structureFormal and informal groups organization - Line and Staff authority -Centralization and Decentralization - Delegation of authority	15
IV	**Motivation** Theories -Leadership Styles - Leadership theories - Communication - Barriers to effective communication.	15
V	**Controlling** Process of controlling - Types of control- Budgetary and non-budgetary, control techniques - Managing Productivity - Cost Control - Purchase Control-Maintenance Control - Quality Control	15

REFERENCES:

1. **Gupta, Sharma and Bhalla; Principles of Business Management; Kalyani Publications.**
2. **L. M. Prasad; Principles of Management; Sultan Chand and Sons, 6th edition.**
3. **Harold Kooriv& Heinz Weihrich "Essentia.1s of Management", Tala McGraw-Hill,1998**
4. **Joseph L Massie "Essentials of Management", Prentice Hall of India, (Pearson) Fourth Edition, 2003.**

(5) Principles of Management, By Tripathi, Reddy Tala Mcfrraw Hill

Curricular Activities:

Classroomactivities: Face to face interactions in the class,conventional chalk dust method ofteaching, using audio visual aids, synchronous, asynchronous and hybrid method of online,teaching by using suitable platform, spot tests, listing assignments, conduct quizzes, Google class rooms organizing group discussions, preparing question banks.

Library activities: Reading books, journals and magazines, glancing question papers of previousYears.
Organization of activities like seminars, workshops and conferences

Co-Curricular Activities:

- Book Reading, Student Seminars, Debates
- Quiz Programme
- Assignments Field studies (Individual/Group)

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Model Question Paper

Commerce	**I B.Com (E-Com)**	**Semester-I**		**COMT14P**

Principles of Management

Time: 3 Hours **Max. Marks:70M**

Answer the following **5 x14 = 70**

Unit - I

1. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – II

2. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – III

3. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – IV

4. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit - V

5. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

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TITLE OF THE PAPER: Business Organization and Management
Semester: I

Course Code	**COMT12A**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2012 - 13**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**I.B.COM., (gen/computer)**		

Course Objectives:

CO1-Recall the basic knowledge on conceptual areas such as commerce trade and industry of different types of business organizations. (PO4, PO5)

CO2-Have a demonstrated understanding on nature purpose and importance of different types of organizations.(PO4, PO5)

CO3-Articulate the fundamentals of joint-stock company as per companies Act 2013. (PO2, PO4, PO5)

CO4-Appraise the documentation and incorporation stages of a company. (PO2, PO4, PO5)

CO5-Discuss and implement the managerial traits and talents essential for managing business. (PO1, PO4, PO5)

Learning Outcomes:

At the end of the course, the student will be able to

- Understand different forms of business organizations.
- Comprehend the nature of Joint Stock Company and formalities to promote a Company.
- Describe the Social Responsibility of Business towards the society.
- Critically examine the various organizations of the business firms and judge the best amongthem.
- Design and plan to register a business firm. Prepare different documents to register a company at his own.
- Articulate new models of business organizations.

Syllabus

Unit	Learning Units	Lecture Hours
I	**Introduction Concepts of Business, Trade, Industry and Commerce:** Business – Meaning, Definition, Features and Functions of Business - Trade Classification – Aids to Trade – Industry Classification and Commerce - Factors Influencing the Choice of Suitable form of Organization.	15
II	**Forms of Business Organizations:** Features,Merits and Demerits of Sole Proprietor Ship and Partnership Business - Features Merits and Demits of Joint Stock Companies - Public Sector Enterprises (PSEs) - Multinational Corporations (MNCs)- Differences between Private Limited Public Limited Company.	15
III	C**ompany Incorporation:** Preparation of Important Documents for Incorporation of Company - Certificate of Incorporation and Certificate of Commencement of Business - Contents of Memorandum and Articles of Association – Content of Prospectus.	15
IV	**Management:** Meaning Characteristics - Fayol's 14 Principles of Management - Administration Vs. Management - Levels of Management.	15
V	**Functions of Management:** Different Functions of Management - Meaning – Definition – Characteristics Merits and Demits of Planning - Principles of Organization – Line and staff ofOrganization.	15

Text book:

Business Organization and management – R.K.Sharma, Monika Aggarwal,RahulSharma.

Reference Books:

5. Business Organization - C.D.Balaji and G. Prasad, MarghamPublications,Chennai.
6. Business Organization -R.K.Sharma and Shashi K Gupta, KalyaniPublications.
7. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers.

Curricular Activities:

Classroomactivities: Face to face interactions in the class,conventional chalk dust method ofteaching, using audio visual aids, synchronous, asynchronous and hybrid method of online,teaching by using suitable platform, spot tests, listing assignments, conduct quizzes, Google class rooms organizing group discussions, preparing question banks.

Library activities: Reading books, journals and magazines, glancing question papers of previousYears. Organization of activities like seminars, workshops and conferences

Co-Curricular Activities:

- Book Reading, Student Seminars, Debates
- Quiz Programme
- AssignmentsField studies (Individual/Group)

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Model Question Paper

Commerce	**I B.Com (Gen, CA)**	**Semester-I**		**COMT12A**

Business Organization and Management

Time: 3 Hours **Max. Marks:70M**

Answer the following **5 x14 = 70**

Unit - I

6. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – II

7. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – III

8. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – IV

9. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit - V

10. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

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TITLE OF THE PAPER: Business Environment

Semester: I

Course Code	**COMT13**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**I.B.COM., (gen)**		

Course Objectives:

- This course aims at acquainting the students with emerging issues in business at the National and International level in the light of policies of liberalization and Globalization.
- evaluate the economic, social political and legal environment components in business decision making.

Course Outcomes:

CO1: Understand how an entity systematically explores the external environment in which business operates.
CO2: To enlighten/familiarize the impact of economic environment and its effect on government policies for development of business.
CO3: To acquire specialized knowledge relating to economic policies in India.

CO4: critically examine the economic, social political and legal environment components in business decision making.
CO5: synthesize multiple perspective to formulate responses to opportunities and institutions in international environment.

Syllabus
Business Environment

Unit	Learning Units	Lecture Hours
I	**Overview of Business Environment:** Business Environment – Meaning – Characteristics – Scope -Macro and Micro Dimensions of Business Environment -Environmental Analysis- Purpose &Techniques.	15
II	**Economic Environment:** Economic Environment – Nature of the Economy – Structure of Economy – Economic Policies & Planning the Economic Condition – NITI Ayog – National Development Council – Five Year Plans	15
III	**Economic Policies:** Economic Reforms and New Economic Policy – New Industrial Policy – Competition Law – Fiscal Policy – Objectives and Limitations – Monetary Policy and RBI	15
IV	**Social, Political and Legal Environment:** Concept of Social Responsibility of Business towards Stakeholders - Demonetization, GST and their Impact - Political Stability - Legal Changes.	15
V	**Global Environment:** Globalization – Meaning – Role of WTO – WTO Functions -IBRD– Trade Blocks, BRICS, SAARC, ASEAN in Globalization	15

Text book: . Rosy Joshi and SangamKapoor :Business Environment

Reference Books

1. K. Aswathappa : Essentials of Business Environment, Himalaya PublishingHouse
2. Francis Cherunilam : Business Environment,HimalayaPublishingHouse
3. Dr S Sankaran: : Business Environment, MarghamPublications

Co-curricular activities

- Seminar on overview of business environment
- Debate on micro v/s macro dimensions of businessenvironment
- Seminar on Monetary policies ofRBI
- Debate on social, political and legalenvironment
- Group Discussions on Global environment and its impact onbusiness
- To learn about NITI Ayog and National DevelopmentCouncil
- Seminars on Economic policies like New Industrial policy, Fiscal policyetc.
- Reports on WTO,BRICS, SAARC

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Model Question Paper

Commerce	**I B.Com (Gen)**	**Semester-I**		**COMT13**

Business Environment

Time: 3 Hours **Max. Marks:70M**

Answer the following **5 x14 = 70**

Unit - I

1. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – II

2. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – III

3. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit – IV

4. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

Unit - V

5. A) ----------10(MARKS)
B) ----------4(MARKS)
(OR)
C) ----------10(MARKS)
D) ----------4(MARKS)

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TITLE OF THE PAPER: INSURANCE PROMOTION

Semester: I

Course Code	COMT15S	Course Delivery Method	Class Room / Blended Mode - Both
Credits	2	CIA Marks	15
No. of Lecture Hours / Week	2	Semester End Exam Marks	35
Total Number of Lecture Hours	30	Total Marks	50
Year of Introduction:	Year of Offering: 2021-22	Year of Revision: ----	Percentage of Revision: 0%
Class:	I.B.Com., (gen/comp/e-com)		

Learning Outcomes:

After successful completion of the course, students will be able to;

1. Understand the online business and its advantages and disadvantages
2. Recognize new channels of marketing, their scope and steps involved
3. Analyze the procurement, payment process, security and shipping in online business
4. Create new marketing tools for online business
5. Define search engine, payment gateways and SEO techniques.

Syllabus

INSURANCE PROMOTION

Unit	Learning Units	Lecture Hours
I	Introduction of Insurance - Types of insurances. Growth of Insurance sector in India - Regulatory mechanism (IRDA) - Its functions	10
II	Life Insurance plans. Health insurance plans. Products and features.Contents of documents– Sales Promotion methods - Finding prospective customers –Counselling – Helping customers in filing - Extending post-insurance service to customers	10
III	General Insurance - It's products (Motor, Marine, Machinery, Fire, Travel and Transportation) and features. Contents of documents. Dealing with customers – Explaining Products to Customers - Promoting Customer loyalty. Maintenance of Records.	10

Reference books:

1. Principles of Insurance, Himalaya publishing House
2. Principles and Practice of Insurance,
3. Fundamentals of insurance,
4. Life and General Insurance Management,
5. Financial services, Tata McGraw hill
6. Insurance Principles and Practices, Sultan Chand &Son

AG & SG SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS),

VUYYURU- 521 165

(MANAGED BY SIDDHARTHA ACADEMY OF GENERAL & TECHNICAL EDUCATION VIJAYAWADA)

Commerce	COMT15S	2022-2023	I.B.Com(Gen,Comp& e-com)

SEMESTER –I ***Model Paper***

INSURANCE PROMOTION
Skill Development Course

Max. Time: 2 HOURS **SECTION – A** **Max. Marks: 35**

Answer any **THREE** of the following questions **3X5=15M**

1. Define Insurance?
2. Explain about IRDA
3. What are the advantages of Health Insurance?
4. What is marine Insurance
5. What are the features of General insurance?
6. Explain post insurance services to customer

SECTION – B

Answer any **TWO** of the following questions **2x10=30M**

9. Explain different types of Insurance?

10. What are the differences between General insurance and life insurance?

11. What are the differences between Endowment policies and Term policies?

12.What are the Types of General insurance?

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TITLE OF THE PAPER: Advanced Accounting

Semester: III

Course Code	**COMT37**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: 2022-23**	**Percentage of Revision: 5%**
CLASS:	**II.B.COM., (gen/computer/e-commerce)**		

Course Prerequisites (if any): Intermediate level

Course Description:
Course Objectives:

1. Learn the criteria for identifying Revenue Expenditure and distinguishing from Capital Expenditure and understand the linkage of such distinction with the preparation of Final Accounts.
2. Understand the special features of Instalment system and also analyses the distinction between the Hire Purchase System and Instalment System.
3. Understand the features of Partnership firm and the need for valuation of goodwill as well as revaluation of Assets and Liabilities.

Course Outcomes: At the end of this course, students should be able to:
CO1: Student will be able to understand different situations to calculate interest on various installments and understand need for re-possession and the procedure in case of default.-PO5
CO2- Student will be able to understand Profit & Non-profit concern and to ascertain the surplus/deficit relating to various non-trading concerns –PO6
CO3-Student will get the knowledge of partnership business, its accounts and modes of settlement in case of partnership restructuring.- PO7
CO4- Student will acquire the capacity to settle the accounts in case of dissolution by realization of various assets.-PO5
CO5- Student will obtain the knowledge of branch accounting procedure and the process of conversion of foreign branch transactions into Indian currency.-PO7

Syllabus

Unit	Learning Units	Lecture Hours
I	**Accounting for Non Profit Organizations**: Non Profit Entities- Meaning - Features of Non-Profit Entities –Provisions as per Sec 8 - Accounting Process- Preparation of Accounting Records - Receipts and Payments Account- Income and Expenditure Account - Preparation of Balance Sheet (includingproblems).	15
II	**Single Entry System:** Features – Differences between Single Entry and Double Entry – Disadvantages of Single Entry- Ascertainment of Profit and Preparation of Statement of Affairs (including Problems)- Conversion of Single entry to Double entry system (Simple Problems).	15
III	**Hire Purchase System:** Features –Difference between Hire Purchase and Instalment Purchase Systems - Accounting Treatment in the Books of Hire Purchaserand Hire Vendor - Default and Repossession (includingProblems).	15
IV	**Partnership Accounts-I:** Meaning – Partnership Deed - Fixed and Fluctuating Capitals-Accounting Treatment of Goodwill - Admission and Retirement of a Partner (including problems).	15
V	**Partnership Accounts-II:** Dissolution of a Partnership Firm – Application of Garner v/s Murray Rule in India – Insolvency of one or more Partners (including problems).	15

Textbook:

1. S.P JAIN AND K.L NARANG, ADAVNCED ACCOUNTANCY, KALYANI PUBLISHERS

Recommended Reference book:

1. SN Maheswari& SK Maheswari, Financial Accounting, VikasPublications.
2. R.L. Gupta & V.K. Gupta, Principles and Practice of Accounting, Sultan Chand &Sons.
3. S.N.Maheshwari&V.L.Maheswari, Advanced Accountancy (Vol-II), Vikaspublishers.
4. S.P. Jain & K.L Narang, Accountancy–III, KalyaniPublishers.

Course Delivery method: Face-to-face / Blended

Course has focus on:Employability

Websites of Interest:

Co-curricular Activities:

- QuizPrograms
- Co-operativelearning
- Seminar
- Visit a single-entry firm, collect data and Creation of Trial Balance of thefirm
- Visit Non-profit organization and collect financialstatements
- Critical analysis of rate of interest on hire purchaseschemes
- Visit a partnership firm and collect partnership deed
- Debate on Garner v/s Murray rule in India and outsideIndia
- Group Discussions on problems relating to topics covered bysyllabus
- Examinations (Scheduled and surprise tests) on all units

Revision of the syllabus 2022-23 (SEM -1,3,5)

Name of the Subject: **Advanced Accounting**

Subject Code: COMT31A

Academic Year	2022-23
Title of the paper	**Advanced Accounting**
Semester	III
Course code	COMT31A
CIA marks	**25**
Semester End marks	**75**
Total marks	**100**
Year of Introduction	2021-22
Year of Revision	2022-23
% of revision	5%

UNIT	Syllabus	Addition	Deletion
I	**Accounting for Non Profit Organizations**: Non Profit Entities- Meaning - Features of Non-Profit Entities – Provisions as per Sec 8 - Accounting Process- Preparation of Accounting Records - Receipts and Payments Account- Income and Expenditure Account - Preparation of Balance Sheet (including problems).	**Nil**	**Nil**
II	**Single Entry System:** Features – Differences between Single Entry and Double Entry – Disadvantages of Single Entry- Ascertainment of Profit and Preparation of Statement of Affairs (including Problems)- Conversion of Single entry to Double entry system (Simple Problems).	**Conversion of Single entry to Double entry system (Simple Problems).**	**Nil**
III	**Hire Purchase System:** Features –Difference between Hire Purchase and Installment Purchase Systems - Accounting Treatment in the Books of Hire Purchaser and Hire Vendor - Default and Repossession (including Problems).	**Nil**	**Nil**
IV	**Partnership Accounts-I:** Meaning – Partnership Deed - Fixed and Fluctuating Capitals-Accounting Treatment of Goodwill - Admission and Retirement of a Partner (including problems).	**Nil**	**Nil**
V	**Partnership Accounts-II:** Dissolution of a Partnership Firm – Application of Garner v/s Murray Rule in India – Insolvency of one or more Partners (including problems).	**Nil**	**Nil**

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Model Question Paper
Advanced Accounting

Commerce	II B.Com (Gen, CA&e-Com)	Semester-III		COMT37

Max.:75 Marks **Min. Pass: 30 Marks**

Section - A

Answer any Five of the following **5 x 5 = 25 Marks**

1. Explain Donations. **(CO1, L1)**
2. Write about Legacies. **(CO1, L1)**
3. Briefly explain about Accounting from Incomplete Records. **(CO2, L1)**
4. What is meant by Repossession of Goods? **(CO3, L1)**
5. Define Installment Purchase System. **(CO3, L1)**
6. What are Fixed and Fluctuating Capital Methods. **(CO4, L1)**
7. Explain the Goodwill treatment in case of Admission of a new partner. **(CO4, L1)**
8. What is Insolvency of partner. **(CO5, L1)**

Section - B

Answer the following questions **(5 x 10 = 50 Marks)**

Unit I

9. (a) What are the differences between Receipts and Payments Account and Income and Expenditure Account? **(CO1, L2)**

(Or)

(b) The following is the Receipts and Payments account of a Hospital for the year ended 31st December, 2015, prepare Income and Expenditure account and a Balance sheet as at the date: **(CO1, L3)**

Receipts and Payments Account for the year ended 31st December 2015

Receipts	Amount	Payments	Amount
To Cash in hand	3,565	By Medicines	15,295
To Subscriptions	23,998	By Doctors honorarium	4,500
To Donations	7,250	By Salaries	13,750
To Interest on investments @7%	3,500	By Petty expenses	230
To Proceeds from charity	5,225	By Equipment	7,500
		By Expenses on charity show	375
		By Cash in hand	1,888
	43,538		**43,538**

Additional information:	**1.1.2015**	**31.12.2015**
a. Subscriptions due	120	140
b. Subscriptions received in advance	32	55
c. Stock of medicines	4,405	4,870
d. Estimated value of equipment	10,600	15,800
e. Buildings (Cost less depreciation)	20,000	19,000

Unit II

10. (a) What is Single Entry System? What are the features of Single Entry System? **(CO1, L1)**

(Or)

(b) From the following details, prepare Trading, Profit and Loss Account and Balance Sheet.

Particulars	**On 31.3.2019**	**On 31.3.2020**
Stock	25,000	12,500
Debtors	62,500	87,500
Cash	6,250	10,000
Furniture	2,500	2,500
Creditors	37,500	43,750

Bad debts Rs.1,250; Discount received Rs.3,750; Discount allowed Rs.2,500; Sundry expenses Rs.7,500; Payments to creditors Rs.1,12,500; Received from Debtors Rs.1,33,750; Drawings Rs.10,000; Sales returns Rs.3,750; Purchases returns Rs.1,250. Charge depreciation on furniture @ 5% p.a. **(CO2, L3)**

Unit III

11. (a) What is Hire Purchase System? Explain the features of Hire Purchase System. **(CO3, L1)**

(Or)

(b) The Madras Transport Company purchased motor car from the Bombay Motor Co. on hire purchase agreement on 1st January 2013, paying cash Rs.10,000 as down payment and agreeing to pay further three instalments of Rs.10,000 each on 31st December each year. The cash price of the car is Rs.37,250 and the Bombay Motor Company charges interest as depreciation on the reducing instalment system. Prepare necessary accounts in the books of Madras Transport Company. **(CO3, L2)**

Unit IV

12. (a) What is a Partnership Deed? What are the contents in Partnership Deed? **(CO4, L1)**

(Or)

(b) The following is the Balance Sheet of Harshitha and Sindhu who had been sharing profit and losses in the ratio of 3:2. **(CO4, L3)**

Liabilities	**Amount**	**Assets**	**Amount**
Creditors	20,000	Cash	3,000
General Reserve	15,000	Bank	7,000
Bills Payable	5,000	Debtors	10,000
Capital Accounts		Furniture	20,000
Harshitha	40,000	Machinery	25,000
Sindhu	20,000	Buildings	35,000
	1,00,000		**1,00,000**

They agreed to take Sravani as a partner on the following conditions:

a) Sravani pay Rs.10,000 as her capital for 1/4th share in the future profits.
b) Provision for doubtful debts to be created on debtors 10%.
c) Deprecation on furniture 5%, on machinery 10%.
d) Increase value of building by 20%.
e) Goodwill to be valued Rs.75,000.

Prepare necessary ledger accounts and balance sheet after entry of new partner.

Unit V

13. (a) Briefly explain the rule in **Garner v/s Murray** case.**(CO5, L2)**

(Or)

(b) The following is the Balance Sheet of P Q and R on 31st December 2020, the partners sharing profits in the ratio of 5 : 3 : 2. **(CO5, L4)**

Balance Sheet of P,Q & R as at 31st December 2005

Liabilities		**Rs.**	**Assets**		**Rs.**
Creditors		30,000	Cash at Bank		6,000
Bills Payable		7,000	Sundry Debtors	20,000	
Loan from P		30,000	Less Provision for		
General Reserve		15,000	doubtful debts	1,000	19,000
Capital Accounts:			Stock		30,000
P	30,000		Investments		10,000
Q	25,000		Fixtures		2,000
R	15,000	70,000	Plant		35,000
			Freehold Property		50,000
		1,52,000			**1,52,000**

The Partnership was dissolved, and the assets realised the following amounts:

Stock and investments realised 10 percent less than the book values. Debtors realised Rs.17,500 and Plant Rs.30,000. Freehold property was sold for Rs.85, 000. Fixtures were taken over by P at an agreed value of Rs.1, 200. Creditors were paid off at a discount of 5 percent. Q agreed to pay the bills payable. Expenses of realisation amounted to Rs.1, 000.

Pass Journal entries to give effect to the above and show the necessary ledger accounts.

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TITLE OF THE PAPER: Business Statistics

Semester: III

Course Code	**COMT32**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2012 - 13**	**Year of Revision: 2021-22**	**Percentage of Revision: 25%**
CLASS:	**II.B.COM., (gen/computer)**		

Course Prerequisites (if any): Intermediate level

After completing this programme the students will be able to –
Objective: 1. The objective of this course is to impact knowledge on the application of statistical tool and techniques in business decision making.
2. Students will be able to understand basic theoretical and applied principles of statistics.
3. Students will gain proficiency in using statistical for data analysis.

CO-1 Students will be able to understand the basic knowledge and characteristics of business statistics. PO5, PO7
CO-2 Determine the value of the mean, the median, and the mode of ungrouped data. PO5, PO7
CO-3 Explains the disparity of data from one another delivering a precise view of the distribution of data. PO5, PO7
CO-4 Design, Evaluate and apply regression analysis. PO5,PO7
CO-5 Students will able to understand interpret indexes to identify trends in a data set. And what the trend, seasonality, cyclical irregularity in time series. PO5, PO7

Syllabus

Unit	Learning Units	Lecture Hours
I	**Introduction to Statistics:** Definition, Importance and limitation of statistics, Collection of data, Schedule and questionnaire, Frequency distribution, Tabulation	12
II	**Measures of Central Tendency:** Characteristics of measures of central tendency, Types of Averages, Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Mode	18
III	**Measures of dispersion and Skewness:** Properties of dispersion, Range, Quartile Deviation, Mean deviation, Standard deviation, Coefficient of Variation, Skewness Definition, Karl Pearson's and Bowley's Measures Of skewness	15
IV	**Measures of Relation:** Meaning and use of correlation, Types of correlation, Karl Pearson's correlation coefficient, Probable Error, Spearman's Rank correlation, Regression analysis comparison between correlation and Regression, Regression Equations	15
V	**Analysis of Time Series & Index Numbers** Meaning and utility of time series, Components of Time series, Measurement of trend and Seasonal Variations, Techniques of Time series analysis, Methods of averages(Semi , Moving averages), Least square method, Index Numbers, Methods of Construction of Index numbers, Price index numbers, Limitations of index numbers.	15

Text Book

1) Business Statistics –S.Chand

Reference Books:

1) Business Statistics – S. L Agarwal , S. L Bhrdwaj, K. Raghuveer – Kalyani publishers
2) Business Statistics And Operations Research – Dr. S.P .Gupta, P.K. Gupta, Dr.Manmohan – S. Chand

Suggested Co-Curricular Activities:

1. Power point presentations
2. Role play
3. Seminar
4. Problem Solving Exercises

Quiz using Google forms

Revision of the syllabus 2022-23 (SEM -1,3,5)

Name of the Subject**: Business Statistics**

Subject Code: COMT32

Academic Year	2022-23
Title of the paper	**Business Statistics**
Semester	III
Course code	COMT32
CIA marks	25
Semester End marks	75
Total marks	100
Year of Introduction	2012-13
Year of Revision	2021-22
% of revision	25%

UNIT	Syllabus	Addition	Deletion
I	**Introduction to Statistics:** Definition, Importance and limitation of statistics, Collection of data, Schedule and questionnaire, Frequency distribution, Tabulation	**Nil**	**Diagrams and Graphic Presentation of Data (including problems)**
II	**Measures of Central Tendency:** Characteristics of measures of central tendency, Types of Averages, Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Mode	**Nil**	**Nil**
III	**Measures of dispersion and Skewness:** Properties of dispersion, Range, Quartile Deviation, Mean deviation, Standard deviation, Coefficient of Variation, Skewness Definition, Karl Pearson's and Bowley's Measures Of skewness	**Skewness Measures of Skewness: Absolute and Relative Measures-Coefficient of Skewness: Karl Pearson's, Bowley's**	**Kurtosis: Meso kurtosis, Platy kurtosis and Leptokurtosis (including problems)**
IV	**Measures of Relation:** Meaning and use of correlation, Types of correlation, Karl Pearson's correlation coefficient, Probable Error, Spearman's Rank correlation, Regression analysis comparison between correlation and Regression, Regression Equations	**Nil**	**Nil**

V	**Analysis of Time Series & Index Numbers** Meaning and utility of time series, Components of Time series, Measurement of trend and Seasonal Variations, Techniques of Time series analysis, Methods of averages(Semi , Moving averages), Least square method, Index Numbers, Methods of Construction of Index numbers, Price index numbers, Limitations of index numbers.	**Analysis of Time Series & Index Numbers** **Meaning and utility of time series, Components of Time series, Measurement of trend and Seasonal Variations, Techniques of Time series analysis, Methods of averages(Semi , Moving averages), Least square method, Index Numbers, Methods of Construction of Index numbers, Price index numbers, Limitations of index numbers.**	**Nil**

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MODEL QUESTION PAPER

Commerce	II B.Com (Gen, CA)	Semester-III	COMT32

Business Statistics

Time: 3Hrs **Max.Marks:75**

Section – A

Answer any FIVE of the following **5 x 5 = 25 Marks**

1. Mention four important functions of statistics.**CO1,L1**
2. What are different kinds of classifications?**CO1,L1**
3. What are different types of averages?**CO2,L1**
4. Define standard deviation and its coefficient.**CO3,L1**
5. Explain different types of correlation.**CO4,L2**
6. State seasonal variations and explain any three uses?**CO5,L3**
7. What are the different types of price index numbers?**CO5,L1**
8. What are the methods of construction of index numbers?**CO5,L1**

Section – B

Answer All the questions **5 x 10 = 50 Marks**

9. (a) Contrast between primary and secondary data. **CO1,L2**

OR

(b) What is a questionnaire? Discuss the precautions to be taken while preparing a questionnaire.**CO1,L1**

10. (a) What is an average? What are characteristics of a good average?**CO2, L1**

OR

(b) Calculate a Mean and Mode from the data given below:**CO2,L3**

Wages	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50
No. of Workers	22	45	67	73	85	90	64	55

11. (a) What are the objects or uses of Dispersion?**CO3,L1**

OR

(b) Compute, S.D and Co – efficient of variation for given data**CO3,L3**

x	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
f	5	15	30	65	80

12. (a) Distinguish between correlation and regression analysis.**CO4,L4**

OR

(b) The following are the ranks assigned by 2 judges A & B to 12 contestants in cooking competition. Find out what agreement the judges had in judgment.**CO4, L4**

S. No	A	B	C	D	E	F	G	H	I	J	K	L
A	1	9	2	10	3	11	8	4	12	9	5	6
B	2	9	1	7	4	10	8	3	12	6	5	11

13. (a) What do you mean by an index numbers? Explain its uses and limitations. **CO5,L1**

OR

(b) Following are the data of production of computers in a factory. Fit a straight line trend.**CO5, L4**

Year	2000	2001	2002	2003	2004
Production (in Lakhs)	4	6	9	10	11

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TITLE OF THE PAPER: Marketing

Semester: III

Course Code	**COMT33**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**I1.B.COM.,(gen)**		

CourseObjective:

1.To acquire knowledge on marketing concepts, 4P's, to build applicable skills through variety internship opportunities

2. Student will gain understanding of consumer buyer behavior, pricing strategies and ethical concept of marketing

Learning Outcomes:

CO1: To introduce the concepts of marketing and understand the factors influence the market environment.

C02: Analyze the consumer market models and enlightens consumer buyer behavior models.

C03: Understand the concept of product and identify the need of product mix and product line decisions.

C04: Develop an idea about pricing strategies and pricing decisions.

C05: Enhance the students about decisions regarding promotion and distribution channels.

SYLLABUS

Marketing

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction**: Concepts of Marketing: Need, Wants and Demand - Marketing Concepts – Marketing Mix - 4 P's of Marketing – Marketing Environment.	15
II	**Consumer Behavior and Market Segmentation**: Buying Decision Process – Stages – Buying Behavior – Market Segmentation –Bases of Segmentation - Selecting Segments – Advantages of Segmentation	15
III	**Product Management:** Product Classification – Levels of Product - Product Life Cycle - New Products, Product Mix and Product Line Decisions - Design, Branding, Packaging and Labelling.	15
IV	**Pricing Decision**: Factors Influencing Price – Determination of Price - Pricing Strategies: Skimming and Penetration Pricing.	15
V	**Promotion and Distribution:** Promotion Mix - Advertising - Sales promotion - Publicity – Public Relations - Personal Selling and Direct Marketing - Distribution Channels – Online Marketing	15

References:

1. Philip Kotler, Marketing Management, Prentice Hall of India.
2. Philip Kotler & Gary Armstrong, Principles of Marketing, Pearson Prentice
3. Stanton J. William & Charles Futrell Fundamentals of Marketing, McGraw Hill Company

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Commerce	***II B.Com (Gen,)***	***Semester-III***	***COMT33***

Marketing

Semester: III

Model paper

Time: 3 hrs **Max. Marks: 75**

SECTION- A

I. Answer any Five of the following questions **5x 5= 25M**

1. Selling Concept
2. What is Consumer behavior
3. What is New Product
4. Online Marketing
5. Advantages of skimming pricing
6. DefineMarketing Environment
7. Define Branding
8. Advantages of Direct Marketing

SECTION- B

II. Answer the following questions **5 x 10 = 60M**

9.(a).Describe 4P's of Marketing
(Or)
(b)What are the Different Concepts of Marketing

10.(a).What is Market Segmentation?
(Or)
(b) Describe the stages in Buying Decision process

11. (a). Describe Product Life Cycle.
(Or)
(b) Advantages and disadvantages Packaging and labeling

12. (a).Explain the different types of Pricing strategies
(Or)
(b) What are the Factor Influencing Price Determination

13. (a).What are the differences Between Personal selling and Direct Marketing?
(Or)
(b) Types of Distribution channels

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TITLE OF THE PAPER: E COMMERCE

Semester: III

Course Code	**COMT34**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**I.B.COM., (E-commerce)**		

Course outcomes :

CO1: Students understand the mechanism of E- commerce (PO5) (PSO1)
CO2: Students themselves equip specialization in website designing for E-Commerce (PO5) (PSO1)
CO3: Students are able to enhance their skills in operational services of E-Commerce (PO5) (PSO1)
CO4: Students are able to involve in activities of E-Commerce (PO5) (PSO1)
CO5: Students are able to create awareness among the public one commerce activities (PO5) (PSO1)

Syllabus

Unit	Learning Units	Lecture Hours
I	**Introduction, Nature and Scope** Introduction- Definition –importance- Nature and scope of e commerce-Advantages and limitations-Types of ecommerce– B2B,B2C,C2B,C2C,B2A,C2A-Frameworkecommerce	15
II	**Environmental and Technical support Aspects** Technical Components-Internet and its component structure-Internet Vs Intranet, Vs Extranet and their differences-Website design- its structure-designing, developing and deploying the system-	15
III	**Security and Legal Aspects** Security environment –its preliminaries and precautions-protecting Web server with Firewalls-Importance of Digital Signature –its components – Cyber Law-Relevant Provisions of IT Act2000.	15
IV	**Operational Services of e Commerce** E retailing –features- E Services-Banking, Insurance, Travel, Auctions, Learning, Publication and Entertainment-Payment of utilities (Gas, Current Bill, Petrol Products)- On Line Shopping (Amazon,Flip kart, Snapdeal etc.)	15
V	**E payment System** Types of e payment system- its features-Digital payments (Debit Card/Credit Cards, Internet Banking, Mobile wallets- Digital Apps (unified Payment Services-Phone Pay, Google Pay, BHIMEtc.)UnstructuredSupplementaryServicesData(BankPrepaidCard, Mobilebanking)-	15

Text Books:

1. Bharat Bhaskar , Electronic Commerce Framework, Technology and Application.McGrawHillEducation

References:

1. Bajaj,D.Nag,ECommerce, TataMcGrawHillPublication
2. WhitelyDavid , E-Commerce,McGrawHill
3. TNChhabra,ECommerce,DhanapatRai&Co
4. DaveChaffey,EBusinessandECommerceManagement,PearsonPublication
5.Dr.PratikkumarPrajapati,Dr.M.Patel,ECommerce,RedshinePublication

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E- COMMERCE

Time: 3Hrs **Max Marks: 75**

Commerce	**II B.Com (e-com)**	**Semester-III**	**COMT34**

Section –A

Answer any Five of the following **5X5=25M**

1. Define E commerce. (CO1)

2. Write about B2B. (CO1)

3. Write about Internet (CO2)

4. Write about Digital signature (CO3)

5. E-Banking services (CO4)

6. Auctions (CO4)

7. Write about Digital Payments (CO5)

8. Mobile Wallets (CO5)

Section –B

Answer the following questions. **5X10=50M**

9. a) Describe the importance and scope of E Commerce (CO1)

OR

b) Explain the types of E Commerce (CO1)

10. a) Explain Different Technical Components in E Commerce (CO2)

OR

b) How do you design a Web sites (CO2)

11. a).Write about security environment (CO3)

OR

b) Describe about Cyber law. (CO3)

12. a) Explain the features of E retailing (CO4)

OR

b) Explain different payments utilities of Online shopping (CO4)

13. a) Explain different types of E payment system (CO5)

OR

b) Explain unstructured Supplementary service data.(CO5)

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TITLE OF THE PAPER: ONLINE BUSINESS

Semester: III

Course Code	COMT 35S	Course Delivery Method	Class Room / Blended Mode - Both
Credits	2	CIA Marks	10
No. of Lecture Hours / Week	2	Semester End Exam Marks	40
Total Number of Lecture Hours	30	Total Marks	50
Year of Introduction:	Year of Offering: 2021- 22	Year of Revision: ----	Percentage of Revision: 0%
Class:	II. B.Com., (gen/comp/e-com)		

Learning Outcomes:

After successful completion of the course, students will be able to;

1. Understand the online business and its advantages and disadvantages
2. Recognize new channels of marketing, their scope and steps involved
3. Analyze the procurement, payment process, security and shipping in online business
4. Create new marketing tools for online business
5. Define search engine, payment gateways and SEO techniques.

Syllabus
ONLINE BUSINESS

Unit	Learning Units	Lecture Hours
I	Introduction to Online-Business-Definition-Characteristics-Advantages of Online Business-Challenges- Differences between off-line business, e-commerce and Online Business.	10
II	Online-business Strategies-Strategic Planning Process-Procurement -Logistics & Supply Chain Management- Customer Relationship management.	10
III	Designing Online Business Website – Policies - Security & Legal Issues - Online Advertisements - Payment Gateways - Case Study	10

Co-curricular Activities Suggested: (4 hrs)

1. Assignments, Group discussion, Quiz etc.
2. Short practical training in computer lab
3. Identifying online business firms through internet
4. Invited Lectures by e-commerce operators
5. Working with Google and HTML advertisements.
6. Visit to a local online business firm.

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TITLE OF THE PAPER: ONLINE BUSINESS

Commerce	**II B.Com (Gen, CA &e-Com)**	**Semester-III**	COMT 35S

MODEL PAPER

DURATION: 2 HOURS **Max marks : 40**

SECTION – A

Answer any TWO of the following **2x5=10M**

1. Define Online Business
2. Online Business strategies
3. Supply Chain Management
4. Legal issues of Online Business

SECTION – B

Answer any THREE of the following **3x10=30M**

5. Explain the Advantages of Online Business?
6. What are the differences between Offline and Online Business?
7. Explain about Online Business Strategic planning process
8. Describe Online Business Strategic Planning process
9. How do you Design Online Business Website
10. Describe the Polices of Online Business

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TITLE OF THE PAPER: INSURANCE PROMOTION

Semester: III

Course Code	COMT36S	Course Delivery Method	Class Room / Blended Mode - Both
Credits	2	CIA Marks	10
No. of Lecture Hours / Week	2	Semester End Exam Marks	40
Total Number of Lecture Hours	30	Total Marks	50
Year of Introduction:	Year of Offering: 2021-22	Year of Revision: ----	Percentage of Revision: 0%
Class:	II.B.Com., (gen/comp/e-com)		

Learning Outcomes:

After successful completion of the course, students will be able to;

1. Understand the online business and its advantages and disadvantages
2. Recognize new channels of marketing, their scope and steps involved
3. Analyze the procurement, payment process, security and shipping in online business
4. Create new marketing tools for online business
5. Define search engine, payment gateways and SEO techniques.

Syllabus

INSURANCE PROMOTION

Unit	Learning Units	Lecture Hours
I	Introduction of Insurance - Types of insurances. Growth of Insurance sector in India - Regulatory mechanism (IRDA) - Its functions	10
II	Life Insurance plans. Health insurance plans. Products and features. Contents of documents– Sales Promotion methods - Finding prospective customers – Counseling – Helping customers in filing - Extending post-insurance service to customers	10
III	General Insurance - It's products (Motor, Marine, Machinery, Fire, Travel and Transportation) and features. Contents of documents. Dealing with customers – Explaining Products to Customers - Promoting Customer loyalty. Maintenance of Records.	10

Reference books:

1. Principles of Insurance, Himalaya publishing House
2. Principles and Practice of Insurance,
3. Fundamentals of insurance,
4. Life and General Insurance Management,
5. Financial services, Tata McGraw hill
6. Insurance Principles and Practices, Sultan Chand &Son

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Commerce	COMT36S	2022-2023	I.B.Com(Gen,Comp& e-com)

SEMESTER –I ***Model Paper***

INSURANCE PROMOTION
Skill Development Course

Max. Time: 2 HOURS **SECTION – A** **Max. Marks: 40**

Answer any **TWO** of the following questions **2x5=10M**

1.Define Insurance?

2. Explain about IRDA

3What are the advantages of Health Insurance?

4What is marine Insurance

SECTION – B

Answer any **THREE** of the following questions **3x10=30M**

9. Explain different types of Insurance?

10. What are the differences between General insurance and life insurance?

11. What are the differences between Endowment policies and Term policies?

12. Explain post insurance services to customer.

13. What are the features of General insurance?

14. Explain different types of General insurance.

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TITLE OF THE PAPER: Advanced Corporate Accounting

Semester: V / VI

Course Code	**CACA-501 G/C**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**III.B.COM., (gen/computer)**		

CO1: The students are able to calculate purchase consideration and different methods of determining purchase consideration and its accounting treatment. (PO1) (PSO1)
CO2: students will acquire the knowledge on provisions for amalgamation of company as per accounting standard 14 and its treatment.(PO4) (PSO1)
CO3: The students will get the knowledge on forms of internal reconstruction and alteration and reduction of share capital and its accounting treatment.(PO4) (PSO1)
CO4: The students will be able to prepare consolidated financial statements and calculate minority interest and its accounting treatment.(PO4) (PSO1)
CO5: students will be able to prepare liquidators final statement of accounts at the time of winding up of a company. and are able to calculate liquidators remuneration and acquire the capacity for preparation of statement of affairs and deficiency account and its accounting treatment.(PO8) (PSO1)

Learning Objective:

1. This course will enable the students to combine practice and theoretical knowledge of financial accounting.
2. The students of this course will be active learners and develop awareness of emerging trends in financial accounting,
3. The course will provide decision making skills to the students in the financial analysis context,
4. The students of this course will have the ability to identify and analyze financial accounting problems and opportunities in real life situations.

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Syllabus
ADVANCED CORPORATE ACCOUNTING
Paper code: CACA-501 G/C

Unit	Learning Units	Lecture Hours
I	**Purchase of Business** Meaning - Purchase Consideration - Methods for determining Purchase Consideration-Discharge of Purchase Consideration-Accounting Treatment.	15
II	**Amalgamation of Companies** Meaning and Objectives - Provisions for Amalgamation of Companies as per Accounting Standard 14 - Accounting Treatment.	15
III	**Internal Reconstruction of Companies** Meaning - Forms of Internal Reconstruction - Alteration of Share Capital and Reduction of Share Capital- Accounting Treatment.	15
IV	**Accounts of Holding Companies** Meaning of Holding Companies and Subsidiary companies- Consolidated Financial Statements- Legal requirements on Consolidation-Calculation of Minority Interest- Accounting Treatment.	15
V	**Liquidation** Meaning - Modes of Winding up of a Company- - Liquidator's Final Statement of Account - Calculation of Liquidator's Remuneration - Preparation of Statement of Affairs and Deficiency Account- Accounting Treatment	15

References:

1. Goyal, Bhushan Kumar. Corporate Accounting. Taxmann, New Delhi
2. Kumar, Alok. Corporate Accounting. Kitab Mahal
3. Monga, J. R. Fundamentals of Corporate Accounting. Mayur Paper Backs, New Delhi
4. Sah, Raj Kumar, Concept Building Approach to Corporate Accounting, Cengage
5. Sehgal Ashok & Sehgal Deepak. Corporate Accounting
6. Tulsian P. C. Corporate Accounting. S Chand & Co. New Delhi
7. *https://thebookee.net/ad/advanced-corporate-accounting-and-accounting-standards*
8. Web resources suggested by the Teacher concerned and the College Librarian including reading material

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TITLE OF THE PAPER: Advanced Corporate Accounting

Commerce	B.Com (Gen/Comp)	Semester-V / VI	2022-2023	CACA -501 G/C

MODAL PAPER

Time: 3Hrs **Max Marls: 70**

Section –A

Answer any TWO of the following **2x5=10M**

1. Define Purchase consideration (CO1)

2. What is Amalgamation? (CO2)

3. What is internal reconstruction (CO3)

4. How do calculate Minority interest (CO4)

Section –B

Answer any FOUR of the following **4x15=60M**

5. Explain the methods for determining the purchase consideration (CO1)

6.Explain the provisions for amalgamation of companies(CO2)

7.The following is the Balance Sheet of Moon Company Ltd on 31-3-2018. (CO2)

Liabilities	Rs.	Assets	Rs.
Capital		Land and buildings	1,20,000
20,000 shares of Rs.10 each	2,00,000	Plant & machinery	1,50,000
5% debentures	1,00,000	Work in progress	30,000
Creditors	30,000	Stock	60,000
Reserve fund	25,000	Furniture and fittings	2,500
Dividend equalization fund	20,000	Debtors	25,000
Profit & loss appropriation account	5,100	Cash at bank	12,500
Provision for depreciation on land and buildings	20,000	Cash in hand	100
	4,00,100		4,00,100

The company is amalgamated in the nature of purchase of sun company Ltd. On the above data the consideration for amalgamation the company is taking over the debentures trade liability and a payment of Rs.7 in cash and one share of the face value of Rs.5 in sun company Ltd. (market value Rs.8 per share in exchange for one share in moon company Ltd the cast of liquidation Rs.500 is to be met by the purchasing company you are required to pass journal entries is the books of both the companies and show purchase consideration is arrived at.

8. Following is the Balance sheet of X ltd as on 31-03-2019 (CO3)

Liabilities	Amount(RS)	Assets	Amount(RS)
5000 Equity shares of Rs 100 each	5,00,000	Goodwill	60,000
3000 8% preferences shares of Rs 100 each	3,00,000	Land & Buildings	2,50,000
6% Debentures	1,50,000	Plant & Machinery	1,00,000
Sundry creditors	1,95,000	Patents	60,000
		Stock	90,000
		Debtors	2,40,000
		Cash in hand	5,000
		Preliminary expenses	25,000
		Discount on issue of debenture	15,000
		Profit & Loss a/c	3,00,000
Totals	11,45,000		11,45,000

The following scheme of Reconstruction was duly approved

i) Equity share are to be reduced to an equal number of fully paid shares of Rs 50 each

ii) 8% Preference share are to be reduced by 40% and the rate of dividend increased to 9%

iii) Value of Land & Buildings to be increased by 20%

iv) Debentures are to be reduced by 20%

v) All nominal and fictitious assets are to be eliminated and the balance used to write off patents

vi) Further equity shares are to be issued for Rs 1,00,000 for each

9. Explain the legal requirements for consolidation(CO4)

10. H Ltd acquired all the share of S ltd on 1-1-2020 and liabilities and assets of the two companies on

31-03-2020 were as follows (CO4)

	H Ltd	S Ltd
I Equity and Liabilities		
1) Shareholders funds		
a) Share chapital: shares of Rs 10 each	8,00,000	3,00,000
b) Reserves and Surplus:		
i) Reserve on 1-4-2014	2,10,000	40,000
ii) Surplus a/c	50,000	30,000
2) Current Liabilities		
i) Creditors	3,50,000	1,60,000
ii) Bills Payable	40,000	20,000
	14,50,000	5,50,000
II Assets		
1) Non – Current Assets		
a) Fixed Assets		
i) Land & Buildings	4,00,000	2,70,000
ii) Plant & Machinery	2,00,000	1,00,000
iii) Furniture & Fixtures	50,000	20,000
b) Investment in share of S Ltd	5,00,000	
2) Current Assets		
a) Stock	1,50,000	80,000
b) Sundry Debtors	1,00,000	60.000
c) Bank Balance	50,000	20,000
	14,50,000	14,50,000

The surplus account of s Ltd had a credit balance of Rs 6000 on 1-04-2014. Prepare a consolidated Balance sheet as on 31-03-2015.

11. Explain the modes of winding of a company (CO5)

12. A company went into liquidation on 31-03-2019 the following is the balance sheet: (CO5)

Liabilities	Rs.	Assets	Rs.
Paid up capital		Good will	60,000
20,000 shares of Rs.10	2,00,000	Building	50,000
Sundry creditors:		Machinery	60,000
Preferential	25,000	Stock	55,000
Partly secured	55,000	Debtors	62,000
Unsecured	1,00,400	Cash	1,500
Bank over draft	10,000	Cash at bank	400
(unsecured)		P&L account	1,01,500
	3,90,400		3,90,400

The liquidator realized the assets as follows:

Building which was used in the first instance to pay partly secured creditors Rs.41,250. Machinery Rs.30, 000: sundry debtors Rs.35, 750: stock Rs.40, 000

The expenses of liquidation amounted to Rs.1,000 and the liquidators remuneration was agreed at 2% on the amount realized and 2% on amount paid to unsecured creditors.

Prepare the liquidators final statement of accounts.

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Commerce	**B.Com (Gen/Comp)**	**Semester-V / VI**	**2022-2023**	**CACA -501 G/C**

Advanced Corporate Accounting

Guidelines to the paper setter

	UNIT -I	UNIT -II	UNIT -III	UNIT -IV	UNIT -V
	Purchase of Business	**Amalgamation of Companies**	**Internal Reconstruction of Companies**	**Accounts of Holding Companies**	**Liquidation**
5 Marks questions	**1**	**1**	**1**	**1**	**-**
15 Marks questions	**1(T)**	**1(T) +1(P)**	**1(P)**	**1(T) +1(P)**	**1(T) +1(P)**
Weighteage	**20**	**35**	**20**	**35**	**30**

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TITLE OF THE PAPER: SOFTWARE SOLUTIONS TO ACCOUNTING

Semester: V / VI

Course Code	**CSSA-502 G/C**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**III.B.COM., (gen/computer)**		

Course Learning Outcomes

After completing the course, the student shall be able to: At the end of the course, the student will able to;

1. Understand the technical environment of accounting softwares.
2. Highlight the major accounting software in India.
3. Apply basics of accounting software into business firms for accounting transactions.
4. Understand the various versions of Tally and other softwares.
5. Integrate the concept of different Accounting softwares for accounting purpose
6. Design new approaches for use of accounting software environment.

Syllabus

SOFTWARE SOLUTIONS TO ACCOUNTING

Paper code: -CSSA-502 G/C

Unit	Learning Units	Lecture Hours
I	**Computerized Accounting** Microsoft Excel Spread Sheet- Functions in Excel- Preparation of Accounts, Statements and Budgets using MS Excel- Analysis and Interpretation.	15
II	**Introduction to Leading Accounting Softwares**– Busy - Marg – Quick Books - Zoho Books -Tally- Features and Accounting.	15
III	**Tally ERP-9 - Company Creation** – Tally Startup Screen- Gateway of Tally- Create a Company - Alter & Delete company- Backup and Restore- Security Features in Tally.	15
IV	**Tally- Accounting Masters-** Groups- Create Ledgers- Alter& Delete - Inventory Masters- Creating Stock Groups - Stock Items- Unit of Measurement- Alter & Delete.	15
V	**Tally-Voucher Entry** – Vouchers Types - Vouchers Entry - Alter and deleting Settings Purchase Vouchers and Sales Vouchers including Tax component –Reports Generation.	15

References

1. Nadhani, Ashok K, Tally ERP 9 Training Guide, BPB Publications
2. Tally 9 in Simple Steps, Kogent Solutions Inc., John Wiley & Sons.
3. Tally 9.0 (English Edition), (Google eBook) Computer World
4. Tally.ERP 9 Made Simple Basic Financial Accounting by BPB Publisher.
5. Tally ERP 9 For Real Time Accounting by Avichi Krishnan
6. Fundamentals of Computers, by V. Rajaraman, PHI.
7. Tally ERP 9 book advanced user, Swayam Publication (www.tallyerp9book.com)
8. *Web resources suggested by the Teacher concerned and the College Librarian including reading material*

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MODAL PAPEER

TITLE OF THE PAPER: SOFTWARE SOLUTIONS TO ACCOUNTING

Commerce	**B.Com (Gen/Comp)**	**Semester-V / VI**	**2022-2023**	**CSSA-502 G/C**

Max Time : 3 Hrs. **Max Marls: 70**

Section -A

Answer TWO of the following **2X5=10M**

1. Write about Spread Sheet(CO1)
2. Advantages of Tally (CO3)
3. Explain Delete of ledgers (CO4)
4. Voucher types (CO5)

Section -B

Answer any FOUR the following **4X15=60M**

5.Name any 10 Functions in Microsoft Excel (CO1)

6. Explain Different types of Accounting Softwares (CO2)

7.Explain Features and Advantages of Gate way of Tally (CO3)

8. How to Company Creation in tally? (CO3)

9. Explain different types of Ledgers Tally (CO4)

10.Explain how to Creation Voucher? (CO5)

11.Explain Stock group creation in Tally (CO4)

12. Explain Reports of Profit and loss and Balance sheet. (CO5)

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Commerce	**B.Com (Gen/Comp)**	**Semester-V / VI**	**2022-2023**	**CSSA-502 G/C**

SOFTWARE SOLUTIONS TO ACCOUNTING

Guidelines to the paper setter

	UNIT -I	UNIT -II	UNIT -III	UNIT -IV	UNIT -V
	Computerized Accounting	Introduction to Leading Accounting Soft wares	Tally ERP-9 - Company Creation	Tally- Accounting Masters	Tally- Voucher Entry
5 Marks questions	1	-	1	1	1
15 Marks questions	1	1	2	2	2
Weighteage	20	15	35	35	35

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TITLE OF THE PAPER: ADVERTISING AND MEDIA PLANNING

Semester: V / VI

Course Code	**CAMP-503 G/C**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021- 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**III.B.COM., (gen/computer)**		

Learning Outcomes:

At the successful completion of the course students are able to:

- Understand the role of advertising in business environment
- Understand the legal and ethical issues in advertising
- Acquire skills in creating and developing advertisements
- Understand up-to-date advances in the current media industry.
- Acquire the necessary skills for planning an advertising media campaign.

Syllabus

ADVERTISING AND MEDIA PLANNING

Paper code : CAMP-503 G/C

Unit	Learning Units	Lecture Hours
I	**Introduction, Nature and Scope** Advertising- Nature and Scope- Functions - Impact on Social, Ethical and Economical Aspects - Its Significance – Advertising as a Marketing Tool and Process for Promotion of Business Development - Criticism on advertising	15
II	**Strategies of Advertisements** Types of Advertising Agencies and their Strategies in Creating Advertisements - Objectives - Approach - Campaigning Process - Role of Advertising Standard Council of India (ASCI) - DAGMAR approach	15
III	**Process of Advertisement** Creativeness and Communication of Advertising –Creative Thinking – Process – Appeals – Copy Writing - Issues in Creation of Copy Testing –Slogan Elements of Design and Principles of Design	15
IV	**Media Planning** Advertising Media - Role of Media - Types of Media - Print Media - Electronic Media and other Media - Advantages and Disadvantages – Media Planning - Selection of Media	15
V	**Analysis of Market Media** Media Strategy – Market Analysis -Media Choices - Influencing Factors - Target, Nature, Timing, Frequency, Languages and Geographical Issues - Case Studies	15

References:

1. Bhatia. K.Tej - Advertising and Marketing in Rural India - Mc Millan India
2. Ghosal Subhash - Making of Advertising - Mc Millan India
3. Jeth Waney Jaishri& Jain Shruti - Advertising Management - Oxford university Press
4. Advertising Media Planning, Seventh Edition Paperback – by Roger Baron (Author), Jack Sissors (Author)
5. Media Planning and Buying in 21st Century – Ronald DGeskey
6. Media Planning and Buying: Principles and Practice in the Indian Context – Arpita Menon
7. Publications of Indian Institute of Mass Communications
8. Advertising and Salesmanship. P. Saravanavel, Margham Publications
9. Publications of ASCI
10. Web resources suggested by the Teacher concerned and the College Librarian including reading material

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TITLE OF THE PAPER:ADVERTISING AND MEDIA PLANNING

Commerce	B.Com (Gen/Comp)	Semester-V / VI	2022-2023	CAMP-503 G/C

Max Time: 3Hrs. **Max Marls: 70**

MODAL PAPER

SECTION –A

Answer any TWO of the following **2X5=10M**

1. What is advertising? (CO1)

2. DAGMAR approach (CO2)

3. Types of advertising copy (CO3)

4. Media planning (CO4)

Section –B

Answer Any FOUR of the following **4x15=60M**

5. Explain the significance of advertising.(CO1)

6. What are various types of advertising agencies?(CO2)

7. Explain the role of advertising standards council of India (CO2)

8. How to decide testing of an advertising copy (CO3)

9. What is an advertising copy? Describe its elements (CO3)

10. What do you mean by print media of advertising? (CO4)

11. Explain the following concepts (CO5)

i) Target ii) Frequency iii) Timing

12. Explain media choices and its influencing factors (CO5)

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Commerce	**B.Com (Gen/Comp)**	**Semester-V / VI**	**2022-2023**	**CAMP-503 G/C**

ADVERTISING AND MEDIA PLANNING

Guidelines to the paper setter

	UNIT -I	UNIT -II	UNIT -III	UNIT -IV	UNIT -V
	Introduction, Nature and Scope	**Strategies of Advertisements**	**Process of Advertisement**	**Media Planning**	**Analysis of Market Media**
5 Marks questions	**1**	**1**	**1**	**1**	**-**
15 Marks questions	**1**	**2**	**2**	**1**	**2**
Weighteage	**20**	**35**	**35**	**20**	**30**

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TITLE OF THE PAPER: SALES PROMOTION AND PRACTICE
Semester: V / VI

Course Code	**CSPP -504 G/C**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**III.B.COM., (gen/computer)**		

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Learning Outcomes:

By the end of the course students are able to:

1. Analysis of various sales promotion activities
2. Get exposed to new trends in sales Promotion
3. Understand the concepts of creativity in sales promotion
4. Enhance skills to motivate the salesperson to reach their targets
5. Develop the skills of designing of sales promotion events

Syllabus

SALES PROMOTION AND PRACTICE

Paper code: CSPP -504 G/C

Unit	Learning Units	Lecture Hours
I	**Introduction to Sales Promotion:** Nature and Scope of Sales Promotion- Influencing Factors - Sales Promotion and Control - Strengths and Limitations of Sales Promotion – Sales Organization - Setting-up of Sales Organization - Types of Sales Organization.	15
II	**Sales Promotion and Product Life Cycle:** Types of Sales Promotion - Consumer Oriented - Trade Oriented - Sales Oriented - Various Aspects -Sales Promotion methods in different Product Life Cycle – Cross Promotion - Sales Executive Functions- Theories of Personal Selling - Surrogate Selling.	15
III	**Strategies and Promotion Campaign:** Tools of Sales Promotion - Displays, Demonstration, Fashion Shows, Conventions - Conferences, Competitions – Steps in designing of Sales Promotion Campaign – Involvement of Salesmen and Dealers – Promotional Strategies - Ethical and Legal issues in Sales Promotion.	15
IV	**Salesmanship and Sales Operations**: Types of Salesman - Prospecting - Pre-approach and Approach - Selling Sequence - Sales budget, Sales territories, Sales Quota's - Point of Sale – Sales Contests - Coupons and Discounts - Free Offers - Showrooms and Exhibitions - Sales Manager Qualities and functions.	15
V	**Sales force Management and Designing:** Recruitment and Selection - Training - Induction - Motivation of sales personnel - Compensation and Evaluation of Sales Personnel - Designing of Events for Enhancing Sales Promotion	15

References:

1. Don.E. Schultz - Sales Promotion Essentials- Mc Graw hill India
2. S.H.H Kazmi & Satish K Batra, Advertising and Sales Promotion- Excel Books
3. Jeth Waney Jaishri& Jain Shruti - Advertising Management - Oxford university Press
4. Dr.ShailaBootwalaDr.M.D. Lawrence and Sanjay R.Mali -Advertising and Sales Promotion-NiraliPrakashan
5. Successful Sales Promotion – Pran Choudhury
6. Advertising and Sales Promotion Paperback – S. H. H. Kazmi & Satish Batra
7. Publications of ASCI
8. Kazmi & Batra, ADVERTISING & SALES PROMOTION, Excel Books, 2008
9. Web resources suggested by the Teacher concerned and the College Librarian including reading material

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TITLE OF THE PAPER:SALES PROMOTION AND PRACTICE

Commerce	B.Com (Gen/Comp)	Semester-V / VI	2022-2023	CSPP -504 G/C

MODEL PAPER

Time: 3Hrs **Max Marls: 70**

Section –A

Answer any TWO of the following **2X5=10M**

1.What are the factors influencing sales promotion? (CO1)

2. What is Product life cycle? (CO2)

3. What are the various tools of sales promotion? (CO3)

4. Write briefly about training induction. (CO5)

Section –B

Answer Any FOUR of the following **4X15=60M**

5.Discuss the Nature and scope of sales promotion (CO1)

6. Explain various types of sales organization (CO1)

7. Describe the types of sales promotion (CO2)

8. Explain the theories of personal selling (CO2)

9. Explain various promotional strategies (CO3)

10. What are the functions and qualities of sales manager? (CO4)

11. Discuss the various types of salesmen (CO4)

12. Explain the process of recruitment and selection of sales personnel (CO5)

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Commerce	**B.Com (Gen/Comp)**	**Semester-V / VI**	**2022-2023**	**CSPP -504 G/C**

SALES PROMOTION AND PRACTICE

Guidelines to the paper setter

	UNIT -I	UNIT -II	UNIT -III	UNIT -IV	UNIT -V
	Introduction to Sales Promotion	**Sales Promotion and Product Life Cycle**	**Strategies and Promotion Campaign**	**Salesmanship and Sales Operations**	**Sales force Management and Designing**
5 Marks questions	**1**	**1**	**1**	**-**	**1**
15 Marks questions	**2**	**2**	**1**	**2**	**1**
Weighteage	**35**	**35**	**20**	**30**	**20**

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TITLE OF THE PAPER: DIGITAL MARKETING
Semester: V / VI

Course Code	**CDM -505 G**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**III.B.COM., (gen)**		

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Learning Outcomes

Upon successful completion of the course students will be able to;

1. Analyze online Micro and Macro Environment
2. Design and create website
3. Discuss search engine marketing
4. Create blogs, videos, and share

Syllabus

DIGITAL MARKETING

Paper code : CDM -505 G

Unit	Learning Units	Lecture Hours
I	**Introduction** Digital marketing: Meaning – importance – traditional online marketing vs digital marketing – online market place analysis Micro Environment – Online Macro Environment - trends in digital marketing – competitive analysis.	15
II	**Web site planning and creation** Web Site: meaning – objectives – components of website - website creation – incorporation of design and– adding content, installing and activating plugins.	15
III	**Search Engine Optimization (SEO)** SEO: Meaning – History and growth of SEO –Importance of Search Engine - On page Optimization – off page optimization – Role of Search Engine Operation-google Ad words – Search Engine Marketing: Campaign Creation – Ad Creation, Approval and Extensions.	15
IV	**Social Media Marketing**: Meaning of social media and Social Media Marketing – social Management tools-strategy and planning – social media network – Social Networking – video creation and sharing – use of different social media platforms - Content creation - Blogging – Guest Blogging.	15
V	**Email marketing**: Meaning – Evolution of email – importance of email marketing – Development and Advancements in e mail marketing - email marketing platforms – creating and Tracking emailers–create forms – create opt-in lists – mapping industry trends and eliminating spam messages.	15

References

1.Digital Marketing for Dummies **by** Ryan Deiss& Russ Henneberry, publisher John Wiley first edition 2020.

2. **Youtility by** JayBaer, Published by Gilda MedialL C Portfolio 2013,

3. **Epic Content Marketing by** Joe Pulizzi, McGraw-Hill Education, 2013.

4. New Rules of Marketing and PR byDavidMeermanScott.Wiley, 2017

5. **Social Media Marketing All-in-one Dummies by** JanZimmerman, DeborahNg, John Wiley &Sons.

6. Digital Marketing 2020 **by** Danny Star, Independently Published, 2019

7. *Web sources suggested by the concerned teacher and college librarian including reading material.*

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TITLE OF THE PAPER: DIGITAL MARKETING

Commerce	**B.Com (Gen)**	**Semester-V / VI**	**2022-2023**	**CDM -505 G**

M

MODEL PAPER

Time: 3Hrs **Max Marls: 70M**

Section –A

Answer any TWO of the following **2X5=10M**

1. What is Digital Marketing? (CO1))

2. . Explain Website planning. (CO2)

3. Describe the importance Search Engine (CO3)

4.What is social media marketing (CO4)

Section –B

Answer Any FOUR of the following **4X15=60M**

5. Define marketing. Explain the differences between traditional marketing VS digital marketing (CO1)

6. Explain trends in digital marketing. (CO1)

7.What are the components of website? (CO2)

8. Explain the History and Growth of SEO. (CO3)

9. Describe about thesearch engine marketing. (CO3)

10. What are the goals of social media marketing (CO4)

11. Explain the importance of Email marketing (CO5)

12. Write about mapping industry trends and eliminating spam messages? (CO5)

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Commerce	**B.Com (Gen)**	**Semester-V / VI**	**2022-2023**	**CDM -505 G**

DIGITAL MARKETING

Guidelines to the paper setter

	UNIT -I	UNIT -II	UNIT -III	UNIT -IV	UNIT -V
	Introduction	**Web site planning and creation**	**Search Engine Optimization (SEO)**	**Social Media Marketing**	**Email marketing**
5 Marks questions	**1**	**1**	**1**	**1**	**-**
15 Marks questions	**2**	**1**	**2**	**1**	**2**
Weighteage	**35**	**20**	**35**	**20**	**30**

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TITLE OF THE PAPER: Service Marketing
Semester: V / VI

Course Code	**CSM -506 G**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021- 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**III.B.COM., (gen)**		

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Learning Out comes

Upon successful completion of the course the student will be able to;

1. Discuss the reasons for growth of service sector.
2. Examine the marketing strategies of Banking Services, insurance and education services.
3. Review conflict handling and customer Responses in services marketing
4. Describe segmentation strategies in service marketing.
5. Suggest measures to improve services quality and their service delivery.

Syllabus

Service Marketing

Paper code:CSM -506 G

Unit	Learning Units	Lecture Hours
I	**Introduction: Nature and Scope of services** Introduction: Nature and Scope of services characteristics of services, classification of services – need for service marketing - reasons for the growth of services sector, Overview of marketing Different Service Sectors -Marketing of Banking Services -Marketing in Insurance Sector - Marketing of Education Services.	**15**
II	**Consumer Behavior in Services Marketing** Customer Expectations on Services- Factors influencing customer expectation of services. - Service Costs experienced by Consumer, the Role of customer in Service Delivery, Conflict Handling in Services, Customer Responses in Services, Concept of Customer Delight	**15**
III	**Customer Relationship marketing and Services Market Segmentation.** Customer Relationship marketing: Meaning -Importance of customer & customer's role in service delivery, Benefits of customer relationship, retention strategies. Services Market Segmentation: - Market segmentation -Basis & Need for segmentation of services, bases of segmentation services, segmentation strategies in service marketing.	**15**
IV	**Customer Defined Service Standards.** Customer Defined Service Standards - Hard and Soft, Concept of Service Leadership and Service Vision -Meeting Customer Defined Service Standards - Service Flexibility Versus Standards - Strategies to Match Capacity and Demand - managing Demand and Supply of Service –applications of Waiting Line and Queuing Theories to Understand Pattern Demand.	**15**
V	**Service Development and Quality Improvement.** Service Development – need, importance and Types of New Services - stages in development of new services, service Quality Dimensions - Service Quality Measurement and Service Mapping, Improving Service Quality and Service Delivery, Service Failure and Recovery.	**15**

References

1. John E.G. Bateson, K.Douglas Hoffman: Services Marketing, Cengage Learning, 4e, 2015 publication

2. Vinnie Jauhari, Kirti Dutta: Services Marketing: Operations and Management, Oxford University Press, 2014.

3. Valarie A. Zeithaml and Mary Jo-Bitner: Services Marketing – Integrating Customer Focus Across The Firm, Tata McGraw Hill Publishing Company Ltd., 6e, 2013.

4. Nimit Chowdhary, Monika Chowdhary, Textbook of Marketing Of Services: The Indian Experience, Macmillan, 2013.

5. K. Rama Mohana Rao, Services Marketing, Pearson, 2e, 2011.

6. Dr. K. Karunakaran, Service Marketing (Text and Cases in Indian Context), Himalaya Publications.

7. *Web sources suggested by the concerned teacher and college librarian including reading material.*

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TITLE OF THE PAPER: Service Marketing

Commerce	**B.Com (Gen)**	**Semester-V / VI**	**2022-2023**	**CSM -506 G**

M

MODEL PAPER

Time: 3Hrs **Max Marls: 70**

Section –A

Answer any TWO of the following **2X5=10M**

1.Explain the Scope of Services (CO1)

2. Explain the Concept of customer delight (CO2)

3. Why customer relationship is important? (CO3)

4. Explain the demand and supply of services (CO4)

Section –B

Answer Any FOUR of the following **4X15=60M**

5. Define Services Marketing. Explain the classification of services. (CO1)

6. What is services marketing? Discuss different service sectors. (CO1)

7. what are the factors that influence customer expectation of services? (CO2)

8. Define market segmentation. Discuss need and basis for segmentation services. (CO3)

9. What are the various types of customer retention strategies (CO3)

10. describe customer defined service standards . (CO4)

11. What are the various stages to develop a new services(CO5)

12. Discuss the service quality dimensions (CO5)

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Commerce	**B.Com (Gen)**	**Semester-V / VI**	**2022-2023**	**CSM -506 G**

Service Marketing

Guidelines to the paper setter

	UNIT -I	UNIT -II	UNIT -III	UNIT -IV	UNIT -V
	Introduction: Nature and Scope of services	**Consumer Behavior in Services Marketing**	**Customer Relationship marketing and Services Market Segmentation**	**Customer Defined Service Standards.**	**Service Development and Quality Improvement.**
5 Marks questions	**1**	**1**	**1**	**1**	**-**
15 Marks questions	**2**	**1**	**2**	**1**	**2**
Weighteage	**35**	**20**	**35**	**20**	**30**

THE - END

A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF COMMERCE

MINUTES OF BOARD OF STUDIES

EVEN SEMESTER

13-04-2023

Minutes of the meeting of Board of studies in Commerce for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at *10.30 A.M on 31-3-2022*

N.Vasanatha Rao ... ***Presiding***

Members Present:

1)..... Chairman — Head, Department of Commerce
(*N.Vasanatha Rao*) AG & SG S Degree College of Arts & Science
Vuyyuru

2)..... University Nominee
(Dr.N.A Francis Xavier) Head, Department of Commerce
Andhra Loyola College.
Vijayawada (9440524321)
nafrancisxavier@gmail.com

3)..... Subject Expert
(Dr.K.Venkateswarlu,) Lecturer in Commerce
V.S.R Govt. Degree & P.G College
Movva (9848341412)
gdcjkc.movva@gmail.com

4)..... Subject Expert
(K.Narayanarao) Lecturer in Commerce
P.B.Siddhartha College of arts and Science
Vijayawada. (9885038196)
hodcommerce@pbsiddhartha.ac.in

5)..... Member
(*Sri* V.Punnarao) General Manager
K.C.P & IC Ltd
Vuyyuru.

6)..... Member
(*Sri* V.Balaji) Chartered Accountant
Managing Partner
Balaji V & Co (9052190007)
Vuyyuru (cabalajinco@gmail.com)

7)..... Member
(*Dr.*T.Venkateswara Rao)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
Vuyyuru

8)..... Member
(*Sri* V.GopiChand)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
Vuyyuru

9)..... Member
(*Sri* K.SekharBabu)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
Vuyyuru

10)..... Member
(Ms A.N.L Manohari)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
Vuyyuru

11)..... Member
(Ms P. Mohan krishna)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
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12)..... Member
(Smt.Y.Swarna latha)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
Vuyyuru

13)..... Member
(K.Kiran kumar)

Lecturer in Commerce
AG & SG S Degree College of Arts & Science
Vuyyuru

Agenda of B.O.S Meeting:

1. To discuss and recommend the Syllabi, Model Question Papers to be followed by question paper setters in Commerce for the 2nd Semester as per the guidelines and instruction under CBCS prescribed by APSCHE and Krishna University from the Academic Year2022-2023.

2. To discuss and recommend the Syllabi, Model Question Papers to be followed by question paper setters in Commerce for the 4th Semester as per the guidelines and instructions under CBCS prescribed by APSCHE and Krishna University from the Academic Year 2022-2023.

3. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Commerce for the 6^{th} Semester as per the guidelines and instructions under CBCS prescribed by APSCHE and Krishna University from the Academic Year 2022-2023.

4. To recommend the Teaching and Evaluation methods to be followed under CBCS

5. Any other suggestions regarding Certificate Course, Seminars, Workshops, Guest Lectures to be organized.

6. Any other matter.

RESOLUTIONS

1. Discussed and recommended the changed syllabi, Model Question Papers for question paper setters in Commerce for the 2nd Semester of **I B.Com., (general, computer & e-commerce)** for the Academic year 2022-2023..prescribed by APSCHE. A new Topic **"Supply analysis**" was incorporated in Unit II. Some new topics **"Monopolistic Competition, Oligopoly and Kinky demand curve Analysis"** was incorporated in Unit IV and another new topic **"Trade cycles"** was incorporated in Unit V of Business Economics.

2. Discussed and recommended the changed syllabi, Model Question Papers for question paper setters in Commerce for the 4th Semester of **II B.Com., (general, computer & e-commerce)** for the Academic year 2022-2023 prescribed by APSCHE. There is a change in syllabi of Taxation in Unit V a New Topic **"Introduction and Administration to GST and Customs".** Was Incorporated Instead of "**Capital gains and computation of total Income".** There is a minor change in the syllabi of **"Cost and Management accounting**" in Unit V A New Topic **"Cash Flow statement"** was incorporated instead of **"Job costing and Batch costing".**

3. Discussed and recommended that no changes are required in syllabi, but some minor changes are required in Model Question Papers and Guidelines for question paper setters in Commerce for the 6th Semester of **III B.Com., (general & computer)** for the Academic year 2022-2023. prescribed by APSCHE as already by the Board Studies held on 3-11-2022

4. It is resolved to continue following Teaching and Evaluation methods for Academic year 2022-2023.

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. using of LCD projector, display on U boards etc, for better understanding of concepts.

Evaluation of a student is done by the following procedure:

Internal Assessment (IA) I B.Com (General ,Computers & e-Commerce)

- Out of maximum 100 marks in each paper 30 marks shall be allocated for internal assessment for I.B.Com (General ,Computers & e-Commerce). Out of these 30 marks, 20 Marks are allocated for announced tests (i.e. IA-1 & IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, and remaining 5 marks are allocated for the assignment/activate and the reaming 5 Marks are allocates for the attendance. There is no minimum passing for IA.

Internal Assessment (IA) II B.Com (General ,Computers & e-Commerce)

- Out of maximum 100 marks in each paper 25 marks shall be allocated for internal assessment for II.B.Com (General ,Computers & e-Commerce). Out of these 25 marks, 15 Marks are allocated for announced tests (i.e. IA-1 & IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, and 5 marks are allocated for the assignment and Remaining 5 Marks are allocated to Activity. There is no minimum passing for IA.

Internal Assessment (IA) III B.Com (Computers)

- Out of maximum 100 marks in each paper 30 marks shall be allocated for internal assessment B.Com (General& Computers). Out of these 30 marks, 20 Marks are allocated for announced tests (i.e. IA-1 & IA-2). Two announced tests will be conducted and average of these two tests shall be deemed as the marks obtained by the student, 5 marks allocated on the basis of candidate's percentage of attendance and remaining 5 marks are allocated for the assignment. There is no minimum passing for IA.

Semester End Examinations (SEE)

- The Semester End Examinations will be in the form of a comprehensive examination covering the entire syllabus in each subject. It will be of 3 hours duration, with maximum 70 marks, for I & III B.com Students irrespective of the number of credits allotted to it.

- The Semester End Examinations will be in the form of a comprehensive examination covering the entire syllabus in each subject. It will be of 3 hours duration, with maximum 75 marks, for II B.com Students irrespective of the number of credits allotted to it.

- Even though the candidate is absent for two IA exams/obtained zero marks, the external marks are considered (if he/she gets 40/70) and the result shall be declared as 'PASS' III Degree students

- The pass mark shall be 30 out of 75 in the Semester end examination for II B. Com (General ,Computers & e-Commerce) Students

- Even though the candidate is absent for two IA exams/obtained zero marks, the external marks are considered (if he/she gets 30/70) and the result shall be declared as 'PASS' I Degree students

- The pass mark shall be 28 out of 70 in the Semester end examination for I.B.Com Students

- The maximum marks for each Paper shall be 100.(Internal 30 + External 70) for I.B.Com Students

- The maximum marks for each Paper shall be 100. (Internal 25 + External 75) II B.Com (General, Computers & e-Commerce) Students

- The maximum marks for each Paper shall be 100.(Internal 30 + External 70) for III.B.Com (Computers) Students

5. Discussed and recommended to organize certificate course online/offline, seminars, Guest lectures, Online Examinations and Workshops to upgrade the knowledge of students for Competitive Examinations for the approval of the Academic Council.

6. It is resolved to follow further changes if any in the Syllabus by the Competent Authority

Chairman

Programme Specific Outcomes (PSO)

PSO1. Getting the knowledge and the importance of accounting and auditing Standards for the reliability of financial statements.

PSO2 Interpret the legal and environmental aspects of business and Analyze quantitative data in order to take business decisions

PSO3. Empowering the student to understand the accounting practices and Procedures followed by different business entities.

PSO4. Promising the Practical skills for a bright career as accounting officers, computer professionals, audit assistants, businessmen, entrepreneurs, managers with required knowledge in computers.

PSO5. Knowledge of major theories and models in key areas which motivate them to pursue higher studies / face competitive exams like SSC,P.C,BANK,R.R.B/ professional courses like CA,CS, ICWA and other courses.

Programme outcomes (Pos)

PO1. Critical Thinking: Knowledgeable in the core disciplines of Commerce, Economics and Business through a number of specializations and practical exposure enables them to face the challenges in the field of Commerce

PO2. Effective Communication: Demonstrate proficiency in communicating competently in groups and organizations in English and in one Indian language,

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PO3. Effective Citizenship: Ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO4. Value- based development: Recognize values such as justice, trust, equity, fairness, kindness and, understand the moral Dimensions of your decisions, and accept responsibility for them.

PO5. Environment and Sustainability: Understand the issues of environmental contexts and Sustainable development.

PO6. Self-directed and Life-long Learning: promoting continuous development and improvement of the knowledge and skills needed for employment and personal fulfilment

SEMESTER – II

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
COMT 21A	Financial Accounting (Gen , CA & E-C)	5	4	30	70	3 Hrs.
COMT 23B	BUSINESS ECONOMICS (Gen , CA & E-C)	5	4	30	70	3 Hrs.
COMT 22B	Banking Theory &Practice (Gen)	5	4	30	70	3 Hrs.
CAD-201G/C	Advertising (Gen , CA & EC)	2	2	15	35	2 Hrs.
CR202 G/C	Retailing (Gen , CA & EC)	2	2	15	35	2 Hrs.

SEMESTER- IV

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
COMT41A	Corporate Accounting (Gen, CA & E- C)	5	4	25	75	3 Hrs.
COMT45	Cost and Management Accounting (Gen, CA & E-C)	5	4	25	75	3 Hrs.
COMT43A	Income Tax (Gen)	5	4	25	75	3 Hrs.
COMT48	Taxation (CA & E-C)	5	4	25	75	3 Hrs.
COMT42A	Business Laws (Gen, CA & E-C)	5	4	25	75	3 Hrs.
COMT46	Auditing (Gen)	5	4	25	75	3 Hrs.
COMT44	Goods and Service Tax (Gen)	5	4	25	75	3 Hrs.

SEMESTER- V / VI

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
CACA-601 G/C	Advanced Corporate Accounting (GEN&CA)	5	4	30	70	3 Hrs.
CSSA-602 G/C	Software Solutions to Accounting (GEN&CA)	5	4	30	70	3 Hrs.
CAMP-603 G/C	Advertising and Media Planning (GEN&CA)	5	4	30	70	3 Hrs.
CSPP - 604 G/C	Sales Promotion and Practice (GEN&CA)	5	4	30	70	3 Hrs.

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TITLE OF THE PAPER: Financial Accounting
Semester: II

Course Code	**COMT21A**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2020 - 21**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**I.B.COM., (gen/computer/e-commerce)**		

COURSE OUTCOMES:

CO1 Determine the useful life and value of the depreciable assets.
and maintenance of Reserves in business entities.
CO2 Demonstrate the applicability of the concept of Provisions and reserves to understand the managerial Decisions and financial statements
CO3 Appreciate the need for negotiable instruments and procedure of accounting for bills honored and dishonored
CO4 Understand the concept of Consignment and learn the accounting treatment of the various aspects of consignment
CO5 Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture

Learning Objective:

1. This course will enable the students to combine practice and theoretical knowledge of financial accounting.
2. The students of this course will be active learners and develop awareness of emerging trends in financial accounting,
3. The course will provide decision making skills to the students in the financial analysis context,
4. The students of this course will have the ability to identify and analyze financial accounting problems and opportunities in real life situations.

Syllabus
Financial Accounting

Course Details

Unit	Learning Units	Lecture Hours
I	Depreciation: Meaning and Causes of Depreciation - Methods of Depreciation: Straight Line – Written Down Value –Annuity and Depletion Method (including Problems).	15
II	Provisions and Reserves: Meaning – Provision vs. Reserve – Preparation of Bad Debts Account – Provision for Bad and Doubtful Debts – Provision for Discount on Debtors – Provision for Discount on Creditors - Repairs and Renewals Reserve A/c (including Problems).	15
III	Bills of Exchange: Meaning of Bill – Features of Bill – Parties in the Bill – Discounting of Bill – Renewal of Bill – Entries in the Books of Drawer and Drawee (including Problems).	15
IV	**:** Consignment Accounts: Consignment - Features - Proforma Invoice - Account Sales – Del-credere Commission - Accounting Treatment in the Books of Consigner and Consignee - Valuation of Closing Stock - Normal and Abnormal Losses (including Problems).	15
V	Joint Venture Accounts: Joint Venture - Features - Difference between Joint Venture and Consignment – Accounting Procedure – Methods of Keeping Records–One Vendor Keeps the Accounts and Separate Set off Books Methods (including Problems).	15

Test Book Prefer:

1. Financial Accounting By: S.P.Jain & K.L. Narang. Kalyani Publishers – New Delhi.

Reference text books:

1. Financial Accounting – Himalaya Publishers
2. Financial Accounting – Pragthi prakesh Publishers

Suggested Co-Curricular Activities:

1. Quiz Programs
2. Problem Solving Exercises
3. Seminar
4. Group Discussions on problems relating to topics covered by syllabus
5. Collection of proforma of bills and promissory notes
6. Examinations (Scheduled and surprise test)

Web Links:

1. https://www.vedantu.com/commerce/difference-between-provision-and-reserve
2. https://youtu.be/BYYR9wp2maY
3. https://youtu.be/L1ex2P4NNiA
4. https://youtu.be/IYihGJ5nhQ0

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TITLE OF THE PAPER: Financial Accounting COMT21A

Semester: II

Time: 3Hrs **Max.Marks:70**

SECTION- A

Answer any FIVE of the following. 5 x 4= 20.

1. (A) Explain the need for providing depreciation. (CO1) 4M

or

(B) Causes of Depreciation. (CO1) 4M

2. (A) Distinguish between provisions and Reserves CO2) 4M

Or

(B) Explain provision for discount on debtors (CO2) 4M

3. (A) What is the Renewal of bill? (CO3) 4M

Or

(B) Explain the features of bill. (CO3) 4M

4.(A)What is Proforma invoice? (CO4) 4M

Or

(B) What are the different types of commissions in consignment (CO4) 4M

5.(A) Differences between joint venture and consignment (CO5) 4M

Or

(B) What is joint venture? Explain its features (CO5) 4M

SECTION- B

Answer ALL the following questions. **5 x 10 = 50**

Unit - I

6) (a) on 1-1-20 a machinery was purchased for Rs 20,000 installation charges being Rs 4,000. On 1-7-2021another machinery was purchased for Rs 40,000 on 01-04-2022 one more machinery was brought for Rs 50,000/- wages paid for installation amounted to Rs 2,000 carriage paid on the machinery Rs 8,000.

Show machinery account up to 31-12-2022 assuming 10% depreciation per annum on straight line basis (CO1) 10M

Or

(b) on 01-01-2002 a limited company purchased machinery for Rs 12,000 and on 30-06-2003 acquired additional machinery at a cost of Rs 2000. On 01-03-2004 one of the original machines which had cost Rs 500 was found to have become obsolete and was sold as scrap for Rs 50. It was replaced on that date by a new machinery costing Rs 800.

Depreciation is to be provided at the rate 15% per annum on written down value. (CO1) 10M

Unit - II

7) (a) The following information is extracted from the Trial Balance of M/S Neha Traders on 31-03-2002

Particulars	Amount
Sundry Debtors	80,500
Bad debts	1000
Provision for Bad debts	5000

Additional Information

1. Bad debts Rs500
2. Provision is to be maintained at 2% of Debtors
3. Prepare Bad debts account, provision for Bad debts account (CO2) 10M

Or

(b) From the following figures prepare the following accounts

1. Bad debts account
2. Provision for bad debts account

Date	Particulars	Amount
2013 Jan 1	Provision for Bad debts	3600
Dec 31	Bad debts(Dr)	1960
Dec 31	Bad debts (Cr)	240
Dec 31	Debtors	40,000

Other Information

i) Further Bad debts Rs400/-

ii) Make a provision for bad debts at 5% on debtors. (CO2) 10M

Unit - III

8) (a) Ramesh drew a bill on 1-09-2001 for Rs 2000 on Ramana for 3 months. Ramana accepted the same and returned it to Ramesh. Before maturity Ramesh sent the bill to the bank for collection. Ramesh received the intimation from the bank that the bill was duly honored on its due date and the bank charged Rs 20 for collection.

Pass the necessary entries in the books of Ramesh and Ramana. (CO3) 10M

Or

(b) Rama purchased goods worth Rs 10,000 from Krishna on credit on 01-01-1999 and gave two acceptances of Rs 5000 each. The first bill was for 2 months and the second for 3 months. Krishna discounted the first bill with his banker immediately @10% per annum and retained the second bill till its maturity. On the due dates Rama honored the first bill but failed to honor the second bill.

Pass the necessary journal entries in the books of both the parties (CO3) 10M

Unit - IV

9) (a) Srinivas of Tirupathi consigned 100 T.V each costing Rs 15,000 to Nagarjuna of Guntur to be sold on consignment basis. He incurred the following expenses. Freight Rs 1,000 loading and unloading charges Rs 200 and insurance Rs 500.

Nagarjuna sold 85 T.V for Rs 14,45,000 and paid Rs 1,000 as shop rent which is to be borne by Srinivas as per terms and conitions of consignment. Consignee is entitled for a commission of Rs 100 per TV sold. Assuming that Nagarjuna settled the account by sending bank draft to srinivas.

Prepare the books of Srinivas and Nagarjuna. (CO4) 10M

Or

(b) Swastik consigned 5000 Kg of oil to Ram traders at Rs 32 per kg. They paid Rs 3,340 toward freight and Rs 1,000 as insurance.

Ram traders reported that 4000 kg of oil was sold at Rs 42 per kg. They spent Rs 5000 as selling expenses and Rs 200 as godown rent. They were entitled to a commission of 5% on sales. They also reported a shortage of 20 kg due to leakage which was considered normal.

Prepare the books of consignor and consignee (CO4) 10M

Unit - V

10) (a) X and Y entered into joint venture to sell a timber sharing profits and losses equally. X provides timber form stock at mutually agreed value of Rs 50,000. He pays expenses amounting to Rs 2500. Y incurs further expenses on cartage, storage of Rs 6500 and receives cash for sales Rs 30,000. He also takes over goods to the value of Rs 10,000 for his own use. At the close X takes over the balance stock in hand which valued at Rs 11000

Pass journal entries to record the above transactions in the book of X and Y (CO5) 10M

Or

(b) Kumar and Kartik entered into a joint venture sharing profits and losses in the ration of 3:2 kumar supplied goods costing Rs 10,000 and incurred expenses amounting to Rs 1000. Kartik also supplied goods of the value of Rs 8000 and the expenses amounted to Rs 400.

Kumar and kartik sold the goods for Rs 16,000 and Rs 12,000 respectively on which they get a commission of 10%. Unsold goods valued at Rs 1200 were taken over by kumar and kartik in their profit sharing ratio. They settled their accounts by cash.

Pass journal entries to record the above transactions in the books of Kumar and Kartik. (CO5) 10M

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TITLE OF THE PAPER: BUSINESS ECONOMICS

Semester: II

Course Code	**COMT23B**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2012-13**	**Year of Revision: 2021-22**	**Percentage of Revision: 20%**
CLASS:	**I.B.COM., (gen/computer & E-com)**		

Course objectives:

Co1 Students are able to acquire the knowledge about definition , nature and scope of business economics

Co2 Students are able to acquire the knowledge about demand and supply analysis

Co3 Students are able to acquire the knowledge about production cost and revenue analysis

Co4 Students are able to acquire the knowledge about different market structures

Co5 Students are able to acquire the knowledge about national income and trade cycles

Syllabus

BUSINESS ECONOMICS

Course Details

Unit	Learning Units	Lecture Hours
I	**INTRODUCTION :** Meaning and Definition of Economics Wealth Definition Welfare Definition Scarcity Definition Meaning and Definition of Business Economics Nature and Scope of Business Economics Micro Economics and Macro Economics	15
II	**DEMAND AND SUPPLY ANALYSIS :** Meaning and Definition of demand Determinants of Demand – Demand Function Law of Demand – Demand curve – exceptions Elasticity of Demand Types of Price Elasticity of Demand Methods to measure Price Elasticity of Demand Law of Supply-Exceptions to the Law	15
III	**PRODUCTION, COST AND REVENUE ANALYSIS :** Production Analysis – Production Function – Meaning The law of variable proportions The law of Returns to Scale **Cost Analysis:** Short Run Cost Curves Relationship between AC & MC Curves **Revenue Analysis:** Revenue Concepts & Revenue curves Meaning of Breakeven point & Breakeven chart	15
IV	**MARKET STRUCTURES:** Classification of markets Features of Perfect competition Price determination under perfect competition Features of Monopoly market Features of monopolistic competition market Features of Oligopoly market Kinky Demand Curve analysis	15
V	**NATIONAL INCOME AND TRADE CYCLES :** National Income Meaning and Definition of National Income (Marshall, Pigou, Fisher) Concepts of National Income – GDP, GNP, NDP, NMP, NNPFC, PI, DI, PCI, RNI, RPCI National Income Measurement (Product, Income & Expenditure Methods) Problems in measuring National Income Trade Cycles Meaning and Definition of Trade cycles Phases of Trade Cycles Causes for Trade Cycles Controlling Measures of Trade Cycles	15

Text Books :

Business Economics – A.V. Ranganadhachary – Kalyani PublishersBusiness Economics – Telugu Academy

Reference Books:

H.L. AHUJA – Business Economics – S.Chand & Company Publishers
P.N. CHOPRA – Business Economics – Kalyani Publishers
D.M. MITHANI-Fundamentals of Business Economics-Himalaya PublishersDEEPASHREE – General Economics – Tata Mc. GrawHills

Revision of the syllabus 2022-23 (SEM -2, 4, 6)

Name of the Subject: **Business Economics**

Subject Code: COM T23B

Semester -II

Academic Year	2022-23
Title of the paper	Business Economics
Semester	II
Course code	COM T23B
CIA marks	30
Semester End marks	70
Total marks	100
Year of Introduction	2012-13
Year of Revision	2021-2022
% of revision	20%

UNIT	Syllabus	Addition	Deletion
I	**INTRODUCTION:** Meaning and Definition of Economics Wealth Definition Welfare Definition Scarcity Definition Meaning and Definition of Business Economics Nature and Scope of Business Economics Micro Economics and Macro Economics	**Nil**	**Nil**
II	**DEMANDANDSUPPLYANALYSIS** Meaning and Definition of demand Determinants of Demand – Demand Function Law of Demand – Demand curve – exceptions Elasticity of Demand Types of Price Elasticity of Demand Methods to measure Price Elasticity of Demand- Law of Supply-Exceptions to the Law	**Law of Supply-Exceptions to the Law**	**Nil**
III	**PRODUCTION, COST AND REVENUE ANALYSIS :** Production Analysis – Production Function – Meaning The law of variable proportions The law of Returns to Scale **Cost Analysis:** Short Run Cost Curves Relationship between AC & MC Curves **Revenue Analysis:** RevenueConcepts&RevenuecurvesMeaningofBreakevenpoint&Breakevenchart	**Nil**	**Nil**
IV	**MARKETSTRUCTURES:**ClassificationofmarketsFeaturesofPerfectcompetitionPricedetermination under perfect competition Features of Monopoly market Features of monopolistic competition market Features of Oligopoly market Kinky Demand Curve analysis	**Monopolistic competition market Features of Oligopoly market Kinky Demand Curve analysis**	**Nil**

V	**NATIONALINCOMEAND TRADECYCLES :**National Income Meaning and Definition of National Income (Marshall, Pigou, Fisher)Concepts of National Income – GDP, GNP, NDP, NMP, NNPFC, PI, DI,PCI, RNI, RPCI National Income Measurement (Product, Income &Expenditure Methods) Problems in measuring National Income - Trade Cycles Meaning and Definition of Trade cycles Phases of Trade Cycles Causes for Trade Cycles Controlling Measures of Trade Cycles.	**Trade Cycles Meaning and Definition of Trade cycles Phases of Trade Cycles Causes for Trade Cycles Controlling Measures of Trade Cycles**	**Nil**

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TITLE OF THE PAPER: BUSINESS ECONOMICS COMT23B

Semester: II

Section -A **MAX-70**

Answer FIVE of the following **5x4=20M**

1. A) Robbins Scarcity definition to economics. L_1
   OR
   B) Smiths Wealth Definition L2

2. A) Explain the law of supplyL1
   OR
   B) Demand Function L1

3. A) Breakeven point L3
   OR
   B) Law Returns to Scale L2

4. A) Features of monopoly market L1
   OR
   B) Different Types of markets L2

5 A) How do you Calculate National income
   OR
   B) What are the phases of Trade Cycles

Section -B

Answer the following **5x10=50M**

6. a). Explain the Nature and Scope of Business economics L_1
   (or)
   b) Distinguish between micro and macroeconomics L_2

7. a) Explain the various types of price elasticity of demand L_3
   (or)
   b) Discuss the various methods to measure price elasticity of demand. L_3

8. a) Explain the law of variable proportions L_2
   (or)
   b) Explain the relationship between different short run cost curves. L_3

9. a) Explain the price determination under perfect competition. L_2
   (or)
   b) Explain the Kinky demand curve analysis L_3

10. a) Define National income and explain the various methods of measuring national income. L_1
   (or)
   b) Define trade cycles and explain the various phases of trade cycles. L_3

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TITLE OF THE PAPER: Banking Theory &Practice
Semester: II

Course Code	**COMT22B**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**I.B.COM., (gen)**		

Course objectives:
The course will enable students to:
1. Introduce the students to the basic concepts of banking as a financial disintermediation service.
2. Discuss and evaluate the theories relating to the role of banks as financial intermediaries.
3. Describe and analyse the various bank performance measures.

Course Outcomes:
At the end of the course, the student will able to:
CO1. Understand the basic concepts of banks and functions of commercial banks.
CO2. Demonstrate an awareness of law and practice in a banking context.
CO3. Engage in critical analysis of the practice of banking law.
CO4. Organize information as it relates to the regulation of banking products and services.
CO5. Formulate the procedure for better service to the customers from various banking innovations.

Syllabus
Banking Theory &Practice

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction:** Meaning & Definition of Bank – Functions of Commercial Banks – Credit Creation with Examples - Kinds of Banks – Central Banking Vs. Commercial Banking.	15
II	**Banking Systems:** Unit Banking, Branch Banking, Investment Banking - Innovations in Banking – E banking -Online and Offshore Banking, Internet Banking - Anywhere Banking - ATMs – RTGS-NEFT – Mobile Banking	15
III	**Types of Banks:** Indigenous Banking - Cooperative Banks, Regional Rural Banks, SIDBI, NABARD - EXIM bank	15
IV	**Banker and Customer:** Meaning and Definition of Banker and Customer – Types of Customers – General Relationship and Special Relationship between Banker and Customer - KYC Norms.	15
V	**Collecting Banker and Paying Banker:** Concepts - Duties & Responsibilities of Collecting Banker – Holder for Value – Holder in Due Course – Statutory Protection to Collecting Banker - Responsibilities of Paying Banker -Payment gateways.	15

Text Book:
Banking theory law and practice - Himalaya publishing House

Reference books:
1.Banking theory and practice - Himalaya publishing house
2.Banking - New age international publishers
3.Banking theory and practice- kalyani publishers

Curricular and co- curricular activities:
1.Debate
2.Student seminars
3.Quiz programs
4.Visit to bank premises
5.Know about KYC norms

Practical Work/suggested activities:
1.filling of Bank account opening form
2.filling of RTGS form
3.Filling of NEFT form
4.filling of cheque form

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TITLE OF THE PAPER: Banking Theory &Practice COMT22B

Semester: II

Time: 3Hrs **Max.Marks:70**

SECTION- A

Answer Any FIVE Of The Following. **5X4=20**

1. A) Types of deposits (CO1) (L4)

OR

B) Kinds of banks. (CO2), (L2)

2. A) ATM(CO3) (L2)

OR

B) RTGS (CO3) (L2)

3 A)Indigenous banking (CO2) (L2)

OR

B) EXIM bank(CO5) (L2)

4A) KYC Norms (CO2) (L2)

OR

B) What precaution a banker take in opening the accounts of a minor? (CO4) (L1)

5 A) Holders for value

OR

B) Payement Gateways

SECTION-B

Answer the following . **5X10=50**

9.a. Define commercial Bank. Discuss the functions of a commercial Bank. (CO1) (L1)

OR

b. Explain the difference between Central Bank and Commercial Bank. (CO1) (L2)

10.a. Define Branch Banking. Discuss its advantages and disadvantages. (CO2) (L1)

OR

b. Discuss the E-banking .Explain advantages of E- banking. (CO2) (L2)

11.a. Define Regional Rural Bank. Briefly explain the functions of RRB. (CO3) (L1)

OR

b. Explain in brief about the functions of NABARD. (CO3) (L2)

12.a. Explain briefly the general relationship between banker and customer. (CO4) (L2)

OR

b. Explain the right of lien of banker. How and when it is exercised. (CO4) (L2)

13.a. Define paying Banker. Discuss the responsibilities and duties of paying Banker. (CO5) (L1)

OR

b. Define Collecting Banker. What are the duties and legal protection of Collecting Banker? (CO5) (L1)

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TITLE OF THE PAPER: ADVERTISING

Semester: II

Course Code	**CAD201G/C**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**2**	**CIA Marks**	**15**
No. of Lecture Hours / Week	**2**	**Semester End Exam Marks**	**35**
Total Number of Lecture Hours	**30**	**Total Marks**	**50**
Year of Introduction:	**Year of Offering: 2021 – 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**I B.COM., (gen, computer & e-com)**		

Learning Outcomes: After Successful completion of this course, the students are able to;

1. Understand the field of Advertising

2. Comprehend opportunities and challenges in Advertising sector

3. Prepare a primary advertising model

4. Understand applying of related skills

5. Examine the scope for making advertising a future career Syllabus

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***(AUTONOMOUS*)**

(MANAGED BY SIDDHARTHA ACADEMY OF GENERAL & TECHNICAL EDUCATION VIJAYAWADA)

Commerce	**CAD201G/C**	***2022-2023***	***I.B.Com(Gen,comp&e- com)***

SEMESTER –II **ADVERTISING**

Skill Development Course

Total 30 hrs (2hrs/wk) 02 credits & **Maximum 50 Marks**

UNIT I: 06hrs Introduction of advertising concepts- functions - Types of advertising - Creative advertising messages - Factors determining opportunities of a product/service/Idea

UNIT II: 10 hrs Role of advertising agencies and their responsibilities - scope of their work and functions - - Ethical issues - Identifying target groups -Laws in advertising. Advertising Statutory Bodies in India - Role of AAAI (Advertising Agencies Association of India), ASCI (Advertising Standard Council of India)

UNIT III: 10hrs Types of advertising – Basic characteristics of a typical advertisement –Reachingtarget groups - Local advertising – Feedback on impact of advertisement - Business promotion.

Recommended Co-curricular Activities (04 hrs):

1. Collection and segmentation of advertisements

2. Invited Lectures/skills training on local advertising basics and skills

3. Visit to local advertising agency

4. Model creation of advertisements in compliance with legal rules

5. Assignments, Group discussion, Quiz etc

Reference book sand Websites:

1.Bhatia. K.Tej - Advertising and Marketing in Rural India - Mc Millan India

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Commerce	CAD201G/C	2022-2023	I.B.Com(Gen,comp&e- com)

SEMESTER –II ADVERTISING

Model Paper

Skill Development Course

DURATION: 2 HOURS SECTION – A Max:35

ANSWER ANY THREE OF THE FOLLOWING QUESTIONS (3x5=15M)

1. Define Adverting
2. Describe the Functions of Advertising
3. Explain the role of advertising agencies
4. Advertising and Ethical issues
5. Local advertising
6. Write about Business promotion

SECTION – B

ANSWER ANY TWO OF THE FOLLOWING QUESTIONS (2x10=20M)

7. What are the factors determining opportunities of a product or an ideas
8. What are the advertising statutory bodies in India
9. Write types of advertising
10. What are the basic Characteristics of advertising

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(MANAGED BY SIDDHARTHA ACADEMY OF GENERAL & TECHNICAL EDUCATION VIJAYAWADA)

Commerce	2022-20223	CR202 G/C	*I.B.Com(Gen,comp&e- com)*

SEMESTER –II

RETAILING

Course Code	CR202G/C	Course Delivery Method	Class Room / Blended Mode - Both
Credits	2	CIA Marks	15
No. of Lecture Hours / Week	2	Semester End Exam Marks	35
Total Number of Lecture Hours	30	Total Marks	50
Year of Introduction:	**Year of Offering:2022-23**	Year of Revision: ----	Percentage of Revision: 0%
CLASS:	I B.COM., (gen, computer & e-com)		

Learning Outcomes:

After successful completion of this course, the students are able to;

1. Know the retailing business, its growth in India and social impact
2. Understand the and organization and supply in retailing
3. Comprehend the opportunities and challenges in retailing
4. Learn the functions that support outlet operations, sales and services
5. Create a shopping experience model that builds customer loyalty and business promotion

SYLLABUS:

RETAILING

Unit I: 06hrs

Introduction -Retailing - Definition– Role of Retailing- Types of Retailing – Factors influencingthe Growth of Retailing in India.

Unit II: 10 hrs

Store location – factors influencing selection of location - Types of retail outlets - stores design & operations- Merchandise planning - Administrative mechanism

Unit III: 10hrs

Human resources in retailing - Job profile- Services to customers – Customer care - Communications with customers - Visual merchandising – enhancing customer loyalty and Salespromotion.

Recommended Co-curricularActivities (04 hrs):

1. Collection of information on local retailing

2. Invited lecture/skills training by a local expert

3. Visit near-by stores /Godowns/warehouses and prepare study projects

4. Field training during leisure hours

5. Assignments, Group discussion, Sharing of experience etc.

Reference books:

1. 1.Swapna pradhan.R.M - Retail Management - Tata Mg Graw Hill

2. Berman, Barry & Evans - Retailing Management- A strategic Approach - Pearson

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(MANAGED BY SIDDHARTHA ACADEMY OF GENERAL & TECHNICAL EDUCATIONVIJAYAWADA)

Commerce	CR202 G/C	*2023-2024*	*I.B.Com(Gen,comp&e- com)*

SEMESTER –II RETAILING

Model Paper

Skill Development Course

DURATION: 2 HOURS

SECTION – A Max:35

Answer any THREE of the following questions. (3x5=15M)

1. Defining the role of Retailing
2. Describe the importance of Retailing
3. What do you mean by merchandise Planning?
4. Explain the Administrative mechanism
5. Write about Job Profile.
6. Write about essentials of customer care in Retailing.

SECTION – B

Answer any TWO of the following questions. (2x10=20M)

7. Define Retailing and explain the types of retailing.

8. What are the factors influencing selection of store location

9. Explain different types of retailing outlets.

10. Describe about Communication with customers in Retailing?

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TITLE OF THE PAPER: Corporate Accounting
Semester: IV

Course Code	COMT41A	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**II.B.COM., (gen/computer/e-commerce)**		

Course Outcomes:

1. CO 1: The students will have a good command on issue of shares and also forfeiture and reissue of shares. (PO.1)
2. CO 2: The students will be able to apply various modes for redemption of Debentures and also they can be able to utilize the free reserves for issue of bonus shares. (PO.4)
3. CO 3: The student will be able to determine the value of goodwill by using different methods. (PO.4)
4. CO 4: The students will have a good command on ascertainment of value of share by using Asset backing method and Yield method. (PO.4)
5. CO 5: The students will acquire the knowledge of preparing final accounts of companies as per the provisions of Companies Act 2013. (PO.7)

Syllabus

Corporate Accounting

Course Details

Unit	Learning Units	Lecture Hours
I	**Accounting for Share Capital: Kinds of Shares –** Types of Preference Shares – Issue of Shares at Par, Discount and Premium – Forfeiture and Reissue of Shares (including problems).	15
II	**Issue and Redemption of Debentures and Issue of Bonus Shares:** Accounting Treatment for Debentures Issued and Repayable at Par, Discount and Premium -Issue of Bonus Shares –Issue of right shares- Buyback of Shares - (including problems).	15
III	**Valuation of Goodwill:** Need and Methods - Average Profit Method, Super Profits Method – Capitalization Method and Annuity Method (Including problems).	15
IV	**Valuation Shares:** Need for Valuation - Methods of Valuation - Net Assets Method, Yield Basis Method, Fair Value Method (including problems).	15
V	**Company Final Accounts**: Provisions of the Companies Act, 2013 - Preparation of Final Accounts – Adjustments Relating to Preparation of Final Accounts – Profit and Loss Account and Balance Sheet – (including problems with simple adjustments).	15

Reference Books:

1. Corporate Accounting – T.S Reddy and Murthy, MarghamPublications, Chennai.

2. Advanced Accounts: M C Shukla, T S Grewal and S C Gupta, S Chand Publications

3. Corporate Accounting – Haneef & Mukherji, Tata McGraw Hill Publications.

4. Corporate Accounting – RL Gupta & Radha Swami,Sultan Chand & sons

Co-Curricular Activities:

- Assignments
- Problem Solving Exercises
- Collect and fill the share application form of a limited Company
- Collect Prospectus of a company and identify its salient features
- Collect annual report of a Company and List out its assets and Liabilities.
- Collect the annual reports of company and calculate the value of goodwill under different methods

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Corporate Accounting COMT41A

Duration: 3 Hrs. **Model Paper** **Max Marks: 75M**

Section – A

Answer any five of the following. **5X5=25M**

1. What are Right shares? (CO2) L1
2. Explain about Forfeiture and re- issue. (CO1) L2
3. What is a company? Explain the features of a company. (CO1) L1
4. Explain net assets method with suitable examples (CO4) L2
5. Write various provisions of company Act 2013 (CO5) L2
6. What is Good will? (CO3) L1
7. Explain Buy Back of shares. (CO2) L2
8. What is Annuity Method (CO3) L1

Section-B

Answer the following **5X10=50Marks**

9. a) What is a share? Explain different types of shares. (CO1) L2

(Or)

b) A company offers 12,000 shares of Rs 10 each. Applications were received for full. Money payable is as follows: on Application Rs 3/- on allotment Rs2/- on First call Rs 2/- and Rs 2/- on Final call. The shares are fully allotted and call money is realized in time. You are equired to pas journal entries in the books of the company. (CO1) L3

10. a) Explain the SEBI guidelines for issue of bonus shares (CO2) L2

(Or)

b) Show by means of Journal Entries how you will record the following issues

i) P Ltd issues 5,000 10% Debentures of Rs1,000/- each at a discount of 5% redeemable at the end of 6 years at par

ii) Q Ltd issued 5,000 12% Debentures of Rs 100 each at par redeemable at the end of 5 years at a premium of 5%

iii) R Ltd issues, 5000 12% Debentures of Rs 100 each at a discount of 5% redeemable at the end of 5 years at a premium of 5%

iv) S Ltd issues 5,000 Debentures of Rs 100 each at a premium of 5% redeemable at the end of 5 years at a premium of 5% (CO2) L3

11. a) What is goodwill? Explain the need and importance of valuation of goodwill? (CO3) L2

(Or)

b) The summarized balance sheet of BK Ltd as at 31 st March 2020 is as follows

Liabilities	Amount	Assets	Amount
40,000 Equity share of Rs 10 each fully paid up	4,00,000	Goodwill	1,00,000
10,000 Equity share of Rs 10 eacjRs 8 paid up	80,000	Other fixed assets	5,50,000
Reserves	2,00,000	Current Assets	2,70,000
11% Debentures	2,00,000	Preliminary Expenses	10,000
Current Liabilities	50,000		
	9,30,000		**9,30,000**

The goodwill is independently valued at Rs 90,000/- and other fixed assets at Rs 5,20,000. There was a contingent liability of Rs 20,000. Which has become payable. Determine the value of both the shares under net asset method. (CO3) L3

12. a) What is share? Explain the need and importance of valuation of shares? (CO4) L2

(or)

b) The Balance sheet of Aditya Limited as on 31-03-2020 was as follows:

Liabilities	Amount	Assets	Amount
Share capital 2,000 shares of Rs100 each	2,00,000	Land and Buildings	1,10,000
General Reserve	40,000	Plant and Machinery	1,30,000
Profit and Loss account	32,000	Patents	20,000
Sundry Creditors	1,28,000	Stock	48,000
Income tax provision	60,000	Debtors	88,000
		Bank Balance	52,000
		Preliminary Expenses	12,000
	4,60,000		**4,60,000**

The expert valuers valued land and buildings at 2,40,000, Goodwill at 1,60,000 and plant and machinery at 1,20,000. Of the total debtros. It is found that debtors of 8,000 are bad.
Ascertain th value of shares under net assets value method. (CO4) L3

13.a) Write the Proforma of Profit & Loss a/c (CO5) L2

(or)

b) The following is the Trial Balance of Rama Company Limited as on 31st March 2020

	In 000	In 000
Sales		1,87,500
Purchases	1,22,500	
Wages	25,000	
Discount		2,500
Furniture and Fittings	8,500	
Stock 31st March 2019		7,650
Dividend Paid	5,000	
Share Capital		50,000
Debtors and Creditors	18,750	8,750
Plant and Machinery	15,000	
Cash at Bank	8,000	
Reserve		8,000
Patents and Trade Mark	2,400	
	2,64,400	**2,64,400**

Prepare Trading account, Profit and loss account, Profit and Loss Appropriation account for the year ended 31-03-2020. And Balance Sheet as on that date. Take into consideration the following adjustments
i) stock on 31-03-2020 was valued at 40,000,000
ii) Depreciation on fixed assets at 10%
iii) Make a provision for Income Tax at 50%
iv) ignore corporate dividend tax. (CO5) L3

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TITLE OF THE PAPER: Cost and Management Accounting

Semester: IV

Course Code	COMT45	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: 2022-23**	**Percentage of Revision:25%**
CLASS:	**II.B.COM., (gen/computer/e-commerce)**		

Course Outcomes:

CO1: Impart knowledge on the fundamental concept of cost accounting and management accounting. **(PO1)**

CO2: Comprehend the knowledge in effective control of raw materials, work in progress, and labour cost . **(PO2)**

CO3- Students will understand the profit making decisions in complex situations of any business Organisation **(PO 4, 6)**

CO4 – Students will critically understanding the financial and management accounting importance in understanding the business operations using different tools **(PO 1)**

CO5 – Students will critically understanding the cash and fund flow concept and impact of cash flow on business operations **(PO 1, 7)**

Syllabus

Cost and Management Accounting

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction**: Cost Accounting: Definition – Features – Objectives – Functions – Scope – Advantages and Limitations - Management Accounting: Features – Objectives – Functions – Elements of Cost - Preparation of Cost Sheet (including problems)	15
II	**Material and Labour Cost:** Techniques of Inventory Control – Valuation of Material Issues: FIFO - LIFO Simple and Weighted Average Methods Labour: Direct and Indirect Labour Cost – Methods of Payment of Wage Incentive Schemes -Time Rate Method, Piece Rate Method, Halsey, Rowa Methods and Taylor Methods only (including problems)	15
III	**Marginal Costing:** Meaning and Features of Marginal Costing – Contribution –Profit Volum Ratio- Break Even Point – Margin of Safety – Estimation of Profit ar Estimation of Sales(including problems)	15
IV	**Financial Statement Analysis and Interpretation**: Financial Statements - Features, Limitations. Need, Meaning, Objectives, ar Process of Financial Statement Analysis- Comparative Analysis – Common Siz Analysis and Trend Analysis (including problems)	15
V	**Cash Flow Statement** Introduction and meaning - Accounting standard 3-Comparison between fund and cash flow statements - Uses and significance of cash flow statement Limitations of cash flow statement-Procedure for preparing a cash flo statement -Sources of cash inflows - Application of cash or cas outflows.(Problems).	15

References:

1. S.P. Jain and K.L. Narang – Advanced Cost Accounting, Kalyani Publishers.

2. M.N. Arora – A test book of Cost Accounting, Vikas Publishing House Pvt. Ltd.

3. S.P. Iyengar – Cost Accounting, Sultan Chand & Sons.

4. Nigam & Sharma – Cost Accounting Principles and Applications, S.Chand& Sons.

5. S.N. Maheswari– Principles of Management Accounting, Sultan Chand

& Sons.

Co-Curricular Activities:

- Seminars
- Problem Solving Exercises
- Seminar on need and importance of financial statement analysis
- Graphs showing the breakeven point analysis

Revision of the syllabus 2022-23 (SEM -2, 4, 6)

Name of the Subject: **Cost and Management Accounting**
Subject Code: COMT45
Semester -IV

Academic Year	2022-23
Title of the paper	**Cost and Management Accounting**
Semester	IV
Course code	COMT45
CIA marks	25
Semester End marks	75
Total marks	100
Year of Introduction	2021-22
Year of Revision	2021-22
% of revision	20%

UNIT	Syllabus	Addition	Deletion
I	**Introduction**: Cost Accounting: Definition – Features – Objectives – Functions –Scope – Advantages and Limitations - Management Accounting: Features –Objectives – Functions – Elements of Cost - Preparation of Cost Sheet(including problems)		
II	**Material and Labor Cost:** Techniques of Inventory Control – Valuation of Material Issues: FIFO – LIFO Simple and Weighted Average Methods Labor: Direct and Indirect Labor Cost – Methods of Payment of Wage Incentive Schemes -Time Rate Method, Piece Rate Method, Halsey, Rowan Methods and Taylor Methods only (including problems)		
III	**Marginal Costing:** MeaningandFeaturesofMarginalCosting –Contribution–ProfitVolumeRatio-BreakEvenPoint–MarginofSafety–EstimationofProfitanEstimationof Sales(including problems)		
IV	**Financial Statement Analysis and Interpretation**: Financial Statements - Features, Limitations. Need, Meaning, Objectives, an Process of Financial Statement Analysis- Comparative Analysis – Common Size Analysis and Trend Analysis (including problems)		

V	**Cash Flow Statement** Introduction and meaning-Accounting standard 3-Comparison between fund and cash flow statements-Uses and significance of cash flow statement Limitations of cash flow statement-Procedure for preparing a cash flow statement -Sources of cash inflows-Application of cash flows.(Problems).	**Cash Flow Statement Introduction and meaning-Accounting standard 3-Comparison between fund and cash flow statements-Uses and significance of cash flow statement Limitations of cash flow statement-Procedure for preparing a cash flow statement-Sources of cash inflows-Application**	**Job Costing and Batch Costing: Definition and Features of Job Costing – Economic Batch Quantity (EBQ) – Preparation of Job Cost Sheet – Problems on Job Cost Sheet and Batch Costing (including problems)**

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TITLE OF THE PAPER: Cost and Management Accounting COMT45

Semester: IV

Duration: 3 Hrs. **Model Paper** **Max Marks: 75M**

SECTION A

Answer any **FIVE** of the following 5x5=25

1. Define Cost Accounting and state its objectives. (CO1) L2
2. What are the functions of Management Accounting? (CO1) L2
3. Explain the need for material control. (CO2) L2
4. What is Labour Turnover? (CO2) L1
5. What is meant by PV Ratio? (CO3) L1
6. What is meant by Margin of Safety? (CO3) L1
7. What is meant by Common size income statement? (CO4) L1
8. What are the Sources and applications of cash flow statement. (CO5) L2

SECTION B

Answer the Following 5x10=50

9. a) Explain the limitations of Financial Accounting and also differentiate the Cost Accounting and Financial Accounting. (CO1) L2

Or

b) From the following particulars prepare cost sheet for the year ending 2020

Particulars	1-1-2017	31-12-2017
Raw Material	25000	26200
Finished goods	17300	15700
Work in progress	8200	9100

Raw material purchased 21,900
Carriage inwards 1,100
Direct Expenses 120
Factory overheads 910
Direct wages 17,200
Sale of finished goods 72,300
Selling overheads 4,200
Administration overheads 3,200 (CO1) L3

10. a)Explain the functions of stores department. (CO2) L2

Or

b) From the following particulars calculate earnings of a worker under Halsey and Rowan's plan
Standard time 10 hrs
Time taken 6hrs
Hourly Rate 2/-Rs (CO2) L3

11. a). What is Break Even Point? Explain its assumptions and Limitations. (CO3) L2

Or

b) Assuming that the cost structure and selling prices remain the same in periods I & II find out

i) Profit Volume Ratio

ii) Fixed Cost

iii) BEP for sales

iv) Margin of safety at a profit of Rs 15,000/_

v) Profit when sales are Rs 1,00,000/-

vi) sales required to earn a profit of Rs 20,000/- (CO3) L3

12. a) Explain the Need and Limitations of Financial Statement Analysis (CO4) L2

Or

b) The following are the Balance Sheet of Krishna & Co for the year ending 31-03-2020&2021 prepare a comparative Balance Sheet (CO4) L3

Liabilities	**2020**	**2021**	**Assets**	**2020**	**2021**
Equity Share Capital	3,00,000	4,00,000	Land & Buildings	1,85,000	1,35,000
Reserves & Surplus	1,65,000	1,11,000	Plant & Machinery	2,00,000	3,00,000
Debentures	1,00,000	1,50,000	Furniture & Fixtures	10,000	12,500
Long term loans	75,000	1,00,000	Other Fixed Assets	12,500	15,000
Bills payable	25,000	22,500	Cash in hand	10,000	40,000
Sundry creditors	50,000	60,000	Bills Receivables	75,000	45,000
Current Liabitlites	2,500	5,000	Sundry Debtors	1,00,000	1,25,000
			Stock	1,25,000	1,75,000
			Prepaid Expenses	---------	1,000
Totals	**7,17,500**	**8,48,500**	**Totals**	**7,17,500**	**8,48,500**

13. a) What are the Differences between Cash flow statement and Funds flow statement. (CO5) L2

Or

b) The Balance sheets of Godrej Company is as follows. Prepare Cash Flow Statement. (CO5) L3

Liabilities	**2020**	**2021**	**Assets**	**2020**	**2021**
Equity Share capital	2,00,000	2,00,000	Cash	20,000	14,400
General Reserve	2,00,000	2,00,000	Debtors	1,40,000	1,53,600
Profit & Loss a/c	1,92,000	1,96,000	Stock	1,00,000	88,000
Current Liabilities	1,44,000	1,64,000	Land	80,000	1,20,000
Loan from associate Company	----------	80,000	Buildings	2,00,000	2,20,000
Loan from a bank	1,24,000	1,00,000	Machinery	3,20,000	3,44,000
Total	**8,60,000**	**9,40,000**	**Total**	**8,60,000**	**9,40,000**

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TITLE OF THE PAPER: Income Tax

Semester: IV

Course Code	COMT43A	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**II.B.COM., (gen)**		

Course Outcomes:

At the end of the course, the student will able to;

CO1: Acquire knowledge about tax rate schedule and residential status of an individual **PO4 PSO2**

CO2: Enlist the ability of provisions of income from salary and its taxability **PO4 PSO2**

CO3: The student can build on idea about taxability of income from house property and business income **PO4 PSO2**

CO4 : Comprehend the knowledge about Income from capital gain **PO1 &PO6 PSO2**

CO5: Import knowledge in the provisions of Income from other sources and to compute the Total income **PO7 PSO2**

Syllabus

Income Tax

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction**: Income Tax Act-1961 - Basic Concepts: Income, Person, Assessee - Assessment Year, Previous Year, Rates of Tax, Agricultural Income, Residential Status of Individual -Incidence of Tax – Incomes Exempt from Tax (theory only).	15
II	**Income from Salaries**: Basis of Charge, Tax Treatment of Different Types of Salaries Allowances, Perquisites, Profits in Lieu of Salary, Deductions from Salary Income, Computation of Salary Income (including problems).	15
III	**Income from House Property and Profits and Gains from Business**: Annual Value, Let-out/Self Occupied/Deemed to be Let-out house -Deductions from Annual Value - Computation of Income from House Property **Definition of Business and Profession** – Procedure for Computation of Income from Business – Revenue and Capital Nature of Incomes and Expenses – Allowable Expenses – Expenses Expressly Disallowed – Computation (including problems).	15
IV	**Income from Capital Gains - Income from Other Sources**: Meaning of Capital Asset – Types – Procedure for Computation of Long-term and Short-term Capital Gains/Losses Meaning of Other Sources - General Incomes – Specific Incomes – Computation (including problems).	15
V	**Computation of Total Income of an Individual**: Deductions under Section 80 - Computation of Total Income (Simple problems).	15

Reference Books:

1. Dr. Vinod; K. Singhania; Direct Taxes – Law and Practice, Taxman Publications

2. T. S. Reddy and Dr. Y. Hari Prasad Reddy - Taxation , by Margham Publications

3. Premraj and Sreedhar, Income Tax, Hamsrala Publications

4. B.B. Lal - Direct Taxes; Konark Publications

5. Dr. Mehrotra and Dr. Goyal -Direct Taxes, Law and Practice, Sahitya Bhavan

Co-Curricular Activities:

- Seminar on different topics of Income tax
- Quiz programs
- Problem Solving Exercises
- Debate on Tax Evasion and Avoidance
- Practice of provisions of Taxation
- Visit a Tax firm
- Talk on Finance Bill at the time of Union Budget
- Guest lecture by Chartered Accountant
- Presentation of tax rates

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TITLE OF THE PAPER: Income Tax COMT 43A

Semester: IV

Duration: 3 Hrs. **Model Paper** **Max Marks: 75M**

Income Tax

Section-A

Answer **any Five** of the following: 5x5=25

1. Define a) income b) assesse c) Person (CO1) L1
2. Deductions under section 16 (CO2) L2
3. Define Annual Value how is it determined. (CO3) L2
4. What do you understand by the term Business and Profession. (CO3) L1
5. Write about cost of improvement and cost of acquisition. (CO4) L2
6. What are the allowed and dis allowed expenses? (CO1) L1
7. What is total income? (CO5) L1
8. Explain about Residential status. (CO1) L1

SECTION B

Answer the Following: 5x10=50

9. a) All assesses are persons but all persons are not assesses Explain. (CO1) L2

Or

b) Following are the incomes of raj for the previous year 2019-2020

	Rs
i) Profit from business in Bangalore	10,000
ii) Income accrued in India but received in Japan	4,000
iii) Profit from business in Canada but received in India	5,000
iv) Income from house property in Karachi received in Bombay	4,000
v) Profit from business established in England and deposited there, the business beingcontrolled from India	20,000
vi) Income from house property in America and deposited there	2,000
vii) Past untaxed income brought into India during the previous year	10,000

Compute the total income of Raj for the assessment year 2020-2021

If he is (a) Resident

(b) N.O.R

(c) Non-Resident (CO1) L3

10. a) Define the term allowances. Explain various types of allowances. (CO2) L2

Or

b) From the following particulars find out the income from salaries of Mr.Krishna

i) Salaries Rs 4000/- per month

ii) DA Rs1000/- per month

iii) Commission Rs10,000/-Per Annum

iv) CCA Rs 200/- Per month

v) Entertainment Allowance Rs 350/- per month (on 1-04-55 Rs 250/- per month)

vi)Professional tax paid Rs300/-

He is provided with a car of 16HP for office and personal use and all the expenses are paid by the employee. (CO2) L3

11. a) What is income from house property and explain the procedure for computing income from house property (CO3) L2

Or

b) From the particulars given below compute the income from profession of DrKarim for the assessment year 2021-22.

Receipts:
i) Visiting fees Rs 26,000/-
ii) Consultation fess RS 15,000/-
iii) Sale of Medicines Rs 16,000/-
iv) DividendsRs 5,000/-

Expenses
i) Dispensary Rent Rs 5,000/-
ii) Electricity Charges Rs3,000/-
iii) Telephone Expenses Rs 3000/-
iv) Salary to compounder Rs 5,000/-
v) Purchase of Medicines Rs 8,000/-
vi) Depreciation of X-Ray Machine Rs 2,000/-
vii) Income Tax Rs 5,000/-
viii) Donations Rs 2,000/-
ix) Motor car expenses and depreciation 6,000/-

Other Particulars
i) Electricity charges include domestic bill Rs 1,000/-
ii) 50% of motor car expenses are for professional use (CO3) L3

12. a) Define capital gain. Explain the different types of capital gain. (CO4) L2

Or

b) Mr X sold his residential house on 01-08-2019 for a total consideration of Rs 10,000. This house was acquired by him in August 2004 for RS 2,00,000/- he has carried out repairs to the house in October 2010 spending Rs 50,000/- compute taxable capital gains for 2020-21 (CO4) L3

(CII : 2004-05: 113, 2010-11 : 167 and 2019-20: 289)

13 a) what do you understand by the qualifying amount u/s 80G? Who is entitled to it and what are the provisions of the act in this connection (CO5) L2

or

b) Sk.Basu is in service in Bangalore drawing a monthly salary of Rs 15,000/- per month and DA 100% of salary. He contribute 10% of his salary to RPF. His taxable income from house property is 12,300/- he has also interest on government securities amounting to Rs 14,000/- (gross) he has paid life insurance premium for a policy on his own life Rs 700/- he paid medical insurance premium Rs 8000/- through a bank draft he paid Rs 2,000/- to PM National Relief Fund.
Compute the total income of sk.Basu (CO5) L3

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TITLE OF THE PAPER: Business Laws

Semester: IV

Course Code	**COMT42A**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**II.B.COM., (gen/com/e-com)**		
Course Prerequisites (if any):	Intermediate level		

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Learning Outcomes:

At the end of the course, the student will able to;

- Understand the legal environment of business and laws of business.
- Highlight the security aspects in the present cyber-crime scenario.
- Apply basic legal knowledge to business transactions.
- Understand the various provisions of Company Law.
- Engage critical thinking to predict outcomes and recommend appropriate action on
- Issues relating to business associations and legal issues.
- Integrate concept of business law with foreign trade.

Syllabus
Business Laws

Course Details

Unit	Learning Units	Lecture Hours
I	**Contract**: Meaning and Definition of Contract - Essential Elements of Valid Contract -Valid, Void and Voidable Contracts - Indian Contract Act, 1872	15
II	**Offer, Acceptance and Consideration**: Definition of Valid Offer, Acceptance and Consideration - Essential Elements of a Valid Offer, Acceptance and Consideration.	15
III	**Capacity of the Parties and Contingent Contract**: Rules Regarding to Minors Contracts - Rules Relating to Contingent Contracts - Different Modes of Discharge of Contracts - Rules Relating to Remedies to Breach of Contract.	15
IV	**Sale of Goods Act 1930 and Consumer Protection Act 2019**: Contract of Sale - Sale and Agreement to Sell - Implied Conditions and Warranties - Rights of Unpaid Vendor- Definition of Consumer - Person - Goods - Service - Consumer Dispute - Consumer Protection Councils - Consumer Dispute Redressal Mechanism	15
V	**Cyber Law**: Overview and Need for Cyber Law - Contract Procedures - Digital Signature – Safety Mechanisms	15

References:

1. J. Jaysankar, Business Laws, Margham Publication. Chennai.
2. ND Kapoor, Business Laws, S Chand Publications.
3. Balachandram V, Business law, Tata McGraw Hill.
4. Tulsian, Business Law, Tata McGraw Hill.
5. Pillai Bhagavathi, Business Law,SChand Publications

Co-Curricular Activities:

- ♦ Seminar on Basics of Indian Contract Act,1872
- ♦ Quiz programs
- ♦ Co-operative learning
- ♦ Seminar on Cyber Law
- ♦ Group Discussions
- ♦ Debate on Offer, Agreement, and Contract
- ♦ Creation of Contract by abiding rules of Indian Contract Act,1872
- ♦ Making a sale by abiding rules of Sale of Goods Act,1930
- ♦ Guest lecture by a Lawyer/Police officer
- ♦ Celebrating consumers day by creating awareness among the students
- ♦ Examinations (Scheduled and surprise tests)
- ♦ Any similar activities with imaginative thinking beyond the prescribed syllabus

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TITLE OF THE PAPER: Business Laws COMT42A

Semester: IV

MODEL PAPER

Time:3Hrs **Max.Marks:75**

Section A

Answer any five of the following. **5 X 5 = 25M**

1.Distinguish void and voidable contracts. (PO 4) (L 5)
2. What is novation? (PO 2,3) (L4)
3.Features of valid acceptance. (PO 2,3,4) (L 2)
4.Can minor be a party to a contract? Discuss. (PO 2,3) (L 4)
5.Contingent contracts. (PO 2,3) (L 2)
6.Differences between sale and agreement to sell. (PO 1,2,4,7) (L 2)
7. Who is unpaid seller? What are his rights? (PO 1,2,4,7) (L 4)
8.Designated partner. (PO 3,6) (L 2)

Section B

Answer all the questions. **5 x 10 = 50M**

Unit-I

9.(a) "All agreements are not contracts ,but all contracts are agreements". Discuss. (PO 4) (L 2)

(OR)

(b) Discuss in detail the kinds of contracts. (PO 4) (L 2)

Unit-II

10. (a) Discuss in details the essentials of a valid acceptance. (PO 2,3,4) (L 4)

(OR)

(b) "No consideration,no contracts".Discuss the statement with exceptions. (PO 2,3,4) (L3)

Unit-III

11. (a) What are quasi contracts? Explain the quasi contracts under Indian contract Act. (PO 2,3) (L 3)

(OR)

(b) What are the remedies for breach of contract? (PO 2,3) (L 5)

Unit-IV

12. (a) Define a 'condition' and a 'warranty'. Explain the implied conditions and warranties. (PO 1,2,4,7) (L 1)

(OR)

(b) State the rules relating to the passing right of property from seller to buyer in a contract for sale of goods. (PO 1,2,4, 7) (L 2)

Unit-V

13. (a) What is the procedure to incorporate a limited liability partnership? (PO 3,6) (L 3)

(OR)

(b) Distinguish between partnership and limited liability partnership. (PO 3,6) (L 4)

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TITLE OF THE PAPER: Auditing

Semester: IV

Course Code	COMT46	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**II.B.COM., (gen)**		
Course Prerequisites (if any):	**Intermediate level**		

Course Objectives:

CO1: Students will develop the knowledge & importance of auditing and accounting in modern era.

(PO1)

CO2: Students will have the ability of understanding the applicability of auditing types for different organizations.

(PO1, PO2)

CO3: Students will have knowledge in planning the effectiveness of auditing of any Organisation.

(PO5, PO6, PO7)

CO4: Students will have proper understanding of the requirements of documentary evidence for the completion of audit. **(PO1, PO2, PO3)**

CO5: Students will have the knowledge of the competency of person, his rights and duties regarding auditing and audit report. (**PO 6, PO7)**

Syllabus

Auditing

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction:** Meaning – Objectives – Importance of Auditing – Characteristics - Book Keeping vs Auditing - Accounting vs Auditing – Role of Auditor in Checking Corporate Frauds.	15
II	**Types of Audit:** Based on Ownership,Time and Objective - Independent, Financial, Internal, Cost,Tax, Government, Secretarial Audits	15
III	**Planning of Audit:** Steps to be taken at the Commencement of a New Audit – Audit Programme - Audit Note Book– Audit Working Papers - Audit Evidence - Internal Check, Internal Audit and Internal Control	15
IV	**Vouching and Investigation:** Definition and Importance of Vouching – Objectives of Vouching -Vouching of Cash and Trading Transactions – Investigation - Auditing vs. Investigation	15
V	**Company Audit and Auditors Report:** Auditor's Qualifications – Appointment and Reappointment – Rights, Duties, Liabilities and Disqualifications - Audit Report: Contents –Preparation - Relevant Provisions of Companies Act,2013.	15

References:

1. S.Vengadamani, “Practical Auditing”, Margham Publications, Chennai.

2. Ghatalia, “Principles of Auditing”, Allied Publishers Pvt. Ltd., New Delhi.

3. Pradeesh Kumar, BaldevSachdeva&Jagwant Singh, “Auditing Theory and Practice,Kalyani Publications

4. N.D. Kapoor, “Auditing”, S Chand, New Delhi.

5. R.G. Saxena, “Principles and Practice of Auditing”, Himalaya Publishing House New Delhi

Co-Curricular Activities:

- Seminars
- Visit the audit firms
- Visit an audit firm, write about the procedure followed by them in Auditing the books of accounts of a firm.
- Guest lecture by an auditor
- Collect the information about types of audit conducted in any one Organization

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TITLE OF THE PAPER: Auditing COMT46

Semester: IV

SECTION -A **Max.Marks:75**

Answer any FIVE of the following **5x5=25M**

1. Define Auditing. What are its advantages? (CO1) L1
2. What are the differences between Book keeping and Auditing? (CO1) L2
3. Explain about audit in Partnership firms. (CO2) L2
4. Explain the differences between Continuous Audit and Periodic Audit. (CO2) L2
5. What is meant by Audit Note book? (CO3) L1
6. What are the objectives of Internal Check.? (CO3) L2
7. Explain the importance of vouching. (CO4) L2
8. What are the contents of Audit Report? (CO5) L2

SECTION B

Answer the Following **5x10=50**

9. a)What is Auditing? Explain the objectives of Auditing. (CO1) L2

Or

b) Write the differences between continuous and periodical audit (CO1) L2

10. a) Explain the Audit on the basis of Ownership. (CO2) L2

Or

b) Explain the Audit on the basis of Objective. (CO2) L2

11. a) What are the Preliminary steps to be taken before the commencement of a new Audit. (CO3) L2

Or

b) Explain the differences among the Internal Check, Internal Audit and Internal Control. (CO3) L2

12. a) Differentiate the Auditing and Investigations (CO4) L2

Or

b) Explain the Objectives of Vouching. Process of vouching cash transactions (CO4) L2

13. a) Explain the appointment and removal of an Auditor in a Company? (CO5) L2

Or

b) Explain the Liabilities of an Auditor. (CO5) L2

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TITLE OF THE PAPER: Goods and Service Taxes

Semester: IV

Course Code	**COMT44**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**75**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**II.B.COM., (gen)**		
Course Prerequisites (if any):	**Intermediate level**		

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Learning Outcomes:

At the end of the course, the student will able to;

- Understand the basic principles underlying the Indirect Taxation Statutes.
- Examine the method of tax credit. Input and Output Tax credit and Cross Utilisation of Input Tax Credit.
- Identify and analyze the procedural aspects under different applicable statutes related to GST.
- Compute the assessable value of transactions related to goods and services for levy and determination of duty liability.
- Develop various GST Returns and reports for business transactions in Tally.

Syllabus
Goods and Service Taxes

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction:** Overview of GST - Concepts –Taxes Subsumed under GST – Components of GST- GST Council- Advantages of GST-GST Registration.	15
II	**GST Principles** –Vijay Kelkar Sha Committee Recommendations - Comprehensive Structure of GST Model in India: Single, Dual GST – GST Rates - Taxes Exempted from GST- Taxes and Duties outside the purview of GST- Taxation of Services	15
III	**Tax Invoice**- Bill of Supply-Transactions Covered under GST-Composition Scheme- Reverse Charge Mechanism- Composite Supply -Mixed Supply	15
IV	**Time of Supply of Goods & Services**: Value of Supply - Input Tax Credit - Distribution of Credit -Matching of Input Tax Credit - Availability of Credit in Special Circumstances- Cross utilization of ITC between the Central GST and the State GST.	15
V	**GST Returns**: Regular Monthly Filing Returns-Composition Quarterly Filing Returns-GSTR-1, GSTR-2, GSTR 2A, GSTR-3, GSTR 3B -Annual Returns GSTR-9, GSTR 9A, GSTR 9B& GSTR 9C - Records to be Maintained under GST	15

References:

1. T. S. Reddy and Dr. Y. Hari Prasad Reddy, Business Taxation (Goods and Services Taxes),Margham Publications.

2. Taxmann's Basics of GST.

3. Taxmann's GST: A practical Approach.

4. Theory & Practice of GST, Srivathsala, Himalaya Publishing House.

5. Goods and Services Tax in India - Notifications on different dates. Library activities:

Co-Curricular Activities:

- Seminars
- Show the flow chart of GST Suvidha Provider (GST).
- Practice of Terminology of Goods and Service Tax
- Prepare chart showing rates of GST
- Follow GST Council meeting updates regularly
- Creation of GST Vouchers and Tax invoices
- Visit a Tax firm (Individual and Group)
- Guest lecture by GST official
- Prepare Tax invoice under the GST Act.
- Practice on how to file a Returns

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TITLE OF THE PAPER: Goods and Service Taxes COMT44

Semester: IV

TIME -3hrs ***Model paper*** ***Max. Marks: 75***

SECTION-A

I. Answer any FIVE of the following 5x5=25M

1. What is GST?
2. Explain about GST Registration Number
3. Dual GST
4. GST Rates
5. Write about Reverse Charge Mechanism
6. Input tax Credit
7. Write about GSTR 9C
8. What is Annual Return

SECTION-B

Answer the Following 5x10=50

9.A) What are the advantages of Goods and Services Tax

OR

B) What are the Taxes Subsumed under GST

10.A) Write about Vijay Kelkar Sha Committee Recommendations

OR

B) What is the Comprehensive Structure of GST in India?

11.A)Explain the Bill of Supply Transactions in GST

OR

B)Write about GST Composition Scheme?

12 A)What is Input Tax Credit and explain it with suitable Examples

OR

B)Write about Time of Supply of Goods and Services

13.A) What are the Records to be maintained under GST?

OR

B) Explain about Annual Returns GSTR-9, GSTR 9A, GSTR 9B& GSTR 9C in GST

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TITLE OF THE PAPER: Taxation

Course Code	COMT48	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**25**
No. of Lecture Hours / Week	**5**	**Semester End Exam**	**75**
Total Number of Lecture	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering:2021-22**	**Year of Revision:2022-23**	**Percentage of Revision:25%**
CLASS:	**II.B.COM., (Com& E-C)**		

Learning Outcomes:

CO1: Impact knowledge on the provisions of income tax law and practice **PO4**

CO2: Enlist the ability of provisions of income from salary and House property its taxability **PO4**

CO3: The student can acquire knowledge in calculation of business income and professional income **PO06**

CO4: Acquaint the students with basic principles of goods and service tax. **(PO1,PO2)**

CO5: To impart knowledge and best practices in corresponding to trade appliance at customs. **(PO6)**

Syllabus

Taxation

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction:** Objectives- Principles of Taxation- Brief History- Basic Concepts- Capital and Revenue- Basis of Charge- Exempted Incomes - Residential Status - Incidence of Taxation	15
II	**Computation of income from Salary:** Income from Salary; Salary-Allowance -Perquisites – Deductions U/S 16- Deductions u/s80	15
III	**Computation of Income from House Property :** Income from House Property- Rental values – gross annual value – Net Annual Value – Deductions U/S24 (Simples problems)	15
IV	**Computation of income from Business and Profession:** Definition of Business and Profession -Admissible and inadmissible expenses-Computation of Business income: **Income from Profession:** Admissible Receipts and Payments - Computation of Professional income(Simple Problems)	15
V	**Introduction and Administration to GST AND Customs :** Meaning of GST- Nature and scope of GST - Merits and demerits of GST - Models of GST -CGST-SGST-IGST - Definitions: adjudicating- authority, agent, business, goods, places of business, In put tax credit ,**CUSTOMS**: Meaning and Introduction of Customs ,Salient features of Customs Act 1962	15

Reference Books:

1. Dr. Vinod; K. Singhania; Direct Taxes – Law and Practice, Taxman Publications
2. T. S. Reddy and Dr. Y. Hari Prasad Reddy - Taxation , by Margham Publications
3. Premraj and Sreedhar, Income Tax, Hamsrala Publications
4. B.B. Lal - Direct Taxes; Konark Publications
5. Dr. Mehrotra and Dr. Goyal -Direct Taxes, Law and Practice, Sahitya Bhavan

Suggested Co-Curricular Activities:

1. Seminars on direct tax and Indirect tax
2. Quiz
3. Problem solving exercises
4. Practice and provisions of taxation
5. Visit a tax firm.
6. Guest lecture by Chartered Accountant
7. Examinations (Scheduled and surprise tests)

Revision of the syllabus 2022-23 (SEM -2, 4, 6)

Name of the Subject: **Taxation**
Subject Code: COMT48
Semester -IV

Academic Year	2022-23
Title of the paper	**Taxation**
Semester	IV
Course code	COMT48
CIA marks	25
Semester End marks	75
Total marks	100
Year of Introduction	2021-22
Year of Revision	2022-23
% of revision	25%

UNIT	Syllabus	Addition	Deletion
I	**Introduction:** Objectives- Principles of Taxation- Brief History- Basic Concepts- Capital and Revenue- Basis of Charge- Exempted Incomes - Residential Status-Incidence of Taxation		
II	**Computation of income from Salary:** IncomefromSalary;Salary-Allowance-Perquisites– DeductionsU/S16-Deductionsu/s80		
III	**Computation of Income from House Property:** Income from House Property- Rental values – gross annual value – Net Annual Value– Deductions U/S24(Simples problems)		**Profits and Gains from Business: Definition of Business and Profession – Procedure for Computation of Income from Business – Revenue and Capital Nature of Incomes and Expenses – Allowable Expenses – Expenses Expressly Disallowed – Computation (including problems).**

IV	**Computation of income from Business and Profession:** Definition of Business and Profession – Admissible and inadmissible expenses – Computation of Business income: **Income from Profession:** Admissible Receipts and Payments- Computation of Professional income (Simple Problems)	**Computation of income from Business and Profession: Definition of Business and Profession – Admissible and inadmissible expenses – Computation of Business income: Income from Profession: Admissible Receipts and Payments- Computation of Professional income (Simple Problems)**	**Unit-IV: Income from Capital Gains - Income from Other Sources: Meaning of Capital Asset – Types – Procedure for Computation of Long-term and Short-term Capital Gains/Losses Meaning of Other Sources - General Incomes – Specific Incomes – Computation (including problems).**
V	**Introduction and Administration to GST AND Customs :** Meaning of GST- Nature and scope of GST- Merits and demerits of GST – Models of GST -CGST-SGST-IGST - Definitions: adjudicating-authority, agent, business ,goods, places of business, In put tax credit ,**CUSTOMS**: Meaning and Introduction of Customs ,Salient features of Customs Act 1962	**Introduction and Administration to GST AND Customs :Meaning of GST- Nature and scope of GST- Merits and demerits of GST – Models of GST -CGST-SGST-IGST - Definitions: adjudicating- authority, agent, business ,goods, places of business, In put tax credit ,CUSTOMS: Meaning and Introduction of Customs ,Salient features of Customs Act 1962**	**Unit-V: Computation of Total Income of an Individual: Deductions under Section 80 - Computation of Total Income (Simple problems).**

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MODEL PAPER

TITLE OF THE PAPER: Taxation COMT48

Duration: 3 Hrs. **Model Paper** **Max Marks: 75M**

Taxation

Section-A

Answer **any Five** of the following: **5x5=25**

1. Define a) assesse b) Person (CO1) L1
2. What is meant by Assessment year and Previous year? (CO2) L1
3. What are the Deductions u/s24 (CO3) L1
4. What do you understand by the term Business and Profession? (CO3) L2
5. What is Scope of GST? (CO4) L2
6. What are the allowed and dis allowed expenses? (CO1) L2
7. Define Adjudicating authority. (CO5) L1
8. What is meant by customs? (CO1) L1

SECTION B

Answer the Following: **5x10=50**

9. a) How do you determine the residential status of an individual (CO1) L2

Or

b) Mr. Joseph a foreigner came to India from Poland for the 1st April 2014 he stayed here continuously for 3 years and went to France on 1st April 2017. He however returned to India on 1st July 2017 and went to Poland on 1st December 2018. He again came back to India on 25th January 2021 on a service in India what is his residential status for the assessment year 2021-22 (CO1) L3

10. a) Define Annual value. How is it determine? (CO2) L2

Or

b) Mr. Rama is a manager in a company at Delhi the particulars of the salary income are as under
Basic salary Rs 30,000/- per month
DA Rs 5,000/- per month
Entertainment Allowance Rs 1,000/- per month
Medical Allowance Rs 250/- per month
House Rent Allowance Rs 4000/- per month
Rent paid for the house Rs 5000/- per month
He and his employer contributes 15% of salary to RPF
Compute his salary income for assessment year 2021-22 (CO2) L3

11. a) Define Annual value. Explain different rental values under house property? (CO3) L2

Or

b) calculate income from house property from the particulars given below
MRV60,000/- FRV40,000/- Annual Rent 6000/- per month. The house is let out. Interest on loan 96,000/- (CO3) L3

12. a) What do you understand by the term Business and Profession? List out any 10 allowable deductions u/s37(1) (CO4)L2

or

b) From the particulars given below compute the income from profession of DrKarim for the assessment year 2021-22.

Receipts:

i) Visiting fees Rs 26,000/-
ii) Consultation fess RS 15,000/-
iii) Sale of Medicines Rs 16,000/-
iv) DividendsRs 5,000/-

Expenses

i) Dispensary Rent Rs 5,000/-
ii) Electricity Charges Rs3,000/-
iii) Telephone Expenses Rs 3000/-
iv) Salary to compounder Rs 5,000/-
v) Purchase of Medicines Rs 8,000/-
vi) Depreciation of X-Ray Machine Rs 2,000/-
vii) Income Tax Rs 5,000/-
viii) Donations Rs 2,000/-
ix) Motor car expenses and depreciation 6,000/- (CO4) L3

13 a) what are the merits and demerits of GST (CO5) L2

or

b) Explain the salient features of customs (CO5) L2

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TITLE OF THE PAPER: Advanced Corporate Accounting

Semester: V / VI

Course Code	**CACA-601 G/C**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**III.B.COM., (gen/computer)**		

CO1: The students are able to calculate purchase consideration and different methods of determining purchase consideration and its accounting treatment. (PO1) (PSO1)
CO2: students will acquire the knowledge on provisions for amalgamation of company as per accounting standard 14 and its treatment.(PO4) (PSO1)
CO3: The students will get the knowledge on forms of internal reconstruction and alteration and reduction of share capital and its accounting treatment.(PO4) (PSO1)
CO4: The students will be able to prepare consolidated financial statements and calculate minority interest and its accounting treatment.(PO4) (PSO1)
CO5: students will be able to prepare liquidators final statement of accounts at the time of winding up of a company. and are able to calculate liquidators remuneration and acquire the capacity for preparation of statement of affairs and deficiency account and its accounting treatment.(PO8) (PSO1)

Learning Objective:

1. This course will enable the students to combine practice and theoretical knowledge of financial accounting.
2. The students of this course will be active learners and develop awareness of emerging trends in financial accounting,
3. The course will provide decision making skills to the students in the financial analysis context,
4. The students of this course will have the ability to identify and analyze financial accounting problems and opportunities in real life situations.

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Syllabus
ADVANCED CORPORATE ACCOUNTING

Paper code: CACA-601 G/C

Unit	Learning Units	Lecture Hours
I	**Purchase of Business** Meaning - Purchase Consideration - Methods for determining Purchase Consideration-Discharge of Purchase Consideration-Accounting Treatment.	15
II	**Amalgamation of Companies** Meaning and Objectives - Provisions for Amalgamation of Companies as per Accounting Standard 14 - Accounting Treatment.	15
III	**Internal Reconstruction of Companies** Meaning - Forms of Internal Reconstruction - Alteration of Share Capital and Reduction of Share Capital- Accounting Treatment.	15
IV	**Accounts of Holding Companies** Meaning of Holding Companies and Subsidiary companies- Consolidated Financial Statements- Legal requirements on Consolidation-Calculation of Minority Interest- Accounting Treatment.	15
V	**Liquidation** Meaning - Modes of Winding up of a Company- - Liquidator's Final Statement of Account - Calculation of Liquidator's Remuneration - Preparation of Statement of Affairs and Deficiency Account- Accounting Treatment	15

References:

1. Goyal, Bhushan Kumar. Corporate Accounting. Taxmann, New Delhi
2. Kumar, Alok. Corporate Accounting. Kitab Mahal
3. Monga, J. R. Fundamentals of Corporate Accounting. Mayur Paper Backs, New Delhi
4. Sah, Raj Kumar, Concept Building Approach to Corporate Accounting, Cengage
5. Sehgal Ashok & Sehgal Deepak. Corporate Accounting
6. Tulsian P. C. Corporate Accounting. S Chand & Co. New Delhi
7. https://thebookee.net/ad/advanced-corporate-accounting-and-accounting-standards
8. Web resources suggested by the Teacher concerned and the College Librarian including reading material

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TITLE OF THE PAPER: Advanced Corporate Accounting

Commerce	B.Com (Gen/Comp)	Semester-V / VI	2022-2023	CACA -601 G/C

MODEL PAPER

Time: 3Hrs **Max Marls:70**

Section –A

Answer any TWO of the following **2x5=10M**

1. Define Purchase consideration (CO1)

2. What is Amalgamation? (CO2)

3. What is internal reconstruction (CO3)

4. How do calculate Minority interest (CO4)

Section –B

Answer any FOUR of the following **4x15=60M**

5. Explain the methods for determining the purchase consideration (CO1)

6. Explain the provisions for amalgamation of companies(CO2)

7. The following is the Balance Sheet of Moon Company Ltd on 31-3-2018. (CO2)

Liabilities	Rs.	Assets	Rs.
Capital		Land and buildings	1,20,000
20,000 shares of Rs.10 each	2,00,000	Plant & machinery	1,50,000
5% debentures	1,00,000	Work in progress	30,000
Creditors	30,000	Stock	60,000
Reserve fund	25,000	Furniture and fittings	2,500
Dividend equalization fund	20,000	Debtors	
Profit & loss appropriation account	5,100	Cash at bank	25,000
Provision for depreciation on land and buildings	20,000	Cash in hand	12,500
			100
	4,00,100		4 ,00,100

The company is amalgamated in the nature of purchase of sun company Ltd. On the above data the consideration for amalgamation the company is taking over the debentures trade liability and a payment of Rs.7 in cash and one share of the face value of Rs.5 in sun company Ltd. (market value Rs.8 per share in exchange for one share in moon company Ltd the cast of liquidation Rs.500 is to be met by the purchasing company you are required to pass journal entries is the books of both the companies and show purchase consideration is arrived at.

8. Following is the Balance sheet of X ltd as on 31-03-2019 (CO3)

Liabilities	Amount(RS)	Assets	Amount(RS)
5000 Equity shares of Rs 100 each	5,00,000	Goodwill	60,000
3000 8% preferences shares of Rs 100 each	3,00,000	Land & Buildings	2,50,000
6% Debentures	1,50,000	Plant & Machinery	1,00,000
Sundry creditors	1,95,000	Patents	60,000
		Stock	90,000
		Debtors	2,40,000
		Cash in hand	5,000
		Preliminary expenses	25,000
		Discount on issue of debenture	15,000
		Profit & Loss a/c	3,00,000
Totals	11,45,000		11,45,000

The following scheme of Reconstruction was duly approved

i) Equity share are to be reduced to an equal number of fully paid shares of Rs 50 each

ii) 8% Preference share are to be reduced by 40% and the rate of dividend increased to 9%

iii) Value of Land & Buildings to be increased by 20%

iv) Debentures are to be reduced by 20%

v) All nominal and fictitious assets are to be eliminated and the balance used to write off patents

vi) Further equity shares are to be issued for Rs 1,00,000 for each

9. Explain the legal requirements for consolidation(CO4)

10. H Ltd acquired all the share of S ltd on 1-1-2020 and liabilities and assets of the two companies on

31-03-2020 were as follows (CO4)

	H Ltd	S Ltd
I Equity and Liabilities		
1) Shareholders funds		
a) Share chapital:	8,00,000	3,00,000
shares of Rs 10 each		
b) Reserves and Surplus:		
i) Reserve on 1-4-2014	2,10,000	40,000
ii) Surplus a/c	50,000	30,000
2) Current Liabilities		
i) Creditors	3,50,000	1,60,000
ii) Bills Payable	40,000	20,000
	14,50,000	5,50,000
II Assets		
1) Non – Current Assets		
a) Fixed Assets		
i) Land & Buildings	4,00,000	2,70,000
ii) Plant & Machinery	2,00,000	1,00,000
iii) Furniture & Fixtures	50,000	20,000
b) Investment in share of S Ltd	5,00,000	
2) Current Assets		
a) Stock	1,50,000	80,000
b) Sundry Debtors	1,00,000	60.000
c) Bank Balance	50,000	20,000
	14,50,000	14,50,000

The surplus account of s Ltd had a credit balance of Rs 6000 on 1-04-2014. Prepare a consolidated Balance sheet as on 31-03-2015.

11. Explain the modes of winding of a company (CO5)

12. A company went into liquidation on 31-03-2019 the following is the balance sheet: (CO5)

Liabilities	Rs.	Assets	Rs.
Paid up capital		Good will	60,000
20,000 shares of Rs.10	2,00,000	Building	50,000
Sundry creditors:		Machinery	60,000
Preferential	25,000	Stock	55,000
Partly secured	55,000	Debtors	62,000
Unsecured	1,00,400	Cash	1,500
Bank over draft	10,000	Cash at bank	400
(unsecured)		P&L account	1,01,500
	3,90,400		3,90,400

The liquidator realized the assets as follows:

Building which was used in the first instance to pay partly secured creditors Rs.41,250. Machinery Rs.30, 000: sundry debtors Rs.35, 750: stock Rs.40, 000

The expenses of liquidation amounted to Rs.1,000 and the liquidators remuneration was agreed at 2% on the amount realized and 2% on amount paid to unsecured creditors.

Prepare the liquidators final statement of accounts

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Commerce	**B.Com (Gen/Comp)**	**Semester-V / VI**	**2022-2023**	**CACA -601 G/C**

Advanced Corporate Accounting

Guidelines to the paper setter

	UNIT -I	**UNIT -II**	**UNIT -III**	**UNIT -IV**	**UNIT -V**
	Purchase of Business	**Amalgamation of Companies**	**Internal Reconstruction of Companies**	**Accounts of Holding Companies**	**Liquidation**
5 Marks questions	**1**	**1**	**1**	**1**	**-**
15 Marks questions	**1(T)**	**1(T) +1(P)**	**1(P)**	**1(T) +1(P)**	**1(T) +1(P)**
Weighteage	**20**	**35**	**20**	**35**	**30**

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TITLE OF THE PAPER: SOFTWARE SOLUTIONS TO ACCOUNTING

Semester: V / VI

Course Code	**CSSA-602 G/C**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**III.B.COM., (gen/computer)**		

Course Learning Outcomes

After completing the course, the student shall be able to: At the end of the course, the student will able to;

1. Understand the technical environment of accounting softwares.
2. Highlight the major accounting software in India.
3. Apply basics of accounting software into business firms for accounting transactions.
4. Understand the various versions of Tally and other softwares.
5. Integrate the concept of different Accounting softwares for accounting purpose
6. Design new approaches for use of accounting software environment.

Syllabus

SOFTWARE SOLUTIONS TO ACCOUNTING

Paper code: - CSSA-602 G/C

Unit	Learning Units	Lecture Hours
I	**Computerized Accounting** Microsoft Excel Spread Sheet- Functions in Excel- Preparation of Accounts, Statements and Budgets using MS Excel- Analysis and Interpretation.	15
II	**Introduction to Leading Accounting Soft wares** – Busy - Marg – Quick Books - Zoho Books -Tally- Features and Accounting.	15
III	**Tally ERP-9 - Company Creation** – Tally Startup Screen- Gateway of Tally- Create a Company - Alter & Delete company- Backup and Restore- Security Features in Tally.	15
IV	**Tally- Accounting Masters-** Groups- Create Ledgers- Alter& Delete - Inventory Masters- Creating Stock Groups - Stock Items- Unit of Measurement- Alter & Delete.	15
V	**Tally-Voucher Entry** – Vouchers Types - Vouchers Entry - Alter and deleting Settings Purchase Vouchers and Sales Vouchers including Tax component –Reports Generation.	15

References

1. Nadhani, Ashok K, Tally ERP 9 Training Guide, BPB Publications
2. Tally 9 in Simple Steps, Kogent Solutions Inc., John Wiley & Sons.
3. Tally 9.0 (English Edition), (Google eBook) Computer World
4. Tally.ERP 9 Made Simple Basic Financial Accounting by BPB Publisher.
5. Tally ERP 9 For Real Time Accounting by Avichi Krishnan
6. Fundamentals of Computers, by V. Rajaraman, PHI.
7. Tally ERP 9 book advanced user, Swayam Publication (www.tallyerp9book.com)

8. Web resources suggested by the Teacher concerned and the College Librarian including reading material

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MODEL PAPEER

TITLE OF THE PAPER: SOFTWARE SOLUTIONS TO ACCOUNTING

Commerce	B.Com (Gen/Comp)	Semester-V / VI	2022-2023	CSSA-602 G/C

Max Time : 3 Hrs. **Max Marls: 70**

Section -A

Answer TWO of the following **2X5=10M**

1. Write about Spread Sheet (CO1)
2. Advantages of Tally (CO3)
3. Explain Delete of ledgers (CO4)
4. Voucher types (CO5)

Section -B

Answer any FOUR the following **4X15=60M**

5. Name any 10 Functions in Microsoft Excel (CO1)
6. Explain Different types of Accounting Softwares (CO2)
7. Explain Features and Advantages of Gate way of Tally (CO3)
8. How to Company Creation in tally? (CO3)
9. Explain different types of Ledgers Tally (CO4)
10. Explain how to Creation Voucher? (CO5)
11. Explain Stock group creation in Tally (CO4)
12. Explain Reports of Profit and loss and Balance sheet. (CO5)

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Commerce	**B.Com (Gen/Comp)**	**Semester-V / VI**	**2022-2023**	**CSSA-602 G/C**

SOFTWARE SOLUTIONS TO ACCOUNTING

Guidelines to the paper setter

	UNIT -I	UNIT -II	UNIT -III	UNIT -IV	UNIT -V
	Computerized Accounting	Introduction to Leading Accounting Soft wares	Tally ERP-9 - Company Creation	Tally- Accounting Masters	Tally- Voucher Entry
5 Marks questions	1	-	1	1	1
15 Marks questions	1	1	2	2	2
Weighteage	20	15	35	35	35

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TITLE OF THE PAPER: ADVERTISING AND MEDIA PLANNING

Semester: V / VI

Course Code	**CAMP-603 G/C**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 - 22**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**III.B.COM., (gen/computer)**		

Learning Outcomes:

At the successful completion of the course students are able to:

Understand the role of advertising in business environment

- Understand the legal and ethical issues in advertising
- Acquire skills in creating and developing advertisements
- Understand up-to-date advances in the current media industry.
- Acquire the necessary skills for planning an advertising media campaign.

Syllabus

ADVERTISING AND MEDIA PLANNING

Paper code : CAMP-603 G/C

Unit	Learning Units	Lecture Hours
I	**Introduction, Nature and Scope** Advertising- Nature and Scope- Functions - Impact on Social, Ethical and Economical Aspects - Its Significance – Advertising as a Marketing Tool and Process for Promotion of Business Development - Criticism on advertising	15
II	**Strategies of Advertisements** Types of Advertising Agencies and their Strategies in Creating Advertisements - Objectives - Approach - Campaigning Process - Role of Advertising Standard Council of India (ASCI) - DAGMAR approach	15
III	**Process of Advertisement** Creativeness and Communication of Advertising –Creative Thinking – Process – Appeals – Copy Writing - Issues in Creation of Copy Testing –Slogan Elements of Design and Principles of Design	15
IV	**Media Planning** Advertising Media - Role of Media - Types of Media - Print Media - Electronic Media and other Media - Advantages and Disadvantages – Media Planning - Selection of Media	15
V	**Analysis of Market Media** Media Strategy – Market Analysis -Media Choices - Influencing Factors - Target, Nature, Timing, Frequency, Languages and Geographical Issues - Case Studies	15

References:

1. Bhatia. K.Tej - Advertising and Marketing in Rural India - Mc Millan India
2. Ghosal Subhash - Making of Advertising - Mc Millan India
3. Jeth Waney Jaishri& Jain Shruti - Advertising Management - Oxford university Press
4. Advertising Media Planning, Seventh Edition Paperback – by Roger Baron (Author), Jack Sissors (Author)
5. Media Planning and Buying in 21st Century – Ronald DGeskey
6. Media Planning and Buying: Principles and Practice in the Indian Context – Arpita Menon
7. Publications of Indian Institute of Mass Communications
8. Advertising and Salesmanship. P. Saravanavel, Margham Publications
9. Publications of ASCI
10. Web resources suggested by the Teacher concerned and the College Librarian including reading material

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TITLE OF THE PAPER: ADVERTISING AND MEDIA PLANNING

Commerce	B.Com (Gen/Comp)	Semester-V / VI	2022-2023	CAMP-603 G/C

Max Time: 3Hrs. **Max Marls: 70**

MODEL PAPER

SECTION –A

Answer any TWO of the following **2X5=10M**

1. What is advertising? (CO1)

2. DAGMAR approach (CO2)

3. Types of advertising copy (CO3)

4. Media planning (CO4)

Section –B

Answer Any FOUR of the following **4x15=60M**

5. Explain the significance of advertising.(CO1)

6. What are various types of advertising agencies?(CO2)

7. Explain the role of advertising standards council of India (CO2)

8. How to decide testing of an advertising copy (CO3)

9. What is an advertising copy? Describe its elements (CO3)

10. What do you mean by print media of advertising? (CO4)

11. Explain the following concepts (CO5)

i) Target ii) Frequency iii) Timing

12. Explain media choices and its influencing factors (CO5)

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Commerce	B.Com (Gen/Comp)	Semester-V / VI	2022-2023	CAMP-603 G/C

ADVERTISING AND MEDIA PLANNING

Guidelines to the paper setter

	UNIT -I	UNIT -II	UNIT -III	UNIT -IV	UNIT -V
	Introduction, Nature and Scope	Strategies of Advertisements	Process of Advertisement	Media Planning	Analysis of Market Media
5 Marks questions	1	1	1	1	-
15 Marks questions	1	2	2	1	2
Weighteage	20	35	35	20	30

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TITLE OF THE PAPER: SALES PROMOTION AND PRACTICE
Semester: V / VI

Course Code	**CSPP -604 G/C**	**Course Delivery Method**	**Class Room / Blended Mode - Both**
Credits	**4**	**CIA Marks**	**30**
No. of Lecture Hours / Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**75**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2021 – 22s**	**Year of Revision: ----**	**Percentage of Revision: 0%**
CLASS:	**III.B.COM., (gen/computer)**		

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Learning Outcomes:

By the end of the course students are able to:

1. Analysis of various sales promotion activities
2. Get exposed to new trends in sales Promotion
3. Understand the concepts of creativity in sales promotion
4. Enhance skills to motivate the salesperson to reach their targets
5. Develop the skills of designing of sales promotion events

Syllabus

SALES PROMOTION AND PRACTICE

Paper code: CSPP -604 G/C

Unit	Learning Units	Lecture Hours
I	**Introduction to Sales Promotion:** Nature and Scope of Sales Promotion- Influencing Factors - Sales Promotion and Control - Strengths and Limitations of Sales Promotion – Sales Organization - Setting-up of Sales Organization - Types of Sales Organization.	15
II	**Sales Promotion and Product Life Cycle:** Types of Sales Promotion - Consumer Oriented - Trade Oriented - Sales Oriented - Various Aspects -Sales Promotion methods in different Product Life Cycle – Cross Promotion - Sales Executive Functions- Theories of Personal Selling - Surrogate Selling.	15
III	**Strategies and Promotion Campaign:** Tools of Sales Promotion - Displays, Demonstration, Fashion Shows, Conventions - Conferences, Competitions – Steps in designing of Sales Promotion Campaign – Involvement of Salesmen and Dealers – Promotional Strategies - Ethical and Legal issues in Sales Promotion.	15
IV	**Salesmanship and Sales Operations**: Types of Salesman - Prospecting - Pre-approach and Approach - Selling Sequence - Sales budget, Sales territories, Sales Quota's - Point of Sale – Sales Contests - Coupons and Discounts - Free Offers - Showrooms and Exhibitions - Sales Manager Qualities and functions.	15
V	**Sales force Management and Designing:** Recruitment and Selection - Training - Induction - Motivation of sales personnel - Compensation and Evaluation of Sales Personnel - Designing of Events for Enhancing Sales Promotion	15

References:

1. Don.E. Schultz - Sales Promotion Essentials- Mc Graw hill India
2. S.H.H Kazmi & Satish K Batra, Advertising and Sales Promotion- Excel Books
3. Jeth Waney Jaishri& Jain Shruti - Advertising Management - Oxford university Press
4. Dr.ShailaBootwala Dr.M.D. Lawrence and Sanjay R.Mali -Advertising and Sales Promotion- NiraliPrakashan
5. Successful Sales Promotion – Pran Choudhury
6. Advertising and Sales Promotion Paperback – S. H. H. Kazmi & Satish Batra
7. Publications of ASCI
8. Kazmi & Batra, ADVERTISING & SALES PROMOTION, Excel Books, 2008
9. Web resources suggested by the Teacher concerned and the College Librarian including reading material

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TITLE OF THE PAPER: SALES PROMOTION AND PRACTICE

Commerce	B.Com (Gen/Comp)	Semester-V / VI	2022-2023	CSPP -604 G/C

MODEL PAPER

Time: 3Hrs **Max Marls: 70**

Section –A

Answer any TWO of the following **2X5=10M**

1. What are the factors influencing sales promotion? (CO1)

2. What is Product life cycle? (CO2)

3. What are the various tools of sales promotion? (CO3)

4. Write briefly about training induction. (CO5)

Section –B

Answer Any FOUR of the following **4X15=60M**

5. Discuss the Nature and scope of sales promotion (CO1)

6. Explain various types of sales organization (CO1)

7. Describe the types of sales promotion (CO2)

8. Explain the theories of personal selling (CO2)

9. Explain various promotional strategies (CO3)

10. What are the functions and qualities of sales manager? (CO4)

11. Discuss the various types of salesmen (CO4)

12. Explain the process of recruitment and selection of sales personnel (CO5)

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Commerce	B.Com (Gen/Comp)	Semester-V / VI	2022-2023	CSPP -604 G/C

SALES PROMOTION AND PRACTICE

Guidelines to the paper setter

	UNIT -I	UNIT -II	UNIT -III	UNIT -IV	UNIT -V
	Introduction to Sales Promotion	Sales Promotion and Product Life Cycle	Strategies and Promotion Campaign	Salesmanship and Sales Operations	Sales force Management and Designing
5 Marks questions	1	1	1	-	1
15 Marks questions	2	2	1	2	1
Weighteage	35	35	20	30	20

THE END

AG & SG SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE VUYYURU
(AUTONOMOUS)
(MANAGED BY SIDDHARTHA ACADEMY OF GENERAL & TECHNICAL EDUCATION VIJAYAWADA)

Commerce	**ENP -403C**	*2022-2023*	*B.Com(gen)*

Foundation Course – 9

ENTREPRENEURSHIP

Syllabus, For all Degree Programmes.

w.e.f. 2015-16 (Revised in April, 2016)

Semester – IV (Total 30 Hrs)

Unit-I: Entrepreneurship: Entrepreneur Characteristics – Classification of Entrepreneurships – Incorporation of Business – Forms of Business organizations –Role of Entrepreneurship in economic development – Start-ups.

Unit-II: Idea Generation and Opportunity Assessment: Ideas in Entrepreneurships – Sources of New Ideas – Techniques for generating ideas – Opportunity Recognition – Steps in tapping opportunities.

Unit-III: Project Formulation and Appraisal : Preparation of Project Report –Content; Guidelines for Report preparation – Project Appraisal techniques –economic – Steps Analysis; Financial Analysis; Market Analysis; Technical Feasibility.

Unit-iv: Institutions Supporting Small Business Enterprises: Central level Institutions: NABARD; SIDBI, NIC, KVIC; SIDIO; NSIC Ltd; etc. – state level Institutions –DICs- SFC- SSIDC- Other financial assistance.

Unit-V: Government Policy and Taxation Benefits: Government Policy for SSIs- tax Incentives and Concessions –Non-tax Concessions – Rehabilitation and Investment Allowances.

Reference Books:

1. Arya Kumar, Entrepreneurship, Pearson, Delhi, 2012.
2. Poornima M.CH., Entrepreneurship Development –Small Business Enterprises, Pearson, Delhi,2009
3. Michael H. Morris, ET. al., Entrepreneurship and Innovation, Cen gage Learning, New Delhi, 2011
4. KanishkaBedi, Management and Entrepreneurship, Oxford University Press, Delhi, 2009
5. Anil Kumar, S., ET.al., Entrepreneurship Development, New Age

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Commerce	**ENP -403C**	*2022-2023*	*B.Com(gen)*

SEMESTER – IV **MODEL QUESTION PAPER** **COURSE CODE: ENP -403C**

PAPER TITLE : ENTREPRENEURSHIP

Duration : 2Hours Maximum marks : 50 Pass marks : 20

SECTION - A

Answer any FOUR of the following questions (4x5=20 Marks)

1. Features of Entrepreneur.
2. Rural Entrepreneurship .
3. Idea Generation Teccniques .
4. Sources of New Ideas .
5. What is project Report.
6. Industrial Estates.
7. S.F.C.
8. Rehabilitation Allowance.

SECTION – B

Answer any THREE of the following questions. **(3X10=30 Marks)**

9. Explain the role of Entrepreneur in the Economic Development.
10. How can Entrepreneur Generate Ideas. .
11. Explain the contents of project report. .
12.. Write about NABARD and state its functions.
13. Write about SIDBI and its functions.
14. Write about New small Entreprise policy 1991.

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Commerce	**ENP -403C**	*2022-2023*	*B.Com(gen)*

SEMESTER – IV **MODEL QUESTION PAPER** **COURSE CODE: ENP -403C**

PAPER TITLE : ENTREPRENEURSHIP

Maximum marks : 50 Duration : 2Hours

Weight age for the question paper

syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (20Marks)	2	1
Unit-2 (20Marks)	2	1
Unit-3 (15Marks)	1	1
Unit-4 (30Marks)	2	2
Unit-5 (15Marks)	1	1
TOTAL 100	40	60

1. Each Short answer question carries 5 marks in Section-A
2. Each Essay question carries 10 marks in Section –B
3. The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us .

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LEADERSHIP EDUCATION

SYLLAUBUS (SEMESTER-IV)

1. **Organisation-**Management-Leadership-Meaning and significance-different theories-trait theory,black&mountan theory-other functions of management.

2. **Behavioral concepts-**individual behavior-perception-learning-attitude formation and change-motivation-theories of motivation-personality development.

3. **Interpersonal behavior-**communication-leadership-influencing-relations-transactional analysis.

4. **Group dynamics-**roles-morale-conflict-group-inter-group behavior-inter-group collaboration and conflict management.

5. **Team building and management-**developing team resources-designing team-participation and repercussion-team building

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SEMESTER - IV **COURSE CODE: LEP-404**

PAPER TITLE: **LEADER SHIP EDUCATION** **II B.A., B.COM.,B.SC.,**

Duration : 2 Hours **Maximum Marks: 50** **Pass Marks: 20**

SECTION-A

I. Answer any Four of the following questions. **4 x 5=20 Marks**

1. Define organization?

2. Define management
3. What is learning?
4. What is motivation
5. Explain about verbal communication ?
6. Write about non verbal communication?
7. What is conflict?
8.what is team building activities ?

SECTION- B

II. Answer any Three of the following questions. **3x10=30Marks**

9. What is leader ship? Discuss its importance.

10. What are the Principles of management ? Discuss in detail

11. Discuss Motivation concept and its characteristics ?

12. What is communication ? Explain process of communication?

13. Discuss the importance of group dynamic concepts.

14. What is team building? What are the approaches of team building.

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The guidelines to be followed by the question paper setters in leadership for the IV semester-end exams (2017 - 2018)

Paper title : leadership Education **II B.A., B.COM., B.SC.,**

Semester-IV **Maximum Marks : 50** **Duration:2 Hours**

Weight age for the question paper

SYLLABUS	SECTION-A (short questions) 5 Marks	SECTION-B (essay questions) 10 Marks
Unit-1 (30 Marks)	2	2
Unit-2 (20 Marks)	2	1
Unit-3 (20 Marks)	2	1
Unit-4 (15 Marks)	1	1
Unt-5 (15 Marks)	1	1
TOTAL Questions	8	6

- **The question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by us.**

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Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF ECONOMICS

MINUTES OF BOARD OF STUDIES

ODD SEMESTER

28-10-2022

AG&SG SIDDHARTHA DEGREE COLLEGE OF ARTS and SCIENCE(AUTONOMOUS) VUYYURU

ACEDAMIC YEAR - 2022 - 2023

Minutes of the meeting of the Board of Studies in Economics of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 11.00 A.M ON 28-10 – 2023 In the Department of Economics Through online Mode.

Sri.N.Rama Raol, HOD, Economics has Presided over the BOS meeting

Members Present:

1) ..... (Sri.N.Rama Rao)	Chairman	Head, Department of Economics AG & SG S Degree College of Arts & Science Vuyyuru-521165
2)..... (Mrs G.Nirmala Jyothi)	University Nominee	Head Department of Economics S.A.S. Government Degree College Narayana Puram
3)..... (D.Aruna)	Academic Council Nominee	Head, Department of Economics SDMS Mahila Kalasala, Vijayawada
4)..... (G.Suresh Babu)	Academic Council Nominee	Lecturer in Economics , V.S.R. Government Degree College, Movva

AGENDA

1. To Review and recommend any changes in the syllabi , Model Question Papers and Guidelines of 1st, 3rd and 5th Semesters of I, II and III Year B.A Economics Papers for the Academic Year 2022 - 2023.

2. To Discuss and recommend the pattern of internal Assessment , Guidelines and Model Question Papers in 1st, 3rdand 5th Semesters of B.A Degree Economics papers for the Academic Year 2022-2023.

3. To Recommend the guidelines to be followed by the Question Paper Setters in Economics for the 1st, 3rd and 5th Semester-end exams.

4. To Recommend the teaching and evaluation methods to be followed under the Autonomous Status.

5. To Propose the panel of Question paper setters and Examiners.

6. To Suggest innovative methods of teaching.

7. Any other matter.

RESOLUTIONS:

1) It is resolved to continue the same syllabi under CBC System approved by the Academic council of 2020- 2021 for I and III Semesters of I and II B,A Classes for the 2022-2023 Academic year also

The APSHE was introduced Two New Subjects and New syllabus in the V Semester of III Degree B.A from the Academic year 2022 – 2023.

2) Out of maximum 100 marks in each paper 30 marks shall be allocated for Internal Assessments regarding I and V Semesters.

A) To implement 30 marks for internal assessment and 70 marks for External Assessment from the academic year 2019-20 and that is also implemented to the I and V Semesters from 2020-21Academic year 2021 – 2022 Academic year and 2022 – 2023 Academic year also.

B) Out of these 30 marks, 20 marks are allocated for internal tests, 5 marks are allocated for assignment for I and V Semesters. The two tests will be conducted and average of these two tests shall be deemed as the marks obtained by a student, and remaining 5 marks are allocated for attendance/Activity.

3) Out of maximum 100 marks 25 Marks shall be allocated for Internal Assessments Regarding the III Semester from the Academic year 2022 – 2023.

A) To implement 25 Marks for Internal Assessments and 75 Marks for External Assessment regarding the III Semester from the Academic year 2022 – 2023.

B) **Out of these 25 marks, 15 Marks are allocated for internal tests, 5 marks are Allocated for assignment and 5 Marks for activity Regarding the III Semester from the Academic year 2022 – 2023.**

4) Discussed and recommended the syllabi, Model question papers under CBC system and guidelines to be followed by the question paper setters of I,III and V semesters of B.A Classes for the Academic year 2022-2023.

5) To follow the teaching and evaluation methods, it is also resolved to use various other methods like Group discussions, Quiz, Organizing Seminars, Guest Lectures and Workshops to upgrade the knowledge of the students and impart new skills of learning as frequently as possible.

Resolved to authorize the chairman of Board of studies to suggest the panel of paper setters and Examiners to the controller of Examinations as for the requirement.

6)The APSHE was introduced new skill development course financial markets in the 3rd semester for 2nd B.A Students from the academic year 2021-2022. No internal Examination for this paper only External Examination will be conducted for 50 Marks
But the question paper setting pattern is changed fromAcademic year 2022-2023. 10 marks Allocated for internal Examinations and 40 marks Allocated for External Examinations

7) **The APSHE was introduced Two New choice Subjects i.e. Insurance Services and Banking and Financial Services in the V Semester of III Degree B.A from the Academic year 2022 – 2023. It is resolved to Follow the APSCHE New syllabus in the V Semester of III Degree B.A from the Academic year 2022 – 2023.**

It is resolved to follow further changes if any in the syllabus by the competent Authority.

N. Ramulu
Chairman

(A Statutory body of the Government of Andhra Pradesh)
REVISED UG SYLLABUS UNDER CBCS
(To Be Implemented from Academic Year 2022-23)
PROGRAMME: FOURYEAR B.A. (Hons)
Domain Subject: ECONOMICS

Skill Enhancement Courses (SECs) for Semester V
(Syllabus with Learning Outcomes, References, Co-curricular Activities & Model Q.P.
Pattern)
Structure of SECs for 5th Semester
(To Choose One pair from the Four (A, B, C, & D) alternative pairs of SECs)

Unl Code	Course Number 6 & 7	Name of Course	Hours/ Week	Credits	Marks	
					IA – 20 Fieldwork/Project work 5	Sem End
	6A	Rural Entrepreneurship	5	4	25	75
	7A	Farmer Producer Organizations	5	4	25	75
		OR				
	6B	Urban Entrepreneurship and MSMEs	5	4	25	75
	7B	Retail and Digital Marketing	5	4	25	75
		OR				
	6C	Insurance Services	5	4	25	75
	7C	Banking and Financial Services	5	4	25	75
		OR				
	6D	Inferential Statistics and Software Packages	5	4	25	75
	7D	Project Designing and Report Writing	5	4	25	75

Note1: *For Semester–V, for the domain subject, Economics, any one of the four pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6B & 7B or 6C & 7C or 6D & 7D. The pair shall not be broken (ABCD allotment is random, not on any priority basis).*

Note-2: *One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate skills related to the domain subject among students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations*

SEMESTER -I

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
(ECO T11B)	MICROECONOMIC ANALYSIS	5	4	30	70	3 Hrs.

SEMESTER –III

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
(ECO T31B)	DEVELOPMENT- ECONOMICS	5	4	25	75	3 Hrs.
(SDC ECO T01)	FINANCIAL MARKETS (SDC)	2	2	10	40	2 Hrs.

SEMESTER -V/VI

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
ECO – 501C	INSURANCE SERVICES	5	4	30	70	3 Hrs.
ECO – 502C	BANKING AND FINANCIAL SERVICES	5	4	30	70	3 Hrs.

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Siddhartha Nagar, Vijayawada – 520 010
Autonomous -ISO 9001 – 2015 Certified

I B.A (HEP) – SEMESTER-I
MICRO ECONOMIC ANALYSIS
(ECOT11B)

No of Hours per week : 5
Credits :4

Course Outcomes : At the end of this course, students should be able to:
CO1 : Students are able to understand fundamentals of microeconomics
CO2 : Students are able to understand the behavior of consumer.
CO3 : Students are able to understand the behavior of producer.
CO4 : Student can evaluate the different market structures.
CO5 : Students can analyze the different theories of distribution.

Syllabus

Unit	Learning Units
I	**ECONOMIC ANALYSIS AND METHODOLOGY** : Definitions of Economics-Wealth Definition, Welfare Definition, Scarcity Definition, Growth Oriented Dynamic Definition **Methodology in Economics**- Micro and Macro Economics, Deductive and Inductive Methods, Production Possibility Curve (PPC)
II	**THEORY CONSUMTION:** Demand Analysis- Concept & Factors Determining Demand, Law of Demand and Exceptions. **Elasticity of Demand**- Types of Price Elasticity of Demand, Methods to Measure Price Elasticity of Demand. **Indifference Curve Analysis**- Indifference Schedule & Indifference map, Marginal Rate of Substitution, Properties of Indifference curves, Budget line & Consumers Equilibrium through Indifference Curve, Consumer's Surplus through Indifference Curve Analysis
III	**THEORY OF PRODUCTION:**Concept of Production Function-Cobb-Douglas Production Function, The law of variable propositions, The law of Return to Scale, Economies of large Scale Production. **Concepts of cost**- Short run Cost Curves. **Law of supply. Revenue Concepts** - (T.R., A.R. & M.R), Relationship between AR, MR & E.D, Cost minimization, Profit Maximization.
IV	**THEORY OF EXCHANGE :** Classification of Markets, Features of Perfect Market Conditions, Price Determination under Perfect Competition Market, Features of Monopoly Market, Features of Monopolistic Competition Market, Features of Oligopoly Market, Kinky Demand Curve Analysis
V	**THEORY OF DISTRIBUTION :** Concepts of Functional and Personal Distribution. Marginal Productivity Theory of Distribution. Theories of Rent-Ricardian Theory of Rent, Marshall's Economic rent. **Theories of Wages-** Standard of Living Theory of wages, Modern Theory of wages. **Theories of Interest-** Classical Theory of Interest, Loanable Funds Theory of Interest, Keynes Liquidity Preference Theory of Interest. **Theories of Profit-** Risks Theory of Profit, Uncertainty Theory of Profit, Dynamic Theory of Profit, Innovation Theory of Profit

Textbook:
Micro Economics, Telugu Akademi Publications.
Recommended Reference book:
H.L. Ahuja – Advanced Economic Theory - S.Chand & Company Publishers
H.S. Agarwal – Principles of Economics
M.L. Seth – Micro Economics, Lakshmi Narayana Agarwal Publishers
A.W. Stonier & D.C Hague – A Text Book of Economic Theory, E.L.B.S
Koutsoyiannis : Modern Micro Economics, Mc. Millan
Course Delivery method : Face-to-face
Course has focus on :
Foundation
Websites of Interest :

1. https://www.economicsnetwork.ac.uk/teaching/simulations/principlesofmicroeconomics.htm
2. http://xlab.berkeley.edu/

Co-curricular Activities:

1. Student Seminar on Microeconomic Analysis.
2. Quiz to test critical understanding of the fundamentals of microeconomic analysis.
3. Group discussion on the different market structures.
4. Poster presentation.

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SEMESTER – I

MODEL PAPER (W.E.F 2022 – 2023)

Course Code: ECOTIIB Course Title : Micro Economic Analysis
SEMESTER – I BA w.e.f. 2022 -23
Model Question Paper
Time: 3 Hours Max. Marks : 70M

Time:3Hrs Max.Marks:70M

Section – A

Answer all questions. All questions carry equal marks. 5x14 = 70M

1. A (i) Critically examine the Robbins Scarify definition toEconomics L1 10M
(or)
(ii) Distinguish between micro and macro Economics L1 10M

B (i) Write about the deductive method L2 4M
(or)
(ii) Explain the production possibility curve L2 4M

2. A (i) Explain the various types of price elasticties of demand L2 10M
(or)
(ii) Explain the properties of indifference curves L2 10M

B (i) What are the exceptions to the law of demand? L2 4M
(or)
(ii) Explain the concept of marginal rate of substitution L2 4M

3. A (i) Explain the Law of variable proportions L2 10M
(or)
(ii) Explain the relationship between different short runcost curves L2 10M

B (i) Explain the Cobb-Douglas production function L3 4M
(or)
(ii) Explain the mathematical relationship between AR, MR and Electricity of demand L3 4M

4. A (i) Explain the price determination and under perfect competition market L2 10M
(or)
(ii) Explain the kinky demand curve analysis L2 10M

B (i) Write about the classification of markets L2 4M

(or)

(ii) Explain the features of monopoly market L2 4M

5. A (i) Critically examine the Ricendian theory of RentL2 10M

(or)

(ii) Critically examine the Keynes liquidity preference theoryof intrest L2 10M

B (i) Explain the standard of living theory of wages L2 4M

(or)

(ii) Explain the J.B Clarks Dynamic theory of profit L2 4

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II B.A (HEP) – SEMESTER-III

Development Economics

(ECOT31B)

No of Hours per week : 5
Credits :4

Course Outcomes : At the end of this course, students should be able to:

CO1 : To acquire the knowledge about the scope, importance of economic growth and economic development

CO2 : To acquire the knowledge about the modern theories of economic growth

CO3 : To acquire the knowledge about the theories of Development and under Development

CO4 : To acquire knowledge about the strategies of economic development

CO5 : To acquire knowledge about the role of institutions in economic development

UNIT –I ECONOMIC GROWTH AND DEVELOPMENT

Introduction to Economic growth and development, Emergence of Economic development as a branch of Economics, Scope and Importance of Economic Development- *Desirability of Economic Development, Nature Of Development Problem, Nature of Economic Growth.* Meaning and Definitions of Economic growth and Economic development, Measurement of Economic Development and their limitations, Indicators of Economic Development, Economy and Environment, Concept of Green GDP, Sustainable Development and Inclusive Growth

UNIT – II MODERN ECONOMIC GROWTH

Meaning and definitions of Modern Economic Growth, World Bank(IBRD) classification of countries, International Monetary Fund(IMF) classification of countries, Simon Kuznets' Six characteristics of Modern Economic Growth, Obstacles to Economic Development- *Vicious Circle of Poverty, Market Imperfections, Economic and Non-Economic obstacles, Impact of International Trade and Colonialism.*

Factors of Governing Economic Development

UNIT – III THEORIES OF DEVELOPMENT AND UNDER DEVELOPMENT

Classical theories of Economic Development- Adam Smith's theory of Economic Growth, Ricardian theory of Economic Growth, Malthusian theory of Economic Growth, Marxian theory of Economic Development, Schumpeter theory of Economic Development, **Theories/Models of Economic Growth -** W.W. Rostow stages of Economic Growth, Harrod-Domar Two sector growth model, R.M. Solow Model of Economic Growth, Joan Robinson's Golden Age of Economic Growth

UNIT – IV STRATEGIES OF ECONOMIC DEVELOPMENT

Introduction to growth strategies/models- Big Push Theory (Rodon's Theory), The Theory of Balanced Growth, The Theory of Unbalanced Growth, Mahalanobis Model of Economic Growth. **Techniques for Economic Development -** Agriculture vs. Industry, Capital Intensive Techniques vs Labour Intensive Techniques, Role of Infrastructure in Economic Development

UNIT – V INSTITUTIONS AND ECONOMIC DEVELOPMENT

Meaning of Market Economy and State Economy - Role of market and reasons for market failure, Role of state regulation on economic systems and problems, Interdependence of market and state, Public sector vs private sector. **Economic Planning -** Concept and Objectives of Economic Planning, Types of Economic Planning, NITI Aayog. **Economic Federalism and Financial Institutions in Economic Development -** Role of Financial institutions in Economic Development, Role of World Bank (IBRD) in Economic Development, Role of Asian Development Bank (ADB) in Economic Development, Role of International Monetary Fund (IMF) in Economic Development, Role of Foreign Trade in Economic Development, Concept of FIIs and FDIs in Economic Development

Textbook:

Indian Economy, Telugu Akademi Publications

Recommended Reference book:

1.Dhingra, I.C - "Indian Economy", Sultan Chand, 2014.
2.Ruddar Dutt and K.P.M. Sundaram - "Indian Economy", S.Chand & Co., 2015.
3.G.M.Meier -"Leading Issues in Economic Development", Oxford University Press, New York,.
4.M.P.Todaro - "Economic Development", Longman, London 6/e, 1996.
5.Reserve Bank of India – "Hand book of Statistics on Indian Economy" (Latest).
6.S.K.Misra & V,K,Puri - "Indian Economy", Himalaya Publishing House, 2015.
7.R.S.Rao, V.Hanumantha Rao & N.Venu Gopal (Ed) – "Fifty Years of Andhra Pradesh (1956-2006)", Centre for Documentation, Research and Communications, Hyderabad, 2007.
8.G.Omkarnath – "Economics - A Primer for India" - Orient Blackswan, 2012.
9.Benjamin Higgins - Economic Development

Course Delivery method : Face-to-face

Course has focus on :

Foundation

Websites of Interest :

1. https://www.adb.org/countries/india/economy
2. https://www.indiabudget.gov.in/economicsurvey/
3. https://www.imf.org/en/Countries/IND
4. https://www.investopedia.com/terms/d/development-economics.asp

Co-curricular Activities:

1. Assignments on the models and the strategies of economic development adopted in Indian Economy.
2. Student Seminar on development oriented themes relating to Indian Economy.
3. Quiz to test critical understanding of the fundamental concepts of growth and development and the growth models and strategies.
4. Group discussion on the effectiveness of the roles played by various institutions in India's economic development
5. Group project work to examine specific aspects of growth like poverty, unemployment, human development, gender development as Indian Experience in the context of economic development preferably at the state and local level.
6. Poster presentation.

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II B.A (HEP) – SEMESTER-III
DEVELOPMENT ECONOMICS
(ECOT31B)
Model Question Paper

TIME : 3 HRS **Max.: 75 Marks**

Section-A

Answer Any Five of the Following **(5 x 5M = 25Marks)**

1. Distinguish between Economic Growth and Economic Development L1
2. Explain the concept of sustainable development L1
3. Explain the World Bank classification of the countries L3
4. Explain the vicious circle of poverty L2
5. Explain the W.W. Rostow stages of economic growth L3
6. Write about unbalanced growth strategy L1
7. What are the objectives of planning? L1
8. Write about NITI Aayog. L2

Section-B

Answer the following questions **(5 x 10M = 50Marks)**

9. a. What is Economic Development? How do you measure it? L3

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or

b. Briefly explain the indicators of Economic Development L3

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10. a. Explain the Simon Kuznets six characteristics of Modern Economic Growth L1

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or

b. Briefly explain the different obstacles to economic development L1

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11. a. Explain the Ricardian theory of Economic Development L2

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or

b. Explain Harrod-Domar Model of Economic growth L2

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12. a. Explain the Mahalanobis Model of Economic Growth L1

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or

b. Explain role of infrastructure in Economic Development L1

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13. a. Explain the role of state in Economic Development L2

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or

b. Explain the role of IBRD in Economic Development L2

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II B.A (HEP) – SEMESTER-III

Financial Markets

(SDCECOT01)

Total Hours : 30 (2 Hr/w), Credits : 02, Max Marks : 50

Learning Outcomes

After successful completion of this course, the student will be able to

1. Acquire knowledge of financial terms
2. Know the concepts relating to markets and different avenues of investment
3. Understand the career skills related to stock exchanges
4. Comprehend the personal financial planning and money market skills

UNIT –I INTRODUCTION

Structure of Indian Financial System and its components,
Financial markets and institutions

UNIT –II MONEY MARKET

Structure and Components of Money markets, Submarkets (Call money, Commercial Bills, Treasury Bills, Certificate of Deposits, Commercial Papers), Defects in Indian Money market

UNIT –III CAPITAL MARKET

Functions of Capital Market, Elements of Capital Markets (Shares, Debentures, Bonds, Mutual funds), Equity Market (Structures and Functions of SEBI), Secondary Market (BSE, NSE)

Textbook:

LM Bhole, Financial Markets, S.Chand and Company Publishers

Recommended Reference book:

1.T.R. Jain, R.L. Sarma, Indian Financial System, VK Global Publishers
2.Jithendra Gala – Guide to Indian Stock Markets Buzzing Stock Publishing House
3.Saha Siddhartha –Indian Financial System and Markets – Mc. Grawhill Publishers
4.Websites on Indian Financial Markets.

Course Delivery method : Face-to-face

Course has focus on :

Foundation

Websites of Interest :

1. https://www.sebi.gov.in/
2. https://www.nseindia.com/

Co-curricular Activities:

1. Collection and Study of pamphlets, Application forms etc.,
2. Invited Lectures on the field topics by local experts
3. Introducing online classes from NSE
4. Field visit to Mutual fund offices and share brokers
5. Observation, study and analysis of selected companies share prices
6. Assignments, Group Discussions, Quiz

MODEL QUESTION PAPER

SKILL DEVELOPMENT COURSE

II B.A. (HEP) SEMESTER – III
FINANCIAL MARKETS
Course Code (SDCECOT 01) w.e.f. 2021-2022

Time : 2 Hours **Max Makes 40**

Section A

Answer any TWO of the following: **2x5=10M**

1. What are the components of financial intermediaries?
2. Briefly explain the instruments of Money Market ?
3. Write about Bombay Stock Exchange (BSE)?

Section B

Answer any THREE of the following: **3x10=30M**

4. Explain the role of financial markets in economic development
5. Explain the structure of Indian financial System
6. Write about the defects of Indian Money Market
7. Distinguish between Money Market and Capital Market
8. Explain the functions of SEBI

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III B.A (HEP), SEMESTER – V/VI
COURSE – VI(ECO-501C)

No of Hours per week : 5
Credits :4

INSURANCE SERVICES

Col : Students are able to acquit the knowledge about principles of insurance since and functioning of insurance science ....

Co2 : Students are about know importance of life insurance and products

Co3 : Students are able to again the knowledge about general and health insurance

Co3 : Students are able to acquit the knowledge about practicing as an insurance agent

Co5 : Students are able to acquire the knowledge about understanding the continuous midst and case studies related to the general or health ....

UNIT I : INSURANCE CONCEPT AND PRINCIPLES

Risk Management: Risk and Uncertainty, Risk Classification – Concept, Importance and Types of Insurance– Principles of Insurance – Insurance Regulations in India - Role of IRDA and Insurance Ombudsman –Scope for Insurance Business in India.

UNIT II : LIFE INSURANCE AND PRODUCTS

Life Insurance: Nature and Features - Major Life Insurance Companies in India - Important Life Insurance Products/policies and their Features: Conventional, Unit Linked, Annuities, Group Policies – Medical Examiner.

UNIT III : GENERAL AND HEALTH INSURANCES AND PRODUCTS

General Insurance: Nature, Features and Types - Major General Insurance Companies in India - Important General Insurance Products/Policies and their Features - Surveyor – Health Insurance: Nature and Features - Health Insurance Companies in India - Major Health Insurance Products/policies and their Features: Individual, Family, Group.

UNIT IV : PRACTICING AS AN INSURANCE AGENT

Insurance Contract and Terms of Insurance Policy - Registration of Insurance Agency with the Company - Procedure to issue a Policy: Application and Acceptance – Policy Lapse and Revival – Premium Payment, Assignment, Nomination and Surrender of Policy – Policy Claim - Important Websites and Apps of Insurance in India.

UNIT V : UNDERSTANDING THE CUSTOMER AND CASE STUDIES

Insurance Customer and Categories – Understanding Customer Mindset and Satisfaction - Addressing the Grievances of the Customer – Ethical Behavior in Insurance – Moral Hazard –Discussion of two different Case Studies related to Life or General or Health Insurance Services.

References:

1. Insurance Institute of India: Principles of Insurance (IC-01), Mumbai, 2011.
2. Insurance Institute of India: Practice of Life Insurance (IC-02), Mumbai, 2011.
3. Insurance Institute of India: Practice of General Insurance (IC-11), Mumbai, 2011
4. IGNOU: Life Insurance

https://egyankosh.ac.in/bitstream/123456789/6472/1/Unit-20.pdf

5. IGNOU: Non-Life Insurance

https://egyankosh.ac.in/bitstream/123456789/6470/1/Unit-21.pdf

6. P. Periyaswamy: Principles and Practice of Insurance, Himalaya Publishers, New Delhi (2nd Edition), 2019.
7. G. Dionne and S.E. Harrington (Eds.): Foundations of Insurance Economics, Kluwer Academic Publishers, Boston, 1997.
8. K. Jr. Black, and H.D. Skipper Jr.:Life and Health Insurance, Prentice Hall, Upper Saddle River, New Jersey, 2000.
9. https://www.irdai.gov.in
10. https://www.insuranceinstituteofindia.com
11. https://licindia.in/
12. Other Relevant web resources suggested by the teacher and college librarian

Co-Curricular Activities:

a) Mandatory (Training of students in the related skills by the teacher for a total 10 Hours)

1) For Teacher: Training of students by teacher in the classroom and in the field for a total

of not less than10 hours on skills and hands on experience like explaining the details of an

insurance policy to a customer – life, health and general policy, filling up application for a

policy, calculation of premium and claim, make use of important websites and apps etc. pertaining to insurance and make a field visit to any insurance organization in local area. The expertise of practicing insurance agent or trainer can be utilized for this purposes.

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III B.A (HEP), SEMESTER – V

COURSE – VI ECO-501C
MODEL QUESTION PAPER

INSURANCE SERVICES

Time : 3 Hours **Max. Marks : 70M**
Min. Pass : 30 M

Section – A

Answer any TWO of the following. **2 x5= 10M**

1. Types of Risk.

2. Benefits of Life Insurance.

3 Explain the types of general insurance

4.Grievance

Section – B

Answer Any FOUR of the following Questions **4 x15= 60M**

5.Explain the difference between risk and uncertainty
6.Expalin the scope for insurance business India
7.Explain the major health insurance policies/products/plans
8.Explain features of generalinsurances
9.Explain the process framing insurance contract
10.Explain the difference between assignment and nomination and in the insurance policy
11. What do you meant by customer satisfaction? Explain the importance of customer satisfaction
12. Explain the importance of ethical insurance

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INSURANCE SERVICES

The Guidelines to be followed by the question paper setters in INSURANCE SERVICES for the 5th semester-end exams (2022 - 2023)

PAPER TITLE :INSURANCE SERVICES

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PAPER CODE ;ECO -501C

Course – VI Semester – V Maximum marks : 70 Duaration;3Hours

Syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (35Marks)	1	2
Unit-2 (5Marks)	1	----
Unit-3 (35Marks)	1	2
Unit-4 (30Marks)	---	2
Unit-5 (35Marks)	1	2
TOTAL =140	20	120

- Each short answer question carries 5 marks in Section-A
- Each Essay question carries 15 marks in Section –B

The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by US.

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III B.A (HEP), SEMESTER – V/VI

No of Hours per week : 5
Credits :4

COURSE – VII ECO502C

BANKING AND FINANCIAL SERVICES

Col : Students are able to acquit the knowledge about the principles of banking and Indian Banking system.

Co2 : Students are able to acquit the knowledge about Deposits, Loans and Digital Banking Systems.

Co3 : Students are able to acquit he knowledge about Banking correspondents and common service centers

Co4 : Students are able to acquit the knowledge about Financial service of NBFIs.

Co5 : Students are able to acquit the knowledge about more with Finance service Company (FSC).

UNIT I : PRINCIPLES OF BANKING AND INDIAN BANKING SYSTEM

Meaning of Banking – Principles of Banking – Functions of Banking – Structure of Indian Banking System – Regulations of Banking in India – Role of RBI in Banking – Anti-money Laundering - Basics of Financial literacy - Problems and Challenges of Banking in India.

UNIT II : DEPOSITS, LOANS AND DIGITAL BANKING

Bank Deposit Account Types – Account Opening and Closing – Banking Customer types – KYC Norms – Negotiable Instruments: Cheque, Bill of Exchange, Promissory Note, Endorsement - Principles of Lending – Different categories of Loans – Mortgaging -Priority Sector Lending – E-Banking facilities: Debit Card, Credit Card, Net Banking, Mobile Banking, Tele-banking, Micro ATMs, Digital Currency – Core Banking Solutions.

UNIT III : BANKING CORRESPONDENTS AND COMMON SERVICE CENTERS

Banking Correspondent Model - Activities of Banking Correspondent: Deposit Mobilization.

Identification of Borrowers, Collection and Recovery Loan, Other Banking Services – Common Services Centre (CSC) - Provision of Services by CSC – Requirement for Registering CSC and Telecentre - Case Study of Banking Correspondents with any Bank or CSC in Local Area.

UNIT IV : FINANCIAL SERVICES OF NBFIS

Non-Banking Financial Institutions (NBFIs): Types and Major Players of NBFIs in India – Important Financial Services offered by NBFIs and their Features – Concept of EMI - Micro Finance: Concept and Operation - Chit Funds: Concept and Operations– Payment Banks - Regulations of NBFIs in India – Problems and Challenges of NBFIs in India.

UNIT V : WORK WITH FINANCE SERVICE COMPANY (FSC)

Types of loans by Finance Service Company (FSC) – Customer of FSC: Types and Needs - Marketing of FSC's Loans – Procedures and Requirements in FSC's Loan Sanction - Collection and Recovery of FSC Loans - Case Study of a FSC's services in Local Area.

References:

1. Indian Institute of Banking and Finance: Principles and Practices of Banking, Macmillan India Limited, 2021.
https://drive.google.com/file/d/1VU7aN4s5ikPQl7nX6mTBW-sVLQCNhfvK/view
2. Indian Institute of Banking and Finance: Retail Baking, Macmillan India Limited, 2015.
3. D.R.Patade Babasaheb Sangale and T.N.Salve : Banking and Finance: Fundamental of Banking, Success Publications, Pune, January 2013.
https://app1.unipune.ac.in/external/course-material/Fundamental-of-Banking-English.pdf
4. N. Mukund Sharma: Banking and Financial Services, Himalaya Publishers, 2015.
5. Akhan Ali Jafor: Non-Banking Financial Companies in India: Functioning and Practice, New Century Publications, New Delhi, 2010.
6. RBI: "Non-Banking Financial Institutions" in Report on Trend and Progress of Banking in India 2019-20.

7. RBI: Discussion Paper on Engaging Business Correspondents.
https://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2234
8. Govt. of India: Ministry of Electronic and Information Technology: Digital Seva-Operational Manual for Common Service Centres.
https://csc.gov.in/assets/cscmanual/digitalsevaoperationalmanual.pdf
9. http://www.cscentrepreneur.in/ for Telecentre Entrepreneurship Course

A.G & S.G Siddhartha Degree College of Arts and Science (Autonomous)
Vuyyuru – 521165

An autonomous college in the jurisdiction of Krishna university

III B.A (HEP), SEMESTER – V

COURSE – VII ECO502C

MODEL QUESTION PAPER

BANKING AND FINANCIAL SERVICES

Time : 3 Hours **Max. Marks : 70M**

Min. Pass : 30 M

Section – A

Answer any TWO of the following. **2 x5=10M**

1.KYC Norms

2.Loan recovery process

3.Operations of Micro finance institutions

4.Types of loan offered by finance services company

Section – B

Answer any FOUR of the following Questions. **4 x15= 60M**

5. Define Bank?Explain the functions of banking

6.Explain the role of R.B.I in Indian banking system

7.Define the term neogistable instrument? Explain the features of neositable instruments

8.Explain the advantages and disadvantages of digital currency

9.What is banking (Business) Correspondent model ? Explain the activities of it

10.Discuss about common services center(CSC)

11.Explain the Important financial services offered NBFI

12.Explain the Problems and Challenges of NBFIs in India

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU (2021-2022)

BANKING AND FINANCIAL SERVICES

The Guidelines to be followed by the question paper setters in BANKING AND FINANCIAL SERVICES for the 5th semester-end exams (2022 - 2023)

PAPER TITLE :BANKING AND FINANCIAL SERVICES

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PAPER CODE ;ECO -502C

Course – VII Semester – V Maximum marks : 70 Duaration;3Hours

Syllabus	Section-A (Short answer questions)	Section-B (essay questions)
Unit-1 (35Marks)	---	2
Unit-2 (5Marks)	1	2
Unit-3 (35Marks)	1	2
Unit-4 (30Marks)	1	2
Unit-5 (35Marks)	1	-----
TOTAL =140	20	120

- **Each short answer question carries 5 marks in Section-A**
- **Each Essay question carries 15 marks in Section –B**

The Question papers setters are requested to cover all the topics in the syllabus stipulated as per the weightage given by US.

THE END

A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF ECONOMICS

MINUTES OF BOARD OF STUDIES

EVEN SEMESTER

27-03-2023

AG&SG SIDDHARTHA DEGREE COLLEGE OF ARTS and SCIENCE (AUTONOMOUS) VUYYURU

ACEDAMIC YEAR - 2022 - 2023

Minutes of the meeting of the Board of Studies in Economics of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 11.00 a.m on 27 – 03 – 2023 In the Department of Economics Through online Mode.

Sri.N.Rama Raol, HOD, Economics has Presided over the BOS meeting

Members Present:

1) ..... (Sri.N.Rama Rao)	Chairman	Head, Department of Economics AG & SG S Degree College of Arts & Science Vuyyuru-521165
2)..... (Mrs G.Nirmala Jyothi)	University Nominee	Head Department of Economics S.A.S. Government Degree College Narayana Puram
3)..... (D.Aruna)	Academic Council Nominee	Head, Department of Economics SDMS Mahila Kalasala, Vijayawada
4)..... (G.Suresh Babu)	Academic Council Nominee	Lecturer in Economics , V.S.R. Government Degree College, Movva

AGENDA

1. To Review and recommend any changes in the syllabi , Model Question Papers and Guidelines of 2nd and 4th Semesters of I and II Year B.A Economics Papers for the Academic Year 2022-2023.

2. To Discuss and recommend the pattern of internal Assessment , Guidelines and Model Question Papers in 2nd and 4th Semesters of B.A Degree Economics papers for the Academic Year 2022-2023.

3. To Recommend the guidelines to be followed by the Question Paper Setters in Economics for the2nd, 4th and 6th Semester-end exams.

4. To Recommend the teaching and evaluation methods to be followed under the Autonomous Status.

5. To Propose the panel of Question paper setters and Examiners.

7. Any other matter.

RESOLUTIONS:

1) It is resolved to continue the same syllabi under CBC System approved by the Academic council of 2020- 2021 for I and II B,A Papers in the II and IV Semesters of I and II B.A classes.

   The APSHE has introduced Two New Subjects and New syllabus in the IV Semester of II Degree B.A from the Academic year 2021 – 2022.

2) Out of maximum 100 marks in each paper 30 marks shall be allocated for Internal Assessments in the II Semester.

   A) To implement 30 marks for internal assessment and 70 marks for External Assessment for the academic year 2022-2023.

   B) Out of these 30 marks, 20 marks are allocated for internal tests, 5 marks are allocated for assignment for II Semester. The two tests will be conducted and average of these two tests shall be deemed as the marks obtained by a student, and remaining 5 marks are allocated for attendance.

C) Out of maximum 100 marks 25 Marks shall be allocated for Internal Assessments regarding the IV Semester for the Academic year 2022 – 2023.

D) To implement 25 Marks for Internal Assessments and 75 Marks for External Assessment regarding the IV Semester from the Academic year 2022 – 2023.

E) Out of these 25 marks, 15 Marks are allocated for internal tests, 5 marks are Allocated for assignment & 5 marks are Allocated for Activity Regarding the IV Semester from the Academic year 2022 – 2023.

3) Discussed and recommended the syllabi, Model question papers under CBC system and guidelines to be followed by the question paper setters of II and IV semesters of B.A Classes for the Academic year 2022-2023.

4) To follow the teaching and evaluation methods, it is also resolved to use various other methods like Group discussions, Quiz, Organizing Seminars, Guest Lectures and Workshops to upgrade the knowledge of the students and impart new skills of learning as frequently as possible.

5) Resolved to authorize the chairman of Board of studies to suggest the panel of paper setters and Examiners to the controller of Examinations as for the requirement.

6) **The APSHE has introduced Two New Subjects i.e., Economic Development inIndia and ANDHRA PRADESH and Statistical Methods for Economics in the IV Semester of II Degree B.A from the Academic year 2021 – 2022. It is resolved to Follow the APSCHE New syllabus in the IV Semester of II Degree B.A from the Academic year 2021 – 2022 and 2022-23.**

It is resolved to follow further changes if any in the syllabus by the competent Authority.

Chairman

SEMESTER -II

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
ECOT 21B	MACROECONOMIC ANALYSIS	5	4	30	70	3 Hrs.

SEMESTER –IV

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
				CIA MARKS	SEE	
					MARKS	DURATION
ECO – T41	ECONOMIC DEVELOPMENT- INDIA AND ANDHRA PRADESH	5	4	25	75	3 Hrs.
ECO – T42	STATISTICAL METHODS FOR ECONOMICS	5	4	25	75	3 Hrs.

AG&SG SIDDHARTHA DEGREE COLLEGE OF ARTS and SCIENCE
(AUTONOMOUS) VUYYURU
ACEDAMIC YEAR 2022 - 2023

(An Autonomous college in the jurisdiction of Krishna University, Machilipatnam)

Economics	ECOT21B	2021-2022	B.A.(E.M)

MACROECONOMIC ANALYSIS

B.ASEMISTER–II

UNIT –IINTRODUCTION ANDNATIONAL INCOME

1.1AN INTRODUCTIONTO MACRO ECONOMICS

1.1.1 Definition, scopeandimportanceofMacroEconomics
1.1.2 EvolutionofMacroEconomics
1.1.3 MacroEconomicsParadoxes
1.1.4 Circular Flow ofIncomeandExpenditureinTwo,ThreeandFoursectorEconomy

1.2NATIONALINCOME

1.2.1 MeaninganddefinitionofNational Income–Marshall, Pigou,Fisher
1.2.2 National IncomeAggregates–GDP, GNP, NDP, NNP,NNPfc,PI,DI,P.CI, RNI, RPIC
1.2.3 Measurementof National Income–Product,Income andExpendituremethods
1.2.4 Concepts ofGreen Accounting

UNIT – IITHEROIESOFEMPLOYMENT

2.1THEORIESOFEMPLOYMENT

2.1.1 Classical Theoryof Employment
2.1.2 Say's LawofMarkets
2.1.3 KeynesianTheory ofEmployment

2.2THEORIESOFCONSUMPTION

2.2.1 AverageandMarginal propensitytoconsume
2.2.2 Keynes psychologicalLaw of Consumption
2.2.3 Briefreviewof Absolute, Relative,Life cycleand Permanent incomehypothesis

2.3THEORIESOFINVESTMENT

2.3.1 Marginal Efficiencyof Capital(MEC)
2.3.2 MultiplierPrinciple ConceptsanditsWorking
2.3.3 TheAccelerationprinciple

2.4AggregateDemandFunction–AlgebraicExplanation

2.5IS –LMCurves–Equations

2.6TheGoodsMarketandMoneyMarketEquilibrium–AlgebraicExplanation

UNIT IIIMONEYANDBANKING

3.1THEORYOFMONEY

3.1.1 Meaning, DefinitionandFunctionsofMoney
3.1.2 Gresham'sLaw
3.1.3 R.B.I ClassificationofMoney (NM_1, NM_2,
3.1.4 Fisher'sQuantity Theoryof Money
3.1.5 CambridgeApproach(Marshall,Pigou, RobertsonandKeynesEquations

3.2THEORYOFBANKING

3.2.1 DefinitionandTypesof Banking

3.2.2FunctionsofCommercial Banks

3.2.3FunctionsofCentralBank

3.2.4CreditControl byCentral Bank

3.2.5Factors Contributingto theGrowthof NBFC's

UNITIVINFLATIONANDTRADE CYCLES

4.1THEORYOFINFLATION

4.1.1Meaning. DefinitionandConceptsofInflation

4.1.2 DemandPull andCost-Push inflation

4.1.3Philip's CurveHypothesis

4.1.4 Measurements ofinflation- C.P.IandW.P.I

4.1.5CausesandEffectsofinflation

4.2THEORYOFTRADECYCLES

4.2.1TradeCyclesMeaningandDefinition

4.2.2Phasesof TradeCycles

4.2.3CausesofTradeCycles

4.2.4MeasurestocontrolTradeCycles

UNIT – V FINANCEAND INSURANCE

5.1THEORYOFFINANCE

5.1.1Financial AssetsandFinancial Intermediates

5.1.2StructureofFinancialSystem

5.1.3FunctionsofMoneyMarket

5.1.4FunctionsofCapitalMarket

5.1.5FunctionsofStockExchange

5.1.6BombayStockExchange(BSE)andNational StockExchange(NSE)

5.2THEORYOFINSURANCE

5.2.1Concept andOriginofInsurance

5.2.2Typesof Insurance

5.2.3Importanceof Insurance

Text book:

MacroEconomics–TeluguAkademiPublication

ReferenceBooks:

1. Dillard D.TheEconomicsofJhon Maynard Keynes, Cross byLockWoodandsons Londan
2. M. C. Vaish–MacroeconomicsTheory,VikasPublishingHouse,NewDelhi
3. S.B Guptha –MonetaryEconomics, S. Chanda andCo,Delhi
4. P.NChopra–Macroeconomics,KalyaniPublishers,Ludhiana 2014
5. D.MMithani,MacroEconomics Analysis andPolicy, OxfordandIBH, NewDelhi
6. MNMishra andS BMishra, InsurancePrinciples andPractice,S Chand
7. Lewis, MKandPDMizan–MonetaryEconomics, OxfordUniversityPress, New Delhi
8. Central StatisticalOrganisation, National AccountsStastics
9. M.L.Seth,Macroeconomics, Lakshmi NarayanAgarwal, 2006
10. K.P.M. Sundaram, Money,BankingandInternationalTrade,SultanChand,2006
11. R.R.Paul, MonetaryEconomics,KalyaniPublishers, Ludhiana, 2018
12. Macroeconomics, SpectrumPublishingHouse,Hyderabad, 2016

RecommendedCo-curricularActivities:

1. Assignmentsontrends in national income, moneysupplyandinflation
2. StudentSeminars/webinaronmacroeconomicthemesof contemporaryimportancefor Indian economy(Eg-Covid-19impactonaggregatedemand,supplychaindisruption, policyresponse etc)
3. Quiztotestcritical understandingof theconceptsandtheoriesofmacroeconomicsandtheir application inpractice
4. Groupdiscussiononmonetarypolicyanditseffectivenesswith referencetorecent developments.
5. Groupproject worktostudy thetrends in national income,inflation,money, supplyetc.
6. Chat/posterpresentationonNational IncomeTrends, inflation, aggregatedemandetc.
7. Web-based assignmentonBanking/Money.

AG&SG SIDDHARTHA DEGREE COLLEGE OF ARTS and SCIENCE
(AUTONOMOUS) VUYYURU
ACEDAMIC YEAR 2021 - 2022

(An Autonomous college in the jurisdiction of KrishnaUniversity, Machilipatnam)
SEMESTER- II

Economics	ECOT21B	2022-2023	B.A.(E.M)

MACROECONOMIC ANALYSIS

Max: Marks:70 **MaX.Time:3 Hrs.**

Answer all Questions
(Restrict to a maximum of 2 subdivisions)
SECTION-A (20 MARKS) **5X4=20M**

1.	(a)Macro Economic Paradoxes?	4M	L1
	Or		
	(b)Product method	4M	L1
2.	(a) ExplainJ.B. Say market law? .	4M	L1
	Or		
	(b)Marginal Efficiencyof Capital	4M	L1
3.	(a)R.B.I ClassificationofMoney?	4M	L2
	Or		
	(b)Gresham'sLaw	4M	L2
4.	(a) Types of inflation.	4M	L2
	Or		
	(b) CausesofTradeCycles.	4M	L2
5.	(a) FunctionsofMoneyMarket	4M	L3
	Or		
	(b) FunctionsofStockExchange	4M	L3

ANSWER ALL QUESTIONS
(Restrict to a maximum of 2 subdivisions)
SECTION -B (50 MARKS) 5X10=50M

6. (a) Explain different concepts of National Income? 10M L1

Or

(b)Explain different methods of estimating National Income? 10M L1

7. (a) Critically examine Explain the classical theory of Employment. 10M L1

Or

(b) Discuss aboutKeynesian consumption function . 10M L1

8. (a) Explain the meaning and functions of Money 10M L2

Or

(b)Explain FunctionsofCommercial Banks 10M L2

9. (a) ExplainPhasesof TradeCycles. 10M L2

Or

(b)Explain StructureofFinancialSystem? 10M L2

10. (a) Explain the meaning, definition and Importanceof Insurance? 10M L3

Or

(b)Explain FunctionsofCapitalMarket? 10M L3

AG&SG SIDDHARTHA DEGREE COLLEGE OF ARTS and SCIENCE (AUTONOMOUS) VUYYURU

ACEDAMIC YEAR 2022 - 2023

SEMESTER – 4 :: COURSE – 4
ECONOMIC DEVELOPMENT- INDIA AND ANDHRA PRADESH

NO. OF CREDITS: 4

LEARNING OUTCOMES FOR THE COURSE

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way (Knowledge)

a. leading issues of Indian economic development with reference to potential for growth, obstacles and policy responses

b. Objectives, outlays and achievements of economic plans and growth strategies

2. Explains (understanding)

a. Available Resources, demographic issues, general problems of poverty and unemployment and relevant policies

b.Sector specific problems, remedial policies and their effectiveness relating to Agriculture and Industrial Sectors of Indian and AP economy and infrastructure issues of AP economy

c. Indian Tax system, recent changes, issues of public expenditure and public debt, recent finance commissions and devolution of funds

d. Major issues of economic development of Andhra Pradesh after bifurcation and Central assistance

3. Critically examines using data and figures (analysis and evaluation)

a.Leading issues of current importance relating to India and AP economy, major policies and programmes

b. Covid– 19 and its impact on Indian economy

4. Uses official statistical data and reports including tables and graphs

a. To explain the achievements of Indian economy with reference to the objectives of planning and policy and make critical evaluation

AG&SG SIDDHARTHA DEGREE COLLEGE OF ARTS and SCIENCE (AUTONOMOUS) VUYYURU

ACEDAMIC YEAR 2021 - 2022

SEMESTER – 4 :: COURSE – 4

ECONOMIC DEVELOPMENT- INDIA AND ANDHRA PRADESH

Module – 1 Basic Features Basic characteristics of Indian Economy as a developing economy – Economic development since independence - Objectives and achievements of planning – Planning Commission/NITIAyog and their approaches to economic development - India's Rank in Global Human Development Index .

Module 2 National Income and Demography Trends in National income - Demographic trends - Poverty and Inequalities – Occupational Structure and Unemployment - Various Schemes of employment generation and eradication of poverty – Issues in Rural Development and Urban Development –Intra-state and Inter-state Labour Migration and unorganized sector Problems of Migrant Labour.

Module – 3 Agricultural and Industrial Developments Indian Agriculture – Agricultural Strategy and Agricultural Policy – Agrarian Crisis and land reforms – Agricultural credit – Minimum Support Prices -Malnutrition and Food Security - Indian Industry - Recent Industrial Policy – Make-in India – Start-up and Stand-up programmes – SEZs and Industrial Corridors - Economic Reforms and their impact - Economic initiatives by government of India during COVID - Atmanirbhar Bharat package.

Module –4Indian Public Finance Indian Tax System and Recent changes – GST and its impact on Commerce and Industry – Centre, States financial relations- Recommendations of Recent Finance Commission – Public Expenditure and Public Debt - Fiscal Policy and Budgetary Trends

Module- 5Andhra Pradesh Economy The basic characteristics of Andhra Pradesh economy after bifurcation in 2014 – Impact of bifurcation on the endowment of natural resources and state revenue – new challenges to industry and commerce - the new initiatives to develop infrastructure – Power and Transport - Information Technology and e-governance – Urbanization and smart cities – Skill development and employment – Social welfare programmes.

Reference Books:

1. Dhingra, I.C., Indian Economy, Sultan Chand, New Delhi, 2014.
2. Gaurav Datt and Ashwani Mahajan, Datt and Sundharam's Indian Economy, S.Chand& Co., 2016.
3. G. M. Meier, Leading Issues in Economic Development, Oxford University Press, New York, 3/e.
4. M. P. Todaro and Stephen C. Smith, Economic Development, 10/e, Indian Edition Published by Dorling Kindersley India Pvt. Ltd. 2012.
5. P. K. Dhar, Indian Economy: Its Growing Dimensions, Kalyani Publishers, Ludhiana, 2018.
6. Reserve Bank of India, Handbook of Statistics on Indian Economy (Latest).
7. S.K.Misra&V,K,Puri, Indian Economy, Himalaya Publishing House, 2015.
8. R.S.Rao, V.Hanumantha Rao &N.Venu Gopal (Ed.), Fifty Years of Andhra Pradesh (1956-2006), Centre for Documentation, Research and Communications, Hyderabad, 2007.
9. G. Omkarnath, Economics - A Primer for India - Orient Blackswan, 2012.
10. A.P Economy- Telugu Academy, 2018

Recommended Co-curricular Activities:

1. Assignments on specific issues of contemporary importance with reference to problems and remedial policies

2. Student Seminars on leading economic challenges, the effectiveness of relevant policies and programmes

3. Quiz to examine the knowledge and critical understanding of major policies, programmes achievements, failures relating to all sectors

4. Group discussions to promote critical understanding and evaluation capabilities of the students on major areas of Indian and AP economy

5. Group project work to study the implementation and effectiveness of major government schemes of development, poverty eradication and employment promotion etc.,

6. PPT presentation and participation in webinars to help the students acquire and adapt ITC skills in the process of learning

7. Field Visits to Agricultural farm/market/SSIs to understand the ground realities of economic situation of the country and the state

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS) VUYYURU (2021 – 2022)
B. A. ECONOMICS

Economics	ECOT41	(2022-2023)	BA (EMS)

Semester – IV MODEL QUESTION PAPERECONOMIC DEVELOPMENT- INDIA AND ANDHRA PRADESH

Duration: 3hrs Maximum marks: 75 M Pass marks:30

Section- A

Answer any Five of the following questions: 5X5= 25M

1. What is Global Human Development index
2. Concepts of Poverty.
3. Start – up Programmes
4. Skill India
5. What is Goods and Services Tax?
6. Importance of Tourism in AP
7. What are the objectives of Indian Economy?
8. MGNREGS

Section - B

Answer any Five of the following questions: 5X10=50M

9. (A) Discuss about Basic Characteristics of Indian Economy as a Developing Economy?

(Or)

(B) Write about the establishment of NITI Ayog? Explain its objectives?

10 (A) Define poverty? Explain the causes for poverty and remedial measures to Reduce the poverty in India

(Or)

(B) What is unemployment? Explain the causes for Unemployment and Remedial measures to reduce Unemployment in India.

11. (A) Explain the Importance of Indian Agriculture sector in the Indian Economy.

(Or)

(B) Describe the Impact of Green Revolution on Indian Economy.

12 (A)Discuss about GST Impact on commerce and Industry.

(Or)

(B) Discuss the different methods of redemption of Public debt ?

13. (A) Explain the Basic characteristics of AP Economy after bifurcation in 2014?

(OR)

(B) Explain the Role of Information Technology in the economic development of Andhra Pradesh

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AG&SG SIDDHARTHA DEGREE COLLEGE OF ARTS and SCIENCE (AUTONOMOUS) VUYYURU

ACEDAMIC YEAR 2021 - 2022

COURSE– 5(Semester - IV)

STATISTICAL METHODS FOR ECONOMICS

NO. OF CREDITS: 4

LEARNING OUTCOMES FOR THE COURSE

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way (Knowledge)

a. the definitions, terms and their meaning relating to statistical methods

b. various formulae used to measure central tendency, correlation regression and Indices

2. Explains (understanding)

a. Importance of statistics and its applications

b. The method of classification of primary data

c. Uses of Correlation and Regression analysis, time series and index numbers in economic analysis

3. Analyses and solves usinggiven data and information (analysis and evaluation) a. different kinds of statistical problems using various principles and formulae relating to central tendency, correlation, regression, time series and indices b. to interpret data and suggest solutions to economic problems

4. Draws critical diagrams and graphs.

a. Histogram, Frequency Polygon and Frequency Curve

b. More than cumulative and less than cumulative frequency curves (Ogive)

c. Different types of Bar diagrams

d. Pie Diagram and its uses in economic analysis

AG&SG SIDDHARTHA DEGREE COLLEGE OF ARTS and SCIENCE (AUTONOMOUS) VUYYURU

ACEDAMIC YEAR 2022 - 2023

COURSE– 5(Semester - IV)

STATISTICAL METHODS FOR ECONOMICS

NO. OF CREDITS: 4

Module – 1: Nature and Definition of Statistics Introduction to Statistics – Definition, scope, importance and limitations of Statistics – Primary and Secondary data- Census and Sampling techniques and their merits and demerits

Module – 2:Diagrammatic Analysis Collection of data - Schedule and questionnaire – Frequency distribution – Tabulation – diagram and graphic presentation of data – Histogram, Frequency Polygon, Cumulative Frequency Curves - Bar Diagrams and Pie Diagram

Module – 3:Measures of Central Tendency and Dispersion Measures of Central Tendency and Dispersion - Types of averages- Arithmetic Mean, Geometric Mean, Harmonic Mean – Median – Mode – Dispersion - Range, Quartile Deviation, Mean Deviation, Standard Deviation- Coefficient of Variation.

Module – 4:Correlation and Regression Correlation and Regression - Meaning, Definition and uses of Correlation- Types of Correlation- Karl Pearson's Correlation coefficient - Spearman's Rank CorrelationRegression Equations - utility of regression analysis – Demand forecasting.

Module – 5: Time Series and Index Numbers Time Series and Index Numbers: Definition and components of Time Series – Measurement of Time Series – Moving Average and the Least Squares Method – Index Numbers - Concepts of Price and Quantity Relatives – Laspeyer's, Paasche's and Fisher's Ideal Index Numbers – Uses and Limitations of Index Numbers.

Reference Books:

1. B. R. Bhat, T. Srivenkataramana and K.S. MadhavaRao (1996): Statistics: A Beginner's Text, Vol. I, New Age International (P) Ltd.

2. Goon A.M, Gupta M.K., Das Gupta B. (1991), Fundamentals of Statistics, Vol. I, World Press, Calcutta.

3. M. R. Spiegel (1989): Schaum's Outline of Theory and Problems in Statistics,Schaum's Outline Series.

4. F. E. Croxton, D. J. Cowden and S. Kelin S (1973), Applied General Statistics, Prentice Hall of India. 2.

5. S.P. Gupta, Statistical Methods , S. Chand & Co, 1985

6. S. C. Guptha, Fundamentals of Statistics, Himalaya Publishing House, Hyderabad.

7. Digambar Patri and D. N. Patri, Statistical Methods for Economics, Kalyani Publishers, Ludhiana, 2017.

8. Telugu Akademy Book, ParimanathmakaPaddathulu (For B.A.).

Recommended Co-curricular Activities:

1. Assignments of the application of various statistical methods

2. Student Seminar on themes requiring usage of tables, diagrams, statistical analysis and interpretation

3. Group project work for collection of data on locally relevant economic problems

4. Market survey on demand, supply, sales, prices of different kinds of projects like food items, FMCG, other consumable durables etc., etc., and Statistical Analysis- Mini Project and also income elasticity of demand for such products

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

(AUTONOMOUS) VUYYURU (2022 – 2023)

Semester – IV **PAPER CODE: ECO – T42**

PAPER TITLE :- STATISTICAL METHODS FOR ECONOMICS

Duration: 3hrs **Maximum marks:75**

SECTION:A

Answer any FIVE of the following questions: 5x5= 25 M

SEMESTER- IV
Model Paper
SECTION-A

Answer of any five the Following: 5X5=25M

1. What are the uses of Statistics?
2. Pie diagram
3. Find the A.M.

No. of variable	1	2	3	4	5	6	7	8
Frequency	2	4	6	8	12	20	8	4

4. Bar Diagram
5. What is Dispersion?
6. Represent the following data by a histogram:

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	8	12	22	35	5

7. Explain the different types of Averages
8. Rank Correlation?

SECTION-B

Answer of the Following: 5X10=50M

9.(A) From the following data Calculate A.M. by short cut method

Marks	No. of students
0-10	2
10-20	12
20-30	15
30-40	18
40-50	25
50-60	10
60-70	8
70-80	5
80-90	4
90-100	1

(OR)

(B) Find the Median:

Marks	No. of students
10-19	2
20-29	12
30-39	15
40-49	18
50-59	25
60-69	10

10.(A) What are the various methods used in Collecting Primary data?

(OR)

(B)Find median from the following data.

Classes	Frequency
100-200	3
200-300	19
300-400	17
400-500	15
500-600	18

600-700	16
700-800	12

11.(A)Compute Fisher's Ideal Index from the following data.

	1989		1990	
Commodity	price	quantity	price	quantity
A	4	40	5	50
B	8	64	9	80
C	10	70	10	70
D	2	10	4	16

(or)

(B) Calculate the coefficient of correlation from the following data.

X	F
12.5	28
17.5	42
22.5	54
27.5	108
32.5	129
37.5	61
42.5	45
47.5	33

12. (A) Find Range and its Coefficient from the following:

Incomes	No. of workers
250-400	5
400-550	18
550-700	32
700-850	16
850-1000	20
1000-1150	25
1150-1300	10

(OR)

(B) Find the mean deviation and Co efficient using by A.M. and Median

X
31
47
48
52
58
59
60
65
66
75
46

13 (A)To Find Upper Quartile from the following table :

Marks	Wages
30-32	3
32-34	8
34-36	24
36-38	31
38-40	50
40-42	61
42-44	38
44-46	21
46-48	12
48-50	2

(OR)

(B) Explain Questionnaire

A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF HISTORY

MINUTES OF BOARD OF STUDIES

ODD SEMESTER

26-10-2022

Minutes of the meeting of Board of studies in History for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at *Online 10.30 A.M on 26-10- 2022*.

T.NarasimhaRao T. Narasimha Rao *Presiding*

Members Present:

1) T. Narasimha Rao Chairman — Head, Department of History
Sri. *T.NarasimhaRao*) — AG & SG S Degree College of Arts & Science
Vuyyuru-521165

2) M. Suseela Rao University Nominee — Principal &Head, Department of History
(Dr.M.Suseela Rao) — Government Degree College
Tiruvuru

3) D. Rajya ..... Subject Expert — Lecturer in History
(Dr.D.Rajya Lakshmi) — Government Degree college
Avanigadda

4) N. Jhansi ..... Subject Expert — Head,Department of History
(Smt.N.Jhansi) — S.D.M.S Mahila Kalasala,
Vijayawada

AGENDA

1. To Review and recommend any changes in the syllabi , Model Question Papers and Guidelines of 1st, 3rd and 5th Semesters of I, II and III Year B.A History Papers for the Academic Year 2022 - 2023.

2. To Discuss and recommend the pattern of internal Assessment , Guidelines and Model Question Papers in 1st, 3rdand 5th Semesters of B.A Degree History papers for the Academic Year 2022-2023.

3. To Recommend the guidelines to be followed by the Question Paper Setters in History for the 1st, 3rd and 5th Semester-end exams.

4. To Recommend the teaching and evaluation methods to be followed under the Autonomous Status.

5. To Propose the panel of Question paper setters and Examiners.

6. To Suggest innovative methods of teaching.

7. Any other matter.

RESOLUTIONS:

1) It is resolved to continue the same syllabi under CBC System approved by the Academic council of 2020- 2021 for I and III Semesters of I and II B,A Papers in the I and III Semesters of I and II B.A classes.

The APSHE was introduced Two New Subjects and New syllabus in the V Semester of III Degree B.A from the Academic year 2022 – 2023.

2) Out of maximum 100 marks in each paper 30 marks shall be allocated for Internal Assessments regarding I and V Semesters.

A) To implement 30 marks for internal assessment and 70 marks for External Assessment from the academic year 2019-20 and that is also implemented to the I and V Semesters from 2020-21Academic year 2021 – 2022 Academic year and 2022 – 2023 Academic year also.

B) Out of these 30 marks, 20 marks are allocated for internal tests, 5 marks are allocated for assignment for I and V Semesters. The two tests will be conducted and average of these two tests shall be deemed as the marks obtained by a student, and remaining 5 marks are allocated for attendance.

3) Out of maximum 100 marks 25 Marks shall be allocated for Internal Assessments

Regarding the III Semester from the Academic year 2022 – 2023.

A) To implement 25 Marks for Internal Assessments and 75 Marks for External Assessment regarding the III Semester from the Academic year 2022 – 2023.

B) **Out of these 25 marks, 15 Marks are allocated for internal tests, 5 marks are Allocated for assignment and 5 Marks for activity Regarding the III Semester from the Academic year 2022 – 2023.**

4) Discussed and recommended the syllabi, Model question papers under CBC system and guidelines to be followed by the question paper setters of I,III and V semesters of B.A Classes for the Academic year 2022-2023.

5) To follow the teaching and evaluation methods, it is also resolved to use various other methods like Group discussions, Quiz, Organizing Seminars, Guest Lectures and Workshops to upgrade the knowledge of the students and impart new skills of learning as frequently as possible.

Resolved to authorize the chairman of Board of studies to suggest the panel of paper setters and Examiners to the controller of Examinations as for the requirement.

6) **The APSHE was introduced Two New choice Subjects i.e Tourism and Hospitality Services and Tourism Guidance and Operating Skills in the V Semester of III Degree B.A from the Academic year 2022 – 2023. It is resolved to Follow the APSCHE New syllabus in the V Semester of III Degree B.A from the Academic year 2022 – 2023.**

It is resolved to follow further changes if any in the syllabus by the competent Authority.

T. Narasimha R
Chairman

AG & SG SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE VUYYURU
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PROGRAMME: B.A

STRUCTURE OF HISTORY SYLLABUS UNDER CBCS FOR 3-YEAR B.A. PROGRAMME

YEAR	*CODE*	*SEM*	*Name of course* *(each course consists 5 units with each unit having 12 hours of class work)*	*Hours/week*	*Credits*	*Marks*	
						Internal	*Sem end*
I		**I**	**Ancient Indian history and culture (Fromm Indus valley Civil .to 13 century(A.D)**	**5**	**4**	**30**	**70**
II		**III**	**Modern Indian history and culture(1764-1947 A.D)**	**5**	**4**	**25**	**75**
III		**V**	**Tourism and Hospitality Services**	**5**	**4**	**30**	**70**
		V	**Tourism Guidance and Operating Skills**	**5**	**4**	**30**	**70**

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HISTORY		**2022-23**	**B.A/HEP**

SEMESTER-1 Course -1

No. of Credits: 4

(ANCIENT INDIAN HISTORY & CULTURE FROM INDUS VALLEY CIVILIZATION TO 13TH CENTURY A. D) (NEW SYLLABUS)

Learning objectives:

1. To Identify the various kinds of sources and various stages of Indian civilization and religions like Buddhism and Jainism
2. To impart knowledge about religions like Buddhism and Jainism andMouryan empire.
3. Inculcating awareness on ancient kingdoms of south Indian rulers.
4. Enlighten them with great Indian rulers like Gupta 's and Harshvardhan.
5. To provide the knowledge about the Cholas and Kakatiyas

Course Outcomes:

1. It encourages students to think explicitly about the aims of Indian history and culture
2. Acquire knowledge of Indian religions such Buddhism and Jainism. Acquainted with Indian kingship and culture -Mouryas and Satavahanas
3. Evaluate the south Indian administration and cultural contribution of Pallavas.
4. Ancient knowledge of golden age Guptas and cultural contribution oh Harsha.
5. Evaluate the administration of Cholas and greatness of Kakatiyas.

Unit – 1 **12 hrs**

1.1-Ancient Indian Civilization (from Circa 3000 BC to 6th BC):

1.2 Indus Valley Civilization - Salient Features

1.3Vedic Age - Society, Polity, Economy, Culture during early and later Vedic period

Unit – II **12 hrs**

2.1- Ancient Indian History & Culture (6th Century BC to 2nd Century AD):

2.2- Doctrines and Impact of Jainism and Buddhism;

2.3- Mauryan Administration, Society, Economy & Culture - Ashoka's Dharma;

2.4- Kanishka's Contribution to Indian Culture

Unit – III **12 hrs**

3.1-History & Culture of South India (2nd Century BC to 8 th Century AD):

3.2Sangam Literature; Administration, Society, Economy and Culture under Satavahanas

3.3 Cultural contribution of Pallavas

Unit – IV **12 hrs**

4.1- India from 3rd century AD to 8th century AD: Administration, Society, Economy, Religion, Art, Literature and Science & Technology under Guptas – Samudragupta.

4.2- Cultural contribution of Harsha:
4.3 Arab Conquest of Sind and its Impact

Unit - V **12 hrs**

5.1-History and Culture of South India (9th century AD to 13th century AD):
5.2 Local Self Government of Cholas
5.3 Administration, Society, Economy and Culture under Kakatiyas – Rudramma Devi

CO-CURRICULAR ACTIVITIES AND ASSESSMENT METHODS:

Continuous Evaluation:

1. Monitoring the students progress of learning by Class Tests.
2. Map pointing
3. Projects, Assignments and Group Discussions, Enhances critical thinking skills and Personality.
4. Semester-End Examination: Critical indicator of students learning and teaching methods adopted by teachers throughout the semester

TEXT BOOKS:

1. Prachina Bhasha DesaCharitra – Si.K. Krishna Reddy.
2. BharathaDesaCharitra – Telugu Academy

REFERENCES:

1. A.L. Basham, The Wonder That Was India
2. D.N.Jha, Ancient India
3. D.D.Kosambi, An Introduction to the Study of Indian History
4. D.P.Chattopadhyay, Science and Society in Ancient India
5. B.N.Mukherjee, The Rise and Fall of the Kushana Empire
6. K.A. NilakanthaShastri, A History of South India
7. R.C.Majumdar, K.K.Dutta&H.C.RoyChowdhuri (ed.), Advanced History of India
8. Kumkum Roy, The Emergence of Monarchy in North India: eighth to fourth centuries BC
9. RomilaThapar (et. al). India: Historical Beginnings and the Concept of the Aryan
10. M.L.K. Murthy, Pre-and Protohistoric Andhra Pradesh upto 500 B.C., New Delhi, 2003 11 K. Sathyanarayana, A Study of the History and Culture of Andhras

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(ANCIENT INDIAN HISTORY & CULTURE FROM INDUS VALLEY CIVILIZATION TO 13TH CENTURY A. D)

HISTORY Model Question Paper
(NEW MODEL PAPER)
B.A/ HEP – SEMESTER - I

Time : 3 hrs Max. Marks : 70

PART – A

Answers All Questions :All Questions Carry Equal Marks
(Restrict a Maximum of 2 Sub-Division)

14x5=70

1.A)Explain about the Indus Valley Civilization. Co1 L2 (10M)

OR

B)What are the main features of Vedic civilization Co1 L1 (10M)

2. A)Explain the Archeological Sources Co1 L2 (4M)

OR

B). Explain Mahavira and his teachings Co1 L2 (4M)

3. A)Explain Early life and teachings of Buddha. Co2 L2 (10M)

OR

B)Examine about Mauryan administration Co2 L3 (10M)

4.A).Analyse Ashoka's contributions to Buddhism Co2 L3 (4M)

OR

B)Explain the role of kanishka.Co2 L2 (4M)

5.A)Explain the general conditions of Satavahanna's. Co3 L2 (10M)

OR

B).Define the cultural contribution of pallava's Co3 L1 (10M)

6.A)What are the main aspects of sangam age Co3 L1 (4M)

OR

B)Estimate the invasions of SamudraGuptaCo4 L4 (4M)

7. A)Illustrate the Golden age of Gupta's Co4 L2 (10M)

OR

B)Define the role of harshavardhana in Indian History Co4 L1 (10M)

8 A)..Analyse Arab invasions. Co4 L3 (4M)

OR

B)Estimate the role of Raja raja chola Co5 L4 (4M)

9. A)Explain Chola's administration Co5 L2) (10M)

OR

B).Examine the administration Of Kakatiyas Co5 L3 (10M)

10A)Gauthamiputrasatakarni (4M)

OR

B)Rudramadevi (4M)

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HISTORY		**2022-23**	**B.A/HEP**

SEMESTER – III Course- III

No. of Credits: 4

MODERN INDIAN HISTORY & CULTURE (1764-1947 A. D) (NEW SYLLABUS)

Learning objectives:

1. To impart the knowledge about British rule, policies and 1857 revolt.
2. To enlighten the students about the socio-religious movements
3. To inspire students by freedom struggle.
4. To make understand the role of Gandhiji and Subhash Chandra Bose in freedom movement
5. To give right knowledge about the Partition of India and integration of princely states.

Course Outcomes:

1. Aquired the knowledge of British rule and 1857 revolt
2. Learnt about the social and religious system of India
3. Gained the knowledge about freedom struggle
4. Inspired by the National leaders like gandhiji and their ideologies
5. Thoroughly learned about partition of india and integration of princely states Syllabus

Unit – 1 **12 hrs**

1.1-Policies of Expansion –Warren Hastings, Cornwallis - Subsidiary Alliance & Doctrine Of Lapse Causes & Results of 1857 Revolt – Lytton, Rippon, Curzon

Unit - II **12 hrs**

2.1- Social, Religious & Self-Respect Movements – Raja Rammohan Roy,

2.2 - DayanandaSaraswathi, Swami Vivekananda, JyotibaPhule, Narayana Guru, Periyar, Dr. B. R. Ambedkar

Unit -III 12 hrs

3.1- Causes for the growth of Nationalism - Freedom Struggle from 1885 to 1920:

3.2 - III Moderate Phase – Militant Phase: Vandemataram Movement - Home Rule Movement

Unit – IV **12 hrs**

4.1. Freedom Struggle from 1920 to 1947: Gandhiji's Role in the National Movement – Revolutionary Movement – Subash Chandra Bose

Unit – V **12 hrs**

Muslim League & the Growth of Communalism – Partition of India – Advent of Freedom - Integration of Princely States into Indian Union – SardarVallabhai Patel

Co-curricular activities and Assessments Methods:

Continuous Evaluation:

1. Monitoring the progress of student's learning, Class Tests
2. Map pointing
3. Projects, Assignments and Group Discussions, Enhances critical thinking skills and Personality.
4. Semester-end Examination: Critical indicator of students learning and teaching methods adopted by teachers throughout the semester

TEXT BOOKS:

1. Bhasha DesaCharitra – Madhya yugam- Si.K. Krishna Reddy.
2. BharathaDesaCharitra – Telugu Academy

References:

1 Anil Seal, Emergence of Indian Nationalism
2 Banerjee, Sekhar, From Plassey to Partition
3 Bipan Chandra, Rise and Growth of Economic Nationalism in India

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MODERN INDIAN HISTORY & CULTURE (1764-1947 A. D)

MODEL PAPER

HISTORY Model Question Paper
(NEW MODEL PAPER)
B.A/ HEP –SEMESTER -III

Time : 3 hrs Max. Marks : 75

PART– A

I)Answer any FIVE of the following : 5 x 5=25M
(one Questions to be set from each unit)
1. Explain the reforms of Warren Hastings. Co1 L2
2. How far Lord Dalhousie was responsible for the 1857 revolt. Co1 L1
3. Analyse the contributions of Dr. B. R. Ambedkar. Co2 L3
4. Define Theosophical society and it's contributions .Co2 L1
5. What is the role of moderates in freedom movement Co3 L1
6. Explain the role of Bhagat singh Co4 L2
7. What is lucknow pact Co5 L1.
8. Examine role of Muslim league Co5 L3

PART – B

II.Answer any FIVE of the following: 5 x 10= 50M
(one Questions to be set from each unit)

1 A) What are the cause for the outbreak of 1857 revolt . Co1 L1

OR

b.) Explain Lord rippon reforms Co1 L2

2.A) Explain the role of raja ram mohan ray Co2 L2

OR

b.)How social reform movements played role in freedom struggle Co2 L1

3A)What are the causes for the rise of nationalism Co3 L1

OR

b.)What is the role of extremists in freedom movement Co3 L1

4A)What was the role of Mahatma Gandhi in freedom struggle Co4 L1

OR

b.)Explain the role of Subhash chandra Bose Co4 L2

5A) What are the causes for the growth of communalism and partition of India Co5 L1

OR

b.)What role did sardar vallabhaipatel played in the integration of princely states Co5 L1

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(2021 – 2022)

III BA History Syllabus:: Semester – V (CBCS) Paper – V

Title of the Paper :TOURISM AND HOSPITALITY SERVICES 6B

Paper Code;

No.of Hours per week:5 **No. of Credits:4**

I. Learning Outcomes:

Students after successful completion of the course will be able to:
1. Understand hospitality as a career
2. Inculcate interpersonal skills
3. Develop the ability for multitasking and crisis management
4. Understands the spirit of teamwork
5. Acknowledge the importance of guest service and satisfaction

Unit: 1

Tourism – Definition – Nature and Scope – History of Tourism–Types of Tourism – Domesticand International Tourism – Causes of rapid growth of tourism – National Institute of Tourismand Hospitality Management

Unit: 2

Relationship between history and tourism - Major tourist spots in AP – Gandikota, Nagarjunakonda, Salihundam, Konaseema

Unit: 3

Characteristics of Hospitality Industry - Inflexibility, Intangibility, Perish ability- Types of Hospitality jobs – Hotel Manager, Hotel Receptionist, Restaurant Manager, Catering Assistant,Executive Chef etc - Concepts of Atithi Devo Bhavah - Types of hotels in India

Unit: 4

Duties, responsibilities & skills of front office staff – duties, responsibilities and skills of housekeeping staff - guest stay process in a hotel - major processes and stages associated with it

Unit: 5

Different types of services offered in selected Hotels/Motels/Restaurants - Room Service, Catering Services -Different types of managerial issues - Service etiquettes

III. References:

1. Marketing for Tourism and Hospitality, Philip Kotler, Bowens and James Makens, Pearson Pub, New Delhi, 2010
2. Soft Sills for Hospitality, Amitabh Devendra, Oxford Higher Edn, 2015
3. The Indian Hospitality Industry: Dynamics and Future Trends, Ed: Sandeep Munjal, Sudhanshu Bhushan, CRC Press, 2017
4. Hotel Front Office: Operation and Management, Jatashankar Tewari, Oxford Higher Edn, 2016

5. www.ilo.org
6. https://riginstitute.com
7. nitahm.ac.in
8. web sources as suggested by teacher/librarian

IV. Co-Curricular Activities:
a) Mandatory:

(Training of student in skills by Teacher: Total 10 Hours)
1) For Teacher: Training of students by the teacher in the classroom and in the field for a total of
not less than10 hours on various practical aspects related to tourism and hospitality industry. The
teacher shall also train students with the help of experts in skills such as flower arrangements, cooking and catering supervision, speaking to guests etc. related to hospitality services.
2) For Student: Students shall visit any one of the local tourism offices, tourism sites, hotels, restaurants, catering offices to make personal observations and to gain hands-on experience. These individual observations shall be written as a Fieldwork/Project work Report not exceeding
10 pages and submit to teacher in the given format.
3) Suggested Fieldwork/Project work Format:
Title Page, Student Details, Acknowledgments, Index of Contents: Objectives, Step-wise process,
Findings & References
4) Max Marks for Fieldwork/Project work Report: 05
5) Unit Tests/Internal Examinations

b) Suggested Co-Curricular Activities
1) Invited Lectures
2) Hands on Experience with the help of Field Experts.
3) Debates on Interesting Topics
4) Seminars, Group Discussions, Quiz, etc.
5) Assignments
6) Alumni Interactions
7) Periodical Interactions with HR Managers

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Model Question Paper

HISTORY Model Question Paper
(NEW MODEL PAPER)
B.A/ HEP – SEMESTER – V/VI

Time : 3 hrs Max. Marks : 70

Title: Tourism and Hospitality services

paper code; 3HIS6B

Section-A

I.**ANSWER ANY TWO OF THE FOLLOWING QUESTIONS2x5=10**

1 Explain the causes of rapid growth of tourism?

2 Types of restaurants services?

3 Konasema ?

4 Atithi devo bhava ?

Section - B

II.Answer any four of the following questions 4x15=60

5. Define tourism write about nature and scop of tourism?

6. Discuss about different types of services offered in a selected hotels?

7.Major tourism spots in Andhra Pradesh?

8.Write about domestic tourism and international tourism?

9. Explain duties and responsibilities of house keeping staff?

10. Explain different types of hotels in india ?

11. Discuss about hospitality industry?

12. Explain the relationship between history and tourism?

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Title: Tourism and Hospitality services

paper code; 3HIS6B

Section	Unit – I	Unit – II	Unit – III	Unit - IV	Unit-V
A **5 Marks Questions**	**1**	**1**	**1**		**1**
B **15 Marks Questions**	**2**	**2**	**2**	**1**	**1**
Weightage	**35**	**35**	**35**	**15**	**20**

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Course 7B: Tourism Guidance and Operating Skills

(Skill Enhancement Course (Elective), 4 Credits)

II. Learning Outcomes:

Students after successful completion of the course will be able to:

1. Acquire tour guiding, operating and soft skills
2. Understand different situations under which one has to work
3. Cultivate cultural awareness and flexibility
4. Understand and apply team spirit
5. Plan and organize tour operations efficiently

Unit: 1 **12hrs**

Meaning of tour guide - types of tour guide: heritage guide, nature guide, adventure guide, business guide, special interest guide etc – duties and responsibilities of guides -various roles of tour guide.

Unit: 2 **12hrs**

Guiding techniques: leadership skills, social skills, presentation skills, communication skills - Guide's personality skills: passion, empathy, enthusiasm, punctuality, humouretc - Personal hygiene and grooming – code of conduct.

Unit: 3 **12hrs**

Guest Relationship Management- Handling emergency situations- Medical, Personal, Official, VISA/Passport, Death, Handling Guest with special needs/Different Abilities/ Different age groups.

Unit: 4 **12hrs**

Conducting Tours: Pre-Tour Planning, Route Chart, Modes of Transportation, Security Measures, and Check list etc. - Conducting various types of tours- Relationship with Fellow Guides - Coordination with hospitality institutions.

Unit: 5 **12hrs**

Travel Agency and Tour operations – Difference between Travel Agent and Tour operator – Functions of Tour Operator – Types of Tour Operations and of Tour Operators - A brief study of tour operating agencies like APTDC, Southern Travels etc.

III. References:

1. Jagmohan Negi, Travel Agency and Tour Operations, Kanishka Publishers,
New Delhi, 2006

2. Mohinder Chand, Travel Agency and Tour Operations: An Introductory Text,
Anmol Publications Pvt. Limited, New Delhi, 2009

3. Dennis L Foster – Introduction to Travel Agency Management

4. Pat Yale (1995); Business of Tour Operations, Longman Scientific & Technical, New

5. Pond K L, The Professional Guide: Dynamics of Tour Guiding, 1993

6. www.tourism.gov.in

7. www.qtic.com

9. www.cedeop.europe

10. web sources as suggested by teacher/librarian

IV. Co-Curricular Activities:

a) Mandatory: (Training of students in the related skills by the Lecturer, Total 10 Hours)

1) For Teacher: Training of students by the teacher in the classroom and in the field for a total of not less than10 hours on various practical skills related to guidance and operating tours in tourism sector, with the help of local experts. The teacher shall lead students to local tourist sites and guide them to work with local tourist guides or local tourist operators.

2) For Student: Students shall individually choose and visit a local tourist place/monument such as a historical site, temple etc., and talk to local guides personally. Observe their functioning to gain experience, including suggestions for the improving the guidance. These individual observations shall be written in the given format not exceeding 10 pages and submit to the teacher as Fieldwork/Project work Report.

3) Suggested Fieldwork/Project work Format:

Title Page, Student Details, Acknowledgments, Index page, Objectives, Step-wise process, Findings & References

4) Max Marks for Fieldwork/Project work Report: 05

5) Unit Tests/Internal Examinations

a) Suggested Co-Curricular Activities

1) Invited Lectures

2) Hands on experience with the help of field experts.

3) Debates on interesting topics

4) Seminars, Group Discussions, Quiz, etc.

5) Assignments

6) Alumni Interactions

7) Periodical interactions with Tour Mana

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III BA.Semester – V

Subject; History 3HIS7B

Title of the Paper – TOURISM AND HOSPITALITY SERVICES 7B

Paper Code

Time : 3Hrs **Max. Marks : 70**

Model Question Paper

SECTION – A

I. Answer any TWO of the following **2x5=10 M**

1. Responsibilities of the Guide?

2. Explain Types of Tour Guide?

3. Explain Guides Personality skills?

4. Handling of the Guest in different situations?

SECTION – B

II. Answer any FOUR of the following **4x15= 60 M**

5.Explain the meaning of the Tour Guide?

6.Explain duties of the Guide?

7..Write about the guiding techniques?

8.Explain hygiene and grooming of the guide?

9.Explain Relationship Management?

10..Passport and Visa process?

11.Write about Travel Agency and Tour operations?

12..Explain the functions of Tour operator?

AG & SG SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE VUYYURU

A.P- 521165

(An autonomous college in the jurisdiction of Krishna university, Machilipatnam)

III BA.Semester – V

Subject; History 3HIS7B

Title of the Paper – TOURISM AND HOSPITALITY SERVICES 7B

Section	Unit – I	Unit – II	Unit – III	Unit - IV	Unit-V
A **5 Marks Questions**	**2**	**1**		**1**	
B **15 Marks Questions**	**1**	**2**	**2**	**1**	**2**
Weightage	**35**	**35**	**30**	**20**	**30**

A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF HISTORY

MINUTES OF BOARD OF STUDIES

EVEN SEMESTER

24-03-2023

Minutes of the meeting of Board of studies in History for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at *11.00 A.M on 24-3-2023* Online

T.NarasimhaRao T. Narasimha Rao ..... ***Presiding***

Members Present:

1)..... T. Narasimha Rao ..... Chairman — Head, Department of History
Sri. ***T.NarasimhaRao***) — AG & SG S Degree College of Arts & Science, Vuyyuru-521165

2)..... M. Suseela Rao ..... University — Head, Department of History
(Dr.M.Suseela Rao) — Nominee — Government Degree College, Tiruvuru

3) ..... D. Rajya ..... Subject Expert — Lecturer in History
(Dr.D.Rajya Lakshmi) — Government Degree college, Avanigadda

4)..... N. Jhansi ..... Subject Expert — Head,Department of History
(Smt.N.Jhansi) — S.D.M.S Mahila Kalasala, Vijayawada

AGENDA

1. To Review and recommend any changes in the syllabi, Model Question Papers and Guidelines of 2nd, 4th,and 6th Semesters of I, II and III Year B.AHistory Papers for the Academic Year 2022-2023.

2.To Discuss and recommend the pattern of internal Assessment , Guidelines and Model Question Papers in 2nd, 4th,and 6th Semesters of B.A Degree History papers for the Academic Year 2022-2023.

3. To Recommend the guidelines to be followed by the Question Paper Setters in for the 2nd, 4th,and 6th Semesters -end exams.

4. To Recommend the teaching and evaluation methods to be followed under the Autonomous Status.

5. To Propose the panel of Question paper setters and Examiners.

6. To Suggest innovative methods of teaching.

7. Any other matter.

RESOLUTIONS:

1)It is Resolved to continue the same syllabi under CBC System approved by the Academic council of 2020- 2021 for 1st Degree in II Semester & II Degree in IV Semester History papers, of B.A Classes.

The APSHE New syllabus was introduced in the I Semester of I Degree B.A from the Academic year 2020 – 2021 and in the III Semester of II Degree B.A From the Academic year 2021 – 2022.

2) Out of maximum 100 marks in each paper 30 marks shall be allocated for Internal Assessments regarding II and IV Semesters.
   A) To implement 30 marks for internal assessment and 70 marks for External Assessment from the academic year 2019-20 and that is also implemented to the III and V Semesters from 2020-21Academic year and 2021 – 2022 Academic year also.
   B) Out of these 30 marks, 20 marks are allocated for internal tests, 5 marks are allocated for assignment for II and IV Semesters. The two tests will be conducted and average of these two tests shall be deemed as the marks obtained by a student, and remaining 5 marks are allocated for attendance.

3) **Out of maximum 100 marks 25 Marks shall be allocated for Internal Assessments Regarding the IV Semester from the Academic year 2022 – 2023.**

A) To implement 25 Marks for Internal Assessments and 75 Marks for External Assessment regarding the IV Semester from the Academic year 2022 – 2023.

B) Out of these 25 marks, 15 Marks are allocated for internal tests, 5 marks are Allocated for assignment/attendanceactivitie 5m Regarding the IV Semester from the Academicyear 2022 – 2023.

4)Discussed and recommended the syllabi, Model question papers under CBC system and guidelines to be followed by the question paper setters of II , IV and VI semesters of B.A Classes for the Academic year 2022-2023.

5) To follow the teaching and evaluation methods, it is also resolved to use various other methods like Group discussions, Quiz, Organizing Seminars, Guest Lectures and Workshops to upgrade the knowledge of the students and impart new skills of learning as frequently as possible.
6) Resolved to authorize the chairman of Board of studies to suggest the panel of paper setters and Examiners to the controller of Examinations as for the requirement.
7. It is resolved to follow further changes if any in the syllabus by the competent Authority.

Chairman

T. Narasimha Rao

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PROGRAMME: BA

YEAR	*CODE*	*SEM*	*Name of course* *(each course consists 5 units with each unit having 12 hours of class work)*	*Hours/week*	*Credits*	*Marks*	
						Internal	*Sem end*
I		**II**	**Medieval Indian history and Culture(1206 A.D to 1764 A.D)**	**5**	**4**	**30**	**70**
II		**IV**	**History and Culture of Andhra(from 1512 to1956 A.D)**	**5**	**4**	**25**	**75**
		IV	**History of modern world(from 15th century**	**5**	**4**	**25**	**75**
III		**V/VI**	**Tourism and Hospitality Services**	**5**	**4**	**30**	**70**
		V/VI	**Tourism Guidance and Operating Skills**	**5**	**4**	**30**	**70**

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HISTORY	**HIST21B**	**2022-23**	**B.A/HEP**

SEMESTER-II

No. of Credits: 4

MEDIEVAL INDIAN HISTORY & CULTURE (1206 A.D to 1764 A.D) (NEW SYLLABUS)

Learning objectives:

1. To provide knowledge about the Delhi sultanates
2. To impart the knowledge about the Islam religion and greatness of Vijayanagara empire.
3. To make the students to understand the greatness of the Mughal rulers.
4. To provide the information of the administration and cultural contribution of the Mughals.
5. To enlighten the students regarding the advent of the Europeans

Course Outcomes:

1. Acquire the knowledge of Delhi sultanates.
2. Analyse the socio, religious consciousness in India
3. Acquire knowledge about the Mughal rulers and their policies.
4. Students will learn to understand, analyze and evaluate the administration and cultural aspects of Mughals
5. Acquainted with the advent of the Europeans and their settlements in India.

Unit- I **15 hours**

Impact of TurkishInvasions– Balban, AllauddhinKhilji, Md. Bin Tughlaq- Administration, Society,Economy, Religion andCultural developments under Delhi Sultanate (from 1206to 1526 AD)

Unit – II **15 hours**

Impact ofIslam onIndian Societyand Culture–BhaktiMovement; Administration, Society,Economy,
Religion andCultural developments under VijayanagaraRulers

Unit – III **15 Hours**

Emergenceof Mughal Empire – Babur – SurInterregnum-Expansion & Consolidation of MughalEmpire – Akbar, Jahangir,ShahJahan, Aurangazeb.

Unit – IV **15 hours**

Administration, Economy,Societyand Cultural Developments under theMughals – Disintegration ofMughal Empire -Rise ofMarathas under Shivaji

Unit _ V **15 hours**

India under Colonial Hegemony:Beginningof European Settlements-Anglo- French Struggle – Conquest of BengalbyEIC

CO-CURRICULAR ACTIVITIES AND ASSESSMENT METHODS:

Continuous Evaluation:

1. Monitoring the students progress of learning by Class Tests.

2. Map pointing
3. Projects, Assignments and Group Discussions, Enhances critical thinking skills and Personality.
4. Semester-end Examination: Critical indicator of students learning and teaching methods adopted by teachers throughout the semester

TEXT BOOKS:

1. Prachina Bhasha DesaCharitra – Si.K. Krishna Reddy.
2. BharathaDesaCharitra – Telugu Academy

REFERENCES:

1. Chandra, SHistoryof MedievalIndia(800– 1700)
2. Chattopadyay,B.D TheMakingofEarlyMedievalIndia. (Delhi, 1994)
3. Habib,Irfan, MedievalIndia: TheStudyofaCivilization
4. Habibullah, A.B.M, TheFoundation ofMuslimRule inIndia
5. Kumar Sunil, TheEmergenceof theSultanate ofDelhi
6. Nizami, K.A. Some Aspects of Religion and Politics inIndiain the13th c
7. K.A. NilakantaSastri, AHistoryof SouthIndiafrom PrehistoricTimes to the Fallof Vijayanagara
8. K.A.NilkantaSastri, TheCholas
9. ShireenMoosvi, TheEconomyof theMughal Empire
10. Stein, BPeasant, State&SocietyinMedieval SouthIndia
11. Yazdani, G. (ed)TheEarlyHistoryof theDeccan
12. R.C.Majumdar, TheAgeofImperial Kanauj
13. R. Soma Reddy, *LateMedieval Andhra Pradesh,A.D. 1324-1724 A.D.*,New Delhi, 2014
14. HarbansMukhia, TheMughals ofIndia
15. C.A.Bayly,Indian Societyand theMakingof theBritish Empire

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MODEL PAPER

HISTORY Model Question Paper

(NEW MODEL PAPER)

PAPER CODE: HIST21BB.A/ HEP – II

Time : 3 hrs Max. Marks : 70

Answer all Questions

(Restrict to a Maximum of 2 Subdivisions)

SECTION -A (5X4=20MARKS)

1.(A) Explain the role of Balban Co1 L2

or

(B) Illustrate the work of Razia sultan Co1 L2

2..(A)Analyse the contributions of Ashtadiggaja's Co2 L3

or

(B) Analyse the role of Jahangir .Co3 L3

3..(A) How Aurangazeb was responsible for the downfall of the mughal empire Co3 L1

or

(B) Examine the role of Tajmahal in the past and present Co5 L3

.4.(A)Explain the portuguese establishments in India Co5 L2

or

(B) What is the role of Dupleix as governor Co5 L1

5.(A)Write about the Anglo-french rivalry and Results

or

(B)Explain the Causes and Results of the Battle of Plassey

SECTION – B

Answer all Questions

(Restrict to a Maximum of 2 Subdivisions) 5 x 10= 50M

6. A) Explain the administration of the Allauddinkhilji. Co1 L2

OR

B.)What are the main reforms of Mohammad bin tughlaq Co1 L1

7.A) Explain the Bhakti movement Co2 L2

OR

B.)Define the characteristics of Vijayanagara empire Co2 L1

8A)Explain the administration of shersha Co3 L2

OR

B.)What are the religious reforms of Akbar Co3 L1

9A)Analyse the administration of Mughals Co4 L3

OR

B.)Explain Shivaji's administration Co4 L2

10.A) Illustrate the anglo - French conflicts Co5 L2

OR

B.)What was the role of Robert clive as governor Co5 L1

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HISTORY	PAPERCODE: HIST401	2021-22	B.A/HEP

SEMESTER – IV **Course: IV**

No. of Credits: 4

HISTORY & CULTURE OF ANDHRA (FROM 1512 TO 1956 AD)

(NEW SYLLABUS)

Learning objectives:

1. To give clear picture of Qutub shahis
2. Focussing awareness on advent of europeans and their rule in andhra
3. To give knowledge about social and religious reforms
4. To infuse the Nationalistic feelings among the studenta
5. To provide information about the AP state formation(1953) Andhra pradesh formation

Course Outcomes:

1. Known about Nizams of Hyderabad
2. Learnt the impact of British on Andhra - Monroe- C. P Brown, Sir Arthur Cotton
3. They were aware of social reformers and their contribution
4. Acquired knowledge about the national leaders and their ideologies
5. Acquainted with the knowledge of A. P state formation & Andhra pradesh formation

Unit – 1 **12 hrs**

1.1-Andhra through 16th& 19th Centuries AD:

1.2- Evolution of Composite Culture - The QutbShahis of Golkonda –Administration, Society &Economy – Literature & Architecture;

1.3- Advent of European and settlements in Andhra - Occupation of Northern Circars and Ceeded Districts – Early revolts against the British

Unit – II **12 hrs**

2.1 Andhra under British rule: Administration – Land Revenue Settlements – Society – Education - Religion – Impact of Industrial Revolution on Economy – Peasantry & Famines – Contribution of Sir Thomas Munroe & C. P. Brown – Impact of 1857 Revolt in Andhra

Unit – III **12 hrs**

3.1- Social Reform & New Literary Movements: KandukuriVeeresalingam, RaghupathiVenkataRathnam Naidu, GuruzadaApparao, KomarrajuVenkataLaxmana Rao.

3.2-New Literary Movements: RayaproluSubbarao, ViswanathaSathyanarayana, GurramJashua, BoyiBheemanna, Sri Sri

Unit – IV **12 hrs**

4.1- Freedom Movement in Andhra (1885-1947):

4.2- Vandemataram Movement– Home Rule Movement in Andhra - Non-Cooperation Movement - AlluriSeetarama Raju &Rampa Revolt (1922-24) - Civil Disobedience Movement – Quit India Movement

Unit – V **12 hrs**

5.1 Movement for separate Andhra State (1953) and AP (1956):

5.2 Causes – Andhra Maha Sabha –Conflict between Coastal Andhra &Rayalaseema – Sri Bagh Pact – work of various Committees – Martyrdom of PottiSriramulu – Formation of separate Andhra State (1953);

5.3 Movement for formation of Andhra Pradesh (1956):

5.4 VisalandhraMahasabha – Role of Communists – States Reorganization Committee – Gentlemen's Agreement – Formation of Andhra Pradesh

CO-CURRICULAR ACTIVITIES AND ASSESSMENT METHODS:

Continuous Evaluation:

1. Monitoring the progress of student's learning, Class Tests
2. Map pointing
3. Projects, Assignments and Group Discussions, Enhances critical thinking skills and Personality.
4. Semester-end Examination: Critical indicator of students learning and teaching methods adopted by teachers throughout the semester

TEXT BOOKS:

1. Bhasha DesaCharitra – Madhya yugam- Si.K. Krishna Reddy.
2. BharathaDesaCharitra – Telugu Academy

REFERENCES:

1. H.K.Sherwani, History of the KutubShahi Dynasty
2. K. Sathyanarayana, A Study of the History and Culture of Andhras
3. B. Kesava Narayana, Political and Social Factors in Modern Andhra
4. K.V.Narayana Rao, The Emergence of Andhra Pradesh
5. M. VenkataRangaiah, The Freedom Struggle in Andhra Pradesh
6. P.R.Rao, History of Modern Andhra
7. SarojiniRegani, Highlights of Freedom Movement
8. SarojiniRegani, ఆంధ్రలోస్వాతంత్ర్యోద్యమచరిత్ర
9. V. Ramakrishna, Social Reform Movement in Andhra
10. B. Kesava Narayana, Modern Andhra & Hyderabad – 1858 – 1956 A.D., 2016 11 K. Koti Reddy, History of Modern Andhra, Telugu Academy, Hyderabad

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MODEL PAPERPAPERCODE: HIST401

HISTORY & CULTURE OF ANDHRA (FROM 1512 TO 1956 AD)

B.A/ HEP – II

Time : 3 hrs Max. Marks : 75

PART– A

I)Answer any FIVE of the following : 5 x 5=25M
(one Questions to be set from each unit)

1. Analyse the role of Quli Qutub Shah Co1 L3
2. Explain the battle of Chanderi Co1 L2
3. What are the land reforms of British Co2 L1
4. Explain the contribution of C. P. Brown Co2 L2
5. Explain the works of social reformers in andhra Co3 L1
6. What is the role of Gurram Joshua in new literary movement Co3 L2
7. What is the role Alluri sitaramaraju Co4 L1.
8. Define Andhra mahasabha and its contribution Co5 L1

PART – B

II.Answer any FIVE of the following: 5 x 10= 50M
(one Questions to be set from each unit)

9 A) What are the general conditions of Qutub shahis . Co1 L1

OR

b.) How the British aquiredNortgernCircars Co1 L1

10.A) What is the impact of industrial revolutionary in andhra Co2 L1

OR

b.)What are the revenue reform introduced by Sir Thomas Monroe Co2 L1

11.A)Explain about the Social reformers of andhra Co3 L1

OR

b.)Explain new literary movement in Andhra Co3 L2

12.A)Explain about Vandemataram movement in Andhra Co4 L2

OR

b.)Examine the Non cooperation movement in Andhra Co4 L2

13. A) What was the role played by Pottisriramulu in the formation of Andhra state Co5 L1

OR

b.) Explain the formation of Andhra pradesh Co5 L2

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HISTORY	PAPERCODE: HIST402	2021-22	B.A/HEP

SEMESTER –IV

Course :V

No. of Credits: 4

HISTORY OF MODERN WORLD (From 15th Cent. AD to 1945 AD) (NEW SYLLABUS)

Learning objectives:

1. To impart knowledge about Renaissance and reformation
2. To give information about the glorious Revolution and American revolution
3. To make them aware of unification of Italy and Germany
4. To know about world wars and their affects
5. To provide information about the role of league of Nations and U. N. O

Course Outcomes:

1. Acquired the knowledge about the evolution of changes in the modern europe
2. Learnt about revolution and their impact on world
3. Had idea about the unification of Italy and Germany
4. Learnt lessons from world war 1&2
5. Gained knowledge about the work and importance of international organizations.

Unit – 1 **12hrs**

Transformation from Medieval to Modern Era – Chief Characteristics; Glorious Revolution (1688) – Origin of Parliament Bill of Rights – Results

Unit – II **12hrs**

American Revolution (1776); French Revolution (1789) – Causes, Course and Results

Unit - III **12 hrs**

Unification of Italy; Unification of Germany

Unit – IV **12hrs**

Communist Revolution in Russia; World War I: Causes – Results of the War – Paris Peace Conference; League of Nations

Unit - V **12hrs**

World War II: Causes, Fascism & Nazism – Results; The United Nations Organization: Structure, Functions and Challeng

Co-curricular activities and Assessments Methods:

Continuous Evaluation:

1. Monitoring the progress of student's learning, Class Tests
2. Map pointing
3. Projects, Assignments and Group Discussions, Enhances critical thinking skills and Personality.
4. Semester-end Examination: Critical indicator of students learning and teaching methods adopted by teachers throughout the semester

TEXT BOOK:

1. Bhasha DesaCharitra – Madhya yugam- Si.K. Krishna Reddy.
2. BharathaDesaCharitra – Telugu Academy

References:

1 Burke, Peter, The Renaissance
2 C.J.H. Hayes, Modern Europe up to 1870
3 C.D. Hazen, Modern Europe up to 1945
4 Christopher Hill, From Reformation to Industrial Revolution
5 Elton, G.R., Reformation Europe, 1517-1559
6 Ferguson, The Renaissance

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MODEL PAPERPAPERCODE: HIST402

HISTORY Model Question Paper

HISTORY OF MODERN WORLD (From 15th Cent. AD to 1945 AD) B.A/ HEP – IV

Time : 3 hrs Max. Marks : 75

PART– A

I)Answer any FIVE of the following : 5 x 5=25M

(one Questions to be set from each unit)

1.What was the role of Martin luther in reformation Co1 L1

2.How far Louis VI was responsible for the outbreak of French revolution Co2 L1

3. What is the role of Joseph Mazzini in unification of Italy Co3 L1

4. Explain the contribution of Bismark Co3 L2

5. Explain the role of Lenin in Russian revolution Co4 L2

6. Define League Of Nations Co4 L1

7. What is Fascism Co5 L1.

8. How Adolf Hitler was responsible for outbreak of World war II Co5 L1

PART – B

II.Answer any FIVE of the following: 5 x 10= 50M

(one Questions to be set from each unit)

9 A) Explain about Renaissance . Co1 L2

OR

b.) What is Glorious revolution Co1 L1

10.A) Explain about American revolution Co2 L2

OR

b) Analyse the causes and results of French revolution Co2 L3

11.A)Explain the unification of Italy Co3 L2

OR

b.) Examine various factors of Unification of Germany Co3 L3

12.A)Explain about Russian revolution Co4 L2

OR

b.)What are the causes and results of world war I Co4 L1

13.A) Analyse the causes for the outbreak of world war - II Co5 L1

OR

b.) What is the role of U. N. O Co5 L1

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(2022 – 2023)

III BA History Syllabus:: Semester – V /VI

Title of the Paper : TOURISM AND HOSPITALITY SERVICES 6B

Paper Code; SECHIS601

No.of Hours per week:5 **No. of Credits:4**

I. Learning Outcomes:

Students after successful completion of the course will be able to:
1. Understand hospitality as a career
2. Inculcate interpersonal skills
3. Develop the ability for multitasking and crisis management
4. Understands the spirit of teamwork
5. Acknowledge the importance of guest service and satisfaction

Unit: 1

Tourism – Definition – Nature and Scope – History of Tourism–Types of Tourism – Domestic and International Tourism – Causes of rapid growth of tourism – National Institute of Tourism and Hospitality Management

Unit: 2

Relationship between history and tourism - Major tourist spots in AP – Gandikota, Nagarjunakonda, Salihundam, Konaseema

Unit: 3

Characteristics of Hospitality Industry - Inflexibility, Intangibility, Perish ability- Types of Hospitality jobs – Hotel Manager, Hotel Receptionist, Restaurant Manager, Catering Assistant, Executive Chef etc - Concepts of Atithi Devo Bhavah - Types of hotels in India

Unit: 4

Duties, responsibilities & skills of front office staff – duties, responsibilities and skills of housekeeping staff - guest stay process in a hotel - major processes and stages associated with it

Unit: 5

Different types of services offered in selected Hotels/Motels/Restaurants - Room Service, Catering Services -Different types of managerial issues - Service etiquettes

III. References:

1. Marketing for Tourism and Hospitality, Philip Kotler, Bowens and James Makens, Pearson Pub, New Delhi, 2010
2. Soft Sills for Hospitality, Amitabh Devendra, Oxford Higher Edn, 2015

3. The Indian Hospitality Industry: Dynamics and Future Trends, Ed: Sandeep Munjal, Sudhanshu Bhushan, CRC Press, 2017
4. Hotel Front Office: Operation and Management, Jatashankar Tewari, Oxford Higher Edn, 2016
5. www.ilo.org
6. https://riginstitute.com
7. nitahm.ac.in
8. web sources as suggested by teacher/librarian

IV. Co-Curricular Activities:
a) Mandatory:

(Training of student in skills by Teacher: Total 10 Hours)
1) For Teacher: Training of students by the teacher in the classroom and in the field for a total of not less than10 hours on various practical aspects related to tourism and hospitality industry. The teacher shall also train students with the help of experts in skills such as flower arrangements, cooking and catering supervision, speaking to guests etc. related to hospitality services.
2) For Student: Students shall visit any one of the local tourism offices, tourism sites, hotels, restaurants, catering offices to make personal observations and to gain hands-on experience. These individual observations shall be written as a Fieldwork/Project work Report not exceeding 10 pages and submit to teacher in the given format.
3) Suggested Fieldwork/Project work Format:
Title Page, Student Details, Acknowledgments, Index of Contents: Objectives, Step-wise process,
Findings & References
4) Max Marks for Fieldwork/Project work Report: 05
5) Unit Tests/Internal Examinations

b) Suggested Co-Curricular Activities
1) Invited Lectures
2) Hands on Experience with the help of Field Experts.
3) Debates on Interesting Topics
4) Seminars, Group Discussions, Quiz, etc.
5) Assignments
6) Alumni Interactions
7) Periodical Interactions with HR Managers

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HISTORY Model Question Paper
(NEW MODEL PAPER)
B.A/ HEP – SEMESTER – V/VI

Time : 3 hrs Max. Marks : 70

Title: Tourism and Hospitality services

paper code:SECHIS601

Section-A

I. **ANSWER ANY TWO OF THE FOLLOWING QUESTIONS 2x5=10**

1 Explain the causes of rapid growth of tourism?

2 Types of restaurants services?

3 Konasema ?

4 Atithi devo bhava ?

Section - B

II.Answer any four of the following questions 4x15=60

5. Define tourism write about nature and scop of tourism?

6. Discuss about different types of services offered in a selected hotels?

7.Major tourism spots in Andhra Pradesh?

8.Write about domestic tourism and international tourism?

9. Explain duties and responsibilities of house keeping staff?

10. Explain different types of hotels in india ?

11. Discuss about hospitality industry?

12. Explain the relationship between history and tourism?

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Title: Tourism and Hospitality services

paper code; SECHIS601

Section	Unit – I	Unit – II	Unit – III	Unit – IV	Unit-V
A **5 Marks Questions**	**1**	**1**	**1**		**1**
B **15 Marks Questions**	**2**	**2**	**2**	**1**	**1**
Weightage	**35**	**35**	**35**	**15**	**20**

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Course 7B: Tourism Guidance and Operating Skills

(Skill Enhancement Course (Elective), 4 Credits)

Paper Code: SECHIS602

II. Learning Outcomes:

Students after successful completion of the course will be able to:

1. Acquire tour guiding, operating and soft skills
2. Understand different situations under which one has to work
3. Cultivate cultural awareness and flexibility
4. Understand and apply team spirit
5. Plan and organize tour operations efficiently

Unit: 1 **12hrs**

Meaning of tour guide - types of tour guide: heritage guide, nature guide, adventure guide, business guide, special interest guide etc – duties and responsibilities of guides -various roles of tour guide.

Unit: 2 **12hrs**

Guiding techniques: leadership skills, social skills, presentation skills, communication skills - Guide's personality skills: passion, empathy, enthusiasm, punctuality, humouretc - Personal hygiene and grooming – code of conduct.

Unit: 3 **12hrs**

Guest Relationship Management- Handling emergency situations- Medical, Personal, Official, VISA/Passport, Death, Handling Guest with special needs/Different Abilities/ Different age groups.

Unit: 4 **12hrs**

Conducting Tours: Pre-Tour Planning, Route Chart, Modes of Transportation, Security Measures, and Check list etc. - Conducting various types of tours- Relationship with Fellow Guides - Coordination with hospitality institutions.

Unit: 5 **12hrs**

Travel Agency and Tour operations – Difference between Travel Agent and Tour operator – Functions of Tour Operator – Types of Tour Operations and of Tour Operators - A brief study of tour operating agencies like APTDC, Southern Travels etc.

III. References:

1. Jagmohan Negi, Travel Agency and Tour Operations, Kanishka Publishers, New Delhi, 2006

2. Mohinder Chand, Travel Agency and Tour Operations: An Introductory Text, Anmol Publications Pvt. Limited, New Delhi, 2009

3. Dennis L Foster – Introduction to Travel Agency Management

4. Pat Yale (1995); Business of Tour Operations, Longman Scientific & Technical, New

5. Pond K L, The Professional Guide: Dynamics of Tour Guiding, 1993

6. www.tourism.gov.in

7. www.qtic.com

9. www.cedeop.europe

10. web sources as suggested by teacher/librarian

IV. Co-Curricular Activities:

a) Mandatory: (Training of students in the related skills by the Lecturer, Total 10 Hours)

1) For Teacher: Training of students by the teacher in the classroom and in the field for a total of not less than10 hours on various practical skills related to guidance and operating tours in tourism sector, with the help of local experts. The teacher shall lead students to local tourist sites and guide them to work with local tourist guides or local tourist operators.

2) For Student: Students shall individually choose and visit a local tourist place/monument such as a historical site, temple etc., and talk to local guides personally. Observe their functioning

to gain experience, including suggestions for the improving the guidance. These individual observations shall be written in the given format not exceeding 10 pages and submit to the teacher as Fieldwork/Project work Report.

3) Suggested Fieldwork/Project work Format:

Title Page, Student Details, Acknowledgments, Index page, Objectives, Step-wise process, Findings & References

4) Max Marks for Fieldwork/Project work Report: 05

5) Unit Tests/Internal Examinations

a) Suggested Co-Curricular Activities

1) Invited Lectures

2) Hands on experience with the help of field experts.

3) Debates on interesting topics

4) Seminars, Group Discussions, Quiz, etc.

5) Assignments

6) Alumni Interactions

7) Periodical interactions with Tour Mana

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(An autonomous college in the jurisdiction of Krishna university, Machilipatnam)

III BA.Semester – V

Subject; History 3HIS7B

Title of the Paper – TOURISM AND HOSPITALITY SERVICES 7B

Paper Code:SECHIS602

Time : 3Hrs **Max. Marks : 70**

Model Question Paper

SECTION – A

I. Answer any TWO of the following **2x5=10 M**

1. Responsibilities of the Guide?

2. Explain Types of Tour Guide?

3. Explain Guides Personality skills?

4. Handling of the Guest in different situations?

SECTION – B

II. Answer any FOUR of the following **4x15= 60 M**

5.Explain the meaning of the Tour Guide?

6.Explain duties of the Guide?

7..Write about the guiding techniques?

8.Explain hygiene and grooming of the guide?

9.Explain Relationship Management?

10..Passport and Visa process?

11.Write about Travel Agency and Tour operations?

12..Explain the functions of Tour operator?

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III BA.Semester – V

Paper Code:SECHIS602

Title of the Paper – TOURISM AND HOSPITALITY SERVICES 7B

Section	Unit – I	Unit – II	Unit – III	Unit - IV	Unit-V
A **5 Marks Questions**	**2**	**1**		**1**	
B **15 Marks Questions**	**1**	**2**	**2**	**1**	**2**
Weightage	**35**	**35**	**30**	**20**	**30**

THE END

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2022-2023

DEPARTMENT OF STATISTICS

MINUTES OF BOARD OF STUDIES

ODD SEMESTER

05-11-2022

Minutes of the meeting of BOS in Statistics for B.Sc(MSCs) Degree Courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 2.30 PM on 05-11-2022 through online mode.

N.V. SrinivasaRao *Presiding*

Members Present:

1)	(N.V.Srinivasa Rao)	Chairman	Head, Department of Mathematics, AG & SG S Degree College.
2)	(P. Ravi Kumar)	University Nominee	Department of Statistics, Pavitra Degree College, Machilipatnam.
3)	(G. Chakravarthy)	Subject Expert	Department of Statistics, P. B. Siddhartha College, Vijayawada
4)	(N. Siva Naga Raju)	Member	Lecturer in Statistics AG & SG S Degree College.
5)	(D.Sunitha)	Member	Lecturer in Mathematics AG & SG S Degree College.
6)	(A.Bhargavi)	Member	Lecturer in Mathematics AG & SG S Degree College.
7)	(Noor Mohammad)	Member	Lecturer in Mathematics AG & SG S Degree College.
8)	(K. Rajya Lakshmi)	Member	Lecturer in Mathematics AG & SG S Degree College.

Agenda of B.O.S Meeting:

1. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Statistics for 1st Semester as per the guidelines and instructions prescribed APSCHE and Krishna Universityfrom the Academic Year 2022-23.

2. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Statistic for 3rd Semester as per the guidelines and instructions prescribed APSCHE and Krishna Universityfrom the Academic Year 2022-23.
3. Discussed and recommended the teaching and evaluation methods for approval of Academic Council

4. Any other matter.

Resolutions.

1. Discussed and recommended that no changes are required in Syllabi. Changes are required in Model Question Papers and Guidelines to be followed by the question paper setters in Statistics for 1st Semester from the Academic year 2022-23.
2. To recommed the teaching and evaluation methods to be followed under Autonomous status. The maximum marks for IA is 30 and SE is 70. Each IA written examination is of 1 Hr.30 min duration for 30 marks. The tests will be conducted centrally. The average of two such IA is calculated for 20 marks. 5 marks will be allotted for attendance and 5 marks are allotted for Assignment/ Activity. There is no minimum passing for IA and there is no provision for improvement in IA. Even though the candidate is absent for two IA exams/obtain zero marks the external marks are considered (if he/ she gets 40 out of 70) and the result shall be declared as 'PASS' from the Academic year 2022-23.

3. To introduce new Syllabi, Model Question Papers and Guidelines to be followed by the question paper setters in Statisticsof 3rd Semester from the Academic year 2022-23. The maximum marks for IA is 25 and SE is 75. Each IA written examination is of 1 Hr. duration for 15 marks. The tests will be conducted centrally. The average of two such IA is calculated for 15 marks. 5 marks will be allotted basing on Assignment and 5 marks are allotted for activity. There is no minimum passing for IA and there is no provision for improvement in IA. Even though the candidate is absent for two IA exams/obtain zero marks the external marks are considered (if he/ she gets 40 out of 75) and the result shall be declared as 'PASS' from the Academic year 2022-23.

4. Discussed and recommended for organizing seminars, Guest lecturers, Online Examinations and Workshops to upgrade the knowledge of students for Competitive Examinations for the approval of the Academic Council.

A.G. & S.G. Siddhartha Degree College of Arts & Science

Vuyyuru, Krishna District

Department of Statistics

Programme Specific Outcomes (PSOs)

PSO1 : Apply the concepts, principles and methods of statistics to various fields of study

PSO2 : Understand the importance and value of statistical principles and convert a problem description into testable research hypotheses

PSO3 : Select appropriate statistical tools to investigate a research hypothesis.

PSO4 : Perform data analysis by apply appropriate statistical methodology and interpret result in a variety of settings

PSO5 : Compute statistical measures using software and programs.

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Title of the Paper: DESCRIPTIVE STATISTICS AND THEORY OF PROBABILITY

Semester: I

Course Code	STATIIB	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2021-22	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

SEMESTER- I **PAPER - I** **No of Credits: 4**

S. No	PROGRAMME OUTCOMES
POI	Remember the basic concepts of statistics at different levels and to understand them for gaining of knowledge.
PO2	Apply the statistical techniques in the analysis of data and also acquire knowledge in optimization techniques.
PO3	Facilitate students to acquire flair knowledge to estimate the values in real life problems.

COURSE OUTCOMES

CO.NO	Upon successful completion of this course, students should have the knowledge and skills to:	Mapping
Col	knowledge of various types of data, their organization andevaluation of summary measures such as non- central and central moments, measures of skewness and kurtosis.	**BTL2, PO2**
CO2	knowledge to conceptualize the probabilities of events including frequentist and axiomatic approach. simultaneously, they will learn the notion of conditional probability including the concept of Bayes' Theorem,	**BTL3, PO2**
CO3	knowledge related to concept of discrete and continuous random variables and their probability distributions including expectation and moments,	**BTL4, PO2**
CO4	knowledge related to concept of generating functions andweak law of large numbers.	**BTL4,PO2**

About this Course

Statistics is an important field of math that is used to analyze, interpret, and predict outcomes from data. Descriptive statistics will teach you the basic concepts used to describe data. This is a great beginner course for those interested in Data Science, Economics, Psychology, Machine Learning,

Sports analytics and just about any other field. This paper deals with the situation where there is uncertainty and how to measure that uncertainty by defining the probability.

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STATISTICS	STATIIB	2021-22 Onwards	B.Sc.(MSCs)

SEMESTER-I **PAPER-I** **No. of Credits: 4**

DESCRIPTIVE STATISTICS AND THEORY OF PROBABILITY

Unit- I **12L**

Moments: Central and non-central moments and their inter-relationships, Sheppard's corrections for moments for grouped data. **Skewness:** Definition, measures of skewness by Karl Pearson' s, Bowley's formulae and based on moments. **Kurtosis:** Definition, measures of kurtosis based on moments, Simple problems.

Unit- **II** **12L**

Probability-I: Definitions of various terms - Random experiments, trial, sample space, mutually exclusive, exhaustive , equally likely, favourable and independent events. Definitions-Mathematical, Statistical and Axiomatic definitions of probabilities. Law of addition of probabilities for two events and extension of general law of addition of probabilities. Boole's inequality for n events and real-life problems.

Unit -III 12L

Probability-II : Conditional Probability-Definition - dependent and independence events, multiplication law of probability for two events, extension of multiplication law ofprobability. Pairwise independent events and conditions for mutual independence of n eventsand Baye's theorem and its applications and problems.

Unit- IV **12L**

Random Variables: Univariate Random variables- Definition, Discrete and Continuous random variables - Probability mass function and probability density function with illustrations. Distribution function and its properties. Bivariate random variables- Definition, Discrete and Continuous bi-variate random variables- joint, marginal and conditional distributions- its properties. Distribution functions of the bivariate random variables and its properties. Independence of random variables, and simple problems.

UnitV: **12L**

Mathematical Expectations: Definition, Mathematical expectation of function of a random variable, Properties of Expectations - Addition and Multiplication theorems of expectation. Properties of Variance and Covariance. Cauchy-Schwartz Inequality. Generating Functions-Definition of moment generating function (m.g.f), Cumulant generating function (c.g.f), Probability generating function (p.g.f) and Characteristic function (c.f) and statements of their properties with applications. Chebyshev's inequality and its applications. Statement of Weak Law of Large Numbers for identically and independently distributed (i.i.d) random variables with finite variance.

Text Book: Fundamentals of Mathematical Statistics, 12th Edition, 10th September 2020, S. C. Gupta and V. K. Kapoor, Sultan Chand & Sons, New Delhi.

Recommended References books:

1. B.A/B.Sc. First Year Statistics(2010), Telugu Academy, Hyderabad.
2. Mathematical Statistics with Applications, 2009, K.M.Ramachandran and Chris P.Tsokos Academic Press(Elsevier), Haryana.
3. Probability and Statistics,Volume I, D.Biswas, New central book Agency (P) Ltd, New Delhi.
4. An outline of Statistical theory, Volume Two,3rd Edition,2010(with corrections) A.M.Goon,M.K. Gupta, B.Dasgupta ,The World Press Pvt.Ltd., Kolakota.
5. Sanjay Arora and BansiLal:. New Mathematical Statistics, SatyaPrakashan, New Delhi.

Websites of Interest: http://onlinestatbook.com/rvls/index.html

Co-Curricular Activities in the class:

1. Pictionary
2. Case Studies on topics in field of statistics
3. Snap test and Open Book test
4. Architectural - To be build the procedures
5. Extempore - Random concept to students
6. Interactive Sessions
7. Teaching through real world examples

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COURSE-I, DESCRIPTIVE STATISTICS AND THEORY OF PROBABILITY

B.Sc STATISTICS MODEL PAPER (W.E.F 2022 – 2023)

Time: 3Hrs Max.Marks:70M

Answer the following questions. 5 x 14 = 70M

Section A

1. (a) 4m
   (or)
   (b) 4m
2. (a) 4m
   (or)
   (b) 4m
3. (a) 4m
   (or)
   (b) 4m
4. (a) 4m
   (or)
   (b) 4m
5. (a) 4m
   (or)
   (b) 4m

Section B

1. (a) 10m
   (or)
   (b) 10m
2. (a) 10m
   (or)
   (b) 10m
3. (a) 10m
   (or)
   (b) 10m

4. (a) 10m

(or)

(b) 10m

5. (a) 10m

(or)

(b) 10m

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STATISTICS	STATIIB	2021-22 Onwards	B.Sc.(MSCs)

SEMESTER-I **Practical - I: Descriptive Statistics** **No of Credits: 1**

CO.NO	Upon successful completion of this course, students should have the knowledge and skills to:	Mapping
COI	draw the suitable diagram and graphs of the givensample data	P02
CO2	Analyze the uni-variate data using statisticaltechniques.	P02

List of Practicals

1. Diagrams & Graphs- Bar, Pie , Histogram, frequency polygon, and Ogive curves
2. Computation of measures of central tendency- Arithmetic Mean, Geometric mean and Harmonic Mean - Grouped Data.
3. Computation of measures of central tendency- Median, Mode and Partition Values - Grouped Data.
4. Computation of measures of Dispersion - Quartile Deviation, Mean Deviation, Standard Deviation, Variance and Coefficient of Variation - Grouped Data.
5. Computation of non-central, central moments, $_1$ and $_2$ and Sheppard's corrections for grouped data.
6. Computation of central moments, $_1$ and $_2$ and Sheppard's corrections when non -central moments are given.
7. Computation of Karl Pearson's coefficients, Bowley's coefficients of Skewness and coefficients of skewness based on moments - Grouped Data

Note: Training shall be on establishing formulae in Excel cells and derive the results. The excel output shall be exported to MS word for writing inference.

Reference Books

1. Practical Manual -Prepared by the Department Faculty Members
2. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC. PHI

Websites of Interest: http://www.statsci .org/datasets.html

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Offered to: B.SC (MSCs) / STAT31C **Course Type:** Core (Theory)

Year of Introduction: 2022 **Year of Revision: 2022** **Percentage of Revision: 0%**
Semester: III **Paper No. : III** **Credits: 4**

Hours Taught: 60 periods. per Semester **Max. Time: 3** Hours

Course Prerequisites (if any): Student required basic knowledge in Probability and DistributionTheory

Course Description:

This course helps the students to familiarize with the ways in which we talk about uncertainty and estimate their situations in which probability arises. Also this course aims at providing basic knowledge about theoretical and application to test according to situations.

Course Objectives:

1) To describe many of the important estimation methods and characteristics of theestimators.
2) To understand the problem of statistical inference with specific reference to pointestimation and interval estimation.
3) To differentiate between large and small samples and apply apt testing procedures.

Learning Outcomes: At the end of the course, the student will

1) Students will understood the distinguish between the parametric and Non Parametric situations.
3) The parameters describe an underlying physical setting in such a way that their value affectsthe distribution of the measured data..

S. No	Program Outcomes
PO1.	**Effective Communication**: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaningof the world by connecting people, ideas, books, media and technology
PO2.	**Effective Citizenship**: Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
PO3.	**Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO4.	**Environment and Sustainability**: Understand the issues of environmental contexts and sustainable development
PO5.	**Critical Thinking**: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO6:	**Specialized Skills / Transferable Skills:** Acquisition of communication and soft, analytical and technological skills that aid in enhancing
PO7.	**Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

Course Outcomes:		
Course Outcome	Upon successful completion of this course, students should have the knowledge and skills to:	**Program Outcomes Mapping**
CO 1	Obtain the knowledge on Exact sampling distributions and their application towards real world examples	PO - 5
CO 2	knowledge of point and interval estimation procedures and different methods of point estimation	PO - 6
CO3	Obtain the knowledge on various testing hypothetical statements and finding Uniformly Most Powerful Test	PO - 6
CO 4	a fundamental understanding of Parametric models for developing relevant inferences on associated parameters large and small samples.	PO - 6
CO 5	To obtain the knowledge and to know the applications of various Non-Randomized tests	PO - 6

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Exact Sampling Distributions** Concepts of Population, Sample, Parameter, Statistic, Sampling distribution, Standard error. law of large numbers, central limit theorem (statements only). Student's t- distribution, F – Distribution, $\chi 2$ - Distribution: Definitions, properties and their applications.	**9**
II	**Theory of estimation** Introduction, criteria of a good estimator – unbiasedness, consistency, efficiency, & sufficiency. Statement of Neyman's factorization theorem. Estimation of parameters by the method of moments and maximum likelihood (M.L), properties of MLE's (statements only). Binomial,Poisson & Normal population parameters estimate by MLE method. Interval estimation – construction of confidence intervals for population mean using normal distribution.	**15**
III	**Testing of Hypothesis** Concepts of Statistical hypotheses, Null and Alternative hypothesis, Critical region, Type I and II errors, level of significance and Power of a test. One and two tailed tests, p-value. Neyman-Pearson's lemma. Examples in case of Binomial, Poisson, Exponential and Normal distributions.	**12**

IV	**Large sample Tests** Test for single mean and difference of two means, test for single proportion and difference of proportions. Simple Problems. **Small Sample tests - I** t-test for single mean, difference of means and paired t-test. F-test for equality of population variances. Simple Problems.	**12**
V	**Small Sample tests - II** χ2-test for goodness of fit and independence of attributes **Non – Parametric Tests** Non-parametric tests- Advantages and Disadvantages, Measurement scales - Nominal, Ordinal, Interval and Ratio. One sample tests – Sign and Run test. Two sample tests - Median test, Wilcoxon–Mann-Whitney U test, Kruskal – Wallis test or H- test, Run test. Simple Problems.	**12**

Text Book:

Fundamentals of Mathematical Statistics, 11th Edition, 2010, S. C. Gupta and V. K. Kapoor,Sultan Chand & Sons, New Delhi

Reference Books:

1. B.A/B.Sc. Second Year Statistics(2010) , Telugu Akademi, Hyderabad.
2. Mathematical Statistics with Applications, 2009, K.M.Ramachandran and Chris P.TsokosAcademic Press(Elsevier), Haryana .
3. Probability and Statistics, Volume I & II, D. Biswas, New central book Agency (P) Ltd,NewDelhi.
4. An outline of Statistical theory, Volume II,3rd Edition,2010(with corrections)A.M.Goon,M.K. Gupta, B.Dasgupta ,The World Press Pvt.Ltd., Kolakota.

Sanjay Arora and Bansi Lal:. New Mathematical Statistics, Satya Prakashan , New Delhi.

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Model Question Paper Structure for SEE

Max.: 75 Marks **Min.Pass: 30 Marks**

Statistical InferenceSection – A

Answer any FIVE of the following **5 x 5M = 25Marks**

1. Write the statements of Weak Law of large numbers and Central limit theorem.
2. Define F-distribution and write its applications.
3. Prove that sample mean is an unbiased and consistent estimator of population mean.
4. Define the following terms:

   (i) Null hypothesis (ii) Alternative hypothesis (iii) critical region.
5. Explain Type I and Type II errors.
6. Write the procedure for single mean in large sample tests.
7. Write the procedure of F-test for equality of population variances.
8. Explain the procedure of Sign test for single mean.

Section – B

Answer ALL questions **5 x 10M = 50Marks**

9. a. Define student's t-distribution. Write its applications and their properties.

   (OR)

   b. Define chi-square distribution. Write its applications and their properties.

10. a. Explain the characteristics of a good estimator

    (OR)

    b. Find Maximum likelihood estimator for μ and σ^2 in normal population.

11. a. State and prove Neyman-Pearson's lemma.

    (OR)

    b. If $x \geq 1$ is the critical region for testing $H_0: \theta=2$ vs $H_1: \theta=1$ on the basis of the singleobservation from an exponential distribution with probability density function $f(x, \theta)= \theta e^{-\theta x}$. Obtain the value of Type I and Type II errors.

12. a. In a Survey of buying habits, 400 women shoppers are chosen at random on supermarket 'A' located in a certain section of the city. Their average weekly food expenditure is Rs.250 with a S.D. of Rs. 40. For 400 women shoppers are chosen at random on Supermarket 'B' in another section of the city, the average weekly food expenditure is Rs.220 with a S.D. of Rs 55.Test at 1% level of significance whether the average weekly food expenditure of the populations of shoppers are equal.

    (OR)

    b. Explain the procedure of t- test for difference of means.

13. a. Out of 8,000 graduates in a town 800 are females, out of 1,600 graduate employees 120are females.Use $\chi^2$to determine if any distinction is made in appointment the basis of sex.

(O
R)

b. Explain the procedure of Wald-Wolfowitz run test for two samples.

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Offered to: B.SC (MSCs) / STAP31C
Course Type: Core (Practical)

Year of Introduction: 2022	**Year of Revision: 2022**	**Percentage of Revision: 0%**
Semester: III	**Paper No. III**	**Credits: 1**

Hours Taught: 30 periods. per Semester **Max.Time: 2** Hours
Course Prerequisites (if any): Student required basic knowledge in computers

Course Description:

This course gives a working knowledge of Excel to students with the aim of getting to use dataanalysis and testing.

Course Objectives

1) To train students in SPSS Software
2) To expose the students to the analysis of statistical data and comparing data sets.

Learning Outcomes: At the end of the course, the student will

1) able to do data analysis using Excel
2) known to choose the data to test various types.

S. No	Programme Outcomes
PO1.	**Effective Communication**: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology
PO2.	**Effective Citizenship**: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
PO3.	**Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO4.	**Environment and Sustainability**: Understand the issues of environmental contexts and sustainable development
PO5.	**Critical Thinking**: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO6:	**Specialized Skills / Transferable Skills:** Acquisition of communication andsoft, analytical and technological skills that aid in enhancing
PO7.	**Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

Course Outcomes:		
Course Outcome	Upon successful completion of this course, students should have the knowledge and skills to:	**Programme Outcomes Mapping**
CO 1	To Apply statistical analysis that can test hypotheses under parametric approaches.	PO –6
CO 2	To Apply statistical analysis that can test hypotheses under non-parametric approaches.	PO –6

List of practical's

1. Small sample test (t-test): One Sample, Independent Sample and Paired Sample.
2. Large sample tests: One Sample, Independent Sample, Paired Sample (Using Excel)
3. Small sample test (F-test): Equality of population variances (Using Excel)
4. Chi square Test: Test of Independence
5. Chi square Test: Goodness of fit
6. Chi square Test: Test of Independence, 2X2, 3X3,…, mXn Cross tabulation (Using Excel)
7. Non Parametric Tests: Mann Whitney U test and Wilcoxon Signed ranks test
8. Non Parametric Tests: Kruskal Wallis Test and Friedman test (Using Excel)

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VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

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2022-2023

DEPARTMENT OF STATISTICS

MINUTES OF BOARD OF STUDIES

EVEN SEMESTER

15-04-2023

Minutes of the meeting of BOS in Statistics for B.Sc(MSCs) Degree Courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at 2.30 PM on 15-04-2023 through online mode.

N.V. SrinivasaRao *Presiding*

Members Present:

1) N.V. (N.V.Srinivasa Rao)	Chairman	Head, Department of Mathematics, AG & SG S Degree College.
2) P. R. (P. Ravi Kumar)	University Nominee	Department of Statistics, Pavitra Degree College, Machilipatnam.
3) G. Chakravarthi (G. Chakravarthy)	Subject Expert	Department of Statistics, P. B. Siddhartha College, Vijayawada
4) N. Siva Naga Raju. (N. Siva Naga Raju)	Member	Lecturer in Statistics AG & SG S Degree College.
5) D. Sunitha (D.Sunitha)	Member	Lecturer in Mathematics AG & SG S Degree College.
6) A. Bhargavi (A.Bhargavi)	Member	Lecturer in Mathematics AG & SG S Degree College.
7) (Noor Mohammad)	Member	Lecturer in Mathematics AG & SG S Degree College.
8) K. Rajya Lakshmi (K. Rajya Lakshmi)	Member	Lecturer in Mathematics AG & SG S Degree College.

Agenda of B.O.S Meeting:

1. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Statistics for 2nd Semester as per the guidelines and instructions prescribed APSCHE and Krishna University from the Academic Year 2022-23.

2. To discuss and recommend the Syllabi, Model Question Papers and Guidelines to be followed by question paper setters in Statistic for 4th Semester as per the guidelines and instructions prescribed APSCHE and Krishna University from the Academic Year 2022-23.
3. Discussed and recommended the teaching and evaluation methods for approval of Academic Council

4. Any other matter.

Resolutions.

1. Discussed and recommended thatno changes are required in Syllabi. Changes are required in Model Question Papers and Guidelines to be followed by the question paper setters in Statistics for 2nd Semester from the Academic year 2022-23.
2. To recommed the teaching and evaluation methods to be followed under Autonomous status. The maximum marks for IA is 30 and SE is 70. Each IA written examination is of 1 Hr. 30 min duration for 30 marks. The tests will be conducted centrally. To reduce two IA tests and is calculated for 20 marks. 5 marks will be allotted for attendanceand 5 marks are allotted for Assignment/ Activity. There is no minimum passing for IA and there is no provision for improvement in IA. Even though the candidate is absent for two IA exams/obtain zero marks the external marks are considered (if he/ she gets 40 out of 70) and the result shall be declared as 'PASS' from the Academic year 2022-23.

3. To introduce new Syllabi, Model Question Papers and Guidelines to be followed by the question paper setters in Statistics of 4th Semester from the Academic year 2022-23. The maximum marks for IA is 25 and SE is 75. Each IA written examination is of 1 Hr. duration for 15 marks. The tests will be conducted centrally. The average of two such IA is calculated for 15 marks. 5 marks will be allotted basing on Assignment and 5 marks are allotted for activity. There is no minimum passing for IA and there is no provision for improvement in IA. Even though the candidate is absent for two IA exams/obtain zero marks the external marks are considered (if he/ she gets 40 out of 75) and the result shall be declared as 'PASS' from the Academic year 2022-23.

4. Discussed and recommended for organizing seminars, Guest lecturers, Online Examinations and Workshops to upgrade the knowledge of students for Competitive Examinations for the approval of the Academic Council.

A.G. & S.G. Siddhartha Degree College of Arts & Science

Vuyyuru, Krishna District

Department of Statistics

Programme Specific Outcomes (PSOs)

PSO1 : Apply the concepts, principles and methods of statistics to various fields of study

PSO2 : Understand the importance and value of statistical principles and convert a problem description into testable research hypotheses

PSO3 : Select appropriate statistical tools to investigate a research hypothesis.

PSO4 : Perform data analysis by apply appropriate statistical methodology and interpret result in a variety of settings

PSO5 : Compute statistical measures using software and programs.

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU – 521165

Reaccredited at 'A' level by NAAC

Autonomous -ISO 9001 – 2015 Certified

Title of the Course: Probability Distributions and Statistical Methods

Offered to: B.SC (MSCs) **Course Code : STAT21C**

Course Type: Core (Theory) **Year of Introduction:2019-20**

Year of Revision: 2021-22 **Percentage of Revision: 0%**

Semester: II **Credits: 4**

Hours Taught: 60periods **Max.Time:** 3 Hours

Course Prerequisites: Students required basic knowledge in Calculus, Algebra and Probability.

Course Description: This course helps the students to familiarize students with the ways in which we talk about uncertainty and look at everyday situations in which probability arises. Also this course aims at providing basic knowledge about theoretical distribution models that can suit different phenomena of interest measured as variables in a continuum.

Course Objectives:

1) To enable the students to develop basic knowledge in theoreticalProbability distributions
2) To provide understanding and applying standard continuous probability distribution to different situations.
3) To get the knowledge regarding qualitative factors
4) To understand the relation between quantitative factors
5) To make the estimated values using regression

Learning Out comes: At the end of the course, the student will

1) Acumen to apply standard discrete probability distribution to different situations.
2) ability to handle transformed random variables and derive associated distributions.
3) The parameters describe an underlying physical setting in such a way that their value affects the distribution of the measured data.

S. No	Programme Outcomes
PO1.	**Effective Communication**: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology
PO2.	**Effective Citizenship**: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
PO3.	**Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.

PO4.	**Environment and Sustainability**: Understand the issues of environmental contexts and sustainable development
PO5.	**Critical Thinking**: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO6:	**Specialized Skills / Transferable Skills:** Acquisition of communication and soft, analytical and technological skills that aid in enhancing
PO7.	**Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

Course Outcomes:		
Course Outcome	Upon successful completion of this course, students should have the knowledge and skills to:	**Programme Outcomes Mapping**
CO 1	Develop the basic knowledge in Probability distribution and uncertainty conditions we apply standard discrete probability distributions to identify the probability values.	PO - 5
CO 2	Obtained the knowledge of applications on standard continuous distributions. Also get the knowledge in respect of usage in day-to-day life.	PO - 5
CO3	Analyse the qualitative data	PO - 6
CO 4	Statistically analyze the strengths of relationship between variables.	PO - 7
CO 5	To outline the vital area of regression models applicable in a wide variety of real time situations	PO - 7

Syllabus

Unit	Learning Units	Lecture Hours
I	**Theoretical Probability Discrete Distributions** Rectangular, Binomial, Poisson, Negative Binomial, Geometric, Hyper Geometric distributions: Definitions, Means, Variances, M.G.F, C.G.F, P.G.F, additive property,limiting cases, memory less property if exists . Simple problems.	**12**
II	**Theoretical Probability Continuous Distributions** Rectangular, Normal, Exponential, Gamma, Beta Distributions: Definitions, Means, Variances, M.G.F, C.G.F, P.G.F, additive property,limiting cases, memory less property if exists . Simple problems.	**12**
III	**Theory of Attributes**: Notations, Dichotomy classification, class and class frequencies, order of classes and class frequencies. Ultimate class frequencies, relation between class frequencies. Consistency of data - Conditions for consistency of data for 2 and 3 attributes only. Independence of attributes- criterion of independence of two attributes. Association of attributes-Yule's coefficient of association and coefficient of colligation.	**12**

	Relationship between coefficient of association and colligation and simple problems.	
IV	**Correlation**: Meaning, Types of Correlation, Measures of Correlation- Scatter diagram, Karl Pearson's Coefficient of Correlation, Rank Correlation coefficient (with and without ties), Bi-variate frequency distribution, correlation coefficient for bi-variate data and simple problems. **Multiple and Partial Correlation**- Coefficients of multiple and partial correlations, properties of multiple and multiple correlation coefficients, coefficient of multiple determination. simple problems	**12**
V	**Curve fitting** Principle of least squares, fitting of straight line, fitting of second degree polynomial or parabola. Fitting of power curve and exponential curves. **Regression Analysis**: Introduction, Linear Regression- Regression coefficients, properties of regression coefficients, angle between two lines of regression. Standard error of estimate (residual variance), Explained and unexplained variation, coefficient of determination and simple problems	**12**

Text Book:

Fundamentals of Mathematical Statistics, 12th Edition, Sep 2020, S. C. Gupta and V. K. Kapoor, Sultan Chand & Sons, New Delhi

Reference Books:

1.B.A/B.Sc. Second Year Statistics(2010) , Telugu Akademi, Hyderabad.

2. Mathematical Statistics with Applications, 2009, K.M.Ramachandran and Chris P.Tsokos Academic Press(Elsevier), Haryana .

3.Probability and Statistics, Volume I & II, D. Biswas, New central book Agency (P) Ltd, NewDelhi.

4. An outline of Statistical theory, Volume II,3rd Edition,2010(with corrections) A.M.Goon,M.K. Gupta, B.Dasgupta ,The World Press Pvt.Ltd., Kolakota.

5.Sanjay Arora and Bansi Lal:. New Mathematical Statistics, Satya Prakashan , New Delhi.

Websites of Interest: **http://onlinestatbook.com/rvls/index.html**

Co-Curricular Activities in the class:

1. Pictionary
2. Case Studies on topics in field of statistics
3. Snap test and Open Book test
4. Architectural – To be build the procedures
5. Extempore – Random concept to students
6. Interactive Sessions
7. Teaching through real world examples

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Model Question Paper Structure for SEE

STAT21C **Max.: 70Marks**

Min.Pass:28 Marks

Section – A

Answer the following **5 x 4M = 20M**

1. a) In Binomial distribution mean and variance are 4 and 3 respectively. Find mode of the distribution. (CO-1,L-2)

(OR)

b) Show that in Poisson distribution mean and variance are equal. (CO-1,L-2)

2. a) Write the properties of normal distribution. (CO-2,L-2)

(OR)

b) Obtain the mean and variance of Beta distribution of 2^{nd} kind . (CO-2,L-2)

3. a) Explain the types of correlation (CO-3,L-2)

(OR)

b) Define class and class frequency of an attribute with examples. (CO-3,L-2)

4. a) Write the properties of regression coefficients. (CO-4,L-2)

(OR)

b) Explain the concept of rank correlation. (CO-4,L-2)

5. a) Write the properties of multiple correlation coefficient. (CO-5,L-2)

(OR)

b) Write the properties of Regression coefficient. (CO-5,L-2)

Section – B

Answer the following **5 x 10M = 50M**

6. a) Define Binomial distribution and derive the recurrence relation for central moments (CO-1,L-2)

(OR)

b) (i) A book contain 43 mistakes in 585 pages. Find the probability that there will be no mistake in randomly selected 10pages of the book.

(ii) If a Poisson distribution such that $3P(x=1) = 2P(x=3)$. Find $P(2 \leq X \leq 5)$ (CO-1,L-2)

7. a) Show that mean, median and mode are equal in Normal distribution. (CO-2,L-2)

(OR)

b) In a distribution exactly normal, 7% of the items are under 35and 89% are under 63. What are the mean and standard deviation of the distribution. (CO-2,L-2)

8. a) Write the criteria for independence of three attributes. Find all the remaining class frequencies for the following set of frequencies. N= 23713, (A) = 1618, (B) = 2015, (C) = 770, (AB) = 587, (AC) = 335, (BC) = 428, (ABC) = 158 (CO-3,L-3)

(OR)

b) The male population of a particular state is 250lakhs. The number of literate males is 20 lakhs and total number of male criminals is 26000. The number of literate male criminals is 2000. Do you find any association between literacy ad criminality. (CO-3,L-3)

9. a) State the Karl Pearson's correlation coefficient and prove that it has between -1 and +1 (CO-4,L-2)

(OR)

b) Obtain the rank correlation coefficient of marks of 12 students in statistics and computer science given below (CO-4,L-3)

X	58	64	65	55	44	80	65	75	40	55	64	55

Y	52	48	45	62	45	68	62	82	44	45	74	62

10. a) Derive the regression equation of y on x (CO-5,L-2)

(OR)

b) Fit the power curve of the type $y = ax^b$ to the following data (CO-5,L-3)

X	3	5	8	10	12	13
Y	17	41	94	139	191	220

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A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU – 521165

Reaccredited at 'A' level by NAAC

Autonomous -ISO 9001 – 2015 Certified

Title of the Course: Probability Distributions and Statistical Methods Lab

Offered to: B.Sc (M.S.Cs) **Course Code: STAP21C**

Course Type: Core (P) **Year of Introduction: 2019-2020**

Year of Revision: 2021-22 **Percentage of Revision: 0%**

Semester: II **Credits: 1**

Hours Taught: 30periods **Max.Time: 2** Hours

Course Prerequisites (if any): Nil

S. No	Programme Outcomes
PO1.	**Effective Communication**: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology
PO2.	**Effective Citizenship**: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
PO3.	**Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO4.	**Environment and Sustainability**: Understand the issues of environmental contexts and sustainable development
PO5.	**Critical Thinking**: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO6:	**Specialized Skills / Transferable Skills:** Acquisition of communication and soft, analytical and technological skills that aid in enhancing
PO7.	**Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

Course Outcomes:		
Course Outcome	Upon successful completion of this course, students should have the knowledge and skills to:	**Programme Outcomes Mapping**

CO 1	To fit a data into various theoretical probability distributions.	PO – 5
CO 2	Apply and Analyze the qualitative data	PO – 6
CO3	Identify the relations between the variables and estimate.	PO - 7

List of Practicals

1. (a) Fitting of Binomial distribution (Direct Method). (CO – 1)
   (b) Fitting of Binomial distribution (Recurrence Method).(CO – 1)
2. (a) Fitting of Poisson distribution (Direct Method).(CO – 1)
   (b) Fitting of Poisson distribution (Recurrence Method). (CO – 1)
3. (a) Fitting of Normal distribution (Areas Method). (CO – 1)
   (b) Fitting of Normal distribution (Ordinates Method). (CO – 1)
4. Computation of Yule's coefficient of association. (CO – 2)
5. Computation of Pearson's and Tcherprows coefficient of contingency(CO – 2)
6. (a) Computation of correlation coefficient for ungrouped data. (CO – 3)
   (b) Computation of correlation coefficient for grouped data. (CO – 3)
7. (a) Fitting of a straight line by the method of least squares. (CO – 3)
   (b) Fitting of a parabola by the method of least squares. (CO – 3)
   (c) Fitting of power curve $y = ax^b$ by the method of least squares. (CO – 3)
   (d) Fitting of exponential curves $y = ae^{bx}$ & $y = ab^x$ by the method of least squares.(CO-3)
8. (a) Construction of regression lines for the ungrouped data. (CO – 3)
   (b) Construction of regression lines for the grouped data.(CO – 3)

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Structure of Practical Paper

Total Marks: 50 Marks

(i) For Continuous Evaluation : 15 marks (Internal Evaluation)
(ii) For semester end Practical Examination : 35 marks (External Evaluation)

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU – 521165

Reaccredited at 'A' level by NAAC

Autonomous -ISO 9001 – 2015 Certified

Title of the Course: Sampling Techniques and Design of Experiments

Offered to: B.SC (MSCs) **Course Code: STAT 41B**

Course Type: Core (Theory) **Credits: 4**

Year of Introduction: 2022-23 **Semester: IV**

Hours Taught: 60periods. **Max.Time:** 3 Hours

Course Prerequisites: Basic Knowledge of Mathematics, Counting principles, distributions, Estimation and Testing of Hypothesis.

Course Description: This course helps the students to understand the various sampling ideas to conduct the socio economics studies. Introduces the basic concepts and principles of experimental design

Course Objectives:

1) To impart basic concepts in Sampling Theory.
2) To explore various sampling techniques and understand their merits and drawbacks.
3) To understand the basic terminology in experimental design.
4) To develop the students ability to plan an experiment.
5) Obtaining relevant information from the experiment in relation to the statistical hypothesis under study.

Learning Outcomes: At the end of the course, the student will

1) Acumen to apply for collecting data for various studies.
2) ability to understand the design for comparing the various fields.
3) develop the skill of identifying important inputs that impact the output.

S. No	Programme Outcomes
PO1.	**Effective Communication**: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology
PO2.	**Effective Citizenship**: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO3.	**Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO4.	**Environment and Sustainability**: Understand the issues of environmental contexts and sustainable development

PO5.	**Critical Thinking**: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO6:	**Specialized Skills / Transferable Skills:** Acquisition of communication and soft, analytical and technological skills that aid in enhancing
PO7.	**Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

Course Outcomes:		
Course Outcome	Upon successful completion of this course, students should have the knowledge and skills to:	**Programme Outcomes Mapping**
CO 1	To understand the principles and principal steps of sampling, and different sampling techniques. Apply different sampling techniques to take samples and computeunbiased estimates and confidence limits of population parameters.	PO - 5
CO 2	To analyse the unbiasedness and efficiencies of estimates obtained using different sampling techniques.	PO - 6
CO3	To understand the basic concepts and principles of experimental designs.	PO - 5
CO 4	To Analyze the various design of experiment concepts and missing plot techniques.	PO - 6
CO 5	To Identify the factors and variable for the experiment for building statistical model.	PO - 7

Syllabus

Unit	Learning Units	Lecture Hours
I	**Introductory Concepts of sampling :** Concepts of Population and Sample, Basic principles of sample survey, The principles steps in a sample survey, Complete enumeration Vs Sampling, Sampling and non-sampling errors, Limitations of sampling, Types of sampling, Non Probability sampling methods, Probability sampling methods **Simple Random sampling:** SRSWR definition and procedure of selecting a sample, SRSWOR definition and procedure of selecting a sample , expectation of sample mean	**12**

	and variance of sample mean in srswor and srswr, advantages and disadvantages.	
II	**Stratified random sampling:** Stratified random sampling, Advantages and Disadvantages Allocation and types of allocation. Estimation of population mean, and its variance. Comparison between proportional and optimum allocations with SRSWOR. **Systematic sampling:** Procedure of construction, types, merits and demerits of systematic sampling. Comparison of systematic sampling with Stratified and SRSWOR	**12**
III	**Analysis of variance :** Analysis of variance(ANOVA) –Definition and assumptions. One-way classification, Two way classification.(one observation per cell) **Design of Experiments:** Terminology, Principles of design of experiments, CRD: Layout, advantages and disadvantage and Statistical analysis of Completely Randomized Design(C.R.D)	**12**
IV	Randomized Block Design (R.B.D) and Latin Square Design (L.S.D) with their layouts, advantages and disadvantage and Statistical analysis, Missing plot technique in RBD and LSD. Efficiency RBD over CRD, Efficiency of LSD over RBDand CRD.	**12**
V	**Factorial experiments** – Main effects and interaction effects of 2^2 and 2^3 factorial experiments and their Statistical analysis. Yates procedure to find factorial effect totals.	**12**

Text Book:

Fundamentals of Applied Statistics, 11th Edition, 2010, S. C. Gupta and V. K. Kapoor, Sultan Chand & Sons, New Delhi

Reference Books:

1. B.A/B.Sc. Second Year Statistics(2010) , Telugu Akademi, Hyderabad.
2. Mathematical Statistics with Applications, 2009, K.M.Ramachandran and Chris P.Tsokos Academic Press(Elsevier), Haryana .
3. Probability and Statistics, Volume I & II, D. Biswas, New central book Agency (P) Ltd, NewDelhi.
4. An outline of Statistical theory, Volume II,3rd Edition,2010(with corrections) A.M.Goon,M.K. Gupta, B.Dasgupta ,The World Press Pvt.Ltd., Kolakota.
5. Sanjay Arora and Bansi Lal:. New Mathematical Statistics, Satya Prakashan , New Delhi.

Websites of Interest: **http://onlinestatbook.com/rvls/index.html**

Co-Curricular Activities in the class:

1. Pictionary
2. Case Studies on topics in field of statistics

3. Snap test and Open Book test
4. Architectural – To be build the procedures
5. Extempore – Random concept to students
6. Interactive Sessions
7. Teaching through real world examples

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Model Question Paper Structure for SEE

Max.: 75 Marks **Course Code: STAT 41B** **Min. Pass : 30 Marks**

Model Paper

Section A

Answer any FIVE of the following. **5 x 5M = 25M**

1. Write a short note on ANOVA
2. Define the terms (i) Treatments (ii) Blocks (iii) Experimental error
3. Write the applications of Completely randomized design
4. Explain the layout of Latin square design
5. Explain the layout of Randomized block design
6. Write the advantages of simple random sampling
7. Explain the construction of stratified random sampling
8. Explain the advantages of systematic sampling

Section – B

Answer the following. **5 x 10M =50M**

9 a) Explain basic principles of sampling

(OR)

b) In SRSWOR, the sample mean square is an unbiased estimate of the population mean square

10 a) Show that $V(\overline{y_{st}})_{Ney} \leq V(\overline{y_{st}})_P \leq V(\overline{y_n})_R$

(OR)

b) If the population consists of a linear trend then Show that

$$V(\overline{y_{st}}) \leq V(\overline{y_{sys}}) \leq V(\overline{y_n})_R$$

11 a) Explain the principles of design of experiments

OR

b) Explain analysis of Completely randomized design

12 a) Explain analysis of Randomized block design

(OR)

b) Explain analysis of Latin square design

13 a) Explain analysis of 2^2 – factorial design

OR

b) Explain analysis of 2^3 – factorial design

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A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU – 521165

Reaccredited at 'A' level by NAAC

Autonomous -ISO 9001 – 2015 Certified

Title of the Course : Sampling Techniques and Design of Experiments Lab

Offered to: B.SC (MSCs) **Course Code: STAT 41BP**

Course Type: Core (Practical) **Credits: 1**

Year of Introduction: 2022-23 **Semester: IV**

Hours Taught: 30periods **Max.Time: 2** Hours

Course Prerequisites (if any): Nil

S. No	Programme Outcomes
PO1.	**Effective Communication**: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology
PO2.	**Effective Citizenship**: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
PO3.	**Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO4.	**Environment and Sustainability**: Understand the issues of environmental contexts and sustainable development
PO5.	**Critical Thinking**: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO6:	**Specialized Skills / Transferable Skills:** Acquisition of communication and soft, analytical and technological skills that aid in enhancing
PO7.	**Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

Course Outcomes:		
Course Outcome	Upon successful completion of this course, students should have the knowledge and skills to:	**Programme Outcomes Mapping**
CO 1	To draw the sample from the population using sampling techniques	PO – 5
CO 2	To Construct suitable designed experiment for a given real life data.	PO - 6

List of Practicals

1. Simple random sampling with and without replacement. Comparison between SRSWR & SRSWOR
2. Stratified random sampling – proportional & optimum allocations. Comparison between proportional & optimum allocations with SRSWOR
3. Systematic sampling with N = nk. Comparison of systematic sampling with stratified and SRSWOR
4. Analysis of CRD
5. Analysis of RBD. Relative efficiency of RBD over CRD
6. Estimation of single missing observation in RBD and its analysis
7. Analysis of LSD. Relative efficiency of LSD over CRD and RBD
8. Estimation of single missing observation in LSD and its analysis
9. Analysis of 2^2 with RBD layout

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Structure of Practical Paper

Total Marks: 50 Marks

(i) For Continuous Evaluation : 10 marks (Internal Evaluation)
(ii) For semester end Practical Examination: 40 marks (External Evaluation)

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU – 521165

Reaccredited at 'A' level by NAAC

Autonomous -ISO 9001 – 2015 Certified

Applied Statistics

Offered to: B.SC (MSCS) / STAT01
Course Type: Core (Theory)
Year of Introduction: 2022-23 **Percentage of Revision: 0%**
Semester: IV **Credits: 4**
Hours Taught: 60 periods. per Semester **Max. Time:** 3 Hours
Course Prerequisites: Students required knowledge in Mathematics and Statistical techniques
Course Description: This course provides the study of data related to population growth, construction index numbers. Also this course deals with industry problems and analyse and get solutions.
Course Objectives:

1) To enable the students to develop basic knowledge in Applied Statistics
2) To provide understanding in some advanced statistical techniques which are used for solving business problems.

Learning Outcomes: At the end of the course, the student will

1) have the hands on practice of working on the data and interpreting the results.
2) Acquire to apply the techniques related solve the real business problems.

S. No	Programme Outcomes
PO1.	**Effective Communication**: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology
PO2.	**Effective Citizenship**: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
PO3.	**Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
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PO5.	**Critical Thinking**: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these

	assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO6:	**Specialized Skills / Transferable Skills:** Acquisition of communication and soft, analytical and technological skills that aid in enhancing
PO7.	**Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

Course Outcomes:		
Course Outcome	Upon successful completion of this course, students should have the knowledge and skills to:	**Programme Outcomes Mapping**
CO 1	Measure the Mortality and Fertility rates and the construction of Life tables	PO - 4
CO 2	construct the Quality Control charts for Variables.	PO – 6
CO3	construct the Quality Control charts for Attributes	PO – 6
CO 4	Obtain the knowledge on asses the population growth by using vital statistics	PO - 7
CO 5	Helps asses the normalization processes of different scores and estimating the IQ levels.	PO - 6

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Index Numbers** Basic problems involved in the construction of index numbers. Construction of index numbers - Simple aggregate, Weighted aggregate, Simple price relative and Weighted price relative methods. The criteria of good index number. Cost of living index number. Uses and Limitations of index numbers.	**12**
II	**Statistical Quality Control – I** Introduction. Basis of SQC. Uses of SQC. Types of controls – Process &Product. Construction of 3-σ limits. Construction of Mean ($\bar{x}$) and Range (R) charts. Interpretation of $\bar{x} and R charts$	**12**
III	**Statistical Quality Control – II** Construction of p and c charts - Fixed control limits. Interpretation of p and c - charts. Natural and Specification limits. Acceptance sampling inspection plans – AQL, LTPD, AOQL and ASN. OC curves.	**12**
IV	**Vital Statistics** Introduction, definition and uses of vital statistics, sources of vital statistics. Measures of different Mortality and Fertility rates, Measurement of population growth. Life tables: construction and uses of life tables.	**12**
V	**Statistics in Psychology & Education**	**12**

	Introduction. Scaling procedures – Scaling of scores – Z or σ scores, Standard and normalized scores, T and Percentile scores. Reliability of test scores – Def. index and parallel tests. Methods of determining test reliability. Validity of test scores.	

Text Book:

1. S.C. Gupta, (2016), Seventh Edition, Fundamentals of Statistics, Mumbai: Himalaya Publishing House.

2. Fundamentals of Applied Statistics, 2014, S.C. Gupta and V.K. Kapoor ; Sutan Chand &Sons , New Delhi.

Reference Books:

1. Levine, D.M., Berenson, M. L. & Stephan, D. (2012*), Statistics for managers using Microsoft Excel*, New Delhi: Prentice Hall India Pvt.
2. Aczel, A. D. & Sounderpandian, J. (2011), *Complete Business Statistics*, New Delhi: Tata McGraw Hill.
3. Sharma, J. K. (2013), *Business statistics*, New Delhi: Pearson Education
4. Anderson, D., Sweeney, D., Williams, T., Camm, J., & Cochran, J. (2013), *Statistics for Business and Economics*, New Delhi: Cengage Learning.
5. Agarwal, B.L. Basic Statistics, New Age International Publishers, New Delhi, 6th edition 2013

Websites of Interest: **http://onlinestatbook.com/rvls/index.html**

Co-Curricular Activities in the class:

1. Pictionary
2. Case Studies on topics in field of statistics
3. Snap test and Open Book test
4. Architectural – To be build the procedures
5. Extempore – Random concept to students
6. Interactive Sessions
7. Teaching through real world examples

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1. Levine, D.M., Berenson, M. L. & Stephan, D. (2012*), Statistics for managers using Microsoft Excel*, New Delhi: Prentice Hall India Pvt.
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Model Question Paper Structure for SEE

Max.: 75 Marks **Min. Pass: 30 Marks**

Applied Statistics

Section – A

Answer any Five of the following **5 x 5M = 25M**

1. Define SQC and write its uses (L- 1, CO – 2)
2. Explain 3 –σ limits (L – 2, CO – 2)
3. What are the applications of C- chart (L – 3, CO – 3)
4. Explain base shifting in index numbers (L – 2, CO – 1)
5. From the following data calculate Index Number by simple (i) aggregate and (ii) relative method (L – 3, CO – 1)

Commodity	A	B	C	D
Price in 1980	162	256	257	132
Price in 1981	171	164	189	145

6. Explain the sources of vital statistics (L – 2, CO – 4)
7. Explain reproduction rates (L – 2, CO – 4)
8. Explain scaling methods (L – 2, CO – 5)

Section – B

Answer all the questions **5 x 10M = 50M**

9. (a) Explain the basic problems involved in the construction of index numbers (L – 2, CO – 1)

OR

(b) Find the cost of living index number by family budget method from the following data (L – 5, CO – 1)

Commodities	Base Year	Current Year	% of Weights
	Price	Price	

A	20	26	17
B	28	31	29
C	34	40	20
D	92	95	34

10. (a) Explain different fertility rates (L – 2, CO – 4)

OR

(b) Fill in the blanks of the following table which are marked with ? (L – 2, CO – 4)

Age	l_x	d_x	q_x	p_x	L_x	e_x^o
20	693435	?	?	?	?	35081126
21	690673	-	-	-	-	?

11. (a) Explain the construction of mean and range charts (L – 2, CO – 2)

OR

(b) Explain the statistical basis of SQC (L – 2, CO – 2)

12. (a) Explain the construction of fraction defective chart (L – 2, CO – 3)

OR

(b) Explain the construction of number of defects per unit chart (L – 2, CO – 3)

13. (a) Letter grades A,B,C,D and E are assigned by two teachers X and Y to the students of class for Honesty. The table gives the distribution of the proportion of individuals in each rating (L – 5, CO – 5)

Teacher	A	B	C	D	E
X	0.10	0.15	0.50	0.20	0.05
y	0.20	0.40	0.20	0.10	0.10

OR

(b) Define reliability and validity tests. (L – 2, CO – 5)

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A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU – 521165

Reaccredited at 'A' level by NAAC

Autonomous -ISO 9001 – 2015 Certified

Applied Statistics

Offered to: B.SC (MSCS) / STAP01
Course Type: Core (Practical)
Year of Introduction: 2022-23 **Percentage of Revision: 0%**
Semester: IV **Credits: 1**
Hours Taught: 30periods. per Semester **Max.Time: 2** Hours

Course Prerequisites: Students required knowledge in Mathematics and Statistical techniques

Course Description: This course provides the study of data related to population growth, construction index numbers. Also this course deals with industry problems and analyse and get solutions.

Course Objectives:

1) To enable the students to develop basic knowledge in Applied Statistics
2) To provide understanding in some advanced statistical techniques which are used for solving business problems.

Learning Outcomes: At the end of the course, the student will

1) have the hands on practice of working on the data and interpreting the results.
2) Acquire to apply the techniques related solve the real business problems.

S. No	Programme Outcomes
PO1.	**Effective Communication**: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology
PO2.	**Effective Citizenship**: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
PO3.	**Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
PO4.	**Environment and Sustainability**: Understand the issues of environmental contexts and sustainable development

PO5.	**Critical Thinking**: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
PO6:	**Specialized Skills / Transferable Skills:** Acquisition of communication and soft, analytical and technological skills that aid in enhancing
PO7.	**Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

Course Outcomes:		
Course Outcome	Upon successful completion of this course, students should have the knowledge and skills to:	**Programme Outcomes Mapping**
CO 1	Measure the Mortality and Fertility rates and the construction of Life tables	PO - 5
CO 2	construct the Quality Control charts for Variables and attribute charts	PO - 6
CO 3	Construct the various types of index numbers	PO - 6

Practical No	**Theme**	**Key Topics**
Applied Statistics		
1	Control Charts	Construction of Mean & Range charts
2	Control Charts	Construction of p & c charts
3	Index Numbers	Construction of Weighted index numbers
4	Index Numbers	Testing of good index number
5	Index Numbers	Construction of Whole sale price index number
6	Vital Statistics	Determining of Mortality rates
7	Vital Statistics	Determining of Fertility & reproduction rates
8	Vital Statistics	Construction of life tables
9	Psychology & Education	Scaling of ratings using Normal distribution

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A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF POLITICAL SCIENCE

MINUTES OF BOARD OF STUDIES

ODD SEMESTER

27-10-2022

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE::VUYYURU

(An Autonomous College in the Jurisdiction of Krishna University)

Accredited at the level 'A' by the NAAC

Sponsors: Siddhartha Academy of General & Technical Education

DEPARTMENT OF POLITICAL SCIENCE

Minutes of the meeting of Board of Studies in Political Science of A.G. &S.G Siddhartha Degree College of Arts & Science, Vuyyuru held at 10:00 A.M 0n 27/10/2022 in the Department of Political Seience

Members Present		
Name of the Member	**Role**	**Signature**
Smt. Ch. Sandhya Rani, HOD, Dept. of Political Science, A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru-521165. Mobile: 9949402837 E-Mail: narrasandhyarani@gmail.com	Chairman	Ch. Sandhya Rani
Sri. M. Padhmanabham, Assistant Professor, Dept of Political Science, SRR & CVR Govt Degree College ,Vijayawada. Mobile: 9490772836	University Nominee, Krishna University	
SmtG.Padmaja, Head, Department of Political Science, S.D.M. Siddhartha MahilaKalasala, Vijayawada. Mobile: 9441883417	Academic Council Nominee	
Dr.G.Veerraju, H.O.D Professor, Dept of Political Science,Andhra university Visakhapatnam Mobile: 9440476494	Academic Council Nominee	
Sri. R.V.Siva Rao, Lecturer Dept. of Political Science, A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru-521165. Mobile:9391380250	Academic Council Member	R.V.Siva Rao

AGENDA

1. To review and recommend changes to syllabi model paper and guidelines in the 1st, 3rd and 5th semesters of B.A

2. To discuss about and recommend the pattern of assessment i.e., internal and external assessment percentage to be followed for Third Semester from academic year 2022-2023

3. To recommend the guidelines to be followed by the Question Paper Setters in Political Science for all semester-end exams.

4. To recommend the teaching and the evaluation methods to be followed under the Autonomous System.

5. To Suggest innovative methods of teaching

6. To propose the panel of Question Paper Setters and Examiners.

RESOLUTIONS

Following resolutions are made in the Board of Studies in Political Science :

1) It is resolved to include INTRODUCTION TO POLITICAL SCIENCE for Semester-I for the 1st Degree from the Academic Year 2022-2023.
2) It is resolved to introduce INDIAN GOVERNMENT AND POLITICS for semester-III for the 2nd Degree from the Academic Year 2022-2023.
3) To continue with the existing syllabus for 5th semester withchange for the Academic Year 2022-2023.
4) To adapt 30 marks for internal assessment and 70 marks for external assessment for 1st Degreeand 25 marks for internal assessment and 75 marks for external assessment for 2nd and 30 marks for internal assessment and 70 marks for external assessment 3rdyear Degree from the Academic Year 2022-2023.
5) To follow the new model question paper from the Academic Year 2022-2023 for all the B.A Students
6) To adapt the following teaching and evaluation methods:

Teaching Methods:

Besides the conventional methods of teaching, it is also resolved to use various other methods like group discussions, quiz, developing power point presentation etc., for the better understanding of the contents.

Evaluation Method for Internal Theory Examination for 1st B.A students and 3rd B.A students

First Internal Exam	Second Internal Exam	Average	Attendance	Activity	Total
A	B	C=(A+B) / 3	D	E	(C+D+E)
30 Marks	30 Marks	20 Marks	5 Marks	5 Marks	30 Marks

Evaluation Method for Internal Theory Examination for 2nd

First Internal Exam	Second Internal Exam	Average	Assignment	Total
A	B	C=(A+B) / 2	D	(C+D)
20 Marks	20 Marks	20 Marks	5 Marks	25 Marks

7) Semester End Examinations:

8) The maximum marks of sem-end examinations for 1st B.A and3rd B.A are 70and 2ndB.A are 75 Marks from the Academic Year 2022-2023 for all the B.A Students and the duration of the examination shall be 3 Hours.
9) To Organize Seminars ,Guest Lectures and Workshops to upgrade the knowledge of the students and to impart new skills of learning as frequently as possible.
10) To authorize the chairman of board of studies to suggest the panel of paper setters and examiners to the controller of examinations as per the requirement.

A.G &S.G SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE VUYYURU-521165

(An Autonomous College in the jurisdiction of Krishna University , Machilipatnam)

Title of the paper: I**NTRODUCTION TO POLITICAL SCIENCE**

Semester-I

Course Code	POLTIIB	Course Delivery Method	Class Room
Credits	4	CIA Marks	30
No.of Lecture Hours/Week	5	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction20202021	Year of offering 2022-2023	Year of Revision 2022-2023	Percentage of Revision 0%

Course Context and overview: To train students in order to have clear understanding of politics, related concepts such as government, state sovereignty, legitimacy, power, influence, authority, democracy, power, political participation, political system etc.

COURSE OUTCOMES: INTRODUCTION TO POLITICAL SCIENCE

Course Outcomes*:* At the end of the course the student will be able to:

CO1: Define important field-specific theories and concepts, and understand their role in developing political science Knowledge: L-1 , L-2

CO2: Summarize conceptual arguments or theoretical approaches. L-3 , L-4

CO3: Apply them to field relevant situations and support their application with appropriate evidence. L-3, L-4

CO4: Compare and evaluate the merits of multiple policies, theories or concepts from different disciplinary perceptions. L-5

CO5: With the course, students are expected to learn the political concepts and theory in the Basic

Concepts of Political Science. L-1, L-2

Learning Outcome:

On successful completion of the course the students will be able to:

- Recall the previous knowledge about Political Science and understand the nature and scope, traditional and modern approaches of Political Science.
- Understand concepts intrinsic to the study of Political Science.
- Have a solid theoretical understanding of Rights and its theories along with the basic aspects of certain political ideologies.
- Apply the knowledge to observe the field level phenomena.

UNIT:I**INTRODUCTION:** **15hrs.**

1. Definition, Nature, Scope and Importance of Political Science - Relations with allied

   Disciplines (History, Economics, Philosophy and Sociology**)**

2. Approaches to the study of Political Science:

   Traditional Approaches- Historical, Normative and Empirical Approaches.

   Modern Approaches:Behavioral and System Approach.

UNIT-II: **STATE :** **15 hrs**

Definition of the State, Elements of the State, Theories of Origin of the State-(Divine Origin , Force, Evolutionary and Social Contract),

1. Concepts of Modern State and Welfare State.

UNIT-III: **CONCEPTS OF POLITICAL SCIENCE**: **10 hrs**

1. Law, Liberty,
2. Power, Authority and Legitimacy

1. UNIT:IV: **THEORIES OF RIGHTS:** **10 hrs**

2. Meaning, Nature and Classification of Rights
3. Theories of Rights.

UNIT:V:**POLITICAL IDEOLOGIES:** **10 hrs**

1. Liberalism, Individualism and Anarchism.

2. Socialism, Marxism and Multiculturalism.

REFERENCE BOOKS:

1. Sukhbir Bhatnagar : Constitutional Law and the Governance
2. A. C. Kapur :Select Constitution
3. R.C. Agarwal : Political THeory
4. Vidyadhar Mahajan : Political Theory(Principles of Pol.Sci.
5. Devi & V. Bhogendra Acharya,
6. Prof. V. Ravindra Sastry (ed) : Political Science Concepts,Theories& Institutions.

7 . Jadi Musalaiah, V.Vasundhara

8. Laski H.J. : Grammar of Politics

9. A.Appadorai : Substance of Politics

10.Eddy Ashirvadam K.K.Misra : Political Theory

11.Sushila Ramaswamy : Political Theory: Ideas & Concepts

12.S.P. Varma : MOdern Political Theory

13.O.P. Gauba : An Introduction to Political Science

14.Abbas, Hoveyda&Ranjay Kumar : Political Theory

15.Andrew Hakes : Political Theory, Philosophy, Ideology Science.

16.Rajeev Bhargava & Ashok Acharya (ed) : Political Theory An Introduction

17.Andrew Heywood : Political Ideologies-An Introduction

18.Norman Barry : An Introduction to MOdern Political theory.

A.G &S.G SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE VUYYURU-521165

(An Autonomous college in the jurisdiction of Krishna University, Machilipatnam)

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MODEL QUESTION PAPER (Semester-I) Course Code : POLTIIB

Time: 3 Hours Max. Marks : 70

SECTION –A

Answer the following 5 x14 = 70

1. (A). Explain meaning, definition and scope of Political Science. 10M
(B) Bring out the importance of the Behaviour method in the study of Political Science.. 10M
(OR)
C) Explain the relations between Political Science and Economics, 4m
D) Write a short on Normative Approach. 4M

2. (A) Explain the basic features of the State. IOM.
(B) Critically examine the Social Contract Theory of Political Science. IOM
(OR)
(C) Discuss Politics a Science or an art? 4M
(D) Write a short note on Divine Theory. 4M

3. (A) Explain the meaning, definition and types of Liberty...IOM
(B) Explain the meaning, Definition and features of Authority.IOM
(OR)

(C)Write a short note on Legitimacy. 4M
(D) Explain the types of Power. 4M

4. (A) Explain the meaning Definition and classification Rights, 10M
(B) Write an essay on Scientific Socialism. IOM
(OR)

(C) Write a short note on Surplus Value. IOM
(D) Multiculturalism. 4M

5.(A) Explain the Basic features of Liberalism 1OM
(B) Wrote an essay on Anarchism, 10M
(OR)
(C)Explain the types of Political rights 4M
(D) Explain the features of Liberalism4M

New syllabus

B.A. POLITICAL SCIENCE SECONDYEAR

THIRD SEMESTER (Under CBCS w.e.f2022-23)Course-3:
INDIAN GOVERNMENT AND POLITICS

Course Code	POLT301C	Course Delivery Method	Class Room
Credits	4	CIA Marks	25
No.of Lecture Hours/Week	5	Semester End Exam Marks	75
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction20202021	Year of offering 2022-2023	Year of Revision 2022-2023	Percentage of Revision 0%

Course Outcomes:

CO1: The students community has acquired knowledge of the making of the Indian Constitution and its philosophical background. L1
CO2: Information about the functionaries of the government both at the union and state level was acquainted by the student community.L1, L2
CO3. To Understand the legislative procedures which ensure the orderly conduct of business in our parliament and state legislative assemblies in**India.**
CO4: To understand know the Ministers, their role &responsibilities.L1, **CO5**: To understand Judiciary of India.L1, L2

Learning Outcomes:

On successful completion of the course the students will be able to:

- Acquire knowledge about the historical background of Constitutional development in India, appreciate philosophical foundations and salient features of the Indian Constitution.

• Analyze the relationship between State and individual in terms of Fundamental Rights and Directive Principles of State Policy.

•Understand the composition and functioning of Union Government as well as State Government and finally

•Acquaint themselves with the judicial system of the country and its emerging trends such as judicial reforms.

UNIT-I :	SOCIAL AND IDEOLOGICAL BASE OF THE INDIAN CONSTITUTION 15**hrs**
	1. Constitutional Development in India during British Rule-A Historical
	2. Constituent Assembly-Nature, Composition, Socio-Economic, Philosophical Dimensions and Salient Features of the Indian

UNIT-II	INDIVIDUAL AND STATE **15 hrs**
	1. . Fundamental Rights, Directive Principles of State Policy and Fundamental Duties-Differences between Fundamental Rights and Directive Principles of State Policy.
	2. The 'Doctrine of Basic Structure of the Constitution' with reference to Judicial Interpretations and Socio-Political Realities.

UNIT-III :	UNION EXECUTIVE **10 hrs**
	1. President of India-Mode of Election, Powers and Functions. 2. Parliament-Composition, Powers and Functions, Legislative Committees, Prime Minister and Council of Ministers-Powers and

UNIT-IV :	STATE EXECUTIVE **10 hrs**
	1. Governor-Mode of Appointment, Powers and Functions.
	2. Legislature-Composition, Powers and Functions, Chief Minister and

UNIT-V :	THE INDIAN JUDICIARY **10 hrs**
	1. Supreme Court-Composition and Appointments, Powers and Functions or Jurisdiction of the Supreme Court, Judicial Review, Judicial
	Activism. 2. High Court-Composition, Powers and Functions, Debates on the mode of appointment of Judges-National Judicial Appointments

A.G &S.G SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE
[AUTONOMOUS] VUYYURU-521165

SEMESTER-III CODE-POLT301C ACADEMIC YEAR-2022-2023

PAPER TITLE:INDIAN GOVERNMENT AND POLITICS

Duration: 3 Hours Maximum Marks:75 Pass Marks:30

Section-A

Answer any Five of the following questions (5x5=25 Marks)

1.Constitutional assembly
2.Explain legislative act 1909
3.Describe the Fundamental duties of Indian citizens
4.Difference between fundamental duties and DPSP
5.Discuss the various parliamentary committee's
6.Election method of Indian president
7.State legislative assembly
8.Judical review

Section-B

Answer the following: Eachcarries TEN Marks (5x10=50 Marks)

9 A.Explain the salient features of the Indian Constitution.

(OR)

B.Explain 1935 Indian legislature ACT

10. A. Explain the Fundamental Rights of the Constitution.

(OR)

BExplain Direct Principal of State policy

11.AExplain the powers and Functions of the President of India.

(OR)

BExplain the powers and Functions of Prime Minister.

12. A Explain the powers and Functions of Chief Minister.

(OR)

Explain the powers and Functions of Governor.

13.ADescribe the structure and Functions of Supreme Court of India.

(OR)

B.Describe the structure and Functions of High Court of India.

Course 6 B: E GOVERNANCE

(Skill Enhancement Course (Elective), 4 credits)

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS &SCIENCE (AUTONOMOUS), (2022-23) VUYYURU

PAPER TITLE : PAPER-V (CORE): E GOVERNANCE

Course Code	**POL501C**	**Course Delivery Method**	**Class Room**
Credits	**4**	**CIA Marks**	**30**
No.of Lecture Hours/Week	**5**	**Semester End Exam Marks**	**70**
Total Number of Lecture Hours	**60**	**Total Marks**	**100**
Year of Introduction20202021	**Year of offering 2022-20223**	**Year of Revision 2022-2023**	**Percentage of Revision 0%**

I. **Outcomes:**

Students at the successful completion of the course will be able to:

Co1. Acquaint students with the introduction to good governance and how it can be achieved by information and communication technology.

Co2. Understand the growing needs of E-Governance, improving transparency in the system of governance.

Co3. Have understanding of various government schemes and E-Governance projects and initiatives.

Co4. Provide the practical knowledge about the effective delivery of citizen services through online mode.

Co5. Realize the issues and challenges of E-Governance.

II. Syllabus: (Hours: Teaching: 60, Training: 10, Others incl. unit tests: 05)

Unit: 1

Brief Introduction to Governance-E-Governance –Meaning, Definition, Nature, Scope, Objectives and Significance-Domains of E-Governance- E-Governance and Good Governance-Global trends in the growth of E-Governance.

Unit: 2

E-Governance in India- - National E-Governance Plan (NeGP)-National Informatics Centre-Strategies for E-Governance-E-Governance Implementations: Required infrastructure of Network, Computing, Cloud Governance, Data system, Human resources, Legal and Technological infrastructure-

Unit: 3

Role of Information and Communication Technology in Administration, Effective delivery of services for public utilities through E-Governance-Online filing of complaints, application registration, issuance of certificates, issuance of land records, online payments of fees, dues etc, e- tendering, easy access to information and E-Governance in Social security and welfare schemes: Direct transfer of benefits, Biometric authentication through Aadhar, etc.

Unit: 4

E-Governance under Information Technology Act-Legal status for digital transactions-Public Private Partnership and expansion of E-Governance. E-Governance-Transparency and Accountability at gross root level-Issues and Challenges: Digital Divide, Capacity Building, Cyber Security in Cyber Crimes, Socio-political implications, Issues of integration, Networking with NGOs.

Unit: 5

Major E-Governance Projects and Initiatives:Gyandoot, E-choupal, E-Bhoomi, E-Seva, CARD, E-Panchayat, Real Time Governance (RTG) etc.

Additional Input

Unique Identification Authority of India
E-Government Development Index
E-Governance case studies from other countries

III. References:

1. B.Sreenivas Raj, E-Governance Techniques-Indian and Global Experiences, New Century Publications, New Delhi, 2008.
2. Subhash Bhatnagar, Unlocking E-Government Potential-Concepts, Cases and Practical Insights, Sage Publications, New Delhi, 2009.
3. Y.Parthasaradhi, E-Governance and Indian Society, Kanishka Publications, New Delhi, 2009.
4. R.P.Sinha, E-Governance in India, Initiatives and Issues in India, Centre for Public Policy, 2006.Anil Kumar Dhiman, E-Governance –Good Governance using ICTs, S.K.Book Agency, New Delhi, 2017.
5. Ashok Aggarwal, Governance-Case Studies, University Press India Pvt. Ltd, Hyderabad, 2017.
6. Web resources suggested by the Teacher concerned and the College Librarian including reading material.

IV. Co-Curricular Activities (Training of students by the teacher: Total 10 hours):

a) Mandatory:

1. FOR TEACHER: Training of students by teacher in the classroom for a total of not less than10 hours on techniques of application of ICT for getting services from the government departments, filing of grievances through online mode, making digital transactions for issuance of certificates or payment of fees, identifying components in e-governance and techniques to handle cyber security etc.,

2. FOR STUDENT: Students have to visit urban or local administration offices and have practical study and assess the implementation of E-Governance initiatives, models, citizen centric services, citizen charter and interact with the beneficiaries about the fulfillment of their needs in time or not and if any lapses they noticed or visit to nearby government institution covering the various citizen centric services delivering through online mode and observe the citizen charter, mode of operation, time limitation, fees prescribed for services and observe the operation of Real Time Governance (RTG) in administration and record their experiences and individually submit his / her observation as a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.
3. Suggested Fieldwork/Project work Format:
   Title Page, Student Details, Acknowledgements, Index page, Objectives, Step-wise process, Findings, Conclusion and References.

4. Max marks for Fieldwork/Project work Report: 05
5. Unit Tests /Internal Examinations

b) Suggested Co-Curricular Activities

1. Training of students by a related field expert.

2. Reading Daily newspapers either print or online about the misuse of technology which leads to cybercrimes.

3. Reading articles, blogs and websites for various ideological perspectives.

4. Assignments.
5. Discuss the debates around any recent technological advancements.
6. Discuss the case laws and judgments reported on E-Governance initiatives.
7. Seminars, Group discussions, Quiz, Debates etc.
8. Invited lectures and presentations on related topics by experts in Cyber Security especially the Police personnel associated with the cases of IT Act.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS &SCIENCE (AUTONOMOUS), (2022-23) VUYYURU

PAPER TITLE : PAPER-V (CORE): E GOVERNANCE

Max:70 Pass:28

Section – A

I.ANSWER any TWO OF THE FOLLOWING. (2 ×5 = 10)

1.E-Goverance and Global Trends

2.Explain Required in infrastructure of Network

3.Role Information Communication and Technology in administration

4.Cyber Crimes

.

Section – B

Answer any FOUR of the following. (4 × 15 = 60)

5.What is the meaning Definition and Scope of E-Governance

6.Explain the E-Governance in India(NEGP)

7. Explain E-Governance Major Project

8. Explain Public Utilities of E-Governance services

9. Explain Social Securities and welfare Schemes

10. Explain Information Technology act

11. Transparency and account ability Challenges of E-Governance

12.Explain Cyber Security and Socio l Political Sectors

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS &SCIENCE (AUTONOMOUS), (2022-23)
VUYYURU

Course 7B: LOCAL ADMINISTRATION
(Skill Enhancement Course (Elective), 4 credits)

Max Marks: 100

I. Outcomes:

Students at the successful completion of the course will be able to;

CO1. Understand the existing context of Local Government Institutions in India.

CO2. Have knowledge on the need of empowerment and autonomy of LGIs.

CO3. Provide an overview on financial resources and constitutional provisions.

CO4. Analyze the issues, problems and conflicts in Local Administration.

CO5. Develop communication skills to interact with the elected members and officials.
Enhance skills for observation, organizing, networking, documentation.

II. Syllabus:(Hours: Teaching: 60, Training: 10, Others incl. unit tests: 05)

Unit: 1

Local Government: Meaning, Nature and Importance, Thoughts on Local Governments by M.K.Gandhi, Jawaharlal Nehru and Dr.B.R.Ambedkar, Important Committees: Balwant Rai Mehta (1957), Ashok Mehta (1978), L.M.Singhvi(1986).

Unit: 2

Decentralization of powers (Political, Administrative and Economic) from the States to Local Institutions- 73rd and 74thConstitutional Amendment Acts-Empowering Local Governments- Decision making powers during crisis and disasters-Relationship between local government authorities and Central and State Government service providers-

Unit: 3

Revenue raising avenues for Local Governments-Grants, Aid and support from Centre and State Governments-Public Private Partnerships-Concept of Local Development-Village as a unit, SWOC analysis of a village, existing conditions, expected developmental opportunities, the gap, natural, government and private resources, year-wise planning, finances required –

Unit: 4

Challenges for Local Administration, Financial, administrative and Political Constraints-Public relations in Local Administration-Need for training for elected representatives and other stakeholders-Audit training and Participatory training.

Unit: 5

Role of District Collector in strengthening LGIs. Role of Local Governments in implementation of welfare and developmental programmesie., (MGNREGS), (SGSY), (IAY) and (PURA).

Additional input:

Local Administration in Ancient India

Comparative Local Administration (Contemporary local administration in other countries)

III. References:

1. **Basu, D.D, Introduction to Const**itution of India, Nagpur, Lexis Nexis Butterworths, 2018
2. Niraja Gopal Jayal, Representing India: Ethnic Diversity and Governance of Public Institutions, 2006, Palgrave Macmillan Publications.
3. R Venkata Ravi, Empowering Rural India: Experiments and Experiences, Kanishka Publishers, New Delhi, 2006.
4. Sawalia Bihari Verma, Empowerment of the Panchayati Raj Institutions in India, Sarup and Sons, New Delhi, 2006.
5. World Bank, Empowerment in Practice: Analysis and Implementation, World Bank Institute, Washington D.C.
6. S.Chandrasekhar, Panchayati Raj and Financial Resources, Regal Publications, 2008, New Delhi.
7. Rajesh Tondon and Mohini Kak (Eds), Citizen Participation and Democratic Governance, New Delhi, 2016.
8. Anand Prakash, State and District Administration, Wisdom Press, New Delhi, 2008.
9. N.Lalitha, Rural Development in India: Emerging Issues and Trends, Dominant Publishers, New Delhi, 2014.
10. Web resources suggested by the Teacher concerned and the College Librarian including reading material.

IV. Co-Curricular Activities(Training of students by the teacher: Total 10 hours):

a) Mandatory:

1. FOR TEACHER: Training of students by teacher in the classroom for a total of not less than10 hours on techniques of identifying financial resources to local bodies, skilling on various components involved in auditing of accounts, analyzing the data of beneficiaries of welfare schemes by using statistical tools, preparation of minutes and reports, imparting technical skills with regard to communication and procedures and practices in documentation.

2. FOR STUDENT: Students have to visit to a Rural Local Government Institution, understand its profile, sources of revenue and expenditure, identify major issues and challenges, analyze its development and welfare initiatives, record the experiences, collecting data on implementation of poverty alleviation, employment generation schemes sponsored by governments and interpretation of data and indicate suggestions for better functioning (or) Participate in regular Gram Sabha meeting observe and record the proceedings and outcome of the meeting, indicate suggestions for better functioning of Gram Sabha (or) students may take a village as a unit, make SWOC analysis and individually submit his / her observation as a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.

3. Suggested Fieldwork/Project work Format:

Title Page, Student Details, Acknowledgements, Index page, Objectives, Step-wise process, Findings, Conclusion and References.

4. Max marks for Fieldwork/Project work Report: 05
5. Unit Tests /Internal Examinations

b) Suggested Co-Curricular Activities

1. Training of students by a related field expert.
2. Reading Local Daily newspapers either print or online.
3. Reading Editorial pages, blogs and websites for various ideological perspectives.
4. Assignments.
5. Discuss the debates around any recent Ordinance, Bill or Act in the Parliament or State Legislature.
6. Carry out a resource mapping of a selected area.
7. Plan and organize a capacity building session for the stakeholders
8. Seminars, Group discussions, Quiz, Debates etc.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS &SCIENCE (AUTONOMOUS), (2022-23)
VUYYURU
PAPER-V (CORE):LOCAL ADMINISTRATION

Max:70 Pass:28

Section – A

I. ANSWER any TWO OF THE FOLLOWING. (2 ×5 = 10)

1.Thoughts of M.KGandhi in local self government
2.Ashokamhtha Committee
3.73th constitutional amendment
4.Reportning on function of local administration

Section – B

Answer any FOUR of the following. (4 × 15 = 60)

5. Meaning definition nature and importance of local self government
1. Decentralization of powers in political administration and economics
2. 74^{th} constitutional amendments
3. Local of district collector in local self-government
4. Explain role of local self governmentimplementation in welfare development programmes
5. Explain challenges of local administration of financial political administration
6. Explain different types of Reports
7. Balwantraimetha Committee

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS &SCIENCE (AUTONOMOUS), (2022-23)

(To Be Implemented from Academic Year - 2020-21) PROGRAMME: FOUR YEAR B.A. (Hons)

Domain Subject: POLITICAL SCIENCE

Skill Enhancement Courses for Semester- V

(Syllabus with Learning Outcomes, References, Co-curricular Activities & Model Q.P. Pattern)

Structure of SECs for 5th Semester

(To Choose One pair from the Four alternative pairs of SECs)

Uni Code	Course Number 6 & 7	Name of Course	Hours / Week	Credits	Marks	
					I.A – 20 Field Work-10	Sem End
	6A	Political Reporting	5	4	30	70
	7A	LegaL literacy-RightsAwareness	5	4	30	70

OR

	6B	E-Governance	5	4	30	70
	7B	Local Administration	5	4	30	70

OR

	6C	Office Management	5	4	30	70
	7C	Personnel Administration	5	4	30	70

OR

	6D	Electoral PoliticsandVoting Behavior	5	4	30	70

	7D	Legislative Procedure and Practices	5	4	30	70

Note-1: Note: For Semester–V, for the domain subject Political Science, any one of the four pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6B & 7B or 6C & 7C or 6D & 7D. The pair shall not be broken (ABCD allotment is random, not on any priority basis).

Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations.

THE END

A.G& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU-521165, KRISHNA Dt., A.P.(Autonomous)

Accredited by NAAC with "A" Grade

2022-2023

DEPARTMENT OF POLITICAL SCIENCE

MINUTES OF BOARD OF STUDIES

EVEN SEMESTER

29-03-2023

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE::VUYYURU

(An Autonomous College in the Jurisdiction of Krishna University)

Accredited at the level 'A' by the NAAC

Sponsors: Siddhartha Academy of General & Technical Education

DEPARTMENT OF POLITICAL SCIENCE

Minutes of the meeting of Board of Studies in Political Science of A.G. &S.G Siddhartha Degree College of Arts & Science, Vuyyuru held at 10:00 A.M 0n 2 9-03-2023 in the Department of Political Science

Members Present		
Name of the Member	**Role**	**Signature**
Smt. Ch. Sandhya Rani, HOD, Dept. of Political Science, A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru-521165. Mobile: 9949402837 E-Mail: narrasandhyarani@gmail.com	Chairman	Ch. Sandhya
Sri. M. Padhmanabham, Assistant Professor, Dept of Political Science, SRR & CVR Govt Degree College ,Vijayawada. Mobile: 9490772836	University Nominee, Krishna University	
SmtG.Padmaja, Head, Department of Political Science, S.D.M. Siddhartha MahilaKalasala, Vijayawada. Mobile: 9441883417	Academic Council Nominee	
Dr.G.Veerraju, H.O.D Professor, Dept of Political Science, Andhra university Visakhapatnam Mobile: 9440476494	Academic Council Nominee	
Sri. R.V.Siva Rao, Lecturer Dept. of Political Science, A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru-521165. Mobile:9391380250	Academic Council Member	RV.SivaRao

AGENDA

1. To Review and recommend any changes in the syllabi , Model Question Papers and Guidelines of 2nd and 4th Semesters of I and II Year B.A Political Science Papers for the Academic Year 2022-2023.

2. To Discuss and recommend the pattern of internal Assessment , Guidelines and Model Question Papers in 2nd and 4th Semesters of B.A Degree Political Science papers for the Academic Year 2022-2023.

3. To Recommend the guidelines to be followed by the Question Paper Setters in Political Science for the2nd, 4thand 6th Semester-end exams.

4. To Recommend the teaching and evaluation methods to be followed under the Autonomous Status.

5. To Propose the panel of Question paper setters and Examiners.

6Any other matter.

RESOLUTIONS:

1) It is resolved to continue the same syllabi under CBC System approved by the Academic council of 2020- 2021 for I and II B,A Papers in the II and IV Semesters of I and II B.A classes.

The APSHE has introduced Two New Subjects and New syllabus in the IV Semester of II Degree B.A from the Academic year 2021 – 2022.

2) Out of maximum 100 marks in each paper 30 marks shall be allocated for Internal Assessments in the II Semester.

A) To implement 30 marks for internal assessment and 70 marks for External Assessment for the academic year 2022-2023.

B) Out of these 30 marks, 20 marks are allocated for internal tests, 5 marks are allocated for assignment for II Semester. The two tests will be conducted and average of these two tests shall be deemed as the marks obtained by a student, and remaining 5 marks are allocated for attendance.

C) Out of maximum 100 marks 25 Marks shall be allocated for Internal Assessments regarding the IV Semester for the Academic year 2022 – 2023.

D) To implement 25 Marks for Internal Assessments and 75 Marks for External Assessment regarding the IV Semester from the Academic year 2022 – 2023.

E) Out of these 25 marks, 15 Marks are allocated for internal tests, 5 marks are Allocated for assignment & 5 marks are Allocated for Activity Regarding the IV Semester from the Academic year 2022 – 2023.

3) Discussed and recommended the syllabi, Model question papers under CBC system and guidelines to be followed by the question paper setters of II and IV semesters of B.A Classes for the Academic year 2022-2023.

4) To follow the teaching and evaluation methods, it is also resolved to use various other methods like Group discussions, Quiz, Organizing Seminars, Guest Lectures and Workshops to upgrade the knowledge of the students and impart new skills of learning as frequently as possible.

Ch. Sandhya Rani
Chairman

PROGRAMME: BA

YEAR	*CODE*	*SEM*	*Name of course* *(each course consists 5 units with each unit having 12 hours of class work)*	*Hours/week*	*Credits*	*Marks*	
						Internal	*Sem end*
I		**II**	**BASIC ORGANS OF THE GOVERNMENT (NEW)**	**5**	**4**	**30**	**70**
II		**IV**	**INDIAN POLITICAL PROCESS**	**5**	**4**	**25**	**75**
		IV	**WESTERN POLITICAL THOUGHT**	**5**	**4**	**25**	**75**

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), (2022-2023)VUYYURU

BASIC ORGANS OF THE GOVERNMENT (NEW)

Programme : B.A.(T.M) **Semester – II** **Year: I year(2020-2021)**

Course Code :(POLT21) **Credits :4**

Hours: 60

Course Context and Overview:

The aim of studying this course is to know that the constitution of India is the supreme law of India. The document lays down the framework demarcating fundamental political code, structure, procedures, powers and duties of government institutions and set out fundamental rights, directive principles and the duties of citizens.

COURSE TITLE:BASIC ORGANS OF THE GOVERNMENT

Course Outcomes: At the end of the course the student will be able to:

1. To demonstrate and describe the salient features of the constitution of India interpret, integrate the salient and critically analyse the political economy of Indian Constitution.L1-L2

2. To understand the historical growth of the idea of fundamental human rights and create an awareness on directive principles of state policy.L1-L5

3.Acquaint themselves with different theories of origin of State.L2

4. To define federation and its features in Indian constitution and how it divides power between union and state governments, legislations, administrative and financial spheres and recommendations of Sarkaria Commission.L1-L2

5. To learn the contents of Indian constitution and how the supreme court and other court functions and develop an awareness foreign and state constitutions.L5

Learning Out comes: On successful completion of the source the students will be able to: Understand the Origin and Evolution of the concept of Constitutionalism and classification of Constitutions. Acquaint themselves with different theories of origin of State.

- Understand and analyse organs and form of Government along with a deep insight into the various agents involved in the political process. Apply the knowledge to analyse and evaluate the existing systems.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS),(2021-2022)VUYYURU

POLITICAL SCIENCE	POLT21B	2022-2023	B.A(TM)

BASIC ORGANS OF THE GOVERNMENT (NEW SYLLABUS)

SEMESTER-II **No.of Credits:4**

60 hours

UNIT-I: CONSTITUTION

1. Meaning, Definition, Origin and Evolution of Constitution**.** **15 hrs**
2. Classion of the Constitutions - Written and Unwritten, Rigid and Flexible.

UNIT:II : ORGANS OF THE GOVERNMENT

1. Theory of Separation of Powers - B.D. Montesquieu**.** **15hrs**
2. Legislature - Unicameral and Bicameral - Powers and Functions, EXecutive - Types, Powers and Functions.
3. Judiciary - Powers and Functions.

UNIT- III: FORMS OF GOVERNMENT

1. Unitary and Federal forms of Governments - Merits and Demerits. **10hrs**
2. Parliamentary and Presidential forms of Governments - Merits and Demerits.

UNIT:IV: DEMOCRACY

1. Meaning, Definition, Significance, Theories and Principles of Democracy. **10 hrs**
2. Types of Democracy: Direct and Indirect Democracy - Methods, Merits and - Essential Conditions for Success of Democracy.

UNIT - V: POLITICAL PARTIES, PRESSURE GROUPS AND PUBLIC OPINION 10 hrs

1. Meaning, Definition and Classification of Political Parties: National and Regional - Functions of Political Parties.
2. Pressure Groups (Interest Groups) - Meaning, Definition, Types, Functions and Significance of Public Opinion.

REFERENCE BOOKS:

1. Sukhbir Bhatnagar : Constitutional Law and the Governance
2. A. C. Kapur : Select Constitution
3. R.C. Agarwal : Political THeory
4. Vidyadhar Mahajan : Political Theory(Principles of Pol.Sci.
5. M.R..Biju : Democratic Political Process
6. Peter Ronald de

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), (2022-2023)VUYYURU

MODEL QUESTION PAPER (Semester-II)

(An autonomous college in the jurisdiction of Krishna University, A.P., India)
POLITICAL SCIENCE- POLT21B 2022-2023 B.A(E.M)
Title: Basic Organs of Government

Max:Marks:70 **MaX.Time:3 Hrs.**

Answer all Questions
(Restrict to a maximum of 2 subdivisions)

SECTION-A (20 MARKS) **4X5=20M**

1.	(a) Explain the merits of the Unwritten Constitution.	4M	L1
	Or		
	(b) Write about its sources of Indian Constitution .	4M	L1
2.	(a) Explain the Composition of Legislature.	4M	L1
	Or		
	(b) Checks and Balance Theory .	4M	L1
3.	(a) What is the Presidential Government?	4M	L2
	Or		
	(b) Collective Responsibility.	4M	L2
4.	(a) Write about the Principles of democracy.	4M	L2
	Or		
	(b) Explain the types of Referendum.	4M	L2
5.	(a) Explain the Utility of Public Opinion.	4M	L3
	Or		
	(b) Write a short note on Coalition Government .	4M	L3

ANSWER ALL QUESTIONS
(Restrict to a maximum of 2 subdivisions)

SECTION -B (50 MARKS) **5X10=50M**

6.	(a) What is the Origin and Evolution of the Indian Constitution?	10M	L1
	Or		
	(b) Explain the essential elements of the Indian Constitution .	10M	L1
7.	(a) Critically examine the Separation of Power Theory of Montesquieu.	10M	L1
	Or		
	(b) Discuss about Bicameralism and write its merits and demerits.	10M	L1
8.	(a) Explain the meaning,Definition and features of Unitary Government.	10M	L2
	Or		
	(b) What is the Parliamentary form of Government? Explain the merits and demerits of Parliamentary Government.	10M	L2
9.	(a) Explain about the various Direct Democratic Devices.	10M	L2
	Or		
	(b) What would be the essential conditions for the success of Democracy?	10M	L2
10.	(a) Explain the meaning, definition and functions of the Political Party System.	10M	L3
	Or		
	(b) What are the Pressure Group? Explain the various types of Pressure Groups.	10M	L3

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A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), (2021-2022)VUYYURU

Course-4 : INDIAN POLITICAL PROCESS

IInd YEAR **IV- SEMESTER**

Course outcomes:

CO1: To demonstrate Legislative procedures which ensure the orderly conduct of business in our Parliament and state legislative assemblies in India.

CO2: To understand the election commission and functions.

Co3: To study the local government administration.

Co4: To understand the awareness of financial and government commissions

Co5: To understand the dynamics of Indian political system and awareness of voting importance in the society.

Learning Outcomes:

On successful completion of the course the students will be able to :

·1.Know and understand the federal system of the country and some of the vital contemporary emerging issues.· Evaluate the electoral system of the country and to identify the areas of electoral reforms.

·2.Know the constitutional base and functioning of local governments with special emphasis on 73rd& 74thConstitutional Amendment Acts.

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3.Understand the dynamics of Indian politics, challenges faced and gain a sensitive comprehension to the contributing factors.

4.Apply the knowledge and critically comprehend the functioning of some of the regulatory and governance institutions.

5. Propose theoretical outline alternate models

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), (2022-2023)VUYYURU

Course-4 : INDIAN POLITICAL PROCESS **Course Code:POLT41**

IInd YEAR IV- SEMESTER

UNIT-I :	**FEDERAL PROCESSES**
	1. Features of Indian Federal System- Centre-State Relations- Legislative, Administrative and Financial
	2. Emerging Trends in Centre-State Relations-Restructuring Centre-State Relations-Recommendations of Sarkaria Commission, M.M.Punchi Commission. **15hrs**
UNIT-II :	**ELECTORAL PROCESSES**
	1. The Election Commission of India, Powers and Functions.
	2. Issues of Electoral Reforms, Voting Behaviour-Determinants and Problems of Defections. **15hrs**
UNIT-III :	**GROSSROOT DEMOCRACY-DECENTRALISATION**
	1. Panchayat Raj system-Local and Urban Governments-Structure, Powers and Functions.
	2. Democratic Decentralization-Rural Development and Poverty alleviation with reference to 73rd and 74th Constitutional Amendment Acts, Challenges and Prospects**. 10 hrs**
UNIT-IV :	**SOCIAL DYNAMICS AND EMERGING CHALLENGES TO INDIAN POLITICAL SYSTEM**
	1. Role of Caste, Religion, Language and Regionalism in India.
	2. Politics of Reservation, Criminalization of Politics and Internal threats to Security. **10hrs**
UNIT-V :	**REGULATORY AND GOVERNANCE INSTITUTIONS**
	1. NITI Ayog, Finance Commission, Comptroller and Auditor General of India.
	2. Central Vigilance Commission, Central Information Commission, Lokpal and Lokayukta. **10hrs**

REFERENCE BOOKS:

- **D.D.Basu :An Introduction to the Constitution of India**
- **Rajni Kothari : Politics in India, Caste in Indian Politics**
- **PeuGhosh : Indian Government and Politics**
- **Prof.Lalaiah, P.Venkataramana,**

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), (2022-2023)VUYYURU

Time: 3 Hours INDIAN POLITICAL PROCESS Max. Marks : 75M

MODEL QUESTION PAPER (Semester-IV)
Time: 3

SECTION –A

Answer any five of the following questions. Each carries FIVE marks : 5X5=25M

1. Explain the features of Federal Government. CO1, L1
2. Discuss the issues of Electoral Reforms. CO2, L5
3. Explain the features of Local Governments. COL2
4. Explain the73 rd and 74 Constitutional Amendment. CO3, L2,
5. Discuss the Caste role in Indian political system. CO4, l5
6. Explain the Criminalization of Politics and Internal threats to Security. CO4, CO2.
7. Analise the features of NITI Ayog.CO4, L4
8. Lokpal & Lokayukta. CO4, l2

SECTION –B

Answer the Following : Each carries TEN marks. 5x10=50

9. (a) Discuss the Legislative, Administrative and Financial relations between the Central and State Government. CO1, l5

(or)

(b)Explain the recommendations of Sarkariya Commission and M.M. Punchi commission of Central-State government. CO1, L2

10. (a)Explain the powers and functions of Election Commission. CO2, L2

(or)

(b) Describe the determinants of voting behavior in India. CO2, L5

11. (a) Explain the functions of Urban Government.CO3, L2

(or)

(b) Discuss the basic features of Panchyati Raj in Andhra Pradesh. CO3, L5

12. (a) Explain the the Religion and politics in India. Co4, L2

(or)

(b)Explain the powers and functions of Controller and Auditor General. CO4, L3

13. (a) Write an essay on Central Legislative Council. CO5, L1

(or)

(b) Explain the Criminalization of Politics and Internal threats to security. CO5, L5

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A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), (2022-2023)VUYYURU

SECOND YEAR FOURTH SEMESTER

Course5:WESTERN POLITICAL THOUGHT

Course outcomes :

CO1: *It helps* students discover the political philosophy that forms the basis of politics in the Western world, to interpret the political philosophies of the Greek, Roman , French, English and Germen philosophers in historical context as well as relate them to contemporary politics.

CO2: Origin of the knowledge in political thought.

CO3: To understand the political thoughts in medieval period and how it laid foundation to modern.

CO4: To demonstrate how government politics people by democracy and individual people.

CO5: To demonstrate individual freedom, surplus value, materialist.

Learning outcomes:

On successful completion of the course the students will be able to:

·1.Understand the fundamental contours classical, western political philosophy, basic features of medieval political thought and shift from medieval to modern era.
·2.Understand the Social Contract Theory and appreciate its implications on the perception of State in terms of its purposes and role.
3.Acquaint with the Liberal and Marxist philosophy and analyze some trends in Western Political Thought.

3. critically analyse the evolution of western political thought.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), (2022-2023)VUYYURU

SECOND YEAR FOURTH SEMESTER **No.of Credits:4**60 hours

Course5:WESTERN POLITICAL THOUGHT

UNIT-I	**ANCIENT GREEK POLITICAL THOUGHT**
	1. Plato-Rule of Philosopher Kings-Theory of Justice-Ideal State and Education
	2. Aristotle-Theory of State-Classification of Governments-Citizenship, Slavery and Theory of Revolutions.
UNIT-II	**MEDIEVAL AND MODERN POLITICAL THOUGHT**
	1. St. Augustine-Theory of Two Cities.
	2. Niccolo Machiavelli-State and Statecraft.
UNIT-III	**CONTRACTUAL POLITICAL THOUGHT**
	1. Thomas Hobbes- Social Contract and Absolute Sovereignty.
	2. John Locke- Human Nature, State of Nature, Social Contract, Natural Rights and Limited Government 3. Jean Jacques Rousseau- Human Nature, State of Nature, Social Contract, General Will and Popular Sovereignty**Error! Filename not specified.**
UNIT-IV	**UTILITARIAN POLITICAL THOUGHT**
	1. Jermy Bentham-Theory of Utility, Law and Reforms.
	2. J.S.Mill-Theory of Liberty and Representative Government.
UNIT-V	**MARXIST POLITICAL THOUGHT**
	1. Karl Marx-Dialectical Materialism, Theory of Surplus Value and Class Struggle.
	2. Antonio Gramsci-Hegemony and Civil Society.

REEFERENCE BOOKS:

O.P.Gauba : Western Political Thought
G.H.Sabine : A History of Political TheoryE.Baker
Greek Political Theory : Plato and His

A.G. & S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), (2022-2023)VUYYURU

Course 5: WESTERN POLITICAL THOUGHT

MODEL QUESTION PAPER (Semester-IV)

Time: 3 Hours **Marks :75 marks**

Course Code :POLT42

SECTION- A

(Answer any five questions. Each question carries 5 marks)- 5X5=25

(2 questions should be given from eachUnit)

1. Plato views on Philosopher Kings.Co1:
2. Explain Socrates role in Greek philosophy.CO1:
3. Explain Aristotle views on Classification of Governments. CO1,
4. St. Augustine views on 'City State'.CO2,
5. Thomas Hobbes views on Human Nature.CO3,
6. Natural Rights.
7. Write a brief note on the Prison Reforms of Bentham.Co4,
8. Surplus Value.Co5

SECTION B (Total: 5x10 = 50 Marks)

(Answer all questions. Each question carries 10 marks

(Two questions should be given with internal choice from each Unit)

9 . (a) Critically examine Plato's views in 'Ideal State'.CO1, L5

OR

(b)Examine Aristotle views on Revolutions.CO1, L2

10.(a) Explain the St. Augustine theory of Tow Cities. CO2, L2

OR

(b).Critically examine the qualities of a Prince suggested by Machiavelli. CO2, L5

11. (a) Discuss the 'Social Contract Theory ' of Thomas Hobbes. CO3, L5

OR

(b) "Man is born free but everywhere he is found in chains'. Explain. CO3, L2

12. (a) Explain J.S. Mill contribution to the theory of Utilitarianism of Bentham. CO4, L3

OR

(b) Explain Bentham's theory of Pleasure and Pain.CO4, L2

13. (a) Explain the features of Karl Marx Communism. CO5, L2

OR

(b) Write an essay on Antonio Gramsci 'Hegemony Theory. CO5, L2

A.G&S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS), VUYYURU

DEPARTMENT OF ENGLISH

BOARD OF STUDIES MEETING

GENERAL ENGLISH

VENUE

ENGLISH LANGUAGE LABORATORY

DATE

22nd October, 2022

Minutes of the meeting of Board of Studies in General English for the Autonomous Courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held on 22-10 -2022 in the English Language Laboratory at 11:00 am.

Mr.B.Bulli Babu ... Presiding

Members Present:

1) (B.BULLI BABU)	Chairman	Head, Department of English AG & SG S Degree College Vuyyuru-521165
2) (Dr.M.KOTESWARA RAO)	University Nominee	Professor, Department of English Krishna University, Machilipatnam.
3) (Dr.G.SRILATHA)	Academic Council Nominee	Head, Department of English P.B.S College, Vijayawada.
4) (G.SONI)	Academic Council Nominee	Head, Department of English GDC, Ravulapalem
5) (M.ROJA)	Member	Lecturer in English A.G & S.G.S Degree College, Vuyyuru-521165
6) (R.V.V.APARNA)	Member	Lecturer in English A.G & S.G.S Degree College, Vuyyuru-521165
7) (ANEESA BEGUM)	Member	Lecturer in English A.G & S.G.S Degree College, Vuyyuru – 521165

Agenda for B.O.S Meeting of General English for I & III SEMESTERS for the Academic Year 2022-23

The following proposals are submitted as a part of the agenda for the consideration and approval of the honorable members of Board of Studies, at the meeting held on 22nd October, 2022.

1. To recommend syllabi for 1st and 3rd semesters of I & II Degree students of all disciplines for the Academic Year 2022-23.
2. To Consider and approve the additional inputs and minor modifications if any, in the I & III Semester papers of General English.
3. To recommend the Model Question Papers of 1st and 3rd semesters of I & II Degree of all disciplines for the Academic Year 2022-23.
4. To recommend the Guidelines to be followed by the question paper setters in General English for the 1st and 3rd semester-end exams of I & II Year students of all disciplines.
5. To recommend the teaching and evaluation methods to be followed under Autonomous status.
6. To recommend topics for online teaching and evaluation patterns.
7. To consider and approve the implementation of Pedagogy methods like Quiz, classroom seminar, Assignment or Case study, Test, puzzles, viva and few more innovative methods in classroom teaching as indicated in the curricular plans.
8. To consider and approve to arrange Guest Lectures by Subject Experts @ 1(minimum) per Semester rounded up to more than 3 per academic year.
9. Any suggestions regarding Certificate/Add-on Courses, Seminars, Workshops, Guest Lectures and student competitions to be organized.
10. To note any changes in the syllabus if made by APSCHE for the admitted batch of I Semester of the academic year 2022-23.
11. Any other matter.

RESOLUTIONS

1. Discussed and recommended the syllabus for 1st and 3rd semesters of I & II Degree students of all disciplines for the approval of the Academic Council.
2. Discussed and recommended the syllabi prescribed by APSCHE without any changes for 1st and 3rd semesters of I & II Degree students of all disciplines for the approval of the Academic Council.
3. Discussed and recommended the I & III Semester Model Question Papers of General English for the approval of the Academic Council.
4. Discussed and recommended the guidelines to be followed by the question paper setters of General English for 1st & 3rd Semesters of I & II year students of all disciplines for the approval of the Academic Council.
5. Discussed and recommended the teaching methodology to be taken up and the evaluation patterns to be done.

Teaching methods:

Besides the conventional methods of teaching (The Direct Method, The Structural Approach), Grammar-Translation Method, Audio-lingual Method, Communicative Language Teaching (CLT), Task-Based Language Learning etc,. are practiced. We use modern technology i.e. using of an LCD projector, display on U boards, you tube videos etc., for better understanding of concepts.

There are two components in the Valuation and Assessment of a student – Internal Assessment (IA) and Semester Examinations (SE).

Internal Assessment (IA)

I SEMESTER

- The maximum mark for IA is 30 and SE is 70 for theory. Out of these 30 marks, 20 marks are allocated for announced tests.
- Each IA written examination is of 1 hour 30 minutes duration for 20 marks. The tests will be conducted centrally. The average of two such IA is calculated for 20 marks.
- Other Innovative Components will be for 5 Marks. The innovative component is for 5 marks, conducted during the class hours by the staff member/ in charge of the subject, in the form of assignments/ quiz/ seminars /presentations/Online/Open Book/Viva Voce/ Group work/ Mini Project/ Exhibition, etc. The topic and time for submission/ presentation will be announced by the staff member/ in charge of the subject in advance. Each student should explain and defend his/her presentation. For attendance 5 Marks are allotted.
- There is no passing minimum for IA.

Semester Examinations (SE)

- A student should register himself/herself to appear for the Semester Examinations by payment of the prescribed fee.
- The Semester Examinations will be in the form of a comprehensive examination covering the entire syllabus in each subject. It will be of 3 hours duration, with maximum 70 marks, irrespective of the number of credits allotted to it.

- Even though the candidate is absent for two IA exams/obtain zero marks, the external marks are considered (if he/she gets 40/70) and the result shall be declared as 'PASS'.
- The pass mark shall be 28 out of 70 in the Semester end examination.
- The maximum marks for each Paper shall be 100.

III SEMESTER

- The maximum mark for IA is 25 and SE is 75 for theory. Out of these 25 marks, 15 marks are allocated for announced tests.
- Each IA written examination is of 1 hour duration for 15 marks. The tests will be conducted centrally. The average of two such IA is calculated for 15 marks.
- Other Innovative Components will be for 5 Marks. The innovative component is for 5 marks, conducted during the class hours by the staff member/ in charge of the subject, in the form of assignments/ quiz/ seminars /presentations/Online/Open Book/Viva Voce/ Group work/ Mini Project/ Exhibition, etc. The topic and time for submission/ presentation will be announced by the staff member/ in charge of the subject in advance. Each student should explain and defend his/her presentation. For assignment 5 Marks are allotted.
- There is no passing minimum for IA.

Semester Examinations (SE)

- A student should register himself/herself to appear for the Semester Examinations by payment of the prescribed fee.
- The Semester Examinations will be in the form of a comprehensive examination covering the entire syllabus in each subject. It will be of 3 hours duration, with maximum 75 marks, irrespective of the number of credits allotted to it.
- Even though the candidate is absent for two IA exams/obtain zero marks, the external marks are considered (if he/she gets 40/75) and the result shall be declared as 'PASS'.
- The pass mark shall be 30 out of 75 in the Semester end examination.
- The maximum marks for each Paper shall be 100.

6. Discussed and recommended the topics for online teaching to be taught and the evaluation patterns to be taken up.
7. Considered and approved the implementation of Pedagogy methods like Quiz, classroom seminar, Assignment or Case study, Test, puzzles, viva and few more innovative methods in classroom teaching as indicated in the curricular plans.
8. Considered and approved to arrange Guest Lectures by Subject Experts rounded up to 3 per academic year.
9. Discussed and recommended to organize Seminars, Guest lectures, Workshops to enhance the knowledge of students besides conducting Certificate Course in Competitive English. It has been suggested that the Bridge Course may be conducted for the I year students before the commencement of regular classes. All these recommendations are forwarded for the approval of the Academic Council.
10. Discussed and recommended to implement the 100% of the new syllabus introduced / made by APSCHE for the admitted batch of the I Semester for the academic year 2022-23. All these recommendations are forwarded for the approval of the Academic Council.
11. Nil.

Signatures of the BOS Members:

Dr.M.KOTESWARA RAO
(University Nominee)

Dr.G.SRI LATHA
(Academic Council Nominee)

Ms.G.SONI
(Academic Council Nominee)

M.ROJA
(Member)

R.V.V.APARNA
(Member)

Ms.ANEESA BEGUM
(Member)

Chairman

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE,
VUYYURU – 521165
(An Autonomous College in the Jurisdiction of Krishna University, Machilipatnam.)
Accredited with "A" Grade by NAAC, Bengaluru
Semester - I

ENGLISH PRAXIS COURSE-I
A COURSE IN COMMUNICATION AND SOFT SKILLS

Course Code	**ENGT11B**	**Course Delivery Method**	**Class Room/ Blended Mode - Both**
Credits	**03**	**CIA Marks**	**30**
No.of Lecture Hours / Week	**4**	**Semester End Exam Marks**	**70**
Total No.of Lecture Hours	**60**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2022-23**	**Year of Revision: ------**	**Percentage of Revision: 0%**
CLASS:	**I YEAR DEGREE (ALL COURSES)**		

Course objective:

The main objective of this course is to equip the learners with listening, speaking, reading, writing skills and also build up their ability to use Soft Skills in their professional and daily life effectively.

COURSE OUTCOMES:

At the end of the course, the learners will be able to:

CO 1. Gain more confidence in learning various kinds of listening techniques as well as create more effective strategies to improve one's ability to listen and to understand people. **PO2**

CO 2. Improve their speaking ability in English both in terms of fluency and comprehensibility and practice in using English to perform preliminary communicative functions required for their everyday social and professional interactions with others. **PO3**

CO 3. Explore basic elements of grammar and test their abilities in concord, modals, tenses, articles, prepositions, question tags and transformation of sentences. **PO7**

CO 4. Develop their written expression of thought and discover opportunities to build connections within the areas of punctuations, spelling and paragraph writing. **PO2**

CO 5. Formulate problem solving skills, making appropriate and responsible decisions, improve their attitude, emotional intelligence, telephone etiquette and interpersonal skills. **PO1**

Academic Year 2022-23

Changes made in the syllabus

Semester-I General English

Course content suggested by APSCHE	Additions	Deletion
UNIT-I **Listening Skills** 1. Importance of Listening 2. Types of Listening 3. Barriers to Listening 4. Effective Listening **UNIT-II** **Speaking Skills** 1. Sounds of English: Vowels and Consonants 2. Word Accent 3. Intonation **UNIT – III** **Grammar** 1. Concord 2. Modals 3. Tenses (Present/Past/Future) 4. Articles 5. Prepositions 6. Question Tags 7. Sentence Transformation (Voice, Reported Speech & Degrees of Comparison) 8. Error Correction **UNIT-IV** **Writing** 1. Punctuation 2. Spelling 3. Paragraph Writing **UNIT-V** **Soft Skills** 1. SWOC 2. Attitude 3. Emotional Intelligence 4. Telephone Etiquette 5. Interpersonal Skills	Nil	Nil

Learning Outcomes

By the end of the course the learner will be able to :

- Use grammar effectively in writing and speaking.
- Demonstrate the use of good vocabulary
- Demonstrate an understating of writing skills
- Acquire ability to use Soft Skills in professional and daily life.
- Confidently use the tools of communication skills

ENGLISH PRAXIS COURSE-I

A COURSE IN COMMUNICATION AND SOFT SKILLS

SYLLABUS

Unit	Learning Units	Lecture Hours
I	**Listening Skills** 1. Importance of Listening 2. Types of Listening 3. Barriers to Listening 4. Effective Listening	10
II	**Speaking Skills** 1. Sounds of English: Vowels and Consonants 2. Word Accent 3. Intonation	10
III	**Grammar** 1. Concord 2. Modals 3. Tenses (Present/Past/Future) 4. Articles 5. Prepositions 6. Question Tags 7. Sentence Transformation (Voice, Reported Speech & Degrees of Comparison) 8. Error Correction	15
IV	**Writing** 1. Punctuation 2. Spelling 3. Paragraph Writing	10
V	**Soft Skills** 1. SWOC 2. Attitude 3. Emotional Intelligence 4. Telephone Etiquette 5. Interpersonal Skills	15

REFERENCES:

1. English praxis-I—A Course in communication and soft skills by S.B.Fathima Mary,Vivanta publishers2021
2. English praxis-I—A Course in communication and soft skills by Himalaya Publishing House 2021.

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ENGLISH	ENGT11B	2022-2023	B.A,B.Com & B.Sc

Time: 3 hours **Max Marks: 70**

The Pattern of the Question Paper for Semester – I: ENGT11B

Semester - I

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SECTION – A

I. Answer the following questions. **3 x 5 = 15M**

(6 Paragraph questions should be given from UNIT – I (Listening Skills), UNIT-II (Speaking Skills) & UNIT – IV (Writing)

SECTION – B

II. Answer any FIVE of the following questions. **2 x 5 = 10M**

(4 Paragraph questions should be given from UNIT – I (Listening Skills) & UNIT-II (Speaking Skills)

SECTION – C 20 M

III. Answer the following as directed. L3 **20x1=20M**

a) Insert the correct word given in brackets : (5 Sentences to be given) (5x1=5)
b) Select the modal form from the options that best completes the sentence. (5x15=5)
c) Fill in the following blanks with suitable verb forms given in brackets. (5x1=5)
d) Choose an appropriate article given in brackets to complete the sentences. (5x1=5)

SECTION – D

VI. Answer the following as directed. L3 **2x5=10M**

a) 2 questions from punctuation and 3 questions from spelling to be given. (5 Marks)
b) 2 questions from Voice, 1 question from Speech 1 question from Degrees of Comparison and 1 question from Correction of Sentences to be given (5 Marks)

Section-E

V. Answer the following questions. **3x5=15M**

(6 Paragraph questions to be given from Unit – V Soft Skills)

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ENGLISH	ENGT11B	2022-2023	B.A,B.Com & B.Sc

Time: 3 hours **Max Mark: 70**

Subject Code : ENGT11B **Pass Marks: 28**

Semester – I

A COURSE IN COMMUNICATION AND SOFT SKILLS – I

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ENGLISH PRAXIS – I, SEMESTER - I

Section-A

I. Answer the following questions. **3x5=15M**

1. (a) What are the different types of listening? Describe in brief each of them. L2

Or

(b) What are the main barriers of listening? Expand each in your own words. L2

2. (c) How many consonant sounds are there in English language? What are they? L1

Or

(d) How many vowel sounds are there in English language? What are they? L1

3. (e) What are the elements that are essential to effective paragraph writing? L2

Or

(f)Write a paragraph on your favourite hobby. L2

Section-B

II. Answer the following questions. **2x5=10M**

4. (a) Describe the process of listening. L2

Or

(b) What are the differences between listening and hearing? L2

5. (c) How many types of Intonations are there in English? What are they? L1

Or

(d) What is discriminative listening? Explain in your own words.L2

Section-C

III. Answer the following as directed. L3 (20x1=20M)

A. i. My sister or my brothers _____(is / are) arriving by flight today**.** **5x1 =5**

ii. Cars and bikes ---------- (is / are) my means of transportation.

iii. A number of people _____ (has / have) written in about this subject.

iv. The students, who all belonged to the same neighbourhood _____(form / forms) a formidable cricket team.

v. My dogs, along with my cat, _____ (is / are) chasing the ball.

B. i. Asha loves mangoes _____ we take some for her. (shall / might) **5x1 =5**

ii. _____ I borrow your pen, please. (could / would)

iii. They _____ play the drums as well as the guitar. (present ability)

iv. The bus _____ (will / must) be coming any minute. (expectedness)

v. She _____ (can, could) run fast. (to show ability)

C i. Raghu _____ (teach / teaches) art in a school in Mangalore. **5x1= 5**

ii. I _____ (live) in Delhi since 1998.

iii. He _____ (read) a novel now.

iv. She _____ (complete) her home work just now.

v. They _____ (go / goes) to school every day

.

D. i. Mary is _____ Australian, but her husband is ____ European. **(a, an , the)** **5x1 =5**

ii. _____ Ganges is a holy river. **(a, an , the)**

iii. His father is _____ university professor. **(a, an , the)**

iv. He was proud ---------- his work. **(on, of)**

v. Seema sings well, ----------? **(don't she, doesn't she)**

Section-D

IV. Answer the following as directed. L3 (2x5=10M)

A. i. John said I enjoyed the breakfast very much **(punctuation marks**) **5x1=5**

ii. Run as fast as you can he shouted **(punctuation marks)**

iii. Begining **(correct the spelling)**

iv. Restaurent **(correct the spelling)**

v. Parlament **(correct the spelling)**

B. i. My friend has completed the work. **(change into passive voice)** **5x1=5**

ii. A beautiful picture was painted by Tony. **(change into active voice)**

iii. Jameel said, " I am going home tomorrow". **(change into Indirect speech)**

iv. The lotus is the most beautiful flower. **(change into positive degree)**

v . I speak the Telugu. **(correct the sentence)**

Section-E

V. Answer the following questions. (3x5=15M)

6. (a) Explain how SWOC / T model can be used to analyze an Individual**.** **L2** **1x5=5**

Or

(b) What are the characteristics of Emotional Intelligence? Explain. L2

7. (c) What are the tips that will help you communicate better over the phone? L1 **1x5=5**

Or

(d) How do you develop the positive attitude? L1

8. (e) What is the importance Attitude? L2 **1x5=5**

Or

(f) What are the Interpersonal Skills? L2

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Semester – III (CBCS)
ENGLISH PRAXIS COURSE-III

A COURSE IN CONVERSATIONAL SKILLS

Course Code	**ENG T01A**	**Course Delivery Method**	**Class Room/ Blended Mode - Both**
Credits	**03**	**CIA Marks**	**25**
No.of Lecture Hours / Week	**4**	**Semester End Exam Marks**	**75**
Total No.of Lecture Hours	**60**	**Total Marks**	**100**
Year of Introduction:	**Year of Offering: 2022-23**	**Year of Revision: ------**	**Percentage of Revision: 0%**
CLASS:	**II YEAR DEGREE (ALL COURSES)**		

COURSE OBJECTIVE:

The main objective of this course is to enrich student's abilities to speak fluently, participate confidently in any social interaction, face any professional discourse, demonstrate critical thinking and enhance conversational skills by deserving the professional interviews.

COURSE OUTCOMES:

At the end of the course the learners will be able to:

CO1. Analyze interpret, appreciate and comprehend the specified text and the contexts in terms of their content, purpose and form. **PO1**

CO2. Comprehend effectively for a variety of professional and social settings, adapting other writer's ideas as they explore and develop their own. **PO2**

CO3. Engage in simple, common and basic social and academic conversations, demonstrating the ability to open and close a conversation and to ask for clarification, information or assistance, as well as agreeing/disagreeing and giving examples. **PO3**

CO4. Convey their own interpretations by building dialogues and developing the learner's performance level in spoken English through the activities. **PO4**

CO5. Acquaint the learner with the skills to debate, describe and role play. **PO5**

Academic Year 2022-23

Changes made in the syllabus

Semester-III General English

Course content suggested by APSCHE	Additions	Deletion
UNIT-I **Speech** 1. Tryst with Destiny - Jawaharlal Nehru **Skills** 2. Greetings 3. Introductions **UNIT-II** **Speech** 1. Yes, We Can Barack Obama **Interview** 2. A Leader Should Know How to Manage Failure Dr.A.P.J.Abdul Kalam/India Knowledge at Wharton **Skills** 3. Requests **UNIT-III** **Interview** 1. Nelson Mandela's Interview With Larry King **Skills** 2. Asking and Giving Information 3. Agreeing and Disagreeing **UNIT-IV** Interview 1. JRD Tata's Interview With T.N.Ninan **Skills** 2. Dialogue Building 3. Giving Instructions/Directions **UNIT-V** **Speech** 1. You've Got to Find What You Love Steve Jobs **Skills** 2. Debates 3. Descriptions 4. Role Play	Nil	Nil

Learning Outcomes

By the end of the course the learner will be able to :

- Speak fluently in English
- Participate confidently in any social interaction
- Face any professional discourse
- Demonstrate critical thinking
- Enhance conversational skills by observing the professional interviews

SYLLABUS

Unit	Learning Units	Lecture Hours
I	**Speech** 1. Tryst with Destiny - Jawaharlal Nehru **Skills** 2. Greetings 3. Introductions	10
II	**Speech** 1. Yes, We Can Barack Obama **Interview** 2. A Leader Should Know How to Manage Failure Dr.A.P.J.Abdul Kalam/India Knowledge at Wharton **Skills** 3. Requests	10
III	**Interview** 1. Nelson Mandela's Interview With Larry King **Skills** 2. Asking and Giving Information 3. Agreeing and Disagreeing	15
IV	Interview 1. JRD Tata's Interview With T.N.Ninan **Skills** 2. Dialogue Building 3. Giving Instructions/Directions	10
V	**Speech** 1. You've Got to Find What You Love Steve Jobs **Skills** 2. Debates 3. Descriptions 4. Role Play	15

REFERENCES:

1. ENGLISH PRAXIS III – A Course in Conversational Skills by S.B.Fatima Mary, VIVANTA PRESS -2021.
2. ENGLISH PRAXIS III – A Course in Conversational Skills by Himalaya Publishers – 2021.

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ENGLISH	ENG T01A	2022-2023	B.A,B.Com & B.Sc

The Pattern of the Question Paper for Semester – III: ENG T01A

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Section - A

I. Answer any FIVE of the following questions. **5x5=25M**

(Any Six essay questions should be given from all speeches and interviews in the given syllabus)

Section – B

II. Answer any FIVE of the following questions. **5x2=10M**

(Any Six short answer questions should be given from all speeches and interviews in the given syllabus)

Section – C

III. GREETINGS **1x4=4 Marks**

(This question should be given from the prescribed text book, page no's 08-17)

IV. INTRODUCTIONS **1x4=4 Marks**

(This question should be given from the prescribed text book, page no's 17-26).

V. V. REQUESTS **1x4=4 Marks**

(This question should be given from the prescribed text book, page no's 40-46)

VI. ASKING AND GIVING INFORMATION **1x4=4 Marks**

(This question should be given from the prescribed text book, page no's 58-63)

(OR)

VII. AGREEING DISAGREEING

(This question should be given from the prescribed text book, page no's 63-72)

VIII. DIALOGUE BUILDING **1x4=4 Marks**

(This question should be given from the prescribed text book, page no's78-85)

IX. GIVING INSTRUCTIONS / DIRECTIONS **1x4=4 Marks**

(This question should be given from the prescribed text book, page no's 86-97)

X. DEBATES **1x4=4 Marks**

(This question should be given from the prescribed text book, page no's 105-112)

XI.DESCRIPTIONS **1x4=4 Marks**

(This question should be given from the prescribed text book, page no's 113-120)

XII. ROLE-PLAY **1x3=3 Marks**

(This questions should be given from the prescribed text book, page no's 121-124)

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ENGLISH	ENG T01A	2022-2023	B.A,B.Com & B.Sc

Time: 3 hours **Max Mark: 75**

Question Paper Model

SECTION-A

I. Answer any FIVE of the following questions. 5x6=30M

1. What was the pledge that Jawaharlal Nehru wanted every citizen of India to take? CO 1 L2
2. What does Barack Obama in his speech say that change has come to America? CO4 L4
3. What are the challenges that the Americans are expected to face? CO1 L3
4. What are the six leadership traits that Kalam talks about? CO1 L2
5. Why did Nelson Mandela say that he never got angry? CO3 L2
6. What are the major changes in Indian business that were noticed by J.R.D.Tata? CO2 L4

SECTION-B

II. Answer any FIVE of the following questions. 5x2=10M

1. Why did Steve Jobs become interested in Calligraphy? CO4 L4
2. Who is Ann Nixon Cooper? What does Obama say about her? CO1 L1
3. How does Dr. A.P.J. Abdul Kalam describe his spirituality? CO3 L2
4. How does Tata describe Birla? CO3 L2
5. What does freedom and power bring? CO2 L4
6. What was the ambition of the greatest man of our generation? CO1 L4

SECTION-C (35 M)

III. Mr Krishna meets Ms Bhaskar, his son's teacher, at the school. Write a dialogue between them. **CO2. L2** **1x4=4M**

IV. Jagadish from Tiruamla Technologies, Tirupathi, goes to the office at Hyderabad to meet the Company's Finance Manager, o his prior appointment. Jagadish introduces himself to the Finance Manager's secretary, explaining who he is, where he is from, and why he is there. **CO3. L1** **1x4=4M**

V. List any five debate points on Impact of Social Media on Youth. **CO4. L4** **1x4=4M**

VI. Build up a conversation based on the hints given below.

Good morning – new to this place – in the Air Force – what do you do? – How fortunate! Need to enroll my daughter in a school – tell me about good schools in Vishakapatnam – thank you.

CO. L3 **1x4=4M**

VII. Rahul is a new student in the college. He asks Bharat for directions to the library. Give some directions. **CO3. L3** **1x4=4M**

VIII. Anu asks her friend Rajesh to get her college admission form from the college. Write a dialogue of request. **CO4. L2** **1x4=4M**

IX. Construct a dialogue between the customer and a shop keeper seeking information about the price of the groceries. **CO4. L1** **1x4=4M**

X. Your parents insist that you should cut down your extra-curricular activities in order to focus on your studies. Construct a dialogue either agreeing or disagreeing with your parent. **CO4. L1** **1x4=4M**

XI. Plan a role play between the principal and a parent asking him/her to take care of his/her child's attendance . **CO5. L2** **1x3=3M**

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A.G&S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE(AUTONOMOUS), VUYYURU

DEPARTMENT OF ENGLISH

BOARD OF STUDIES MEETING

GENERAL ENGLISH

VENUE

ENGLISH LANGUAGE LABORATORY

DATE

3rd April, 2023

Minutes of the meeting of Board of Studies in General English for the Autonomous Courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held on 03-04 -2023 through online at 11:00 am.

B.Bulli Babu ... Presiding

Members Present:

1)…… (**B.BULLI BABU)**	Chairman	Head, Department of English AG & SG S Degree College Vuyyuru-521165
2)…… **(Dr.M.KOTESWARA RAO)**	University Nominee	Professor, Department of English Krishna University, Machilipatnam.
3)…….. **(Dr.G.SRILATHA)**	Academic Council Nominee	Lecturer, Department of English P.B.Siddhartha College, Vijayawada.
4)…… **(G.SONI)**	Academic Council Nominee	Head, Department of English GDS, Ravulapalem.
5)…… **(R.V.V.APARNA)**	Member	Lecturer in English AG & SG S Degree College, Vuyyuru-521165

Agenda for B.O.S Meeting of General English for II SEMESTER for the Academic Year 2022-23

1. To recommend syllabi for 2nd semester of I Degree students of all disciplines for the Academic Year 2022-23.
2. To recommend the Model Question Paper of 2nd semester of I Degree of all disciplines for the Academic Year 2022-23.
3. To recommend the Guidelines to be followed by the question paper setters in General English for the 2nd semester-end exams of I Year students of all disciplines
4. To recommend the teaching and evaluation methods to be followed under Autonomous status.
5. Any suggestions regarding Certificate/Add-on Courses, Seminars, Workshops, Guest Lectures and student competitions to be organized.
6. Any other matter.

RESOLUTIONS

The following is the gist of discussion took place among the members BOS – English.

1. The Curricula has to be made relevant to the local, regional, national and global developmental needs. To facilitate this exercise, an addition to the syllabus or deviation from the syllabus can be opted for. In the process of making the syllabus suitable, by means of addition and / or deviation, the structured feedback (to review and design the syllabus) has to be procured from students, teachers, employers and Alumni by IQAC and Academic coordinator. Basing on the feedback taken from these four stakeholders, the Endeavour of addition and / or deviation has to be made. As per the procedure, necessary changes are already being made in the syllabus of course II of General English (II semester) up to 20%.

2. Since the **APSCHE** has revised the syllabus under **CBCS** framework with effect from **2020-2021**, the same syllabus for General English of Semester-II **(English Praxis Course- II)** titled **'A Course in Reading & Writing Skills'** shall be implemented for the admitted batch of the first year for this academic year 2022-23 without any changes.

3. Discussed and recommended the Question paper pattern for the 2nd Semester of I Year studentsof all disciplines for the approval of the Academic Council.

4. Discussed and recommended the guidelines to be followed by the question paper setters of General English for 2nd semester of first degree students of all disciplines for the approval of the Academic Council.

5. Discussed and recommended the following teaching and evaluation methods for approval ofAcademic Council.

Teaching methods:

Besides the conventional methods of teaching, we use modern technology i.e. using of an LCD projector, display on U boards etc, for better understanding of concepts.

There are two components in the Valuation and Assessment of a student – Internal Assessment (IA) and Semester Examinations (SE).

Internal Assessment (IA)

- The maximum mark for IA is 30 and SE is 70 for theory. Out of these 30 marks, 20 marks are allocated for announced tests.
- Each IA written examination is of 1½ hour duration for 30 marks. The tests will be conducted centrally. The average of two such IA is calculated for 20 marks.
- Other Innovative Components will be for 5 Marks for General English. The innovative component is conducted during the class hours by the staff member/ in charge of the subject, in the form of assignments/ quiz/ seminars /presentations/Online/Open Book/Viva Voce/ Group work/ Mini Project/ Exhibition, etc. The topic and time for submission/ presentation will be announced by the staff member/ in charge of the subject in advance. Each student should explain and defend his/her presentation. For attendance 5 Marks are allotted.
- There is no passing minimum for IA.

Semester Examinations (SE)

- A student should register himself/herself to appear for the Semester Examinations by payment of the prescribed fee.
- The Semester Examinations will be in the form of a comprehensive examination covering the entire syllabus in each subject. It will be of 3 hours duration, with maximum 70 marks, irrespective of the number of credits allotted to it.
- Even though the candidate is absent for two IA exams/obtain zero marks, the external marks are considered (if he/she gets 40/70) and the result shall be declared as ‘PASS’.

- The pass mark shall be 28 out of 70 in the Semester end examination.
- The maximum marks for each Paper shall be 100.

6. Considered and approved the implementation of Pedagogy methods like Quiz, classroom seminar, Assignment or Case study, Test, puzzles, viva and few more innovative methods in classroom teaching as indicated in the curricular plans.
7. Discussed and recommended for organizing Seminars, Guest lectures, Workshops to enhance the knowledge of students besides conducting Certificate Courses on Spoken English, Soft Skills and Competitive English. It has been suggested that the Certificate Courses may be feasible to the students (interested students) of all disciplines of II years and the resource person may be a Guest Faculty to handle the classes regularly beyond the curriculum. All these recommendations are forwarded for the approval of the Academic Council.
8. Nil.

Signatures of the BOS Members:

Dr.M.KOTESWARA RAO
(University Nominee)

Dr.G.SRILATHA
(Academic Council Nominee)

(G.SONI)
(Academic Council Nominee)

R.V.V.APARNA
(Member)

Chairman

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE,
VUYYURU – 521165
(An Autonomous College in the Jurisdiction of Krishna University, Machilipatnam.)
Accredited with "A" Grade by NAAC, Bengaluru
Semester - II

ENGLISH PRAXIS COURSE-II
A COURSE IN READING AND WRITING SKILLS
Course Structure and Syllabi under CBCS

Course Code	**ENGT21B**	**Course Delivery Method**	**Class Room/ Blended Mode - Both**
Credits	**03**	**CIA Marks**	**30**
No.of Lecture Hours / Week	**4**	**Semester End Exam Marks**	**70**
Total No.of Lecture Hours	**60**	**Total Marks**	**100**
Year of Introduction: 2020-21	**Year of Offering: 2022-23**	**Year of Revision: ------**	**Percentage of Revision: 0%**
CLASS:	**I YEAR DEGREE (ALL COURSES)**		

OBJECTIVE: The main objective of this course is to facilitate the learners to acquire the linguistic competence essentially required in a variety of life situations and develop their intellectual, personal and professional abilities.

COURSE OUT COMES: At the end of the course the learners will be able to:

CO1: Acquaint the learner with some widely used words which appeal to be similar but are semantically different and also help them to realize the importance of meanings, and understand the grammatical structures in writing. **PO7**

CO 2: Speak clearly, effectively and appropriately with correct pronunciation, pause and articulation of voice for a variety of audiences and purposes. **PO2**

CO 3: Analyze, interpret, appreciate and comprehend the specified text and the contexts in terms of their content, purpose, and form. **PO1**

CO 4: Think critically; convey their own interpretations, perspectives, producing new creative and artistic works following grammatical structures in oral and written assignment. **PO7**

CO 5: Write effectively for a variety of professional and social settings adapting other writer's ideas as they explore and develop their own. **PO3**

Academic Year 2022-23

Changes made in the syllabus

Semester-II General English

Course content suggested by APSCHE	Additions	Deletion
I. UNIT **Prose**: 1. How to Avoid Foolish Opinions **Skills**: 2. Vocabulary: Conversion of Words 3. One Word Substitutes 4. Collocations **II. UNIT** **Prose**: 1. The Doll's House **Poetry:** 2. Ode to the West Wind **Non-Detailed Text:** 3. Florence Nightingale **Skill**: 4. Skimming and Scanning **III. UNIT** **Prose** : 1. The Night Train at Deoli **Poetry:** 2. Upagupta **Skill:** 3. Reading Comprehension 4. Note Making/Taking **IV. UNIT** **Poetry:** 1. Coromandel Fishers **Skill:** 2. Expansion of Ideas 3. Notices, Agendas and Minutes **V.UNIT** **Non-Detailed Text:** 1. An Astrologer's Day **Skills**: 2. Curriculum Vitae and Resume 3. Letters 4. E-Correspondence	Nil	Nil

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ENGLISH	ENGT21B	2022-2023	B.A,B.Com & B.Sc

ENGLISH PRAXIS- II
A COURSE IN READING AND WRITING SKILLS

SYLLABUS

I. UNIT

Prose: 1. How to Avoid Foolish Opinions	Bertrand Russell	12
Skills: 2. Vocabulary: Conversion of Words		
3. One Word Substitutes		
4. Collocations		

II. UNIT

Prose: 1. The Doll's House	Katherine Mansfield	
Poetry: 2. Ode to the West Wind	P B Shelley	
Non-Detailed Text: 3. Florence Nightingale	Abrar Mohsin	12
Skill: 4. Skimming and Scanning		

III. UNIT

Prose : 1. The Night Train at Deoli	Ruskin Bond	
Poetry: 2. Upagupta	Rabindranath Tagore	12
Skill: 3. Reading Comprehension		
4. Note Making/Taking		

IV. UNIT

Poetry: 1. Coromandel Fishers	Sarojini Naidu	12
Skill: 2. Expansion of Ideas		
3. Notices, Agendas and Minutes		

V.UNIT

Non-Detailed Text: 1. An Astrologer's Day	R K Narayan	12
Skills: 2. Curriculum Vitae and Resume		
3. Letters		
4. E-Correspondence		

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE,

VUYYURU - 521165

DEPARTMENT OF ENGLISH

Title of the Paper: English Praxis –II **Max. Marks: 70**

Course Code: ENG T21B **Time: 03 Hours**

QUESTION PAPER PATTERN

SECTION – A, 40 MARKS

I. ANSWER THE FOLLOWING QUESTIONS. 2x5=10M

(Any FOUR short answer questions should be given from prose lessons in the given syllabus)

II. ANSWER THE FOLLOWING QUESTIONS. 2x5=10M

(Any FOUR short answer questions should be given from poetry in the given syllabus)

III. ANSWER THE FOLLOWING QUESTIONS. 2x10=20M

(Any FOUR essay questions should be given from non-detailed text in the given syllabus**)**

SECTION – B, 30 Marks

IV.A. Change the following sentences as directed without changing their sense. L1 CO1 2x1=2M

(Any TWO words should be given from the given syllabus)

B. **Choose the right meaningful substitute word for the following statements. L5 CO1** 2x1=2M

(Any TWO words should be given from the given syllabus)

C. Complete the following collocations using the words given in the brackets.L1CO3 2x1=2M

(Any TWO words should be given from the given syllabus)

V. Read the following passage and make notes. L3 CO3 1x4=4M

(Any passage should be given from the given syllabus)

VI. Prepare curriculum vitae in response to the following advertisement. L3 CO5 1x4=4M

(Any question should be given from the given syllabus)

VII. LETTER WRITING. 1x4=4M

OR

E - CORRESPONDENCE

(Any question should be given from the given syllabus)

VIII. Expand any ONE of the following proverb. L4 CO5 1x4=4M

(Any question should be given from the given syllabus)

IX. Read the following passage and answer the following questions. L2 CO5 5x1=5M

(Any passage should be given from the given syllabus)

XII. NOTICES, AGENDAS AND MINUTES.

(Any passage should be given from the given syllabus**)** 1x3=3M

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE,
VUYYURU - 521165
DEPARTMENT OF ENGLISH

Title of the Paper: English Praxis –II **Max. Marks: 70**
Course Code: ENG T21B **Time: 03 Hours**

MODEL PAPER

SECTION-A

I. Answer the following questions: **2x5=10 M**

1. (a) What are the ways in which you can make yourself aware of your own biases?

OR

(b) What was the main attraction of the doll's house for Kezia? Why?

2. (a) What happened when the train stopped at the Deoli station?

OR

(b) According to the author Bertrand Russell, what are the methods by which one can get rid of dogmatism?

II. Answer the following questions: **2x5=10 M**

1. (a) What are the qualities of the West Wind that the poet admires?

OR

(b) Why was the dance girl driven out of the town?

2. (a) How does Sarojini Naidu describe a day in the lives of the fishermen?

OR

(b) How did Upagupta treat the suffering dancing girl?

SECTION -B

III. Answer the following questions: **2x10=20 M**

1. (a) How does Florence Nightingale describe the hospital in Scutari in one of her letters to her friend?

OR

(b) Why was Florence Nightingale called as 'The Lady with the Lamp'?

2. (a) Retell the story 'An Astrologer's day' from the point of view of Guru Nayak.

OR

(b) Attempt a character sketch of the astrologer.

SECTION – C

IV.A. Change the following sentences as directed without changing their sense. L1 CO1 **2x1=2M**

1. The audience listened to the leader with 'patience'. (Use adverb of patience)
2. At last he was successful in his venture. (Use verb of successful)

B. Choose the right meaningful substitute word for the following statements. L5 CO1
2x1 =2M

1. One who looks at the bright side of things.----------
2. One believes in God._____

C. Complete the following collocations using the words given in the brackets.L1CO3
(get, come, make) 2x1=2M

1. _____ a home
2. _____ a trouble

V. Read the following passage and make notes. L3 CO3 1 x4 =4M

There are different forms of environmental pollution. Air pollution is caused by the burning of coal and oil. It can damage the earth's vegetation and cause respiratory problems in humans. A second type of pollution is noise pollution. It is the result of the noise aircrafts and heavy traffic. Further loud music

Is also a cause if noise pollution which has been seen to effect peoples hearing and give them severe headache and high blood pressure. Another source of pollution is radio activity which occurs when there is a leak from a nuclear power station. It kills and causes irreparable harm to those exposed to it.

VI. Prepare curriculum vitae in response to the following advertisement. L3 CO5 1x4=4M

M. Suman Karthik -aged 28 years -MA(English) BEd, -good communication and problem solving skills. -MA from S V University, Tirupati, 72% marks. BA (Adv English) from Govt Degree College, Ananthapuram, 76% marks. BEd, S K University, Ananathapuram – intermediate (HEC), Govt Jr College, Ananthapuram –worked as a teacher in English for three years. Apply for the post of junior lecturer in English in St Joseph Jr. College, Ongole.

VII. Write a letter to the principal of your college requesting to organize a study hour.
L3 CO5 1x4=4M

VIII. Expand any ONE of the following proverb. L4 CO5 1x4=4M

1. Honesty is the best policy.
2. Where there is a will there is a way.

IX. Read the following passage and answer the following questions. L2 CO5 5x1=5M

In every country people imagine that they are the best and the cleverest and the others are not so good as they are. The English man thinks that he and his country are the best; the French man is very proud of France. The Germans and the Italians think no less of their countries and many Indians imagine that India is in many ways the greatest country in the world. This is wrong. Everybody wants to think well of himself and his country. But really there is no person who has

not got some good and some bad qualities. In the same way, there is no country which is not partly good and partly bad. We must take the good wherever we find it and try to remove the bad wherever it may be. We are off course, most concerned with our own country, India. Unhappily it is in a bad way today. Most of our people are and unhappy. They have no joy in their lives. We have to find out how we can make them happier. We have to see what is good in our ways and customs try to keep it, and whatever is bad we have to throw way. If we find anything good in other countries, we should certainly take it.

Answer the following questions.

1. What do people think in every country?
2. What must we do?
3. What should be our attitude towards other countries?
4. Write the antonym for the following word.

   Worst
5. Write the synonym for the following word.

   Sorrow

X. You are the secretary of Good Habits Club. Write an agenda for the meeting on the activities to be conducted on the eve of Independence day, using proper format. L3 CO4

1x3=3M

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165

(An Autonomous College in the Jurisdiction of Krishna University)Accredited

at the level 'A' by the **NAAC**

Sponsors: Siddhartha Academy of General& Technical Education

DEPARTMENT OF COMPUTER SCIENCE

Minutes of the meeting of Board of Studies in Computer Science for PG (M.Sc.)

Date: 17-11-2022

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE::VUYYURU

(An Autonomous College in the Jurisdiction of Krishna University)
Accredited at the level 'A' by the NAAC
Sponsors: Siddhartha Academy of General & Technical Education

DEPARTMENT OF COMPUTER SCIENCE (PG)

Minutes of the meeting of Board of Studies in Computer Science for M.Sc. (Computer Science) programme held on 17-11-2022 at 11:00A.M. for the Department of Computer Science.

Members Present		
Name of the Member	**Role**	**Signature**
Smt. T.Keerthi, I/C HOD, Dept. of Computer Science, A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru-521165. Mobile: 9959558485 E-Mail: keerthitatineni16@gmail.com	Chairman	
Dr. K.Madhavi, Associate Professor, Dept of Computer Science, JNTUA. College of Engineering,Anantapur. Mobile: 9440206501 E-Mail:kasamadhavi@yahoo.com	University Nominee, Krishna University	
Dr.R.Satya Prasad, Professor, Department of Computer Science, Acharya Nagarjuna University, Nagarjuna Nagar-522508. Mobile: 9848487478 E-Mail: profrsp@gmail.com	Subject Expert	
Dr.T.S.Ravi Kiran, H.O.D& Assistant Professor, Dept of Computer Science, P.B. Siddhartha Degree College of Arts & Science-Vijayawada -520002. Mobile: 9441176980 E-Mail: kirantsr1 @gmail.com	Special Invitee	
Sri.U.Sairam,C.E.O, Codegnan I.T Solutions OPC PVT LTD., Vijayawada520002 Mobile:9959555952 E-Mail: uppugundlasairam@gmail.com	Industrialist	
Ms. P.Srujana, Software Developer, TonmetriInfoSolutions,Vijayawada. Mobile: 9032671688 E-Mail:srujanapaladugu26@gmail.com	Alumni Representative	
Smt. V. Munni, Assistant Professor, A.G & S.G Siddhartha Degree College of Arts & Science. Mobile: 8099205522 E-Mail:munni.j2ee@gmail.com	Member	
Sri.B.MadhuSudhana Rao, Assistant Professor, A.G & S.G Siddhartha Degree College of Arts & Science. Mobile:7842664766 E-Mail:ms.madhu27@gmail.com	Member	

PG

AGENDA

- To discuss and approve the *Structure, Syllabi and Model Question Papers* of *First* Semester of M.Sc.(Computer Science) for the batch of students admitted from the academic year 2022-2023 and onwards.

- To discuss and approve the *Structure, Syllabi and Model Question Papers* of *Third* Semester of M.Sc.(Computer Science) for the batch of students admitted from the academic year 2022-2023 and onwards.

RESOLUTIONS

- Resolved and recommended to continue the same syllabus, model papers without changes in the First Semester for the following courses:
  - Formal languages & Automata Theory (22CS1T3)
  - Data Base Management System Lab (22CS1L2)

- Resolved and recommended to introduce new syllabus, model papers in the First Semester for the following courses:
  - Programming & problem Solving using Python (22CS1T1)
  - Data Base Management System (22CS1T2)
  - Operating System (22CS1T4)
  - Python Lab (22CS1L1)

- To discuss and approve the *Structure*, S*yllabi* and *Model Question Papers* of Open Electives *"Personality Development Through Life Enlighten Skills"* for First Semester

- Resolved and recommended to continue the same syllabus, model papers without changes in the Third Semester for the following courses:
  - Design & Analysis Of Algorithm (22CS3E1)
  - Internet Of Things (22CS3E5)
  - Cryptography & Network Security (22CS3E3)
  - Data Mining Techniques (22CS3E2)

- Resolved and recommended to introduce new syllabus, model papers in the Third Semester for the following courses:
  - Web Technologies Lab (20CS3L1)
  - Cryptography & Network Security Lab (22CS3L2)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (ComputerScience)Programme – I Semester

Course	Programming and Problem Solving Using Python		
Course Code	22CS1T1	Course Delivery Method	Class Room /
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Description and Purpose: Python Programming is a course that illustrates basic concepts of Python programming, Decision Control Statements, Functions and Modules, Python Strings Revisited, Data Structures, Classes and Objects, Inheritance, Operator Overloading, Pandas, Error and Exception Handling, File Handling,Numpy, Matplotlib.

Course Objectives:

This course will help enable the students to understand, learn and develop a various Decision Control Statements, Functions & Modules, Strings, Data Structures, Classes and Objects, Inheritance, Operator Overloading, Pandas, Error and Exception Handling, Handling Files, Databases.

Specific objectives include:

- To understand basics of *Python Programming*.
- To gain knowledge on *Decision Control Statements* and *Functions & Modules and Python Strings* and *DataStructures*.
- To gain knowledge on *Classes & Objects, Ingeritance.*
- To apply *Operator Overloading*, *Error and Exception Handling* and Pandas.
- To gain knowledge on File Handling, Database Connection, basics of Numpy and matplotlib.

Course Learning Outcomes:

Upon successful completion of the course, the student will be able to:

- Understand basics of Python Programming.
- Gain knowledge on *Decision Control Statements* and *Functions & Modules* and *Python Strings* and *DataStructures*.
- Gain knowledge on *Classes & Objects & Inheritance.*
- Apply Operator Overloading, Error and Exception Handling and Pandas.
- Gain Knowledge on File Handling, Database Connection and basics of Numpy and matplotlib

Unit	Learning Units	Lecture Hours
I	**Basics of Python Programming:** Features of Python, History of Python, The Future of Python, Writing and Executing First Python Program, Literal Constants, Variables and Identifiers, Data Types, Input Operation, Comments, Reserved Words, Indentation, Operators and Expressions, Expressions in Python, Operations on Strings, Other Data Types, Type Conversion. **Decision Control Statements**: Conditional Branching Statements, Basic Loop Structures, Nested Loops, The Break Statement, The Continue Statement, The Pass Statement, The Else Statement used with Loops.	15
II	**Functions and Modules:** Function Definition, Function Call, Variable Scope and Lifetime, The Return Statement, More on Defining Functions, Recursive Functions, Modules, Packages in Python, Standard Library Modules. **Python Strings Revisited:** Concatenating, Appending and Multiplying Strings, String Formatting Operator, Built in String Methods and Functions, Comparing Strings, Regular Expressions. **Data Structures:** Sequence, Lists, Functional Programming, Tuple, Sets, Dictionaries.	15
III	**Classes and Objects:** Classes and Objects, Class Method and self Argument, Class Variables and ObjectVariables, Public and Private Data Members, Private Methods, Calling a Class Method from Another Class Method, Built in Class Attributes, Class Methods, Static Methods. **Inheritance:** Inheriting Classes in Python, Types of Inheritance, Abstract Classes and Interfaces.	15
IV	**Operator Overloading:** Concept of Operator Overloading, Advantage of Operator Overloading, Implementing Operator Overloading. **Pandas:** Introduction, Getting Started, Series, Data Frame**,** Read CSV, Read JSON -Analyzing Data Frames, Cleaning Data, Cleaning Empty Cell, Cleaning Wrong Format, Cleaning Wrong Data, Removing Duplicates, Correlations, Plotting. **Error and Exception Handling:** Introduction to Errors and Exceptions, Handling Exceptions, Raising Exceptions, Built in and User defined Exceptions.	15
V	**File Handling:** File Path, Types of Files, Opening and Closing Files, Reading and Writing Files. **Databases:** Database Table Creation, Select Operation, Insert Operation, Delete Operation, Update Operation,Drop Table. **Numpy:** Basic Functions of Numpy. **Matplotlib:** Basic Functions of Matplotlib.	15

Prescribed Text Book			
	Author	Title	Publisher
1	Reema Thareja	Python Programming Using Problem Solving Approach	Oxford University Press, June 2017.
Reference Text Book			
1	Vamsi Kurama	Python Programming, A Modern Approach	Pearson, 2017
2	Wesley Chun	Core Python Programming	Prentice Hall, December 2000
e-resources: https://www.w3schools.com/python/pandas/			

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.

(An Autonomous College in the jurisdiction of Krishna University)

M.Sc.(Computer Science), First Semester

Course Name: PROBLEM SOLVING USING PYTHON PROGRAMMING

Course Code: 22CS1T1

(w.e.f admitted batch 2022-23)

Time: 3 Hours **Max Marks: 70**

SECTION-A

Answer ALL questions **(5×4 = 20 Marks)**

1. a) Explain *Future of Python* (BTL2)

   (OR)

   b) Explain different *Data Types* in *Python* (BTL2)
2. a) What is *Recursive Function*? Explain with *example*.(BTL1)

   (OR)

   b) List out and explain any *4 Built in String Method*?(BTL1)
3. a) Whit is the *Differences between Class Variable and Object Variable*?(BTL1)

   (OR)

   b) List out *Built in Class Attributes*? (BTL1)
4. a) Explain *Advantages of Operator Overloading*? (BTL2)

   (OR)

   b) Explain *Exception Hierarchy*? (BTL2)
5. a) Explain *Types of Plots in Matplotlib*? (BTL2)

   (OR)

   b) Explain different *ways of creating Arrays* using *Numpy*. (BTL2)

SECTION-B

Answer Five Questions Choosing One Question from Each Unit.

All Questions Carry Equal Marks. **(5×10 = 50 Marks)**

UNIT – I

6. A) Explain the *features of Python Programming Language.*(BTL2)

   (OR)

   B) Explain *Different Loops* in Python with example. (BTL2)

UNIT – II

7. A) Apply *Modules Concept in Python with examples*. (BTL3)

   (OR)

   B) Build the List *Data Structure and their built in functions* with examples. (BTL3)

UNIT – III

8. A) What are *Classes and Objects*? Write a program in Python to illustrate an *instancevariable*. (BTL1)

   (OR)

   B) What is *Inheritance*? Explain *different types of Inheritance.* (BTL1)

UNIT – IV

9. A) Explain how to *Implement Operator Overloading* in Python. (BTL2)

   (OR)

   B) Explain *process of Analyzing Data Frames*. (BTL2)

UNIT – V

10. A) Explain *process of Writing and Reading data from file with example*. (BTL5)

    (OR)

    B) Explain process of *Update Data* into *Database* with *relevant examples*. (BTL5)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme – I Semester

Course	Programming and Problem Solving Using Python Lab		
Course Code	22CS1L1	Course Delivery Method	Class Room /
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Description and Purpose:

Python Programming is a course that illustrates Basic Concepts of Python programming, Decision Control Statements, Functions and Modules, Python Strings Revisited, Data Structures, Classes and Objects, Inheritance, Operator Overloading, Pandas, Error and Exception Handling, File Handling, Numpy, Matplotlib.

Course Objectives:

This course will help enable the students to understand, learn and develop a various Decision Control Statements, Functions & Modules, Strings, Data Structures, Classes and Objects, Inheritance, Operator Overloading, Pandas, Error and Exception Handling, Handling Files, Databases.

Specific objectives include:

- To understand *Basics of Python Programming*, *Decision Control Statements*.
- To know the concepts *of Data Structures*, *Functions and Modules*.
- To know the concepts of *Classes and Objects*, *Object Oriented Programming*.
- To apply *Error and Exception Handling*.
- To implement *Database Access* and *File Handling*.

Course Learning Outcomes:

Upon successful completion of the course, the student will be able to:

- Understand *Basics of Python Programming, Decision Control Statements*.
- Know the concepts of *Data Structures, Functions and Modules*.
- Know the concepts of *Classes and Objects, Object Oriented Programming*.
- Apply *Error and Exception Handling*.
- Implement *Database Access* and *File Handling*.

LAB LIST

1. Write a program to find total for given number of tens, number of fives, number of twos and number of ones.
2. Write a program to enter a number and display its hex and octal equivalent and its square root.
3. Write a program to read and print values of variables of different data types.
4. Write a program to calculate the distance between two points.
5. Write a program to calcuate area of troangle using

   Heron's formula.(Hint: Heron's formula is given as:

area=sqrt(S*(S-a)*(S-b)*(S-c))).

6. Write a program to calculate the distance between two points.
7. Write a program to perform addition, subtraction, multiplication, division, integer division.
8. Write a program to find the greatest number from three numbers.
9. Write a program to calculate tax given the following conditions:If income is less than 1, 50, 000 then no tax

   If taxable income is Rs.1, 50, 001, Rs.300, 000 then charge 10% tax

   If taxable income is Rs.3, 00, 001, Rs.500, 000 then charge 20% tax

   If taxable income is above Rs.5, 00, 001 then charge 30% tax

10. Write a program to calculate roots of quadratic equcation.
11. Write a program to enter the marks of a student in four subjects. Then calculate the total and aggregate, and display the grade obtained by the student. If the student scores an aggregate garter than 75%, then the grade is Distinction. If aggregate is 60>= and <75, then grade is First Division. If the aggregate is 50>= and <60, then the grade is Second Division. If aggregate is 40>= and <50, then the garde is Third Division. Else the grade is Fail.
12. Write a program to read the numbers until -1 is encountered. Find the average of positive numbers and negative numbers entered by the user.
13. Write a program to find whether the given number is an *Amstrong Number* or *not*.
14. Write a program to enter a Decimal Number. Calculate and display its Binary Equivalent.
15. Write a program to demonstrate List Operations.

- Access List Items
- Change Item Value
- Appended Items
- Remove Specified Item
- Loop Through a List
- List Comprehension
- Sort List Alphanumerically
- Copy a List
- Join Two Lists
- List Methods

16. Write a program to demonstrate Tuple Operations.

- Access Tuple Items
- Negative Indexing
- Range of Indexes
- Range of Negative Indexes
- Check if Item Exists
- Update Tuples
- Add Items
- Remove Items
- Unpacking a Tuple
- Using Asterisk*
- Loop Through a Tuple
- Loop Through the Index Numbers

- Using a While Loop:
- Python, Join Tuples
- Join Two Tuples
- Multiply Tuples

17. Write a program to demonstrate Set Operations.

- Access Set Items
- Add Set Items
- Loop Sets
- Join Two Sets
- Keep ONLY the Duplicates
- Keep All, But NOT the Duplicates

18. Write a program to demonstrate Dictionary Operations.

- Ordered or Unordered?
- Changeable
- Duplicates Not Allowed
- Accessing Items
- Change Values
- Update Dictionary
- Adding Items
- Remove Dictionary Items
- Loop Through a Dictionary
- Copy a Dictionary
- Nested Dictionaries

19. Write a program to enter a number and then calculate the *Sum of its Digits*.

20. Write a program to print the *Reverse Number*.

21. Write a program to calculate GCD of two numbers.

22. Write a program that prompts users to enter numbers. The process will repeat until user enters -1. Finally, theprogram prints the count of prime and composite numbers entered.

23. Write a program

a) To calculate the factorial of number recursively.

b) To calculate GCD using the recursive functions.

24. Write a program

c) To calculate exp(x, y) using recursive functions

d) To print the Fibonacci Series using Recursion.

25. Write a program make a *Simple Calculator*.

26. Write a program that defines a function large in a module which will be used to find large of two values andcalled from a code in another module.

27. Write a program that demonstrate the use of method___*init*____.

28. Write a program to illustrate the modification of instance variable.

29. Write a program for modifying a mutable type attribute.

30. Write a program to demonstrate the use of inheritance.

31. Write a Program to demonstrate Polymorphism.

32. Write a program to demonstrate Polymorphism using Function Overloading.

33. Write Program to demonstrate Method Overriding with arguments.

34. Write a python program to demonstrate multilevel inheritance.

35. Write a program to demonstrate Multipath Inheritance (or) Hybrid Inheritance.

36. Write a program to demonstrate Multi Level Inheritance (A person is teacher & having designation HOD)

37. Write a program to demonstrate *Multi-Path Inheritance*.

38. Write a program to illustrate the concept of Abstract Class.

39. Write a program to overload the + operator on a complex object.

40. Write a program to handle Divide by Zero Exception.

41. Write a program to handle Multiple Errors with One Except statement.

42. Write a program with Multiple Except Blocks.

43. Write a program to demonstrate else statement in exception handling.

44. Write a python program to illustrate the *try...catch...finally* in exception handling.

45. Write a program to demonstrate Regular Expression Functions.

- findall()
- Search
- Split
- sub()

46. Write a program Demonstrate Regular Expression Meta Characters.

- Python program to match string using metacharacter []
- Program to find digits in character using metacharacter \
- Program for sequence that starts with "he", followed by two (any) characters using metacharacter ..
- Program to check if the string starts with 'hello' using metacharacter ^
- Program to check the string ends with 'world' using metacharacter $
- Program to check the string contains "ai" followed by 0 or more "x" characters
- Program to check the string contains "ai" followed by 1 or more "x" characters
- Program to check if the string contains "a" followed by exactly two "l" characters
- Program to check if the string contains either "falls" or "stays" using meta character |

47. Write a program to demonstrate Regular Expression Sequences.

- Program to check if the string starts with "The"
- Program to check if "ain" is present at the begining of a word
- Program to check if "ain" is present at the end of a word.
- Program to check if "ain" is present, but NOT at the begining of a word.
- Program to check if "ain" is present, but NOT at the end of a word.
- Program to Check if the string contains any digits (numbers from 0-9).
- Program to return a match at every no-digit character.

- Program to return a match at every white-space character.
- Program to return a match at every NON white-space character.
- Program to return a match at every word character (characters from a to Z, digits from 0-9, and theunderscore _ character)
- Program to return a match at every NON word character (characters NOT between a and Z. Like "!", "?"white-space etc.)
- Program to check if the string ends with "Spain".

48. Write a program to demonstrate Regular Expression Sets.

- Program Check if the string has any a, r, or n characters.
- Program to Check if the string has any characters between a and n.
- Program to Check if the string has other characters than a, r, or n.
- Program to check if the string has any 0, 1, 2, or 3 digits.
- Program to check if a string has any digits.
- Program to check if the string has any two-digit numbers, from 00 to 59.
- Program to Check if the string has any characters from a to z lower case, and A to Z upper case.
- Program to check if the string has any + characters.

49. Write a program to

- Create EMP table with attributes ENO, ENAME and ESAL into PBS database.
- Insert rows into EMP table of PBS database.
- Update rows of EMP table of PBS database.
- Delete rows from EMP table of PBS database.
- Drop EMP table of PBS database.

50. Write a program to open the file and count the number of times a character appears in the file.

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science)Programme – I Semester

Course	Database Management Systems		
Course Code	22CS1T2	Course Delivery Method	Class Room / Blended Mode
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Description and Purpose:

Database Management Systems is a course that illustrates basic concepts of *Databases and Database Users*, *Database System Architecture*, *ER & EER Relationship Modeling*, *Structured Query Language*, *Relational Algebra and Relational Calculus*, *Functional Dependencies and Normalization for Relational Databases*, *Transaction Processing Concepts*, *Concurrency Control Techniques* and *Emerging Database Technologies and Applications.*

Course Objectives:

This course will help enable the students to understand, learn and develop a various *Relational Data Models*, Querying, ER *& EER Modeling*, *Relational Algebra & Calculus*, *Functional Dependencies and Normalization*, *Transaction Processing*, *Concurrency Control* and *Emerging Database Technologies and Applications.*

Specific objectives include:

- To understand basic concepts of *Database and Database Users, Database Architecture*.
- To understand *ER, EER Modelling* and *Relational Algebra and Relational Calculus*.
- To learn the basics of *Functional Dependencies and Normalization* for Relational Databases.
- To learn *Transaction Processing* and *Concurrency Control Techniques*.
- To understand the *Structured Query Language* and *Emerging Database Technologies* and Applications:

Course Learning Outcomes:

Upon successful completion of the course, the student will be able to:

- Understand basic concepts of *Database and Database Users, Database Architecture*.
- Understand *ER, EER Modeling* and *Relational Algebra and Relational Calculus*.
- Learn the basics of *Functional Dependencies and Normalization* for Relational Databases.
- Learn *Transaction Processing* and *Concurrency Control Techniques*.
- Understand the *Structured Query Language* and *Emerging Database Technologies and Applications*.

Unit	Title	Lecture Hours
I	**Database and Database Users:** Introduction, Characteristics of the Database Approach, Actors on the Scene, Workers behind the Scene, Advantages of the using the DBMS Approach. **Database System Concepts and Architecture:** Data Models, Schemas and Instances, Three Schema Architecture and Data Independence, Database Languages and Interfaces, Centralized and Client/Server Architecture for DBMS, Classification of Database Management Systems.	15
II	**Data Modeling Using the ER Model:** Conceptual Data Models, Entity Types, Entity Sets, Attributes and Keys, Relationship Types, Relationship Sets, Roles and Structural Constraints, Weak Entity Types, Relationship Types of Degree Higher than Two, Refining the ER Design for the COMPANY Database. **The Enhanced Entity-Relationship Model:** Sub Classes, Super Classes and Inheritance, Specialization and Generalization, Constraints and Characteristics of Specialization and Generalization. **The Relational Algebra and Relational Calculus:** Unary Relational Operations: SELECT and PROJECT, Relational Algebra Operations from Set Theory, Binary Relational Operations: JOIN and DIVISION, Additional Relational Operations, Examples, The Tuple Calculus and Domain Calculus	15
III	**Functional Dependencies and Normalization for Relational Databases:** Informal Design Guidelines for Relation Schemas, Functional Dependencies, Normal Forms Based in Primary Keys, General Definitions of Second and Third Normal Forms, Boyce-Codd Normal Form, Multivalued Dependencies and Fourth Normal Form, Join Dependencies and Fifth Normal Form, Inclusion Dependencies.	15
IV	**Introduction to Transaction Processing Concepts and Theory:** Introduction to Transaction Processing, Transaction and System Concepts, Desirable Properties of Transactions, Characterizing Schedules Based on Recoverability, Characterizing Schedules based on Serializability. **Concurrency Control Techniques:** Two Phase Locking Techniques for Concurrency Control, Concurrency Control Based on Timestamp Ordering, Multiversion Concurrency control techniques, Validation Concurrency Control Techniques.	15
V	**SQL-99:** Schema Definition, Constraints, Queries and Views: SQL Data Definitions and Data Types, Specifying Constraints in SQL, Schema Change Statements on SQL, Basic Queries in SQL, More Complex SQL Queries, INSERT, DELETE and UPDATE statements in SQL, Triggers and Views. **Emerging Database Technologies and Applications:** Mobile Databases, Multimedia Databases, Geographic Information Systems.	15

Prescribed Text Book

	Author	Title	Publisher
1	Ramez Elmasri, Shamkant B. Navathe	Fundamentals of Database Systems	Pearson Education, SeventhEdition, 2017
2	C.J.Date, A.Kannan, S.Swamynathan	An Introduction to Database Systems	VII Edition, PearsonEducation , 2006.
3	Peter Rob, Carlos Coronel	Database Systems-Design, Implementation and Management	Eight Edition,Thomson, 2008

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.

(An Autonomous College in the jurisdiction of Krishna University)

M.Sc.(Computer Science), First Semester

Course Name: Database Management Systems **Course Code:** 22CS1T2

(w.e.f admitted batch 2022-23) Time: 3 Hours Max Marks: 70

SECTION-A

Answer ALL questions. All Questions Carry Equal Marks. (5×4 = 20 Marks)

1(a) Name the advantages of the DBMS. (BTL1)

(or)

(b) What is Data Independence? Explain the difference between *Physical Data Independence* and *Logical Data Independence*. (BTL1)

2 (a) What is *Generalization*? Explain it diagram. (BTL1)

(or)

(b) What are various symbols used in *ER Modeling*. (BTL1)

3 (a) Explain *First Normal Form*. (BTL2)

(or)

(b) Explain *Dependency Preservation* with example. (BTL2)

4 (a) Explain *Properties of Transaction.* (BTL2)

(or)

(b) Explain *Shared* and *Exclusive* Locks. (BTL2)

5 (a) Explain *DML Commands* with example. (BTL5)

(or)

(b) Explain *Mobile Databases*. (BTL5)

SECTION-B

Answer ALL questions. All Questions Carry Equal Marks. (5×10 = 50 Marks)

6 (a) Explain various *Data Models* of Database Management Systems. (BTL2)

(or)

(b) Explain *Three Schema Architecture* of DBMS with neat diagram. (BTL2)

7 (a) Demonstrate *Select* and *Project* operations of *Relational Algebra*. (BTL2)

(or)

(b) Explain *ER Design* for the *Company Database* with all constraints. (BTL2)

8 (a) Explain *BCNF* with example. (BTL5)

(or)

(b) Explain *Fifth Normal Form* with example.(BTL5)

9 (a) Identify whether the transactions T1 & T2 ensure *serializability*. (BTL3)

T1	T2
read_item (X) ;	read_item(X);
X:=X – N;	
	X:=X +

or)

(b) Develop a technique for *Concurrency Control Based on Timestamp Ordering.* (BTL3)

10 (a) Analyze *Multimedia Databases* in detail. (BTL4)

(or)

(b) Distinguish various *Constraints* of SQL. (BTL4)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.

(An Autonomous College in the jurisdiction of Krishna University)

M.Sc., (ComputerScience)Programme – I Semester

Course	Database Management Systems Lab		
Course Code	22CS1L2	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Description and Purpose:

Database Management Systems Laboratory is a course that illustrates *DDL and DML Commands*, *Basic SQL Queries*, *Complex SQL Queries*, *Joins*, *Integrity Constraints*, *Views*, *Cursors*, *Triggers*, and *Functions andProcedures using PL/SQL*.

Course Objectives:

This course will help enable the students to understand, learn and practice develop a various *Relational Data Models*, *Querying*, *DDL and DML Commands*, *Basic SQL Queries*, *Complex SQL Queries*, *Joins*, *Integrity Constraints*, *Views*, *Cursors*, *Triggers*, and *Functions and Procedures* using PL/SQL.

Specific objectives include:

1. Database creation using DDL Commands.
2. Retrieval of Data from database using DML Commands for a given situation.
3. Use SQL commands familiarizing with a Query Language.
4. Using Nested Queries, Joins, Integrity Constraints and Views in database.
5. Demonstrating Triggers, Functions and Procedures using PL/SQL.

Course Learning Outcomes:

Upon successful completion of the course, the student will be able to:

1. Create database using *DDL Commands*.
2. Retrieve data from database using *DML Commands* for a given situation.
3. Familiarize with a Query Language through basic SQL Queries.
4. Experiment *Nested Queries*, *Joins*, *Integrity Constraints* and *Views* in database.
5. Demonstrate *Triggers*, *Functions* and *Procedures* using PL/SQL.

CYCLE-I

Aim: Marketing Company wishes to computerize their operations by using following tables.

Table Name: Client- Master			
Column Name	Data Type	Size	Attribute
CLIENT_ NO	Varchar2	6	Primary key and first letter must start with
NAME	Varchar2	20	Not null
ADDRESS 1	Varchar2	30	
ADDRESS S	Varchar2	30	
CITY	Varchar2	15	
PINCODE	Varchar2	8	
STATE	Varchar2	15	
AL_DUE	Number	10,2	

Table Name: Product_ Master			
Column Name	Data Type	Size	Attribute
PRODUCT _NO	Varchar2	6	Primary key and first letter must start with
DESCRIPTION	Varchar2	15	Not null
PROFIT _PERCENT	Number	4,2	Not null
UNIT _MEASUE	Varchar2	10	
QTY_ ON_ HAND	Number	8	
REORDER_ LVL	Number	8	
SELL _PRICE	Number	8, 2	Not null, cannot be 0
COST _PRICE	Number	8,2	Not null, cannot be 0

Table Name: Salesman_Master			
Column Name	Data Type	Size	Attribute
SALESMAN_ NO	Varchar2	6	Primary key and first letter must start with 'S'
SALESMAN _NAME	Varchar2	20	Not null
ADDRESS1	Varchar2	30	
ADDRESS2	Varchar2	30	
CITY	Varchar2	20	
PINCODE	Number	8	
STATE	Vachar2	20	

SAL_AMT	Number	8,2	Not null, cannot be 0
TGT_TO_GET	Number	6,2	Not null, cannot be 0
YTD _SALES	Number	6,2	Not null
REMARKS	Varchar2	20	

Table Name: Sales_Order			
Column Name	Data Type	Size	Attribute
ORDER_ NO	Varchar2	6	Primary key and first letter must start with 'S'
CLIENT _NO	Varchar2	6	Foreign Key
ORDER _DATE	Date		
DELY _ADDRESS	Varchar2	25	
SALESMAN_ NO	Varchar2	6	Foreign Key
DELY _TYPE	Char	1	Delivery: part(p)/ full(f) and default 'F'
BILL_ YN	Char	1	
DELY_ DATE	Date		Can't be less than order date
ORDER _STATUS	Varchar2	10	Values ("In Process", " Fulfilled",

Table Name: Sales_Order_Details			
Column Name	Data Type	Size	Attribute
ORDER _NO	Varchar2	6	Primary key references SALES_ORDER table
PRODUCT_ NO	Varchar2	6	Foreign Key references SALES_ORDER_table
QTY_ ORDERED	Number	8	
QTY_ DISP	Number	8	
PRODUCT _RATE	Number	10, 2	Foreign Key

S

ve the following queries by using above tables

1. Retrieve the list of names, city and the state of all the clients.
2. List all the clients who are located in 'Mumbai' or 'Bangalore'.
3. List the various products available from the product_master table.
4. Find the names of sales man who have a salary equal to Rs.3000.
5. List the names of all clients having 'a' as the second letter in their names.
6. List all clients whose Bal due is greater than value 1000.
7. List the clients who stay in a city whose first letter is 'M'.
8. List all information from sales-order table for orders placed in the month of July.
9. List the products whose selling price is greater than 1000 and less than or equal to 3000.
10. Find the products whose selling price is greater than 1000 and also find the new selling price as original selling price 0.50.11.Find the products in the sorted order of their description.
12. Find the products with description as '540HDD' and 'Pen drive'.13.Count the total number of orders.
14. Print the description and total qty sold for each product.
15. Calculate the average qty sold for each client that has a maximum order value of 15,000.16.Find all the products whose quantity on hand is less than reorder level.
17. List the order number and day on which clients placed their order.
18. Find out the products and their quantities that will have to deliver in the current month.19.Find the names of clients who have placed orders worth of 10000 or more.
20. Find the client names who have placed orders before the month of June,2018.

CYCLE-II

Aim: A manufacturing company deals with various parts and various suppliers supply these parts. It consists of three tables torecord its entire information. Those are as follows.

Supplier (Supplier_No, Sname, City, status) Part(Part_no, pname, color, weight, city, cost) Shipment (supplier_No, Part_no,city)

JX(project_no, project_name, city)

SPJX (Supplier_no, part_no, project_no, city)

Solve the following queries by using above tables.

1. Get supplier numbers and status for suppliers in Chennai with status > 20.
2. Get project names for projects supplied by supplier S.
3. Get colors of parts supplied by supplier S1.
4. Get part numbers for parts supplied to any project in Mumbai.
5. Find the id's of suppliers who supply a red or pink parts.
6. Find the pnames of parts supplied by London supplier and by no one else.
7. Get the names of the parts supplied by the supplier 'Mart' and 'Miller'.
8. Get supplier names for suppliers who do not supply part P2.
9. Get all pairs of supplier numbers such that the suppliers concerned are "colocated".10.Get suppliers names for the suppliers who supply at least one red part.

CYCLE-III

Aim: An enterprise wishes to maintain a database to automate its operations. Enterprise divided into a certain departments and each department consists of employees. The following two tables describes the automation schemas.Emp(Empno, Ename, Job, Mgr, Hiredate, Sal, Comm, Deptno) Dept(Deptno, Dname, Loc)

Solve the following queries by using above tables.

1. List the details of employees who have joined before the end of September' 81.
2. List the name of the employee and designation of the employee, who does not report to anybody.
3. List the name, salary and PF amount of all the employees (PF is calculated as 10% of salary)

4. List the names of employees who are more than 2 years old in the organization.
5. Determine the number of employees, who are taking commission.
6. Update the employee salary by 20% , whose experience is greater than 12 years.
7. Determine the department does not contain any employees.
8. Create a view, which contains employee name and their manager names working in sales department.
9. Determine the employees, whose total salary is like the minimum salary of any department.10.List the department numbers and number of employees in each department.
11.Determine the employees, whose total salary is like the minimum salary of any department.12.List average salary for all departments employing more than five people.

13.Determine the names of employees, who take highest salary in their departments.14.Determine the names of employees, who earn more than their managers.

15. Display ename, dname, even if no employee belongs to that department (use outer join).

CYCLE-IV

An Airline system would like to keep track their information by using the following relations.

FLIGHTS(fl_no: integer, from: string, to: string, distance: integer, price: integer) AIRCRAFT(aid: integer, aname: string, cruising_range: integer) CERTIFIED(eid integer, aid: integer) Employees(eid: integer, ename: string, salary: real)

Note that the employees relation describes pilots and other kinds of employees as well; every pilot is certified foraircraftand only pilots are certified to fly. Resolve the following queries.

a. Find the names of pilots whose salary is less than the price of the cheapest route from Newyork to Chicago.
b. For each pilot who is certified for more than 2 aircraft, find the eid's and the maximum cruising range of the aircraft that heor she certified for.
c. For all aircraft with cruising range over 1,500 miles, find the name of the aircraft and the average salary of all pilots certifiedfor this aircraft.

d. Find the aid's of all aircraft than can be used from chicaga to LosAngels.
e. Find the name of the pilots certified from some Boeing aircraft.
f. Print the enames of pilots who can operate planes with cruising range greater than 3,500 miles, but are not certified byBoeing aircraft.
g. Find the eid's of employees who are certified for exactly 2 aircrafts.
h. Find the total amount paid to employees as salaries.
i. Find the aid's of all than can be used on non-stop flights from Chennai to Dubai.
j. Find the eid's of employee who make second highest salary.

PL/SQL PROGRAMS

1. Write a PL/SQL program to check the given number is strong or not.
2. Write a PL/SQL program to check the given string is palindrome or not.
3. Write a PL/SQL program to swap two numbers without using third variable.
4. Writ a PL/SQL program to generate multiplication tables for 2, 4, 6.
5. Write a PL/SQL program to check the given number is Amstrong or not.
6. Write a PL/SQL code to find the factorial of any number.
7. Write a PL/SQL program to display sum of even numbers and sum of odd numbers in the given range.
8. Write a PL/SQL program to check the given number is palindrome or not.
9. The HRD manager has decide to raise the employee salary by 15% write a PL/SQL block to accept the employee numberand update the salary of that employee. Display appropriate message based on the existence of the record in Emp table.
10. Write a PL/SQL program to display to 10 rows in Emp table based on their job and salary.

11. Write a PL/SQL program to raise the employee salary by 10% for department number 30 people and also maintain theraised details in the raise table.
12. Write a procedure to update the salary of Employee, who are not getting commission by 10%.
13. Write a PL/SQL procedure to prepare an electricity bill by using following table.

Table used: Elect		
Name	Null?	Type
MNNO	NOT NULL	NUMBER(3)
CNAME		VARCHAR2(20)
CUR_READ		NUMBER(5)
PREV_READ		NUMBER(5)
NO_ UNITS		NUMBER(5)
AMOUNT		NUMBER(8,2)
SER_ TAX		NUMBER(8,2)
NET_AMT		NUMBER(9,2)

14. Write a PL/SQL program to prepare an telephone bill by using following table and print the monthly bills for eachcustomer.

Table used: Phone		
Name	Null?	Type
TEL_NO	NOT NULL	NUMBER(6)
CNAME		VARCHAR2(20)
CITY		VARCHAR2(10)
PR_READ		NUMBER(5)
CUR_READ		NUMBER(5)
NET_AMT		NUMBER(5)
TOT-AMT		NUMBER(8,2)

15. Write a PL/SQL program to raise the employee salary by 10 %, who are completed their 25 years of service and store thedetails at appropriate tables (Define the Retair_ Emp_Table).
16. Write a PL/SQL program to evaluate the grade of a student with following conditions: For pass: all marks > 40For I class: Total % > 59 For II Class: Total % etween >40 and < 60 For III class: total % = 40And also maintain the details in abstract table.

1. Table Std		
Name	Null?	Type
NO	NOT NULL	NUMBER
NAME		VARCHAR2(10)
INTNO		NUMBER
CLASS	NOT NULL	VARCHAR2(10)
M1		NUMBER
M2		NUMBER
M3		NUMBER
M4		NUMBER
M5		NUMBER

2. Table Abstract		
Name	Null?	Type
STDNO		NUMBER
STDNAME		VARCHAR2(10)
CLASS		VARCHAR2(10)
MONTH		VARCHAR2(10)
INTNO (INTEGER NUMBER)		NUMBER
TOT		NUMBER
GRADE		VARCHAR2(10)
PERCENT		NUMBER
DAT_ENTER		DATE

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (ComputerScience)Programme - I Semester

Course	Formal Languages and Automata Theory		
Course Code	22CS1T3	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours /	4	Semester End Exam	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:**2020-21**	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision:0%

Course Description and Purpose:

Formal Languages and Automata Theory deals with the concepts of *Automata, Formal Languages, Grammar, Algorithms, Computability, Decidability and Complexity*. It also helps to develop methods by which computer scientists can describe and analyze the dynamic behavior of *Discrete Systems*, in which signals are sampled periodically.

Course Objectives*:*

- To understand basic properties of *Deterministic* and *Nondeterministic Finite Automat.*
- To understand *Context Free Languages* and *Grammers*, and also *Normalising CFG*.
- To understand the concept of *Pushdown Automata Turing Machine* and its application.
- To understand Basic Structure of *Compiler Design*.
- To understand the concept of *Lex* and *Syntax Analysis.*

Course Learning Outcomes:

At the end of this course the students should be able to:

- Understand basic properties of *Deterministic* and *Nondeterministic Finite Automat.*
- Understand the *Context Free Languages* and *Grammers*, and also *Normalising CFG*.
- Understand the concept of *Pushdown Automata Turing Machine* and its application.
- Understand Basic Structure of *Compiler Design.*
- Understand the concept of *Lex* and *Syntax Analysis.*

Unit	Learning Units	LectureHours
	Fundamentals: Strings, Alphabet, Language, Operations, Finite Automaton Model, Acceptance of Strings and Languages, Transition Table and Transition Diagrams. **Finite Automata:** Deterministic Finite Automaton, Non deterministic Finite Automaton and NFA with ε Transitions, Significance, Equivalence between NFA with and without ε Transitions, NFA to DFA Conversion,Minimization of FSM, Equivalence between two FSMs, Finite Automata with Output- Moore and Mealy Machines.	15
II	**Regular Languages:** Regular Sets, Regular Expressions, Identity Rules, Construction of Finite Automata(DFA) for a given Regular Expressions and its inter conversion using State Elimination and Ardens Theorem, Pumping Lemma of Regular Sets, Closure Properties of Regular Sets (Proofs not required).	15
III	**Context free grammar:** Introduction, Derivation Trees, Ambiguity in Context Free Grammars. Minimization ofContext Free Grammars. Chomsky Normal Form, Greibach Normal Form. **Push down Automata:** Definition, M odel, D esign of PDA. The Language of PDA- Acceptance by Final State, Acceptance by Empty Stack ,Equivalence of CFL and PDA -Conversion of CFL to PDA and PDA to CFL **Turing Machine:** Definition, Turing Machine Model, Types of Turing machine (problems not required),Types of Turing machine ,Recursively Enumerable Languages and Recursive Languages Chomsky Hierarchy ofLanguages and Post correspondence problem.	15
IV	**Compiler**: Introduction, Structure of a compiler, Design issues of compiler, Phases of Compiler, Lexical Analysis, Role of Lexical Analyzer, Input Buffering, Specification of Tokens, Recognition	15
V	**Lex (Lexical-Analyzer Generator):** Uses of Lex, Structure of Lex Programs, Conflict Resolution in Lex , TheLookahead Operator.**Syntax Analysis:** Top Down Parsing, Recursive-Descent Parsing, FIRST and FOLLOW, LL(l) Grammar,Nonrecursive Predictive Parsing, Error Recovery in Predictive Parsing. Bottom-Up Parsing- Reductions, Handle Pruning, Shift-Reduce Parsing ,Conflicts During Shift-Reduce Parsing.	15

Prescribed Text Book

	Author	Title	Publisher
1	Hopcroft. H.E. and Ullman	Introduction to Automata Theory Languages and Computation	J. D. Pearson Education, January
1	Jeffery D.Ullman	Compilers-Principles, Techniques and Tools	2nd Edition, Pearson Education, January
	John C Martin	Introduction to Languages and the Theory of Computation	Tata McGraw-Hill, 2003

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
M.Sc.,(COMPUTER SCIENCE) DEGREE EXAMINATIONS
FIRST SEMESTER
FORMAL LANGUAGES AND AUTOMATA THEORY
SYLLABUS W.E.F 2022-2022 (R22)

Time 3 Hours **Max.Marks: 70**

SECTION-A
Answer any five questions. 5 × 4 = 20 Marks

1. (a) What is NFA with example?(BTL1)
(OR)
(b) Define Mealy Machine with example (BTL1)

2. (a) Define regular set .What are the closure properties of regular sets? (BTL1)
(OR)
(b) Define Expression. What are the different identity rules used in regular expression. (BTL1)

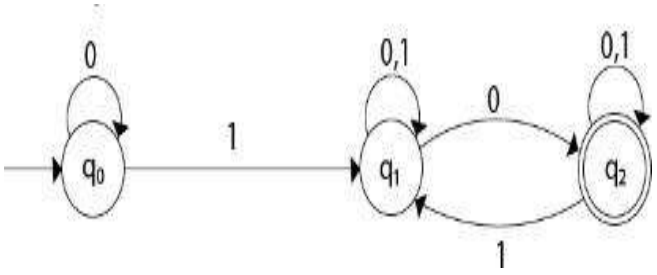
3. (a) Explain Ambiguity in context free grammars with example.(BTL2)
(OR)
(bExplain LMD and RMD with example(BTL2)

4. (a) Define input buffering with example. (BTL1)
(OR)
(b) What is the role of Lexical Analyzer(BTL1)

5. (a) Explain Conflict Resolution in Lex(BTL2)
(OR)
(b) Explain error recovery in predictive parsing. (BTL2)

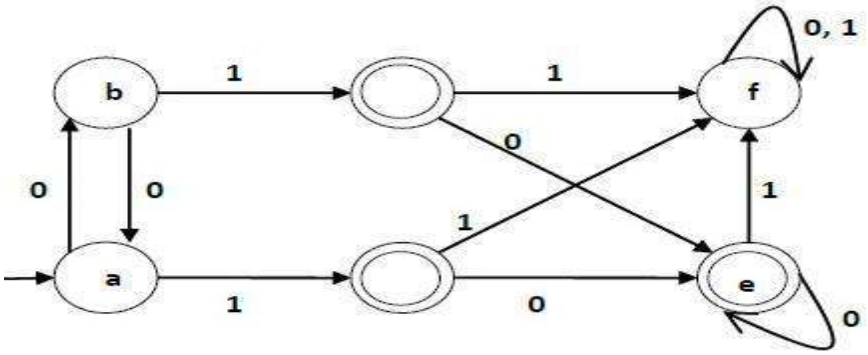
SECTION-B
Answer all questions. 5 × 10 = 50 Marks

6. (a) Construct the given NFA to DFA. (BTL3) 10 Marks

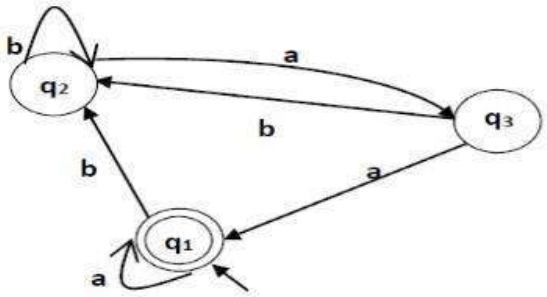


(OR)

(b) Construct the given DFA into minimized DFA (BTL3)



7. (a) Construct a regular expression corresponding to the automata given below (BTL3)



(OR)

(b) Solve the given Language $L= \{0^n 1^n \mid n \geq 1\}$ is not a regular language using pumping lemma (BTL3)

8. (a) Translate the given grammar to CNF (BTL2)

$S \rightarrow aAD$

$A \rightarrow aB / bAB$

$B \rightarrow b$

$D \rightarrow d$

(OR)

(b Explain Chomsky Hierarchy of Languages and Post correspondence problem with example.(BTL2)

9. (a) what are the design issues of compiler?

(OR)

(b) What are the different phases used in Complier Design with diagram 10 Marks (BTL1)

10. (a) Define Lex. explain structure of Lex program and its uses(BTL2)

(or)

(b) Explain top down and bottom up parsing with example(BTL2)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (ComputerScience)Programme - I Semester

Course	OPERATING SYSTEMS		
Course Code	22CS1T4	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:**2020-21**	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision:100%

Course Description and Purpose:

Operating Systems is a course that illustrates *Operating System Concepts*, *Operating System Structure*, *Processes Concepts*, *Threads*, *Process Synchronization*, *Scheduling*, *Deadlocks*, *Main Memory*, *Virtual Memory*, *Mass Storage Structure*, *File System Implementation*,. *Distributed Operating Systems* and *Mobile & Android Operating Systems*

Course Objectives:
This course will help enable the students to understand and learn *Operating System Concepts*, *Operating Structure*, *Process Concepts*, *Thread Concept*, *Process Synchronization*, *Scheduling*, *Deadlocks*, *Main Memory*, *Virtual Memory and Mass Storage Structure*, *File System Implementation*, *Distributed Operating Systems* and *Mobile & Android Operating Systems*.

Specific objectives include:

- To understand the *Basic Concepts of Operating System, Operating System Structure and ProcessConcept*.
- To apply concepts of *Threads*, *Process Synchronization & CUP Scheduling*.
- To understand *Deadlock, Main Memory & Virtual Memory*.
- To explain *Mass Storage Structure*, *File System Interface & File System Implementation*.
- To understand the concepts of *Distributed Operating Systems* and *Mobile & Android OperatingSystems*.

Course Learning Outcomes:
Upon successful completion of the course, the student will be able to:

- Understand the Basic Concepts of Operating System, Operating System Structure and ProcessConcept.
- Applying concepts of Threads, Process Synchronization & CUP Scheduling.
- Understand Deadlock, Main Memory & Virtual Memory.
- Explain Mass Storage Structure, File System Interface & File System Implementation.
- Understand the concepts of Distributed Operating Systems and Mobile & Android Operating Systems.

SYLLABUS

Unit	Learning Units	Lecture Hours
I	**Introduction to Operating System Concepts:** Functions of Operating System, Operating System Structure,Operating System Operations, Kernel Data Structure, Computing Environment. **Operating System Structures:** Operating System Services, System Calls, Types of System Calls. **Processes:** Process Concept, Process Scheduling, Operations on Processes, Inter Process Communication,Communication in Client-Server Systems.	15
II	**Threads:** Overview, Multicore Programming, Multithreading Models, Thread Libraries, ImplicitThreading, Threading Issues. **Process Synchronization:** Background, The Critical Section Problem,Peterson's Solution,Synchronization Hardware, Mutex Locks, Semaphores, Classic Problems of Synchronization, Monitors. **CPU Scheduling:** Basic Concepts, Scheduling Criteria, Scheduling Algorithms, Thread Scheduling,Multiple Processor Scheduling.	15
III	**Deadlocks:** System Model, Deadlock Characterization, Methods for Handling Deadlocks, DeadlockPrevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock. **Main Memory:** Swapping, Contiguous Memory Allocation, Segmentation, Paging, Structure of thePage Table, Intel 32 and 64-bit Architectures. **Virtual Memory:** Background, Demand Paging, Copy-on-Write, Page Replacement, Allocation ofFrames,Thrashing.	15
IV	**File System Interface:** File Concept, Access Methods, Directory and Disk Structure, File SystemMounting, Protection. **File System Implementation:** File System Structure, File System Implementation, Directory Implementation,Allocation Methods, Free Space Management, Efficiency and Performance, Recovery.	15
V	**Distributed Operating Systems:** Types of Network based Operating Systems, Network Structure, NetworkTopology, Communication Structure, Communication Protocols, Robustness, Design Issues. **Mobile & Android Operating Systems:** A review of Mobile Operating Systems, Features of Android OperatingSystems.	15

Prescribed Text Book

	Author	Title	Publisher
1	Abraham Silberschatz & PeterBaer Galvin, Greg	Operating System Concept	Ninth Edition, Wiley, 2015

Reference Text Books

	Author	Title	Publisher
1	William Stallings	Operating Systems-Internals and Design Principles	Fifth Edition, Pearson Education,2007
2	Achyut S Godbole	Operating Systems	Second Edition, TMH, 2007

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.

(An Autonomous College in the jurisdiction of Krishna University)

M.Sc.(Computer Science), First Semester

Course Name: Operating Systems

Course Code: 22CS1T4

(w.e.f admitted batch 2022-22)

Time: 3 Hours **Max Marks: 70**

SECTION-A

Answer ALL questions. All Questions Carry Equal Marks. (5×4 = 20 Marks)

1.(a) Explain the structure of Operating System. (BTL2)

(or)

(b) Explain *Inter Process Communication.* (BTL2)

2 (a) List various *Multithreading Model*. (BTL1)

(or)

(b) What is *Semaphore*. (BTL1)

3 (a) Test for *Demand Paging.* (BTL4)

(or)

(b) Analyze Paging. (BTL4)

4 (a) Demonstrate the *File Concept* (BTL2)

(or)

(b) Explain various *File Operations*. (BTL2)

5 (a) Construct a *Network Topology.* (BTL3)

(or)

(b) Identify the design issues in *Distributed OS*. (BTL3)

SECTION-B

Answer ALL questions. All Questions Carry Equal Marks. (5×10 = 50 Marks)

6 (a) Explain *Operating System Services*. (BTL2)

(or)

(b) Explain various types *System Calls*. (BTL2)

7 (a) Illustrate the *Dining Philosophers Problem* of Process Synchronization. (BTL2)

(or)

(b) Demonstrate (BTL2)

(i) First-Come, First-Served Scheduling with the following data

Process	Burst Time
P1	24
P2	3
P3	3

(ii) Shortest-Job-First Scheduling with following data

Process	Burst Time
P1	6
P2	8
P3	7
P4	3

8 (a) Apply the necessary conditions for preventing *Deadlock Situation.* (BTL3)

(or)

(b) Utilize the reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 for a memory with three frames implement *Optimal Page Replacement* and *LRU PageReplacement*. (BTL3)

9 (a) Compare *Single-Level Directory*, *Two Level Directory*, and *Tree-Structured Directories*. (BTL4)

(or)

(b) Categorize various *Allocation Methods* of *File System Implementation*. (BTL4)

10 (a) Explain various types of *Network based Operating Systems*. (BTL5)

(or)

(b) Explain features of *Mobile Operating Systems*. (BTL5)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science)Programme - I Semester

Course	**Personality Development through Life Enlightenment skills**		
Course Code	22PG101	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction: **2022-23**	Year of Offering: **2022-23**	Year of Revision: **2022-23**	Percentage of Revision: 0%

Course Description and Purpose:

Personality development is the development of your behavior patterns and attitude. It is the result of where we are born" the circle we interact with and our personal temperament. Every person is different. There are some characteristics traits that make you .,you". Personality development through life enlightenment course aims to help students identify negative behaviors which may be stopping them from reaching their desired goals. This course will help students both in their personal and desired professional life. The other purposes of personality development through life enlightenment course are to enable you lead stress-free and healthier life, ethical decision making ability" enhanced confidence level, and building a more pleasing personality.

Course Objectives:

At the end of this course the students should be able to:

- Develop their personality and achieve their highest goals of life.
- Lead the nation and mankind to peace and prosperity.
- Practice emotional self regulation.
- Develop a positive approach to work and duties.
- Develop a versatile personality.

Course Learning Outcomes:

At the end of this course the students should be able to:

- Develop their personality and achieve their highest goals of life.
- Lead the nation and mankind to peace and prosperity
- Practice emotional self regulation.
- Develop a positive approach to work and duties
- Develop a versatile personalit

UNIT- I :

Introduction to Personality Development The concept of personality - Dimensions of Personality - Theories of Personality development (Freud & Erickson) -'fhe concept of Success and Failure - Factors responsible for Success - Hurdles in achieving Success and Overcoming Hurdles - Causes of failure - Conducting SWOT (Strengths" Weaknesses, Opportunities and Threats) analysis.

UNIT- II:

Attitude. Motivation and Self-esteem

Conceptual overview of Attitude - Types of Attitudes - Attitude Formation -. Advantages/Disadvantages of Positive,4ltregative Attitude - Ways to Develop Positive Attitude C'oncept of motivation: Definition and Nature of Motivation/Motive * Internal and external motives - Theories of Motivation - Importance of self- motivation- Factors leading to de- motivation. **Self - esteem** - Definition and Nature of self'-esteem - Do's and Don'ts to develop positive self esteem - Low self esteem - Personality having low self esteem - Positive and negative self esteem.

UNIT- III:

Other Aspects of Personality Development Body language - Problem-solving - Contlict Management and Negation skills - Decision-making Skills - Leadership and qualities of a successful leader - Character building - Team-work – Time management - Work ethics - Good manners and etiquette - Emotional Ability/intelligence - Dimensions of Emotional Intelligence - Building Emotional Intelligence.

UNIT- IV:

Neetisatakam-Hol istic Development of Personal ity Verses- 19.20,21"22 (wisdom) - Verses- 29.31,32 (pride and heroism) - Verses- 26.28.63.65 (virrue) Personality of Role Model - Shrimad Bhagwadgeeta Chapter2-Verses 17 - Chapter 3-Verses 36,37,42 - Chapter 4-Verses 18, 38,39 - Chapterl8 -
Verses 37,38,

UNIT- V:

Yoga & Stress Management Meaning and definition of Yoga - Historical Perspective of Yoga - Principles of Astanga Yoga by Patanjali- Meaning and Definition of Stress - Types of Stress - Eustress and Distress -stress Vlanagement -- Pranayama- Pranayama: Anulom and Vilom Pranayama - Nadishudhi Pranayama - Kapalabhati- Pranayama - Bhramari Pranayama - Nadanusandhana Pranayama * Meditation techniques: Om Meditation - Cyclic meditation : Instant Relaxation technique (QRT). Quick Relaxation'l'echnique (QR'f). Deep Relaxation J'echnique (DRT) (Theory & Practical).

PRACTICAL COMPONENTS:

- Students should identify different types of personality to know their own personality. Students are to describe the characteristics of their personalities and submit the same for assessment.
- Students are to form in groups (a group consists of 4-6 students) to identify and write a brief note on famous personalities of India and World.
- Students are required to identify diff-erent types of attitudes and give any five examples of each.
- Students are expected to check their attitudes and develop ways to improve their attitudes at work place and home.
- Students are required to identify keys to self -motivation to achieve their goals.
- Students are expected to identify at least seven types of body language and conduct activities with the following:

S. No	Pose	Possible Interpretations
	nding with your hands on hips	gressive, disgusted
	nding upright	nfidence
	ms crossed on your chest	fensive
	sting your hand on your cheek	inking
	uching or rubbing your nose	ubt, lying
	sting your head in your hands	redom, Tired
	pping your fingers	patience
	ing your nails	rvous, Insecure
	ying with your hair	ecure
	bbing your eyes	sbelief, doubt

- Conduct the following exercise to develop communication skills - Negotiation Skills and Empathy

Exercise: Card Pieces

In this activity. team members trade pieces of playing cards to put together complete cards.

Uses -'This exercise is useful for showing team members others perspectives. It builds communication and negotiation skills , and helps people to develop empathy.

People and Materials :

- Enough people for at least three teams of two.
- Playing cards - use between fbur and six for each person.
- A private room.

Time - 15 minutes. Instructions:

1. Cut each playing card into half diagonally, then in half diagonally again, so you have four triangular pieces for each card.
2. Mix all the pieces together and put equal numbers of cards into as many envelopes as you have teams.
3. Divide people up into teams of three or four. You need at least three teams. If you're short of people, teams of two will work just as well.
4. Give each team an envelope of playing card pieces.
5. Each team has three minutes to sort its pieces, determine which ones it needs to make complete cards, and develop a bargaining strategy.
6. After three minutes, allow the teams to start bartering for pieces. People can barter on their own or collectively with their team. Give the teams eight minutes to barter.
7. When the time is up, count each team's completed cards. Whichever team has themost cards wins the round.

Advice for the Teacher/Facilitator After the activity, ask your team members to think about the strategies they used. Discuss these questions:

1. Which negotiation strategies worked? Which didn't?
2. What could they have done better?
3. What other skills. such as **active listening** or **empathy ,** did they need to use?

Conduct following Time management activity - Ribbon of Life

Take a colored ribbon length of approximately I meter/100 cm. and scissors. Start with the following questions :

- If the life span of an individual is say. 100 years. Consider that each cm represents one year, The response will be that few live that long. Assuming a life of 75 to 90 years ,cut 10 to 25 cm of the ribbon, accordingly.
- What is the average age of the participants sitting here, the response would be 25 to 30 depending on the group, in that case, cut another 25 cms of the ribbon and say that is gone you cannot do anything.
- What is left is 50 years? People will say. "Yes"" but the answer is NO.
- Every year we have 52 weeks, that is 52 Sundays. If we multiply that by 50 years. i1 comes to 7.14 years. Reduce the ribbon by another 7.14 cm.
- We also usually have Saturdays off, so reduce another 7. cms.
- Public/ National holidays are l0 multiple with 50 years. That comes to another 1.5 years. Reduce ribbon by another 1.5 cms.
- Your casual leave, sick leave, and annual holidays approx. 40 days a year, multiplied by 50.
- Your casual leave, sick leave, and annual holidays approx. 40 days a year, multiplied by 50. Cut off another 5 cms. Now you are left with about 29.5 years. But, the calculation is not over yet.
- You sleep an average of 8 hours daily; multiply that by 365 days and again by 50 years (i.e. 122 days X 50 : almost l7 years). Cut off another l7 cm.
- You spend time eating lunch, breakfast, snacks, and dinner tolal2 hours daily (i.e. 30 days a year X 50 years =4 years or so). Cut off another 4cm.
- Last, let's figure we spend about I 'hour a day traveling from place to place for activities and such. (that's about 2 more years). We're down to 6 (SIX) years of life to make it or break it.

Exercise Decision making skills - Create Your Own

In this exercise, teams must create their own, brand new, problem-solving activity.

APPENDIX-II

RUBRICS FOR ALLOCATING MARKS FOR LABORATORY EXAMINATIONS AND PROJECT WORK

- Scheme of Evaluation of Internal Laboratory Examination

Viva	Written Procedure	Execution	Total Marks
5 Marks	5 Marks	20 Marks	30 Marks

- Scheme of Evaluation of External Laboratory Examination

Record	Viva	Written Procedure	Execution	Total Marks
10 Marks	10 Marks	10 Marks	40 Marks	70 Marks

- Internal assessment of Project Work will be done by the concerned Project Internal Guide and HOD for 100 Marks.

Evaluation Schema for Continuous Internal Assessment of Project Work		
Review-I	Submission of Abstract	20 Marks
Review-II	Submission of Data Dictionary & UML/ER Diagrams	20 Marks
Review-III	Project Execution	30 Marks
Record Submission		30 Marks
Total		100 Marks

- External evaluation will be carried out by the External Examiner appointed by the Controller of Examinations for 100 Marks

Evaluation Schema for External Assessment of Project Work for	
Project Record	20 Marks
Execution	50 Marks
Viva Voce	30 Marks
Total	100 Marks

- External evaluation will be carried out by the External Examiner appointed by the Controller of Examinations for 200 Marks

Evaluation Schema for External Assessment of Project Work for	
Project Record	40 Marks
Execution	100 Marks
Viva Voce	60 Marks
Total	200 Marks

- Every faculty member must guide a minimum of five students in Project Work off the designated workload

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme – III Semester

Course	Internet of Things		
Course Code	20CS3T1	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-	Year of Revision:2021-22	Percentage of Revision: 0%

Course Objective: To understand and gain knowledge on *Over View* of *Internet of Things*, *Models*, *Layers* & S*tandardization*, *Protocols* & *Design Principles* for Connected Devices, *Internet Connectivity Principles*, *Protocols* & *Application Layer Protocols*, *Data Acquiring*, *Business Models*and *Business Processes*.

Course Outcomes: On successful completion of the course student will be able to:

CO1: Attain knowledge over view of *Internet of Things*.

CO2: Understand *Models*, *Layers* & *Standardization*.

CO3: Apply *Protocols* & *Design Principles* for Connected Devices.

CO4: Understand *Internet Connectivity Principles*, *Protocols* & Application Layer Protocols.

CO5: Understand *Data Acquiring*, *Business Models* and *Business Processes*.

Syllabus

Unit	Learning Units	Lecture Hours
I	**The Internet of Things:** An Overview of Internet of Things, Internet of Things Technology, Behind IoT Sources of the IoT, M2M Communication, Examples of IoT, Design Principles for Connected Devices, Business Models for Business Processes in the Internet of Things.	12
II	**Design Principles for Connected Devices:** IoT / M2M systems layers and Designs Standardizations, Modified OSI Stack for the IoT / M2M Systems, ETSI M2M Domains and High-level Capabilities ,Communication Technologies, Data Enrichment and Consolidation and Device Management Gateway ease of Designing and Affordability.	12
III	**Design Principles for the Web Connectivity:** Design Principles for the Web Connectivity for Connected Devices, Web Communication Protocols for Connected Devices, Message Communication Protocols for Connected Devices, Web Connectivity for Connected Devices.	12
IV	**Internet Connectivity Principles:** Introduction, Internet Connectivity, Application Layer Protocols: *HTTP, HTTPS, FTP, Telnet.*	12
V	**Data Acquiring, Organizing and Analytics in IoT / M2M**: Introduction, Applications / Services / Business Processes, IOT / M2M Data Acquiring and Storage, Business Models for Business Processes in the Internet of Things, Organizing Data, Transactions, Business Processes, Integration and Enterprise Systems.	12

Prescribed Text Book			
	Author	Title	Publisher
1	Rajkamal	Internet of Things: Architecture, Design Principles and Applications	McGraw Hill Higher Education

Reference Text Book			
	Author	Title	Publisher
1	Adrian McEwen and Hakim Cassimally	Designing the Internet of Things	Wiley
2	CunoPfister	Getting Started with the Internet of Things.	Oreilly

Course Focus: Employability

Websites of Interest:

1. https://dzone.com/iot-developer-tutorials-tools-news-reviews
2. https://www.ibm.com/blogs/internet-of-things/

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (ComputerScience)Programme –III Semester

CourseCode: **20CS3T1** Title: **Internet of Things (IoT)**

Time:3Hours Max.Marks:70

SECTION-A

1. AnswerALLquestions (10x2 = 20Marks)

1. a) What is *M2M Communication*. (BTL1)
b) What are *Connected Devices*? (BTL1)
c) Write about *Modified ISO*. (BTL1)
d) What is a *Gateway?* (BTL1)
e) What is *Communication Protocol*? (BTL1)
f) What is *Resource and Resource Repository?* (BTL1)
g) What is *Header? Explain TCP Header.* (BTL1)
h) What is *Protocol Data Unit and Maximum Transferable Unit.* (BTL1)
i) Write about *Event Data.*(BTL1)
j) What are *Active* and *Passive Devices?* (BTL1)

SECTION-B

Answer Five Questions Choosing One Question from Each Unit.
All Questions Carry Equal Marks. (5×10=50Marks)

UNIT – I

2) a) Explain an overview of IOT. (BTL2)
(or)
b) Explain M2M Communication. (BTL2)

UNIT – II

3) a) Explain various *Layers* & *Design Standardization Principles* of IOT. (BTL2)
(or)
b) Explain different *communication technologies* used in IOT. (BTL2)

UNIT – III

4) a) What are *Web Communication Protocols* for Connected Devices? (BTL1)
(or)
b) What are various *Design Principles* for the Web Connectivity? (BTL1)

UNIT – IV

5) a) Explain in detail *Internet Connectivity Principles*. (BTL5)
(or)
b) Explain any two *Application Layer Protocols.* (BTL5)

UNIT – V

6) a) Illustrate *Business Models* for *Business Processes* in the Internet of Things. (BTL2)
(or)
b) Explain *Integration* and *Enterprise* Systems. (BTL2)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (ComputerScience)Programme - III Semester

Course	Cryptography & Network Security		
Course Code	20CS3T2	Course Delivery	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Objective: To understand and gain knowledge on *Computer & Network Security*, *Number Theory, Classical Encryption Techniques, Advanced Encryption Standard and Random Bit Generation and Stream Ciphers*, *Number Theory*, *Public Key Cryptography and RSA*, *Other Public-Key Crypto Systems and Message Authentication Codes*, *Digital Signatures*, *Key Management and Distribution* and *User Authentication*, *Transport Level Security, Electronic Mail Security and IP Security* and *Intruders and Firewalls*.

Course Outcomes: On successful completion of this course, the students will be able to:

CO1 *: Understand* Computer & Network Security Concepts, Classical Encryption Techniques and Advanced Encryption Standard.
CO2 : Gain knowledge on *Number Theory*, *Public Key Cryptography and RSA*, *Other Public-KeyCrypto Systems* and *Message Authentication Codes*.
CO3 *: Know* Digital Signatures, Key Management and Distribution *and* User Authentication.
CO4 : Understand *Transport Level Security*, *Electronic Mail Security* and *IP Security*.
CO5 : Gain knowledge about *Intruders and Firewalls.*

SYLLABUS

Unit	Learning Units	Lecture Hours
I	**Computer & Network Security Concepts:** Computer Security Concepts, The OSI Security Architecture, Security Attacks, Security Services, Security Mechanisms, A Model for Network Security. **Classical Encryption Techniques:** Symmetric Cipher Model, Substitution Techniques, Transposition Techniques **Advanced Encryption Standard:** AES Structure, An AES Example, AES Implementation. Random Bit Generation and Stream Ciphers: Principles of Pseudo Random Number Generation, Pseudo Random Number Generators.	12

II	**Introduction to Number Theory:** Divisibility and the Division Algorithm, The Euclidean Algorithm, Modular Arithmetic, Prime Numbers, Fermat's and Euler's Theorems, Testing for Primality, The Chinese Remainder Theorem, Discrete Logarithms. **Public Key Cryptography and RSA:** Principles of Public Key Crypto Systems, The RSA Algorithm. **Other Public-Key Crypto Systems:** Key Management, Diffie-Hellman Key Exchange,Elliptic Curve Arithmetic, Elliptic Curve Cryptography. **Message Authentication Codes:** Message Authentication Requirements, Message Authentication Functions, Requirements for Message Authentication Codes, Security of MACs, MACs Based on Hash Functions: HMAC.	12
III	**Digital Signatures:** Digital Signatures, NIST Digital Signature Algorithm. **Key Management and Distribution:** Symmetric Key Distribution Using Asymmetric Encryption,Distribution of Public Keys. **User Authentication:** Kerberos, Remote User-Authentication Using Asymmetric Encryption.	12
IV	**Transport Level Security:** Transport Layer Security. **Electronic Mail Security:** S/MIME, Pretty Good Privacy. **IP Security:** IP Security Overview, IP Security Policy, Encapsulating Security Payload,Combining Security Associations.	12
V	**Intruders:** Intruders, Intrusion Detection, Password Management. **Firewalls:** The Need for Firewalls, Firewall Characteristics and Access Policy, Types of Firewalls.	12

Prescribed Text Book

	Author	Title	Publisher
1	William Stallings	Cryptography and Network Security	Pearson, Seventh Edition, 2017

Reference Text Book

	Author	Title	Publisher
1	William Stallings	Cryptography and Network Security	Pearson, Sixth Edition, 2014
2	William Stallings	Network Security Essentials-Applications and Standards	Pearson Education (2007), Third Edition.
3	Chris McNab	Network Security Assessment	OReilly (2007), 2nd Edition
4	Jon Erickson	Hacking-The Art of Exploitation	Press (2006),SPD
5	Neal Krawety	Introduction to Network Security	Thomson (2007).

Course has focus on : Employability

Websites of Interest :

1. https://www.pearsonhighered.com/assets/hip/us/hip_us_pearsonhighere d/preface/0132775069.pdf
2. http://faculty.mu.edu.sa/public/uploads/1360993259.0858Cryptography%20and%20Network %20Security%2 0Principles%20and%20Practice,%205th %20Edition.pd

Co-curricular Activities : Programming Contests, Hackathons & Quiz.

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (ComputerScience)Programme –III Semester

CourseCode: **20CS3T2** Title: **CRYPTOGRAPHY & NETWORK SECURITY**

Time:3Hours Max.Marks:70

SECTION-A

Answer ALL questions (10×2 = 20 Marks)

1) a) What is *Caesar Cipher*? (BTL1)
   b) Write any two characteristics of Randomness. (BTL1)
   c) What is the Purpose of the *Euclidean Algorithm*? (BTL1)
   d) What is Message Encryption? (BTL1)
   e) What is the difference between *Symmetric Key Distribution* & *Asymmetric KeyDistribution*? (BTL1)
   f) What is *Mutual Authentication?* (BTL1)
   g) State any two Protocols of *Transport Layer Security*. (BTL1)
   h) What is *Pretty Good Privacy?* (BTL1)
   i) What is *Firewall?* (BTL1)
   j) State any two *Intrusion Detection Techniques*. (BTL1)

SECTION-B

Answer Five Questions Choosing One Question from Each Unit.

All Questions Carry Equal Marks. (5×10 = 50 Marks)

UNIT- I

2) a) Explain various *Security Attacks* and *Security Services*. (BTL2) 10 Marks

(or)

b) Explain *AES Encryption* and *Decryption* Process. (BTL2) 10 Marks

UNIT- II

3) a) Illustrate *Diffie-Hellman Key Exchange*. (BTL2) 10 Marks

(or)

b) Explain *Internal and External Error Control* in Message Authentication Functions. (BTL2) 10Marks

UNIT-III

4) a) Explain *NIST Digital Signature Algorithm* with diagram. (BTL5) 10 Marks

(or)

b) Explain *Kerberos* in detail. (BTL5) 10 Marks

UNIT-IV

5) a) Explain *Confidentiality* and *Authentication* in S/MIME(BTL5) 10 Marks

(or)

b) Illustrate *Overview of IP Security*. (BTL5) 10 Marks

UNIT-V

6) a) Discuss what are the problems that may intruder create and explain how to overcome those problem? (BTL6) 10 Marks

(or)

b) Discuss *Various Types of Firewalls*. (BTL6) 10 Marks

UNIT – V

7) a) Illustrate *Business Models* for *Business Processes* in the Internet of Things. (BTL2)

(or)

b) Explain *Integration* and *Enterprise* Systems. (BTL2)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
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M.Sc., (ComputerScience)Programme - III Semester

Course	**Design & Analysis of Algorithms**		
Course Code	20CS3T3	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours /	4	Semester End Exam	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Objective: The objective of this course is to develop proficiency in *Problem Solving and Programming*, To *Perform Analysis of various Algorithms in regard to Time and Space Complexity*, Gain *good understanding of Applications of Data Structures*, To develop a base for *Advanced Study* in *Computer Science*, To apply *Design Techniques* to solve different types of problems as per their *Complexity* and Develop *ability to segregate NP- Hard and NP-Complete problems.*

Course Outcomes: On successful completion of this course, the students will be able to:

CO1 : Understand *Basic Ideas* about *Analysis of Algorithms and the Concept of Data Structures.*

CO2 : Know *Divide and Conquer ,Greedy Methods* and *Solving Various Problems* by applying them. **CO3 :** Apply *Dynamic Programming Method* and *Basic Traversal and Search Techniques* to solve variousProblems.

CO4 : Understand *Backtracking* and *Branch and Bound* Techniques to Design Algorithms.

CO5 : Categorize *NP-Hard* and *NP-Complete* Problems.

Syllabus

Unit	Learning Units	Lecture Hours
I	**Introduction:** What is Algorithm, Algorithm Specification Pseudo code Conventions, Recursive Algorithms, Performance Analysis: Space Complexity Time Complexity, Asymptotic Notation, Performance Measurement, Randomized Algorithms: Basics of Probability Theory, Randomized Algorithms Identifying the Repeated Element, Primality Testing: Advantages and Disadvantages. **Elementary Data Structures:** Stacks and Queues, Trees: Terminology, Binary Trees, Dictionaries: Binary Search Trees, Priority Queues, Heaps , Heapsort , Sets and Disjoint Set Union: Introduction-Union and Find Operations, Graphs: Introduction, Definitions, graph representations.	10
II	**Divide-and-Conquer:** General Method, Defective Chess Board, Binary Search, Finding Maximum and Minimum, Merge Sort, Quick Sort, Selection Problem, Strassen's Matrix Multiplication, Convex Hull: Some Geometric Primitives, The Quick Hull Algorithm, Graham's Scan, An O(nlogn) Divide and Conquer Algorithm. **The Greedy Method:** The General Method, Container Loading, Knapsack Problem, Tree Vertex Splitting, Job Sequencing with Deadlines, Minimum Cost Spanning Trees: Prim's Algorithm, Kruskal's Algorithm, Optimal Storage on Tapes, Optimal Merge Patterns, Single Source Shortest Paths.	14
III	**Dynamic Programming:** The General Method, Multi Stage Graphs, All Pairs Shortest Paths, Single Source Shortest Paths, Optimal Binary Search Trees, String Editing -0/1 Knapsack, Reliability Design, The Traveling Sales Person Problem, Flow Shop Scheduling. **Basic Traversal and Search Techniques:** Techniques for Binary Trees, Techniques for Graphs: Breadth First Search and Traversal-Depth First Search, Connected Components and Spanning Trees, Bi-Connected Components and DFS.	17
IV	**Backtracking:** The General Method, The 8-Queens Problem, Sum of Subsets, GraphColoring, Hamiltonian Cycles, Knapsack Problem. **Branch and Bound :** The Method: Least Cost Search, The 15 Puzzle Control Abstractionsfor LC Search, Bounding, FIFO Branch and Bound , LC Branch and Bound, 0/1 Knapsack Problem, LC Branch and Bound Solution, FIFO Branch and Bound Solution, TravelingSales person.	11
V	**NP-Hard and NP-Complete Problems:** Basic Concepts: Non Deterministic Algorithms, The Classes NP Hard and NP Complex, Cook's Theorem, NP Hard Graph Problems, Clique Decision Problem, Node Cover Decision Problem Chromatic Number Decision Problem, Directed Hamiltonian Cycle, Traveling Sales Person Decision Problem, AND/OR Graph Decision Problem, NP-Hard Scheduling Problems, Scheduling Identical Processors, Flow Shop Scheduling, Job Scheduling, NP-Hard Code Generation Problems, Code Generation With Common Sub Expressions, Implementing Parallel Assignment Instructions, Some Simplified NP-Hard Problems.	8

Prescribed Text Book

S.No	Author	Title	Publisher
1	Sartaj Sahni	Fundamentals of Computer Algorithms	Second Edition, Universities Press(2008)

Reference Text Books			
S.No.	Author	Title	Publisher
1	Anany Levitin	Introduction to the Design & Analysis of	Second Edition, Pearso
2	I.Chandra Mohan	Design and Analysis of Algorithms	PHI
3	Prabhakar Gupta, Vineet Agrawal	Design and Analysis of Algorithms	PHI
4	Parag Himanshu, Dave	Design and Analysis of Algorithms	Pearson Education (2008)

Course Focus: Foundation **/ S**kill Development.

Reference Websites :

1. https://epgp.inflibnet.ac.in/Home
2. https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-046j-design-and-analysis-of- algorithms-spring-2015/lecture-notes/
3. https://www.cukashmir.ac.in/cukashmir/User_Files/imagefile/DIT/StudyMaterial/DAA/DAA_UNIT- I_6th-Sem_StudyMaterial.pdf

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
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M.Sc., (ComputerScience)Programme –III Semester

CourseCode: **20CS3T3** Title: **DESIGN AND ANALYSIS OF ALGORITHMS**

Time:3Hours Max.Marks:70

SECTION-A

Answer ALL questions (10×2 = 20 Marks)

1. a) Define *Algorithm*. (BTL1)
b) What is a *priority queue*? (BTL1)
c) Define *Convex Hull.* (BTL1)
d) What is *tree vertex splitting?* (BTL1)
e) What is *String Editing ?* (BTL1)
f) Differentiate *DFS and BFS.* (BTL1)
g)What is *Graph colouring?* (BTL1)
h) What is *LC and FIFO Branch and Bound?*(BTL1)
i) Compare *NP hard and NP complete classes.* (BTL1)
j) What is *flow shop scheduling* in *NP Hard Scheduling problems?* (BTL1)

SECTION-B

Answer Five Questions Choosing One Question from Each Unit.

All Questions Carry Equal Marks. (5×10 = 50 Marks)

UNIT – I

2) A) Explain *Asymptotic Notations* regarding time and space complexities of an algorithm.(BTL2)

(or)

B) Explain in detail about *Heap Sort Technique* with an example.(BTL2)

UNIT – II

3) A) What is *Divide and Conquer approach? A*pply it on *Quick Sort* with an example. (BTL2)

(or)

B) What is *Greedy method*? Explain *Kruskal's Algorithm* to find *minimum cost spanning tree* with an example. (BTL2)

UNIT – III

4) A) Explain the application of Dynamic Programming on Travelling Salesman Problem.(BTL2)

(or)

B) Explain the procedure to obtain Optimal Binary Search Tree by applying Dynamic Programming approach. (BTL2)

UNIT – IV

5) A) What is 0/1-Knapsack Problem ? Solve it using Branch and Bound technique. (BTL2)

(or)

B) Explain the Sum of Subsets Problem. How can it be solved using Back Tracking Technique? (BTL2)

UNIT – V

6) A) Write *Cook's theorem*. Briefly explain *Cook's theorem*. (BTL2)

(or)

B) Discuss various *NP Hard Graph Problems*. (BTL2)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
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M.Sc., (ComputerScience)Programme - III Semester

Course	**Data Mining Techniques**		
Course Code	20CS3T4	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours /	4	Semester End Exam	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Objective:

To understand and gain knowledge on *Basic Concepts*, *Applications*, Techniques of Data Mining, *Data Warehouse Architecture* and its *Components*, *Schemas*, *Different OLAP Operations*, *Characterize The Kinds of Patterns that can be discovered by Association Rule Mining*, *Data Classification and Prediction Techniques, Identify the Similarities among the data Using Clustering Algorithms* and *Outlier Analysis*.

Course Outcomes: On successful completion of this course, the students will be able to

CO1: Understand the *Basics of Data Mining* and *Data Pre-Processing Techniques*.

CO2: Aware of constructing the *Data Warehouse*, OLAP and relevant *Data Model Concepts*.

CO3: Understand the *Frequent Itemset Mining Methods* and Different Levels in Association Rules.

CO4: Understand the *Basic Concepts in Classification* and *Advanced Classification Methods* by implementing *Various Algorithms*.

CO5: Find the similarities among the data using *Clustering Algorithms* and *Outlier Analysis*.

Syllabus

Unit	Learning Units	Lecture Hours
I	**Introduction:** What is Data mining?, What Kind of Data can be Mined, What kinds of Patterns can be Mined, Major Issues in Data Mining**.** **Data Preprocessing:** Data Preprocessing : An Overview, Data Cleaning, Data Integration, Data Reduction-Overview of Data Reduction Strategies, Attribute Subset Selection, Regression and Log Linear Models, Histograms and Clustering, Data Transformation : Data Transformation Strategies Overview, Data Transformation by Normalisation, Discretization by Binning.	12
II	**Data Warehousing and OLAP:** Data Warehouse : Basic Concepts, What Is a Data Warehouse?, Difference between Operational Database Systems and Data Warehouses, Why have a separate Data Warehouse?, Data Warehousing : A Multiered Architecture, Data Warehouse Models, Extraction, Transformation and Loading, Metadata Repository, Data Warehouse Modeling : Data Cube and OLAP-A Multidimensional Data Mode-From Tables and Spreadsheets to Data Cubes, Stars, Snowflakes and Fact Constellations : Schemas for Multidimensional Data Models , Dimensions : The Role of Concept Hierarchies, Measures: their categorisation and computation, Typical OLAP Operations in the Multidimensional Data Model, A Starnet Query Model for Querying Multidimensional Databases.	12
III	**Mining Frequent patterns, Associations:** Basic Concept, Market Basket Analysis : A Motivational Example, Frequent Item Sets, Closed Item Sets and Association Rules, Frequent Item Set Mining Methods. **Advanced Pattern Mining:** Pattern Mining : A Road Map, Pattern Mining in Multilevel, Multidimensional Space, Mining Multilevel Association Rules, Mining Multi Dimensional Associations, Mining Quantitative Association Rules.	12
IV	**Classification: Basic Concepts:** What is Classification?, General Approaches to Classification, Decision Tree Induction, Attribute Selection Measures, Tree Pruning, Scalability and Decision Tree Induction, Bayes Classification Methods, Bayes Theorem, Navie Bayesian Classification. **Classification: Advanced Methods:** Bayesian Belief Networks, Concepts and Mechanisms, Training Bayesian Belief Networks, Classification by Back Propagation.	12
V	**Cluster Analysis Introduction:** What is Cluster Analysis?, Requirements for Cluster Analysis, A Partitioning Methods : K-Means, K-Medoid, Hierarchical Methods :Agglomerative versus Divisive Hierarchical Clustering, Distance Measures inAlgorithmic Methods, BRICH : Multiphase Hierarchical Clustering using Clustering Feature Trees, Chameleon Hierarchical Clustering, Density Based Methods : DBSCAN. **Outlier Detection:** What is Outliers Analysis?, Types of Outliers, Challenges of Outlier Detection.	12

Text Books			
	Author	Title	Publisher
1	Jiawei Han, Micheline Kamber	Data mining : Concepts& Techniques	Morgan Kaufmann 3rd Edition Chapter-1 1.2,1.3,1.4,1.7 Chapter-3 3.1,3.2,3.3,3.4(3.4.1,3.4.4,3.4.5,3.4.6,3.4.7) Chapter-4 4.1 to 4.2 Chapter-6 6.1 to 6.2 Chapter-7 7.1,7.2(7.2.1 to7.2.3) Chapter-8 8.1,8.2(8.2.1,8.2.2,8.2.3,8.2.4),8.3 Chapter-9 9.1 to 9.2Chapter-10 10.1,10.2,10.3(10.3.1,10.3.2,10.3.3,10.3.4),10.4(10.4.1) Chapter-12 12.1(12.1.1,12.1.2,12.1.3)

Reference Books			
	Author	Title	Publisher
1	Ralph Kimball	The Data Warehousing Toolkit	Wiley
2	S.N.Sivanandam, S.Sumathi	Data Mining-Concepts, Tasks and Techniques	Thomson

Websites of Interest:

1. www- db.standford.edu /`ullman/mining/mining.html : Data mining lecture notes.
2. ocw.mit.edu/ocwweb/slon-School-of-management/15-062Data-Mining Spring2003/course

Course Focus: Foundation **/ E**mployability / **S**kill Development.

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (ComputerScience)Programme –III Semester

CourseCode: **20CS3T4** Title: **DATA MINING TECHNIQUES**

Time:3Hours Max.Marks:70

Answer ALL questions ***(10×2 = 20 Marks)***

1. a) Difference between *Data Mining* and *KDD* (BTL4)
   b) What is meant by *Data Preprocessing*? (BTL1)
   c) Define *Multidimensional Data model.* (BTL1)
   d) OLAP versus OLTP (BTL4)
   e) Give one example for *Closed Itemset* and *Maximal Frequent Itemset* (BTL1)
   f) What is meant by *Association Rule*? (BTL1)
   g) Explain *Bayes Theorem.* (BTL2)
   h) Define *Classification* with Example. (BTL1)
   i) What are the requirements of *Cluster Analysis*? (BTL1)
   j) What is meant by *Outliers*? (BTL1)

SECTION-B

Answer Five Questions Choosing One Question from Each Unit.
All Questions Carry Equal Marks. (5×10 = 50 Marks)

UNIT – I

2) A) Define Data Mining. What kinds of Patterns can be mined in *Data Mining*. 10M (BTL1)

(or)

B) Define *Data Integration*. What are the *Different Techniques used in Data Integration*. 10M (BTL1)

UNIT – II

3) A) Define *Data Warehouse*. Explain *Data Warehouse Architecture* with neat Diagram. 10M (BTL1)

(or)

B) What are the different types of *Schemas* used in *Multi Dimensional Data Model*? 10M (BTL1)

UNIT – III

4) A) Explain *Aprior Algorithm* with Example. 10M (BTL2)

(or)

B) Explain *Multi Level and Multi Dimensional Association Rules* with Examples. 10M (BTL2)

UNIT – IV

5) A) Explain *Decision Tree Induction Algorithm* with Example. 10M (BTL5)

(or)

B) Explain *Naïve Bayes Classification* with Example. 10M (BTL5)

UNIT – V

6) A) Explain *Different Partitioning Methods* used in *Cluster Analysis*. 10M (BTL2)

(or)

B) Explain in detail about *Hierarchical Clustering*.10M (BTL2)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
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M.Sc., (ComputerScience)Programme - III Semester

Course	**Web Technologies Lab**		
Course Code	20CS3L1	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Objective: Able to build functional *Web Applications using HTML*, Able to use *JavaScript and DHTML* for *Web Designing*, Able to code using XML and PHP for *Integrating with Web Pages*, *Create Dynamic Web Pages* where in client interaction is facilitated using advanced server technology like *JSP* and *Web Pages* with *Database Connectivity using PHP*.

Course Outcomes: On successful completion of the course student will be able to:

CO1: Build functional *Web Applications HTML*.

CO2: Incorporates *Multimedia Capabilities* and *Web Page Designs* using *Cascading Style Sheets*.

CO3: Code *Client Server Interaction Programs* using *Java Based Server Technology* named *Servlets*.

CO4: Create *Dynamic Web Pages* where in *Client Interaction* is facilitated using Advanced Server Technology like *JSP*.

CO5: Integrate *Offline Data Storage*, *Background Processes* and APIs using *Database Connectivity* and *ASP*.

Web technology Lab Syllabus

Course Details

HTML:

1. Develop HTML code to provide intra document linking. (BTL6)
2. Develop HTML code to provide inter document linking. (BTL6)
3. Develop a program to implement the three types of lists. (BTL6)
4. Create a HTML page using frames. (BTL6)
5. Develop a program to embed college picture into your web page and develop a short note on your collegeusing paragraph tag. (BTL6)
6. Illustrate a suitable example; depict how we can align text using a table tag as follows. (BTL2)

II M.C.A	Pass percenetage=95%
	Fail percentage=5%
III M.C.A	Pass percenetage=97%
	Fail percentage=3%

7. Develop a program to create the time table as follows: (BTL6)

	1	2	3		4	5	6
MON	<------WEB LAB------>				SE	WEB	PPL
TUE	UML	CRY	SE	B	<-------VB LAB------->		
WED	WEB	SE	UML	R	CRY	PPL	
THU	CRY	WEB	PPL	E	<------WEB LAB------>		
FRI	<-------VB LAB------->			A	PPL	WEB	UML
SAT	SE	CRY	UML	K	<------SEMINARS------>		

8. Create a Registration form that interacts with the user. Collect login name, password, date of birth,sex, address, qualification and display a “Thank you for registering” message when the user submits the form. (BTL6)

Login name:
Enter Password:
Reenter Password:
Birthdate:
Sex: Female Male
Enter Address
Enter qualification
Login Login clear clear

Java Script:

9. Develop a script to compare two strings using String object. (BTL6)
10. Develop a script to generate random numbers within 1 to 10 and display the numbers in a table. (BTL6)
11. Develop a Java Script to update the information into the array, in the "onClick" event of the button"Update". (BTL6)
12. Create a web page for a shopping mall that allows the user to tick off his purchases and obtain the bill withthe total being added up simultaneously. (BTL6)

Item details	Price of item	Click here to select
	8399	☐
	5000	☑
	450	☑
	399	☐
YOUR TOTAL BILL IS 5450		

13. Develop a script to find the duplicate elements of an array. (BTL6)
14. Develop a script which generates a different greeting each time the script is executed. (BTL6)
15. Develop a JavaScript to check the number is Armstrong number or not by getting the number from textboxand the result is displayed in a alert dialog box. (BTL6)
16. Develop a java script code that accepts user name and password from user, Check their correctness anddisplay appropriate alert messages. (BTL6)

DHTML:

17. Create an inline style sheet. Illustrate the use of an embedded style sheet. (BTL6)
18. Create an external style sheet to illustrate the "Font" elements. (BTL6)
19. Develop a program to switch on and off light using onClick event. (BTL6)
20. Illustrate different types of filters (at least six) on a sample text. (BTL2)
21. Develop a program to illustrate tabular data control for data binding. (BTL6)

XML:

22. Create a small XML file designed to contain information about student performance on a module. Eachstudent has a name, a roll number, a subject mark and an exam mark. (BTL6)
23. Create a internal DTD file. (BTL6)
24. Create an external DTD file. (BTL6)
25. Create a XSLT style sheet to display the student data as an HTML table. (BTL6)

PHP:

26. Illustrate PHP declarations and expressions to find factorial of a given number using. (BTL2)
27. Develop a PHP program that interacts with the user .Collect first name last name and date of birth anddisplays that information back to the user. (BTL6)
28. Develop a PHP program to connect MySQL Database.

JSP:

29. Develop a program to implement JSP directives. (BTL6)
30. Develop a JSP program for session tracking. (BTL6)

Prescribed Textbook			
	Author	Title	Publisher
1	N.P.Gopalan, J.Akilandeswari	Web Technologies-A Developer's Perspective	PHI(2008)
2	Harvey M. Deitel and Paul 1. Deitel	Internet and World Wide Web How To Program, 5e	Prentice Hall; 4th edition

Course Focus: Employability

Websites of Interest:

1. https://www.w3schools.com
2. https://www.edx.org/learn/web-development
3. https://www.codecademy.com/learn/paths/web-development

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (ComputerScience)Programme – III Semester

Course	**Data Mining Lab**		
Course Code	20CS3L2	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Objective:

The main objective of this lab is to impart the knowledge on *How to implement Data Mining Algorithms using Various Tools* and *How to characterize the kinds of Patterns* that can be discovered by *Association Rule Mining*, *Classification*, *Clustering*, *Identifying Outliers* and Emphasize *Hands-onExperience* working with all *Real Time Data Sets*.

Course Outcomes: On successful completion of this course, the students will be able to

CO1: Understand the *Various Kinds of Tools*.

CO2: Apply *Mining Techniques* for *Realistic Data*.

CO3: Understand the *Basic Concepts* in R and *Weka*.

CO4: Understand how to import and export *CSV Files* and *Package* installation in R.

CO5: Develop and visualization of *Data Mining Algorithms* in R.

Using Weka Tool:

1. How to create and load *Data Set* in Weka. (BTL1)
2. Interpret all the *Categorical (or Nominal) Attributes* and the *Real-Valued Attributes* separately. (BTL2)
3. Construct *Association Rules* using Weka.(BTL6)
4. Construct *Multilayer Perceptron* or *Neural Network.* (BTL6)
5. Construct *Time Series Forecasting* using Weka. (BTL6)
6. Demonstration of preprocessing to remove *Attributes*, *Instances* and *Perform Discretization* using datasetweather.arff. (BTL2)
7. Create *K-Mean Clustering* using *Weka*.((BTL6)
8. Develop *Decision Tree* by training data set using *Weka*. (BTL6)
9. Create Hierarchical *Clustering* using *Weka*. (BTL6)
10. Identifying and removing *Outliers* using Weka. (BTL1)

Using R Programming:

1. How to import data into R from text and excel files using *read.table()* and *read.csv* functions. (BTL1).
2. Create *Association Rules* using *Aprior Algorithm* in R. (BTL6)
3. Construct *Multilayer Perceptron* or *Neural Network* using R. (BTL6)
4. Apply *Time Series Analysis* using R. (BTL3)
5. Apply *Time Series Forecasting* using R. (BTL3)
6. Apply *Time Series Decomposition* using R. (BTL3)
7. Create *K-Means Clustering Algorithm* using R. (BTL6)
8. Construct *Decision Tree* in R using package party. (BTL6)
9. Create *Hierarchical Clustering* using R. (BTL6)
10. Crate Hierarchical Clustering with Euclidean Distance using R(BTL6)
11. Examine *K-Medoids* clustering using R. (BTL4)
12. *Detecting* and *Removing* outliers using R. (BTL1)
13. Construct *Density Based Clustering* using R. (BTL6)
14. Illustrate *Linear Regression* using R. (BTL2)
15. Illustrate *Multiple Regression* using R. (BTL2)
16. Illustrate Logistic Regression using R. (BTL2)
17. Construct *Outlier Detection by Clustering* using R. (BTL6)
18. Detecting and Removing Missing values in R. (BTL1)
19. Create different kinds of *Charts* using *Sample Data Sets* in R. (BTL6)
20. Create *Word Cloud* using R. (BTL6)

Websites of Interest :

1. https://www.cs.waikato.ac.nz/ml/weka.
2. https://weka.wikispaces.com
3. https://www.rdocumentation.org/packages/stats/versions/3.6.2
4. http://www.r-bloggers.com/

Course Focus: Foundation **/ E**mployability / **S**kill Development.

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165

(An Autonomous College in the Jurisdiction of Krishna University)Accredited at the level 'A' by the **NAAC**

Sponsors: Siddhartha Academy of General& Technical Education

DEPARTMENT OF COMPUTER SCIENCE

Minutes of the meeting of Board of Studies in Computer Science for PG (M.Sc.)

Date: 06-04-2023

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE :: VUYYURU

(An Autonomous College in the Jurisdiction of Krishna University)
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DEPARTMENT OF COMPUTER SCIENCE

Minutes of the meeting of Board of Studies in Computer Science for PG held on 06-04-2023 in the Department of Computer Science.

Name of the Member	Role
Sri. T.Naga Prasada Rao, I/C HOD,Dept of Computer Science, A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru-521165. Mobile: 9866803938, E-Mail: t.nagaprasadarao@gmail.com	Chairman
Dr. K. Madhavi, Associate Professor, Dept of ComputerScience, JNTUA. College of Engineering, Anantapur. Mobile: 9440206501 E-Mail: kasamadhavi@yahoo.com	University Nominee, Krishna University
Dr. R. Satya Prasad, Professor, Department of ComputerScience, Acharya Nagarjuna University, Nagarjuna Nagar-522508.Mobile: 9848487478 E-Mail: profrsp@gmail.com	Subject Expert
Dr. T. S. Ravi Kiran, H.O.D & Assistant Professor, Dept of Computer Science, P.B. Siddhartha Degree College of Arts &Science - Vijayawada -520002. Mobile: 9441176980 E-Mail: kirantsr1 @gmail.com, tsravikiran@pbsiddhartha.ac.in	Special Invitee
Mr. U. Sairam, C.E.O, Codegnan I.T Solutions OPC PVTLTD., Vijayawada520002 Mobile: 9959555952 E-Mail: uppugundlasairam@gmail.com	Industrialist
Mr.Korada Sri Venkata Siva Sai Kumar, Software Developer, GGS Information Services India Pvt., Ltd. Mobile: 8686541443 E-Mail: svkorada@gmail.com	Alumni Representative
Ms. S. Prabhavathi , Assistant Professor, Dept. of Computer Science, A.G & S.G Siddhartha Degree college of arts and science, Vuyyuru – 521165 Mobile : 9989098703 E-mail : s.prabha2424@gmail.com	Member
Ms. A. Sravani , Assistant Professor, Dept. of Computer Science, A.G & S.G Siddhartha Degree college of arts and science, Vuyyuru – 521165 Mobile : 9490866599 E-mail :adirajusravani93@gmail.com	Member
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Ms.G. Katyayini, Assistant Professor, Dept. of Computer Science, A.G & S.G Siddhartha Degree college of arts and science, Vuyyuru – 521165 Mobile : 9553892569 E-mail : katyayinigona@gmail.com	Member G. katyayini
Mr.Ch. Anil kumar, Assistant Professor, Dept. of Computer Science, A.G & S.G Siddhartha Degree college of arts and science, Vuyyuru – 521165 Mobile : 9701463015 E-mail : aniltimes13@gmail.com	Member

PG

AGENDA

- To discuss and approve the *Structure, Syllabi and Model Question Papers* of *Second* Semester of M.Sc.(Computer Science) for the batch of students admitted from the academic year 2022-2023 and onwards.

- To discuss and approve the *Structure, Syllabi and Model Question Papers* of *Fourth* Semester of M.Sc.(Computer Science) for the batch of students admitted from the academic year 2022-2023 and onwards.

RESOLUTIONS

- Resolved and recommended to continue the same syllabus, model papers without changes in the Second Semester for the following courses:
  - Data Structure Lab (22CS2L1)

- Resolved and recommended to introduce new syllabus, model papers in the Second Semester for the following courses:
  - Computer Networks (22CS2T1)
  - Data Structure (22CS2T2)
  - Web Technology (22CS2T3)
  - Software Engineering (22CS2E1)
  - Web Technology Lab(22CS2L2)

- To discuss and approve the *Structure*, Sy*llabi* and *Model Question Papers* of Open Electives *"Research Methodology"* for Second Semester

- Resolved and recommended to continue the same syllabus, model papers without changes in the Fourth Semester for the following courses:
  - Artificial intelligence & Machine learning (22CS4T3)
  - Cloud Computing (22CS4T4)

- Resolved and recommended to introduce new syllabus, model papers in the Third Semester for the following courses:
  - Big Data Analytical Lab (22CS4L1)
  - Privacy & Security in Online Social Media (22CS4M1)
  - Big Data Analytics (22CS4T1)
  - Project Work (22CS4P1)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru521165.

(An Autonomous College in the jurisdiction of Krishna University)

M.Sc., (ComputerScience) Programme – II Semester

Course	Computer Networks		
Course Code	**22CS2T1**	Course Delivery Method	Class Room /
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Description and Purpose:

Computer Networks is a course that will exemplifies basic concepts of *Computer Networks*, *Functionality of Layered Architecture*, *Error Correction and Detection Code* and *Various Protocols used in Layers and Protocols*, *Functionality of Medium Access Control Sub Layer*, *Various Routing Strategies used in inter networking using IPAddresses*, *Different Services* and *Protocols of Transport Layer* and *Various Application Layer Protocols* used over the internet.

Course Objectives:

This course will help the students t o understand and learn importance of *Protocols in a Network*, *The usage of the Protocols in Layered Architecture* and brief information of functionality of all the *Five Layers and their Protocols*.

Specific objectives include:

- To understand functionality of *Layered Architecturee*.
- To understand Ethernet, *Bluetooth and Data Link Layer Switching.*
- To learn Network Layer Design issues and Routing Algorithm used.
- To learn *Transport Services and TCP and UDP.*
- To understand the Protocols and services of *Applications Layer*.

Course Learning Outcomes:

Upon successful completion of the course, the student will be able to:

CO1: Understand *Functionality of Layered Architecture*, *Error Correction and Detection Codes* and *Various Protocols used in Layers*.

CO2: Understand functionality of *Medium Access Control* Sub Layer.

CO3: Understand the various *Routing Strategies* used in internet working using *IP Addresses*.

CO4: Understand different Services and Protocols of *Transport Layer*.

CO5: Understand the various *Application Layer Protocols* used over internet.

Unit	Learning Units	Lecture Hours
I	**Introduction:** Uses of Computer Networks: Business Application, Home Applications, Mobile Users, Social Issues, Connection Oriented and Connectionless Services, Service Primitives, The relationship of Services to Protocols, ***Reference Models*:** The OSI Reference Model, The TCP/IP Reference Model, A Comparison of OSI and TCP/IP Reference Model. **Physical Layer:** ALOHA, CSMA, CSMA/CA **Data Link Layer:** ***Data Link Layer Design Issues***: Services Provided to the Network Layer, Framing, Error Control, Flow Control, ***Error Correcting Codes***, ***Error Detecting Codes***, ***Elementary Data Link Protocols***: An Utopian Simplex Protocol, A Simplex *Stop and Wait* Protocol, A Simplex Protocol for a Noisy Channel, ***Sliding Window Protocols*:** A One Bit Sliding Window Protocol, A Protocol Using Go Back N, A Protocol using Selective Repeat.	**12 Hours**
II	**The Medium Access Control Sub Layer:** ***Ethernet***: Ethernet Cabling, Manchester Encoding, The Ethernet MAC sub layer Protocol, The Binary Exponential Backoff Algorithm, ***Bluetooth***: Bluetooth Architecture, Bluetooth Applications, The Bluetooth Protocol Stack, The Bluetooth Radio Layer, The Bluetooth Link Layers, The Bluetooth Frame Structure, ***Data Link Layer Switching***: Uses of Bridges, Learning Bridges ,Spanning Tree Bridges, Remote Bridges, Repeaters, Hubs, Bridges, Switches, Routers and Gateways, Virtual LANs.	**12 Hours**
III	**The Network Layer:** ***Network Layer Design Issues***: Store and Forward Packet Switching, Services provided to the Transport Layer, Implementation of Connectionless Services, Implementation of Connection Oriented Services, Comparison of Virtual Circuit and Datagram subnets. ***Routing Algorithms* :** The Optimality Principle, Shortest Path Routing, Flooding , Distance Vector Routing, Link State Routing, Hierarchical Routing, Broadcast Routing, Multicast Routing, Routing for Mobile Hosts ***The Network Layer in the Internet*:** The IP Version 4 Protocol, IP Address, IPV6 Features and Advantages.	**12 Hours**
IV	**The Transport Layer:** ***The Transport Service*:** Services provided to the Upper Layers, Transport Services Primitives, Berkeley Sockets. ***Elements of Transport Protocols***: Addressing, Connection Establishment, Connection Release, Flow Control and Buffering, Multiplexing, Crash Recovery. **The Internet Transport Protocols:** Introduction to TCP, The TCP Service Model, The TCP Protocol, The TCP Segment Header, TCP Connection Establishment, TCP Connection Release, Modelling TCP Connection Management, TCP Sliding Window, TCP Congestion Control, Comparison of TCP and UDP.	**12 Hours**
V	**Wireless TCP:** Classical improvement in WTCP. **The Application Layer:** ***DNS*:** The Domain Name System: The DNS Name Space, Resource Records, Name Servers. ***Electronic Mail***: Architecture and Services, The User Agent, Message Formats, Message Transfer, Final Delivery. **The *World Wide Web***: Architecture Overview, Static Web Pages, Dynamic Web Pages**. *Streaming Audio and Video***: Digital Audio, Digital Video, Streaming Stored Media, Streaming Live Media, Real Time Conferencing.	**12 Hours**

Reference Text books:

1. Andrew S. Tanenbaum, ComputerNetworks, Sixth Edition, Pearson, 2021
2. Andrew S. Tanenbaum, ComputerNetworks, Fifth Edition, Pearson, 2011
3. James F.Kurose, Keith W Ross, Computer Networking, 3rd Edition, Pearson Edition
4. Michael A. Gallo, William M. Hancock, Data Communications and Networking, 4th Edition, TMH

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.

(An Autonomous College in the jurisdiction of Krishna University)M.Sc.(Computer Science), Second Semester

Course Name: Computer Networks

Course Code: 22CS2T1

(w.e.f admitted batch 2022-23)

Time: 3 Hours **Max Marks: 70**

SECTION-A

Answer ALL Questions. All Questions Carry Equal Marks. (5×4=20Marks)

1. (a) What are the Uses of Computer Networks. (CO1,L1)
   (or)
   (b) Write about ALOHA (CO1,L1)

2. (a) Explain about The Binary Exponential Backoff Algorithm. (CO3,L2)
   (or)
   (b) Explain about Virtual LANs. (CO3,L2)

3. (a) What is Store and Forward Packet Switching. (CO2,L1)
   (or)
   (b) What are the Features of IPV6. (CO2,L1)

4. (a) Explain about Berkeley Sockets. (CO3,L2)
   (or)
   (b) Explain TCP Congestion Control. (CO3,L2)

5. (a) Explain about WTCP. (CO5,L5)
   (or)
   (b) Explain about URLs. (CO5,L5)

SECTION-B

AnswerALLquestions. AllQuestionsCarryEqualMarks.(5×10=50Marks)

6. (a) Explain the OSI Reference Model with a neat diagram. (CO1,L2)
   (or)
   (b) Explain Sliding Window Protocols. (CO1,L2)

7. (a) List the operations of Ethernet.(CO2,L4)
   (or)
   (b) Analyze Bluetooth Architecture with Bluetooth Application. (CO2,L4)

8. (a) Model Shortest Path Routing Algorithm.(CO2,L3)
   (or)
   (b) Select IP Addressing Techniques. (CO2,L3)

9. (a) Explain about Connection Establishment and Connection Release. (CO3,L5)
   (or)
   (b) Explain about TCP. (CO3,L5)

10. (a) Discuss Domain Name System. (CO3,L6)
    (or)
    (b) Discuss Electronic Mail System. (CO3,L6)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme – II Semester

Course	**Data Structures**		
Course Code	22CS2T2	Course Delivery Method	Class Room /
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Description and Purpose:

Data Structures is a course that illustrates *Elementary Data Organization*, *Data Structure Operations*, and *Algorithms, Arrays, Matrices, String Processing, Stack, Queues, Linked List, Trees, Heap Sort, Multi-way Search Trees, B-Tree, B+-Trees, Graphs Algorithms, Elementary Graph Algorithms, Sorting* and *Searching Techniques*.

Course Objectives:

This course will help enable the students t o understand, learn and develop *Data Structure Operations and Algorithms, Arrays, Matrices, String Processing, Stack, Queues, Linked List, Trees, Heap Sort, Multi-way Search Trees, B-Tree, B+-Trees, Graphs Algorithms, Elementary Graph Algorithms, Sorting and Searching Techniques*.

Specific Objectives include:

- To understand *Data Structures, Data Structure Operations* and *Algorithms, Arrays*.
- To understand *String Processing, Stack, Queues and Linked List.*
- To learn the *Binary Tree, Binary Search Trees, AVL Trees, Heap*.
- To learn the *Multi-way Search Trees, B-Trees, B+-Trees*.
- To understand the *Graph Algorithms*, different *Sorting* and *Searching Techniques*.

Course Learning Outcomes:

At the end of this course the students should be able to:

CO1: Understand *Data Structures, Data Structure Operations and Algorithms, Arrays*.
CO2: Understand *String Processing, Stack, Queues and Linked List.*
CO3: Learn the Binary Tree, Binary Search Trees, AVL Trees, Heap.
CO4: Learn the *Multi-way Search Trees, B-Trees, B+-Trees*.
CO5: Understand the *Graph Algorithms*, different *Sorting* and *Searching Techniques*.

Unit	Title	Lecture Hours
I	**Introduction and Overview:** Elementary Data Organization, Data Structures, Data Structure Operations, and Algorithms: Complexity, Time and Space Tradeoff Asymptotic Notations. Linear Arrays, Representation and Traversing Linear Arrays, Inserting and Deleting, Linear Search, Binary Search, Multidimensional Arrays, Pointer Arrays, Record Structures, Representation of records in memory, Parallel Arrays, Matrices, Sparse Matrices.	**12 Hours**
II	**String Processing:** Pattern Matching Algorithms. **Stacks:** Stacks, Array representation, Linked List representation, Evaluation of Arithmetic Expressions, Quick Sort, Recursion, Towers of Hanoi. **Queues:** Linked representation of Queues, Deques, Priority Queues. **Linked Lists:** Representation, Traversing, Searching, Memory Allocation: Garbage Collection,Insertion, Deletion, Header Linked Lists, Two Way Lists.	**12 Hours**
III	**Trees:** Binary Trees, Representing and Traversing Binary Trees, Traversal Algorithms using Stacks, Binary Search Trees, Searching, Insertion and Deletion in Binary Search Trees, AVL Search Trees, Insertion and Deletion in AVL Trees. **Heap:** Heap Sort, Huffman's Algorithms, General Trees.	**12 Hours**
IV	**Multi-way Search Trees:** M-Way Search Trees, Definition and Properties, Searching an M-Way Search Tree, B-Trees, Definition and Properties, Number of Elements in a B-Tree, Insertion into B-Tree, Deletion from a B-Tree, B+-Tree Definition, Searching a B+-Tree, Insertion into B+-Tree, Deletion from a B+-Tree.	**12 Hours**
V	**Graphs:** Graphs Algorithms, Elementary Graph Algorithms: Topological Sort, Single Source Shortest Path Algorithms:Dijkstra's, Bellman-Ford, All Pairs Shortest Paths : Floyd Warshall's Algorithm. **Sorting and Searching:** Insertion Sort, Selection Sort, Merging, Merge Sort, Radix Sort, Searching and Data Modification, Hashing.	**12 Hours**

Reference Textbooks:

1. Seymour Lipschutz, Data Structures, Mc Graw Hill (Schaums Outlines), Revised First Edition, 2014.
2. Seymour Lipschutz, Theory and Problems of Data Structures, Mc Graw Hill (Schaums Outlines), Paperback, 2017.
3. John R Hubbard, Second Edition, Data Structures with Java, Mc Graw Hill (Schaums Outlines), 2009.
4. Robert Lafore, Data Structures & Algorithms in Java, Second Edition, Pearson Education, 2017.
5. Fundamentals of Data Structures in C, Second Edition, Horowitz, Sahani, Anderson-freed, Universities Press, 1993.
6. Data Structures: A Pseudocode Approach, Richard F Gilberg, Behrouz A Forouzan, Cengage, 2004

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru– 521165.

(An Autonomous College in the jurisdiction of
Krishna University)M.Sc.(Computer Science),
Second Semester

Course Name: Data Structures

Course Code: 22CS2T2

(w.e.f admitted batch 2022-23)

Time: 3 Hours **Max Marks: 70**

SECTION-A

Answer ALL questions. All Questions Carry Equal Marks. (5×4 = 20 Marks)

1.(a) Explain different *Data Structure Operations*. (CO1, L2)

(or)

(b) Explain *Linear Array*.(CO1, L2)

2. (a) What is *Stack*? Explain its Operations. (CO2, L1)

(or)

(b) Define *Linked List* and its operations. (CO2, L1)

3. (a) Explain *Binary Search Trees*. (CO3, L2)

(or)

(b) Explain *General Trees*. (CO3, L2)

4. (a) Explain *M-Way Search Tree.* (CO4, L2)

(or)

(b) Explain *searching an element* from *B+-Tree*. (CO4, L2)

5. (a) Explain *Topological Sort Algorithm*. (CO5, L2)

(or)

(b) Explain *Bellman-Ford Algorithm*. (CO5, L2)

SECTION-B

Answer ALL questions. All Questions Carry Equal Marks. (5×10 = 50 Marks)

6. (a) Explain Binary Search and Linear Search Algorithms with example. (CO1, L2)

(or)

(b) Explain *Multidimensional Arrays in Java with example*. (CO1, L2)

7. (a) Explain *Towers of Hanoi Problem* implementation *with example*. (CO2, L5)

(or)

(b) Explain Operations of *Queue* using *Linked List with example*. (CO2, L5)

8. (a) Discuss *AVL Search Trees operations* in detail. (CO3, L6)

(or)

(b) Discuss about the insertion and deletion operations of Binary Search Trees with example. (CO3,L6)

9. (a) List *B-Tree operations* with examples. (CO4, L4)

(or)

(b) List insertion and deletion operations of B+-Tree with examples. (CO4, L4)

10. (a) Utilize Merge Sort Algorithm to sort the elements 10, 45, 15, 56, 48, 23, 8, 17. Explain step by step procedure. (CO5, L3)

(or)

(b) Make use of elements 23, 34, 12, 45, 14, 73, 21, 7 perform sort using Radix Sort. (CO5, L3)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.

(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme – II Semester

Course	Web Technologies		
Course Code	22CS2T3	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours /	4	Semester End Exam	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:**2020-**	Year of Offering:2021-	Year of Revision:2021-	Percentage of Revision:

Course Description and Purpose:
Web Technologies (22CA2T3) is a course that illustrates about *WWW*, *HTML*, Write code in *JavaScript & DHTML*, *Designing of XML Files*, Install and use *Servlets* and *PHP*, *Programming in JSP*, *Establish Database Connectivity & Form Validations using C#*, *Basic knowledge of Node JS, Express & Spring Boot*, *Creating AJAX form validations*.

Course Objectives: The course will help the students to understand, learn and build *WWW, HTML, Write code in JavaScript & DHTML, Designing of XML Files, Install and use Servlets and PhP, Programming in JSP, Establish Database Connectivity & Form Validations using C#, Basic knowledge of Node JS, Express & Spring Boot, Creating AJAX form validations*.

Course Objectives:

- To understand the concepts of WWW including *Browser and HTTP Protocol* and various *HTML Tags* and use them to develop the user friendly web pages.
- To use the *JavaScript* and define the CSS with its types to develop the *Dynamic Web Pages*.
- Students will be able to and develop the *Modern Web Pages* using the *XML Elements* and Servlets with different layouts as per need of applications.
- Able to develop *Server Side Scripting* with PHP and JSP to generate the Web Pages dynamically using the Database Connectivity & C# Database Connectivity with Form Validations.
- Able to develop *Interactive Forms* for Web Applications using *Node JS*, *Express*, *Spring Boot* & *AJAX*.

Course Outcomes:
On successful completion of this course, the students:
CO1: Able to understand the concepts of WWW including *Browser* and *HTTP Protocol* and various *HTML Tags* and use them to develop the user friendly web pages.
CO2: Able to use the *JavaScript* and define the CSS with its types to develop the *Dynamic Web Pages*.
CO3: Students will be able to develop the *Modern Web Pages* using the *XML Elements* and Servlets with different layouts as per need of applications.
CO4: Able to develop *Server Side Scripting* with PHP and JSP to generate the Web Pages dynamically using the Database Connectivity C# Database Connectivity with Form Validations.
CO5: Able to develop *Interactive Forms* for Web Applications using *Node JS*, *Express*, *Spring Boo*t & *AJAX*.

Unit	Learning Units	LectureHours
I	**Introduction:** What is Internet, History of Internet, Internet Services and Accessibility, Uses of the Internet, Protocols, **Web Concepts:** The Client/Server Model, Retrieving Data from the Web, How the Web Works?, Web Browsers, Searching information on the Web, Internet Standards. **HTML:** Outline of an HTML Document, **Head Section Body Section:** Headers, Paragraphs, Text Formatting, Linking, Internal Linking, Embedded Images, Lists, Tables, Frames, Other Special Tags and Characters, HTML Forms.	**12 Hours**
II	**Java Script:** Introduction to Scripting, Control Statements I, Control Statements II, Functions, Arrays, Objects, Document Object Model, Events. **Dynamic HTML (DHTML):** Introduction, Cascading Style Sheets (CSS), Coding CSS, Properties of Tags, Property Values, Other Style Properties, In Line Style Sheets, Embedded Style Sheets, External Style Sheets, Grouping - Inheritance, Class as Selector, ID as Selector, Contextual Selector, Pseudo Classes and Pseudo Elements, Positioning - Backgrounds, Element Dimensions, DHTML Document Object Model and Collections, Using the Collections All, Moving Object around the Document, Event Handling, Assigning Event Handlers, Event Bubbling, Filters and Transition Filters, Transitions, Data Binding, Using Tabular Data Control, Sorting Data, Dynamic Sorting, Filtering.	**12 Hours**
III	**XML:** Introduction, HTML vs. XML, Syntax of XML Document, XML Attributes, Use of elements vs. Use of Attributes, XML Validation, Well Formed XML Documents, Valid XML Documents, XML DTD: Internal DTD, External DTD, The Buildings blocks of XML Documents, **DTD Elements** : Declaring an Element, Empty Elements, Elements with Data, Elements with Children, Wrapping, Declaring only one Occurrence of the Same Elements, Declaring Minimum one Occurrence of the Same Element, Defining Zero or One Occurrence of the Same Element, Declaring Mixed Content, **DTD Attributes**: Declaring Attributes, Default Attribute Value, Implied attribute, required attribute, fixed attribute value, enumerated attribute values, DTD Entries, DTD Validation, XSL, XSL Transformation, XML NameSpaces, XML Schema. Servlets: Introduction, Advantages of Servlets over CGI, Installing Servlets, The Servlet Life Cycle, Servlets API, A Simple Servlet, Handling HTTP Get Requests, Handling HTTP Post Requests, Cookies, Session Tracking, Multi Tier Applications using Database Connectivity, Servlets Chaining.	**12 Hours**
IV	**PHP:** Introduction, PHP Basics, String Processing and Regular Expressions, Form Processing and Business Logic, Connecting to a Database, Using Cookies, Dynamic Content, Operator Precedence Chart. **Java Server Pages (JSP):** Introduction, Advantages of JSP, Developing first JSP, Components of JSP, Reading Request Information, Retrieving the Data Posted from a HTML File to a JSP File, JSP Sessions, Cookies, Disabling Sessions. **Database Connectivity & Form Validations using C#:** Database Connectivity using C#.Net, Form Validations (Name Validation, Integer Validation, Floating Point Validation, Email Validation, Combo Box Validation). **Spring Boot:** Introduction to Spring Boot, Spring Initializer, Maven, Gradel, Class Path Dependencies Creating Executable Jar File.	**12 Hours**
V	**Getting Started with Node:** Getting Node, Using the Terminal, Editors, npm, A Simple Webserver with Node (Hello World, Event Driven Programming, Routing, Serving Static Resource). **Saving Time with Express:** Scaffolding, Initial Steps (Views and Layouts, Static Files and Views, Dynamic Content in Views). **Form Handling:** Sending Client Data to Server, HTML Forms. Encoding, Approaches in Form Handling, Form Handling with Express, Handling AJAX Forms-File Uploads, jQuery File Upload.	**12 Hours**

Reference Books:

1. N.P.Gopalan, J.Akilandeswari, Web Technologies - A Developer's Perspective, PHI(2008)
2. Harvey M.Deitel and Paul L. Deitel, Internet and World Wide WebHow To Program, Prentice Hall, 5th Edition.
3. Ethan Brown, Web Development with Node & Express, O'Reilly, First Edition, 2014.

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.

(An Autonomous College in the jurisdiction of Krishna University)M.Sc.(Computer Science), Second Semester

Course Name: Web Technologies

Course Code: 22CA2T3

(w.e.f admitted batch 2022-23)

Time: 3 Hours **Max Marks: 70**

SECTION-A

Answer ALL questions. All Questions Carry Equal Marks. (5×4 = 20 Marks)

1.(a) What are *protocols* used in accessing the internet? (CO1, L1)

(or)

(b) What are the differences between *Inline* & *Block Elements*? (CO2, L1)

2. (a) What is *DOM*? Explain it. (CO2, L1)

(or)

(b) What is advantage of using *External Style Sheets*? (CO2,L1)

3. (a) What is *XML Document Validation*? Explain in detail. (CO3,L1)

(or)

(b) What is *Servlet*? Explain in detail. (CO3,L1)

4. (a) List C# function to validate *Name of the User*. (CO4,L1)

(or)

(b) List the components of *JSP*. (CO4,L2)

5. (a) State various *services of Web Browser*. (CO5,L5)

(or)

(b) What are the features of *JQuery*? Explain it (CO5,L5)

SECTION-B

Answer ALL questions. All Questions Carry Equal Marks. (5×10 = 50 Marks)

6. (a) Explain services of *Internet* and *Web Browser*. (CO1, L2)

(or)

(b) Explain *Client-Server Architecture and Frame and its attributes with example program*. (CO1,L2)

7. (a) List *JavaScript variables and characteristics of Array objects*. (CO2, L4)

(or)

(b) Examine building an *External Style Sheet*. Explain advantages and disadvantages of *External Style Sheets* with an example. (CO2, L4)

8. (a) Develop *TDC*, *DTD* with building blocks of *DTD* . (CO3,L3)

(or)

(b) Develop *Life Cycle of Servlets*. Write the session tracker that tracks the number of access and last access of data of a particular web page. (CO3,L3)

9. (a) Discuss (i) *String Processing* (ii) *Regular Expressions* (iii*) Cookies*. (CO4, L6)

(or)

(b) Discuss *Components of JSP* and *write a JSP Program to accept username and password From a user and validate them*. (CO4, L6)

10. (a) Explain *Class Path Dependencies*. (CO5,L5)

(or)

(b) Explain how to upload Files using *jQuery* with example program. (CO5, L5)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.

(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (ComputerScience)Programme - II Semester

Course	Software Engineering		
Course Code	22CS2E1	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:**2020-**	Year of Offering:2021-	Year of Revision:2021-22	Percentage of Revision:

Course Description and Purpose:
Software Engineering (22CS2E1) is a course that illustrates Process Models, Agile Development, Core Principles, Requirements Modeling, Data Modeling, Software Quality Assurance, Software Testing Strategies, Testing Conventional Applications, Project Management Concepts, Process and Project Metrics, Formal Modeling and Verification and Estimation for Software Project.

Course Objectives: *The course will help the students to understand, learn and build Process Models, Agile Models, Core Principles, Requirement Models, Data Models, Software Quality Assurance Procedures, Software Testing Strategies, Strategies to Test Conventional Applications, Project Management Concepts, Process and Project Metrics, Formal Modeling and Verification and Models to estimate Software Projects.*

Specific objectives include:

- *To understand various Software Engineering Methods, Practices, Process Models and Agile Development Strategies*.
- To understand and apply *Core Principles, Requirements & Modeling* Concepts.
- To understand and apply different *Software Testing Approaches* and various aspects of *Software Quality Assurance*.
- To understand and apply *Process & Project Management* Concepts.
- To understand and apply *Software Estimates for Projects* & apply *Formal Methods Modeling*.

Course Learning Outcomes:
Upon successful completion of the course, the student will be able to:
CO1: Understand various *Software Engineering Methods, Practices, Process Models* and *Agile Development Strategies.*
CO2: Understand and apply *Core Principles, Requirements & Modeling* Concepts.
CO3: Understand and apply different *Software Testing Approaches* and various aspects of *Software Quality Assurance*.
CO4: Understand and apply *Process & Project Management* Concepts.
CO5: Understand and apply *Software Estimates for Projects* & apply *Formal Methods Modeling*.

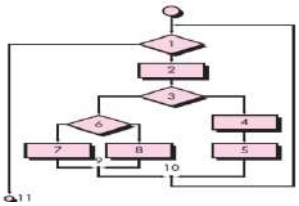
SYLLABUS

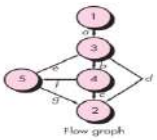
Unit	Learning Units	Lecture Hours
I	**Software and Software Engineering:** The Nature of Software: Defining Software, Software Application Domains, Legacy Software, The Unique Nature of Web Apps, Software Engineering, The Software Process, Software Engineering Practices: The Essence of Practice, General Principles, Software Myths. **Process Models:** A Generic Process Model: Defining a Framework Activity, Identifying a Task Set, Process Patterns, Process Assessment and Improvement, Prescriptive Process Models: The Waterfall Model, Incremental Process Models, Evolutionary Process Models, Concurrent Models, A Final Word on Evolutionary Processes, Specialized Process Models: Component-Based Development, The Formal Methods Model, Aspect-Oriented Software Development, The Unified Process: A Brief History, Phases of the Unified Process, Personal and Team Process Models: Personal Software Process (PSP), Team Software Process (TSP). **Agile Development**: What Is Agility, Agility and the Cost of Change, What Is an Agile Process: Agility Principles, The Politics of Agile Development, Human Factors, Extreme Programming (XP): XP Values, The XP Process, Industrial XP, The XP Debate, Other Agile Process Models: Adaptive Software Development (ASD), Scrum, Dynamic Systems Development Method (DSDM), Crystal, Feature Driven Development (FDD), Lean Software Development (LSD), Agile Modeling (AM), AgileUnified Process (AUP).	**12 Hours**
II	**Principles that Guide Practice: Core Principles:** Principles That Guide Process, Principles That Guide Practice**,** Principles That Guide Each Framework Activity: Communication Principles, Planning Principles, Modeling Principles, Construction Principles, Deployment Principles. **Requirements Modeling: Scenarios, Information, and Analysis Classes:** Requirements Analysis: Overall Objectives and Philosophy, Analysis Rules of Thumb, Domain Analysis, Requirements Modeling Approaches, Scenario-Based Modeling: Creating a Preliminary Use Case, Refining a Preliminary Use Case, Writing a Formal Use Case, UML Models That Supplement the Use Case: Developing an Activity Diagram, Swim lane Diagrams. **Data Modeling Concepts:** Data Objects, Data Attributes, Relationships, Class-Based Modeling: Identifying Analysis Classes, Specifying Attributes, Defining Operations, Class-Responsibility- Collaborator (CRC) Modeling, Associations and Dependencies, Analysis Packages.	**12 Hours**
III	**Software Quality Assurance:** Background Issues, Elements of Software Quality Assurance, SQA Tasks, Goals, and Metrics: SQA Tasks, Goals, Attributes, and Metrics, Formal Approaches to SQA, Statistical Software Quality Assurance: A Generic Example, Six Sigma for Software Engineering, Software Reliability : Measures of Reliability and Availability, Software Safety, The ISO 9000 Quality Standards, The SQA Plan. **Software Testing Strategies:** A Strategic Approach to Software Testing : Verification and Validation, Organizing for Software Testing, Software Testing Strategy-The Big Picture, Criteria for Completion of Testing, Strategic Issues, Test Strategies for Conventional Software: Unit Testing, Integration Testing, Test Strategies for Object-Oriented Software: Unit Testing in the OO Context, Integration Testing in the OO Context, Test Strategies for Web Apps, Validation Testing: Validation-Test Criteria, Configuration Review, Alpha and Beta Testing, System Testing: Recovery Testing, Security Testing, Stress Testing, Performance Testing, Deployment Testing, The Art of Debugging: The Debugging Process, Psychological Considerations, Debugging Strategies, Correcting the Error **Testing Conventional Applications:** Software Testing Fundamentals, Internal and External Views of Testing, White-Box Testing, Basis Path Testing: Flow Graph Notation, Independent Program Paths, Deriving Test Cases, Graph Matrices, Control Structure Testing: Condition Testing, Data Flow Testing, Loop Testing, Black-Box Testing: Graph-Based Testing Methods, Equivalence Partitioning, Boundary Value Analysis, Orthogonal Array Testing.	**12 Hours**

IV	**Project Management Concepts:** The Management Spectrum: The People, The Product, The Process, The Project, People: The Stakeholders, Team Leaders, The Software Team, Agile Teams, Coordination and Communication Issues, The Product: Software Scope, Problem Decomposition, The Process: Melding the Product and the Process, Process Decomposition, The Project, The W5HH Principles. **Process and Project Metrics:** Metrics in the Process and Project Domains: Process Metrics and Software Process Improvement, Project Metrics, Software Measurement: Size-Oriented Metrics, Function-Oriented Metrics, Reconciling LOC and FP Metrics, Object-Oriented Metrics, Use-Case– Oriented Metrics, Web App Project Metrics, Metrics for Software Quality: Measuring Quality, Defect Removal Efficiency.	**12 Hours**
V	**Formal Modeling And Verification:** The Cleanroom Strategy, Functional Specification: Black-Box Specification, State-Box Specification, Clear-Box Specification, Cleanroom Design: Design Refinement, Design Verification, Cleanroom Testing: Statistical Use Testing, Certification, Formal Methods Concepts, Applying Mathematical Notation for Formal Specification, Formal Specification Languages: Object Constraint Language (OCL), The Z Specification Language. **Estimation for Software Projects:** Resources: Human Resources, Reusable Software Resources, Environmental Resources, Software Project Estimation, Decomposition Techniques: Software Sizing, Problem-Based Estimation, An Example of LOC-Based Estimation, An Example of FP-Based Estimation, Empirical Estimation Models: The Structure of Estimation Models, The COCOMO II Model, The Software Equation, Estimation for Object-Oriented Projects.	**12 Hours**

Case Studies:

- Draw example for Process Pattern when requirements are uncertain.
- Draw UML use case diagram for Safehome Security Function.
- Draw UML Activity Diagram for Access camera surveillance via the Internet - display camera views function.
- Draw UML Swimlane Diagram for Access camera surveillance via the Internet - display camera views function.
- Draw UML Class Diagram for Floor Plan.
- Draw UML Package for specifying Environment, Characters of the Game and Rules of the Game.
- Draw Level 1 DFD for Safehome Security Function
- Draw State diagram for Safehome Security Function
- Draw Sequence Diagram (partial) for the Safehome Security Function
- A UML Deployment Diagram for Safehome Security Function.
- Draw Flow Graph for Flow Chart and find the Cyclomatic Complexity.





- Draw the Graph Matrix for the Flow Graph
- Draw Generalization diagram by specifying Structural Constraint.
- Specify sample (a) Project Metrics (b) Product Metrics
- Specify (i) Decision Table (ii) Decision Tree in Block Box Testing
- Draw the Block Diagram for Block Handler and also specify the logic using Object Constraint Language (OCL)

1. No block will be marked as both unused and used.
2. All the sets of blocks held in the queue will be subsets of the collection of currently used blocks
3. No elements of the queue will contain the same block numbers.
4. The collection of used blocks and blocks that are unused will be the total collection of blocks that make up files.
5. The collection of unused blocks will have no duplicate block numbers.
6. The collection of used blocks will have no duplicate block numbers.
7. Using Z Specification Language describes the state of the block handler and the data invariant:

Reference Text Books:

1. Roger S Pressman, Software Engineering - A Practitioner's Approach, Ninth Edition, McGraw - Hill, A Business Unit of The McGraw-Hill Companies, Inc., 2020.
2. Roger S Pressman, Software Engineering - A Practitioner's Approach, Seventh Edition, McGraw - Hill, A Business Unit of The McGraw-Hill Companies, Inc., 2010.
3. Sommerville, Software Engineering, 7th Edition, Pearson Education, 2004.
4. S.A.Kelkar, Software Engineering - AConcise Study, PHI, January 2007.
5. Waman, Software Engineering, TMH, June 2004.
6. AH Behforooz and Frederick J.Hudson, Software Engineering Fundamentals, Oxford, 2008.

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.

(An Autonomous College in the jurisdiction of Krishna University)M.Sc.(Computer Science), Second Semester

Course Name: Software Engineering

Course Code: 22CS2E1

(w.e.f admitted batch 2022-23)

Time: 3 Hours **Max Marks: 70**

SECTION-A

Answer ALL questions. All Questions Carry Equal Marks. (5×4 = 20 Marks)

1. (a) What are various aspects of is *PSP* and *TSP*? (CO1, L1)

(or)

(b) What is *SCRUM*? Explain it in detail. (CO2, L1)

2. (a) What are the phases of *Extreme Programming (XP)*? (CO2, L1)

(or)

(b) What is *Class-Based Modeling*? Explain it by writing Class Diagram (CO2,L1)

3. (a) What is *Software Reliability*? Explain in detail. (CO3,L1)

(or)

(b) What is *Alpha* and *Beta* Testing? Explain in detail. (CO3,L1)

4. (a) List W5HH Principles. (CO4,L1)

(or)

(b) What is *Use Case Diagram*? Demonstrate with example. (CO4,L2)

5. (a) State various *resources* of Information System. (CO5,L5)

(or)

(b) What is *Software Sizing*? Explain it (CO5,L5)

SECTION-B

Answer ALL questions. All Questions Carry Equal Marks. (5×10 = 50 Marks)

6. (a) Explain various types of *Software Myths*. (CO1, L2)

(or)

(b) Explain *Incremental Process Models*. (CO1,L2)

7. (a) List *(i) Planning Principles (ii) Modeling Principles*. (CO2, L4)

(or)

(b) Examine various aspects of *Scenario-Based Modeling*. (CO2, L4)

8. (a) Develop various test strategies to test *Conventional Software*. (CO3,L3)

(or)

(b) Develop various strategies for *White Box Testing*. (CO3,L3)

9. (a) Discuss the *Management Spectrum* in detail. (CO4, L6)

(or)

(b) Discuss *(i) Size-Oriented Metrics (ii) Function-Oriented Metrics* in detail. (CO4, L6)

10. (a) Explain *Functional Specification* of *Cleanroom Strategy*. (CO5,L5)

(or)

(b) Explain *(i) The COCOMO II Model (ii) The Software Equation* of EmpiricalEstimation Models. (CO5, L5)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.

(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme - II Semester

Course	Data Structures Lab		
Course Code	22CS2L1	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction: **2023**	Year of Offering:22-23	Year of Revision:2021-22	Percentage of Revision: 0%

Course Description and Purpose:

Data Structures Lab (22CS2L1) is a course that illustrates concepts of *Stacks*, *Queues*, and *Tree Traversals*, *Singly Linked Lists*, *Doubly Linked Lists*, *Circular Linked Lists*, *Binary Search Tree*, *Binary Search Tree Traversals*, *Sparse Matrix and DFS & BFS Algorithm*, *Searching & Sorting Algorithms*, *AVL-Trees and B-Trees* and its operations and implementations.

Course Objectives:

This course will help enable the students to understand learn, apply/ implement the concepts of *Stacks*, *Queues*, and *Tree Traversals*, *Singly Linked Lists*, *Doubly Linked Lists*, *Circular Linked Lists*, *Binary Search Tree*, *Binary Search Tree Traversals*, *Sparse Matrix* and *DFS & BFS Algorithm*, *Searching & Sorting Algorithms*, *AVL-Trees* and *B-Trees*.

Specific Objectives include:

- To understand the concepts of Stacks, Queues, and Tree Traversals.
- To apply the operations of Singly Linked Lists, Doubly Linked Lists, Circular Linked Lists and Operations on Stacks and Queues.
- To apply operations on Binary Search Tree, Binary Search Tree Traversals, Sparse Matrix and DFS & BFS Algorithm.
- To implement Searching & Sorting Algorithms.
- To implement AVL-Trees and B-Trees.

Course Learning Outcomes:

Upon successful completion of the course, the student will be able to:

CO1: Understand the concepts of *Stacks*, *Queues*, and *Tree Traversals*.

CO2: Apply the operations of *Singly Linked Lists*, *Doubly Linked Lists*, *Circular Linked Lists* and *Operations on Stacks and Queues*.

CO3: Apply operations on *Binary Search Tree*, *Binary Search Tree Traversals*, *Sparse Matrix and DFS & BFS Algorithm*.

CO4: Implement *Searching & Sorting Algorithms*.

CO5: Implement *AVL-Trees* and *B-Trees*.

CYCLE 1

1. Write a Java Program to create a class called Stack and implement Stack Operations. (CO1,L1)
2. Write a Java Program to create a class called Queue and implement Stack Operations. (CO1,L1)
3. Write a Java Program to convert the Infix to Postfix Expression. (CO1,L1)
4. Write a Java Program to evaluate Postfix Expression. (CO1,L1)
5. Write a Java Program to obtain the Binary Number for a given Decimal Number. (CO1,L1)

CYCLE 2

1. Write a Java Class to implement the operations of a Singly Linked List. (CO2,L1)
2. Write a Java Class to implement the operations of a Doubly Linked List. (CO2,L1)
3. Write a Java Class to implement the operations of a Circular Linked List. (CO2,L1)
4. Write a java program for the following a) Reverse a Linked List b) Sort the data in a Linked List c) Remove Duplicates d) Merge Two Linked Lists (CO2,L1)

5. Write a java program for performing various operations on Stack using Linked List. (CO2,L1)
6. Write a java program for performing various operations on Queue using Linked List. (CO2,L1)

CYCLE 3

1. Write a Java Program to implement operations on Binary Trees Using Recursive and Non- Recursive Methods. (CO3,L1)
2. Write a Java Program to perform Binary Search Tree Traversal. (CO3,L1)
3. Write a Java Program to implement Sparse Matrix. (CO3,L1)
4. Write a Java Program to implement DFS Algorithm. (CO3,L1)
5. Write a Java Program to implement BFS Algorithm. (CO3,L1)

CYCLE 4

1. Write a Java Program to implement the following sorting techniques:
   a. Bubble Sort b. Merge Sort. c. Quick Sort. d. Heap Sort. (CO4,L1)
2. Write a Java Program to implement Quick Sort of given elements. (CO4,L1)
3. Write a Java Program to implement the Following search techniques:
   a. Linear Search b. Binary Search (CO4,L1)

CYCLE 5

1. Write a Java Program to implement various operations on AVL Trees. (CO5,L1)
2. Write a Java Program to perform the following operations: a) Insertion into a B-Tree b) Searching in a B-Tree (CO5,L1)
3. Write a Java Program to implementation of recursive and non-recursive functions to Binary Tree Traversals (CO5,L1)
4. Write a Java Program to implement all the functions of Dictionary (ADT) using Hashing. (CO5,L1)

Note: The list of experiments is not limited to the above list. If the existing laboratory experiments completed in advance, the additional laboratory programs can added , and to be executed in the laboratory.

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.

(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science)Programme - IISemester

Course	Web Technologies Lab		
Course Code	22CS2L2	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction: **2023**	Year of Offering:22-23	Year of Revision:2021-22	Percentage of Revision: 0%

Course Description and Purpose:

Web Technologies Lab (22CS2L2) is a course that illustrates concepts of *HTML, Java Script, DHTML, XML, PHP, JSP, Angular JS, Svelet and Git.*

Course Objectives:

This course will help enable the students to understand, learn, design *Static and Dynamic WebPages, Create XML Style Sheets, write PHP programs for data retrieval, write JSP Applications* for *Client-Server Communication, can create Directives, Events, Data Binding* and *Database Connectivity* using *Angular JS* and *Bindings & Events using Svelte* and *Version Controlling using Git*.

Specific Objectives include:

- To build functional web applications using *HTML*.
- To create *Dynamic Web Pages* using *Java Script* and *DHTML*.
- To create *Style Sheets with XML* and write *PHP Programs for Data Retrieval*.
- To create *JSP Applications* for *Client-Server Communication*.
- To create *Directives, Events, Data Binding* and *Database Connectivity* using *Angular JS* and *Bindings & Events using Svelte* and *Version Controlling using Git*.

Course Outcomes:

Upon successful completion of the course, the student will be able to:
CO1: Build functional web applications using *HTML*.
CO2: Create *Dynamic Web Pages* using *Java Script* and *DHTML*.
CO3: Create *Style Sheets with XML* and write *PHP Programs for Data Retrieval*.
CO4: Create *JSP Applications* for *Client-Server Communication*.
CO5: Create *Directives, Events, Data Binding* and *Database Connectivity* using *Angular JS* and *Bindings & Events using Svelte* and *Version Controlling using Git*.

HTML:

1. Write HTML code to provide intra document linking. (CO1, L1)
2. Write HTML code to provide inter document linking. (CO1, L2)
3. Write a program to implement the three types of lists. (CO1, L1)
4. Create a HTML page using frames. (CO1, L6)
5. Write a program to embed college picture into your web page and write a short note on your college using paragraph tag. (CO1, L1)
6. With a suitable example, depict how we can align text using a table tag as follows. (CO1, L3)
7. Write a program to create the time table as follows: (CO1, L1)
8. Create a Registration form that interacts with the user. Collect *Login Name, Password, Date of Birth, Sex, Address, Qualification* and display a "Thanks for Registering" message when the user submits the form. (CO1, L6)

JAVA SCRIPT:

9. Write a script to compare two strings using String object. (CO2, L1)
10. Write a script to generate random numbers within 1 to 10 and display the numbers in a table. (CO2, L1)

11. Write a Java Script to update the information into the array, in the "onClick" event of the button "Update". (CO2, L1)
12. Create a web page for a shopping mall that allows the user to tick off his purchases and obtain the bill with the total being added up simultaneously. (CO2, L3)
13. Write a script to find the duplicate elements of an array. (CO2, L1)
14. Write a script which generates a different greeting each time the script is executed. (CO2, L1)
15. Write a javascript to check the number is Armstrong number or not by getting the number from textbox and the result is displayed in a alert dialog box. (CO2, L1)
16. Using functions write a java script code that accepts user name and password from user,Check their correctness and display appropriate alert messages. (CO2, L1)

DHTML:

17. Create an inline style sheet.Illustrate the use of an embedded style sheet. (CO2, L6)
18. Create an external style sheet to illustrate the "Font" elements. (CO2, L6)
19. Write a program to switch on and off light using onClick event. (CO2, L1)
20. Illustrate different types of filters (atleast six) on a sample text. (CO2, L2)
21. Write a program to illustrate tabular data control for data binding. (CO2, L1)

XML:

22. Create a small XML file designed to contain information about student performance on a module. Each student has a name , a roll number, a subject mark and an exam mark. (CO3, L6)
23. Create a internal DTD file. (CO3, L6)
24. Create an external DTD file. (CO3, L6)
25. Create a XSLT stylesheet to display the student data as an HTML table. (CO3, L6)

PHP:

26. Calculate the factorial of a given number using PHP declarations and expressions. (CO3,
27. Write a PHP program that interacts with the user. Collect first name lastname and date of birth and displays that information back to the user. (CO3, L1)

JSP:

28. Write a program to implement JSP directives.(CO4, L1)
29. Write a JSP program for session tracking.(CO4, L1)

ANGULAR JS:

30. Create Registration and Login Forms with Validations using JScript Query. (CO5, L6)
31. Implement the following in Angular JS (CO5, L5)
    (a) Angular JS Data Binding
    (b) Angular JS Directives and Events
    (c) Using Angular JS to fetch Data from MySql

SVELTE: Illustrate the following (CO5, L2)

32. Reactivity using SVELTE.
33. Bindings using SVELTE.
34. Transitions using SVELTE.

Git: Illustrate the following (CO5, L2)
Version Control Using Git.

Note: The list of experiments is not limited to the above list. If the existing laboratory experiments completed in advance, the additional laboratory programs can added , and to be executed in the laboratory.

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme - IV Semester

Course	BIG DATA ANALYTICS		
Course Code	20CS4T1	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Course Outcomes:
On successful completion of this course, the students:

- Understand basics of Big Data. (CO1)
- Gain knowledge on *Big Data Analytics*. (CO2)
- Be familiar with *HDFS , and hadoop environment*. (CO3)
- Have knowledge on Mongo DB. (CO4)
- Gain knowledge on PIG and Jaspersoft. (CO5)

Unit	Learning Units	Lecture Hours
I	**Types of Digital data:** Classification of Digital Data. Introduction to Big Data: Characteristics of data, Evolution of Big Data, Definition of big data, Challenges with Big data, What is Big Data?, Why Big Data?, Traditional Business Intelligence versus Big Data, A typical Data Warehouse Environment, A typical Hadoop Environment.	12
II	**Big data analytics:** What is Big Data Analytics?, Top challenges facing Big Data Analytics, Why Big Data Analytics is important?, Data Science, Terminologies used in Big Data Environments.	10
III	**The Big Data Technology Landscape:** NoSQL, Hadoop, Why Hadoop?, Why not RDBMS?, RDBMS versus Hadoop, Hadoop Overview, HDFS, Processing Data with Hadoop, Interacting with Hadoop Ecosystem.	14
IV	**Introduction to MongoDB:** What is MongoDB?, Why MongoDB?, Terms used in RDBMS and MongoDB, Data types in MongoDB, MongoDB query language. **Introduction to Mapreduce programming:** Introduction, Mapper, Reducer,Combiner, Partitioner, Searching, Sorting and Compression.	10
V	**Introduction to Pig:** What is Pig?, Pig on Hadoop, Pig Latin Overview, Data Types in Pig, Running Pig, Execution Modes of Pig, HDFS commands, Relational Operators, Eval function, Complex Data Types, User-Defined Fucntions, Parameter Substitution, Word Count Example using Pig. **JasperReport using Jaspersoft:** Introduction to Jasper Reports, Connecting to MongoDB NoSql Database.	14

Prescribed Text Book:

1. Seema Acharya and Subhashini Chellappan, Big Data and Analytics, Wiley India Pvt. Ltd., 2016

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme – IV Semester

Course Code: 20MCS402 Title: BIG DATA ANALYTICS

Time: 3Hours Max.Marks:70

SECTION-A

1. **Answer ALL questions** **(10x2 = 20 Marks)**
   a) Define cloud computing.
   b) What is Grid computing?
   c) Define Virtualization.
   d) Explain Database as a service.
   e) Explain cloud application requirements.
   f) Define Service oriented Architecture.
   g) Explain ESB.
   h) Explain Malware and Internet attacks.
   i) What is a Synchronous cloud application?
   j) Explain the benefits of Mobile cloud computing.

SECTION-B

Answer Five Questions Choosing One Question from Each Unit.
All Questions Carry Equal Marks. **(5×10=50Marks)**

2.A) Explain different Types of digital data: Unstructured, Semi-structured and Structured..

(Or)

B) Explain Need and Challenges in Big Data Environment?

3.A) What is Business Intelligence? List different business Intelligence applications with a suitable example?

(or)

B) Explain Classification of Analytics with suitable example..

4.A) Describe characteristics of a NoSQL database.?

(or)

B) Explain the types of NoSQL Data Stores in detail.

5. a) Explain Hadoop architecture and its components with proper Diagram?

(or)

b) Explain the essentials of Hadoop Ecosystem.?

6. a) Explain working of the following phases of Map Reduce with one common example (i) Map Phase (ii) Combiner phase (iii) Shuffle and Sort Phase (iv) Reducer Phase?

(or)

b) Explain HDFS commands.

A.G & S.G Siddhartha Degree College of Arts and Science,Vuyyuru-521165
(An Autonomous College in the jurisdiction of Krishna University
M.Sc.(Computer Science) Programme - IV Semester

Course	BIG DATA ANALYTICS LAB		
Course Code	20CS4L1	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-21	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision: 0%

Lab List

1. Hadoop standalone installation in Linux.

2. Hadoop installation on windows environment- VM virtual box.

3. Exploring Hadoop Distributed File System (HDFS).

4. Map Reduce Program - Word Count (Python).

5. Write a Map Reduce Program that mines weather data. (Python).

6. Installation of Apache Pig.

7. Pig-Basic Operations: LOAD, FOREACH, GENERATE, GROUP, JOIN, DUMP / STORE.

8. Run Hive then use Hive to create, alter, and drop databases, tables, views, functions, and indexes.

9. Installation of MongoDB.

10. CRUD (Create, Read, Update and Delete) operations in MongoDB.

11. Implementation of Aggregate and Map Reduce function in MongoDB.

12. Creating New Workbooks, Opening Existing Workbooks in Tableau.

13. Prepare Bar Chart, Line / Area Chart, Pie Charts in Tableau.

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme - IV Semester

Course	ARTIFICIAL INTELLIGENCE WITH MACHINE LEARNING		
Course Code	20CS4T3	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours /	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-	Year of Offering:2021-	Year of Revision:2021-22	Percentage of Revision:

Course Outcomes:

On successful completion of this course, the students:

1. Understand the Basic Concepts of Operating System, Operating System Structure and Process Concept.(CO1)
2. ApplyingconceptsofThreads,ProcessSynchronization&CUPScheduling.(CO2)
3. Understand Deadlock, Main Memory & Virtual Memory.(CO3)
4. Explain Mass Storage Structure, File System Interface & File System Implementation.(CO4)
5. Understanding on I/O Systems, Protection & Security.(CO5)

Unit	Learning Units	Lecture Hours
I	**Introduction**- Association, Supervised Learning – Classification – Regression, Unsupervised Learning, Reinforcement Learning.	12
II	**Decision Tree** - Divide and Conquer - Classification Trees (ID3, CART, C4.5) - Best Split - Regression Trees - Pruning Trees - Rule Extraction from Trees - Learning Rules - Multivariate Trees, Naive Bayes Classifier. **Neural networks** - Perceptron - Training a Perceptron: Regression - Learning Boolean AND – XOR - Multilayer Perceptrons – Backpropagation - Multiple Hidden Layers - and support vector machines.	10
III	**Clustering** - Semiparametric Density Estimation- Mixture Densities - Classes vs. Clusters - *k*-Means Clustering - Expectation-Maximization (EM) - Hierarchical Clustering - Agglomerative Clustering. **Dimensionality Reduction** - Feature Selection vs Extraction - Subset Selection - Principal Components Analysis (PCA) - Factor Analysis - Multidimensional Scaling - Linear Discriminant Analysis - Fisher's Linear Discriminant - Isomap, kernel methods.	14
IV	**Parametric learning** - Maximum Likelihood Estimation - Gaussian (Normal) Distribution - Bias and Variance - Bayes' Estimator - Parametric Classification - Regression - Linear Regression - Polynomial Regression - Bayesian Model Selection, **Nonparametric learning** - Density Estimation - Kernel Estimator - k-Nearest Neighbour Estimator.	10

V	**Reinforcement learning** – Introduction - Single State: K-armed Bandit - Model-Based Learning - Value Iteration - Policy Iteration - Temporal Difference Learning - Exploration Strategies - Deterministic Rewards and Actions - Nondeterministic Rewards and Actions - Q-learning - Sarsa - Eligibility Traces - The Tiger Problem **Combining Multiple Learners –** Rationale – Voting - Fixed Combination Rules Error-Correcting Output Codes – Bagging – AdaBoost - Mixture of Experts Stacking - Fine-Tuning an Ensemble – Cascading - Combining Multiple Sources.	14

Prescribed Text Book

	Author	Title	Publisher
1	Ethem Alpaydın	Introduction to Machine Learning, Second Edition	The MIT Press Cambridge, Massachusetts London, England.

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme – IV Semester

Course Code: 20CS4T3 Title: ARTIFICIAL INTELLIGENCE WITH MACHINE LEARNING

Time: 3Hours Max.Marks:70

SECTION-A

2. Answer ALL questions (10x2 = 20 Marks)

a) Define Artificial Intelligence (AI).
b) Define Rational Agent
c) Define Architecture.
d) Define Information Gathering..
e) What is order Logic?
f) Define Forwed Chaining.
g) What is autonomy?
h) Define Classical Planning
i) What is supervised Learning?
j) Define Mental Objects.

SECTION-B

Answer Five Questions Choosing One Question from Each Unit.
All Questions Carry Equal Marks. (5×10=50Marks)

2a)What is AI? Discuss the Heuristic Search Techniques for solving problems.(BTL1)
(or)
b) Discuss Problem Solving Agents with Examples. (BTL6)

3a)Explain the Syntax and Semantics of First Order Logic.(BTL2)
(or)
b)Demonstrate the concept of resolution with an example.(BTL2)

4a)Explain how to design algorithms for Planning as State Space Search. (BTL2)
(or)
b)Discuss Onto logical Engineering in Knowledge Representation.(BTL6)

5a)Describe Learning Decision Trees and Evaluating and Choosing Best Hypothesis.(BTL2)
(or)
b) Explain Policy Search and Applications of Reinforcement Learning.(BTL2)

6a)Discuss the Back Propagation Algorithm, Remarks on the Back Propagation Algorithm.(BTL6)
(or)
b)How does K-Nearest Neighbour Learning help in Instance Based Learning and also state the Importance of Radial Basis Functions.(BTL1)

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme – IV Semester

Course	CLOUD COMPUTING		
Course Code	20CS4T4	Course Delivery Method	Class Room / Blended
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction:2020-	Year of Offering:2021-22	Year of Revision:2021-22	Percentage of Revision:

Course Outcomes:

On successful completion of this course, the students:

6. Understand the Basic Concepts of Operating System, Operating System Structure and Process Concept.(CO1)
7. ApplyingconceptsofThreads,ProcessSynchronization&CUPScheduling.(CO2)
8. Understand Deadlock, Main Memory & Virtual Memory.(CO3)
9. Explain Mass Storage Structure, File System Interface & File System Implementation.(CO4)
10. Understanding on I/O Systems, Protection & Security.(CO5)

Unit	Learning Units	Lecture Hours
I	**Era of Cloud Computing :** Getting to know the cloud - Peer-To-Peer, Client-Server, and Grid Computing – Cloud computing versus Client-server Architecture - Cloud computing versus Peer-To-Peer Architecture - Cloud computing versus Grid Computing - How we got to the Cloud - Server Virtualization versus cloud computing - Components of Cloud computing – Cloud Types – Cloud Computing Service delivery Models. **Introducing Virtualization :** Introducing Virtualization and its benefits – Implementation levels of Virtualization – Virtualization at the OS Level – Virtualization Structure – Virtualization Mechanisms – Open Source Virtualization Technology – Binary Translation with Full Virtualization – Virtualization of CPU, Memory and I/o Devices – Hardware support for Virtualization in Intex x86 Processor	12
II	**Cloud Computing Services:** Infrastructure as a Service – Platform as a Service Language and Pass – Software as a Service – Database as a Service. **Open Source Cloud Implementation and Administration:** Open-source Eucalyptus Cloud Architecture – Open-source Openstack Cloud Architecture.	10
III	**Application Architecture for Cloud:** Cloud Application Requirements – Recommendations for Cloud Application Architecture – Fundamental Requirements for Cloud Application Architecture – Relevance and use of Client-server architecture for Cloud Applications – Service oriented Architecture for Cloud Applications. **Cloud Programming:** Programming support for Google Apps Engine – Big Table as Google's NOSQL System – Chubby as Google Distributed Lock Service – Programming support for Amazon EC2 – Elastic Block Store (ESB).	14

IV	**Risks, Consequences and Costs for Cloud Computing :** Introducing Risks in Cloud Computing – Risk Assessment and Management – Risk of Vendor Lock-in Risk of Loss Control – Risk of Not Meeting Regulatory Compliances – Risk of Resource Scarcity – Risk in Multi Tenant Environment – Risk of Failure – Risk of Failure of Supply Chain – Risk of Malware and Internet attacks – Risk of In adequat SLA – Risk of Management of Cloud Resources – Risk of Network Outages – Risks in the Physical Infrastructure – Legal Risk due to Legislation – Risks with Software and Application Licensing – Security and Compliance Requirements in a Public Cloud – Direct and Indirect Cloud Costs – Calculating Total cost of Ownership for Cloud Computing – Cost Allocations in a Cloud . **AAA administration for clouds :** The AAA Model, Single Sign-on for Clouds – Industry Implementations for AAA- Authentication management in the Cloud – Authorization management in the Cloud .	10
V	**Application Development for cloud :** Developing On-Premise Versus Cloud Applications – Modifying Traditional Applications for Deployment in the Cloud Stages during the development process of Cloud Application - Managing a Cloud Application – Using Agile Software Development for Cloud Applications Cloud Applications : What Not to do - Static code analysis for cloud applications – Developing Synchronous and Asynchronous Cloud Applications . **Mobile Cloud Computing :** Definition of Mobile Cloud Computing – Architecture of Mobile Cloud Computing – Benefits of Mobile Cloud Computing Mobile Cloud Computing Challenges.	14

Prescribed Text Book			
	Author	Title	Publisher
1	Thomas Erl, Zaigham Mahmood, Ricardo	Cloud Computing - Concepts Technology and Architecture	Pearson
2	Raj Kumar Buyya, Christen vecctiola,S Tammarai selvi	Mastering Cloud Computing, Foundations and Application Programming	TMH

Reference Text Books			
	Author	Title	Publisher
1	Kailash Jayaswal, Jagannath Kallakurchi, Donald J. Houde Dr. Deven Shah	Cloud Computing, Black Book	Dreamtech press

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme – IV Semester

Course Code: 20CS4T4 Title: CLOUD COMPUTING

Time: 3Hours Max.Marks:70

1. **Answer ALL questions** **(10x2 = 20 Marks)**
   a) Define cloud computing.
   b) What is Grid computing?
   c) Define Virtualization.
   d) Explain Database as a service.
   e) Explain cloud application requirements.
   f) Define Service oriented Architecture.
   g) Explain ESB.
   h) Explain Malware and Internet attacks.
   i) What is a Synchronous cloud application?
   j) Explain the benefits of Mobile cloud computing.

Answer Five Questions Choosing One Question from Each Unit.
All Questions Carry Equal Marks. **(5×10=50Marks)**

2.a) Explain virtualization mechanisms

(Or)

b) Write about peer-to-peer network families?

3.a) Explain cloud computing Services?

(or)

b) Explain open-source Eucalyptus Cloud Architecture.

4. a) Explain NOSQL system.?

(or)

b) Explain fundamental requirements for Cloud Application Architecture.

5. a) Explain Authentication management in the cloud?

(or)

b) What is utility computing? Explain utility model for cloud web services.?

6.a) Explain how to manage a Cloud Application?

(or)

b) Write about Mobile Cloud Computing Challenges

A.G & S.G Siddhartha Degree College of Arts & Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)
M.Sc., (Computer Science) Programme – IV Semester

M.Sc(Cs)	**IV**	**MOOCS**	**20CS4P1**	**2020-21**

Total No of Hours for Teaching – Learning	**Instructional Hours for Week**		**Duration of Semester End Examination in Hours**	**Max Marks**		**Credits**
60 Hours	**Theory**	**Practical**	**3 Hours**	**CIA**	**SEE**	**4**
	4	**-**		**30**	**70**	

Course Objectives

The Main Course Objective is to give knowledge for Students on MOOC'S Courses

Course Outcomes

After Studying this Paper Student will acquire knowledge about MOOC's Courses

- The Student has to enroll and complete any one of the **other than Computer Related Course** (4 **Credits Equivalent**) from MOOC's platforms like NPTEL, SWAYAM etc.
- The Student is excepted to submit the above course pass certificate otherwise, the Department of M.Sc. (CS) will conduct the evaluation(as per the prescribed format in the academic regulations) to issue the pass certificate.
- The selection of the course by the student can be done under the supervision of mentor.

AG & SG SIDDHARTHA DEGREE COLLEGE OF ARTS &SCIENCE
(AUTONOMOUS) VUYYURU- 521165

Re-Accredited by NAAC with 'A' Grade

2022-2023

PG Department of Chemistry

Minutes of the meeting of Board of Studies

15-11-2022

Members Present:-

S.No	NAME		Signature
1	**Dr. V.Sreeram** Head, Dept. ofChemistry(P.G) AG & SG S College,Vuyyuru.	Chairman	
2	**Prof.C.Suresh Reddy** Department ofChemistry S.V. University,Tirupati.	University Nominee	
3	**Prof. Koya Prabakar Rao** Department of Chemistry Vignan University, Guntur.	Subject Expert	
4	**Dr.M.Sivanath** Associate prof. Dept. of Chemistry A.N.R.College, Gudivada.	Subject Expert	
5	**Dr.G.Raja** Manager(Q.A) Biophore India pharamaceuticals. Hyderbad.	Representative from Industry	
6	**Abdul Raheem**	One Post Graduate Meritorious Aluminous nominated by the Principal	
7	**N.V.Srinivasa Rao** Department of Mathematics AG & SG S College, Vuyyuru.	Representative Science Faculty Other Dept.	
8	**V.N.V.Kishore** Dept. of Chemistry(P.G) AG & SG S College, Vuyyuru	Member	
9	**Dilshad Begum** Dept. of Chemistry(P.G) AG & SG S College, Vuyyuru	Member	
10	**M.Rekha** Dept. of Chemistry(P.G) AG & SG S College, Vuyyuru	Member	

A.G. & S.G. Siddhartha Degree College of Arts &Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)

DEPARTMENT OF CHEMISTRY(P.G)

Board of Studies for the academic Year 2022-23 (Odd Semesters)

1. Agenda

Proposed agenda for Board of studies in **Chemistry** on 15/11/2022 through online mode at 04:00P.M.

1. Approval of programme structure for the batch of students admitted in the year 2022-2023onwards and if required necessary modifications can be made in the course titles of III & IV semester in later course.
2. Approval of syllabus for I semester for the batch of students admitted in the year
   2022 – 2023 as per revised guidelines / curriculum of Krishna University and with
   no revision of syllabus of III semester for the batch of students admitted in the year 2021-2022.
3. Approval of the syllabus of semester – I & III with course out comes drafted inline with levels of blooms taxonomy.
4. Approval of modified model question papers for I semester&unmodified model question papers for III semester inline with Bloom's taxonomy.
5. Any other with the permission of the chairman.

A.G.& S.G.SIDDHARTHADEGREE COLLEGE OF ARTS & SCIENCE
DEPARTMENT OF CHEMISTRY

PROPOSED COURSE STRUCTURE FOR PG PROGRAMS (SCIENCE SRTREAM)

UNDER CHOICE BASED CREDIT SYSTEM (CBCS)

W.E.F 2022-23 (R22 Regulations)

I SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE / IDC/DSE/ SEC/OEC/ MOOCS	Internal Marks	External Marks	No. of Credits
		Lecture	Practical	Tutorial				
22CH1T1	General Chemistry	4	0	0	Core	30	70	4
22CH1T2	Inorganic Chemistry	4	0	0	Core	30	70	4
22CH1T3	Organic Chemistry	4	0	0	Core	30	70	4
22CH1T4	Physical Chemistry	4	0	0	Core	30	70	4
COMPULSORY 22PG101	**Personality Development through Life Enlightenment Skills**	3	1	0	Core	30	70	3
22CH1L1	Inorganic chemistry Practical	0	6	0	Core	30	70	3
22CH1L2	Organic chemistry Practical -I	0	6	0	Core	30	70	3
TOTAL FOR FIRST SEMESTER						**210**	**490**	**25**

II SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE / IDC/DSE / SEC/OEC/MOOCS	Internal Marks	External Marks	No. of Credits
		Lecture	Practical	Tutorial				
22CH2T1	Advanced Inorganic Chemistry	4	0	0	Core	30	70	4
22CH2T2	Advanced Organicchemistry	4	0	0	Core	30	70	4
22CH2T3	Advanced Physical Chemistry	4	0	0	Core	30	70	4
COMPULSORY 22PG201	**Research Methodology & IPR**	3	1	0	SEC	30	70	3
DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY ONE)								
22CH2E1	Molecular Spectroscopy	4	0	0	DSE	30	70	4
22CH2E2	Instrumental methods of Analysis	4	0	0	DSE	30	70	4
22CH2E3	Analysis of foods & Drugs	4	0	0	DSE	30	70	4
LAB PRACTICALS								
22CH2L1	Physical chemistry Practical	0	6	0	Core	30	70	3
22CH2L2	Organic chemistry Practical-II	0	6	0	Core	30	70	3
TOTAL FOR SECOND SEMESTER						**210**	**490**	**25**

At the end of 2nd semester, every student must undergo summer Internship/ Apprenticeship/Project work/Industrial training/Research based Project work for Six weeks and must prepare a report concerned as per approved project guidelines, and submit the same to the University 14 days before the commencement of third semester end examinations.

III SEMESTER

Course	Course Name	Teaching Hours/ week	CORE /	Intern	Extern	No. of

Code		Lecture	Practical	Tutorial	IDC/DSE / SEC/OEC/MOOCS	al Marks	al Marks	Credits
22CH3T1	Organic Spectroscopy	4	0	0	Core	30	70	4
DOMAIN SPE22CH3E1CIFIC ELECTIVE COURSES (CHOOSE ANY THREE)								
22CH3E1	Organic Reaction mechanism	4	0	0	DSE	30	70	4
22CH3E2	Organic Synthesis	4	0	0	DSE	30	70	4
22CH3E3	Natural Products	4	0	0	DSE	30	70	4
22CH3E4	Separation Techniques & Electro analytical techniques	4	0	0	DSE	30	70	4
22CH3E5	Marine Chemistry or Chemistry of Drugs	4	0	0	DSE	30	70	4
22CH3E6	Antibiotics, Drugs, Vitamins & Steroid harmones	4	0	0	DSE	30	70	4
LAB PRACTICALS								
22CH3L1	Organic Preparations	0	6	0	Core	30	70	3
22CH3L2	Organic Binary mixture Analysis.	0	6	0	Core	30	70	3
OPEN ELECTIVE (INTERDISCIPLINARY/MULTIDISCIPLINARY) COURSES (CHOOSE ANY ONE)								
22OE301	Polymer Chemistry	3	0	0	OEC	30	70	3
22OE302	Basic Bio Chemistry	3	0	0	OEC	30	70	3
22OE303	Basic Analytical Chemistry	3	0	0	OEC	30	70	3
		3	0	0	OEC	30	70	3
		3	0	0	OEC	30	70	3
TOTAL FOR III SEMESTER						**210**	**490**	**25**

IV SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE / IDC/DSE/ SEC/OEC/MOOCS	Internal Marks	External Marks	No. of Credits
		Lecture	Practical	Tutorial				
22CH4T1	Advanced Organic Spectroscopy	4	0	0	Core	30	70	4
DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY THREE)								
22CH4E1	Green Chemistry	4	0	0	DSE	30	70	4
22CH4E2	Techniques for Modern Industrial applications	4	0	0	DSE	30	70	4
22CH4E3	Nano Chemistry	4	0	0	DSE	30	70	4
22CH4E5	Bio-organic chemistry	4	0	0	DSE	30	70	4
22CH4E6	Bio-Inorganic Chemistry	4	0	0	DSE	30	70	4
22CH4E7	Environmental chemistry	4	0	0	DSE	30	70	4
LAB PRACTICALS								
22CH4L1	Organic Estimations	0	6	0	Core	30	70	3
ENTREPRENURAL & INNOVATION/IT SKILL RELATED TO DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY ONE)								
22CH4E8	Asymmetric Synthesis	3	0	0	SEC	30	70	3
22CH4E4	Organo metallic Chemistry	3	0	0	SEC	30	70	3
22CH4E9	Heterocyclic chemistry	3	0	0	SEC	30	70	3
*** CHOOSE MOOCs FROM SWAYAM/NPTEL SOURCES**								
MOOCS	22CH4M1							4
PROJECT WORK EVALUATION AND VIVA-VOCE -22CH4P1							100	4

TOTAL FOR IV SEMESTER	180	520	30

Note: Students may be allowed to register and appear for MOOCS from the third semester itself. However, students are to complete the MOOCS successfully and submit pass certificate of the same to the University through the Principal of the College concerned for approval and endorsement of the same on grade cards and PCs and ODs as per the regulations of the University.

Resolutions/ Recommendations

Resolution –I

1. It is resolved and recommended to implement the course structure as per R 22 regulations of KRU with necessary modifications as required.

Resolution –II

2. a)Resolved and recommended to implement the syllabus of course code 22CH1T1 of semester – I with 40% revision.

b)It is resolved and recommended to continue with the same syllabus for the course code 22CH1T2. However here after the course title will be referred as Inorganic chemistry instead of Inorganic chemistry – I.

c) It is resolved and recommended to continue with the same syllabus for the course code 22CH1T3. However Here after the course title will be referred as Introductory organic chemistry instead of Organic chemistry – I.

d) It is resolved and recommended to continue with the same syllabus for the course code 22CH1T4. However here after the course title will be referred as Physical chemistry instead of Physical chemistry – I.

e) It is resolved and recommended to implement the modified semester syllabus and model question papers for all the papers of first semester.

Resolution –III

3. Resolved and recommended to introduce the course outcomes in line with the guidelines of OBE following Bloom's Taxonomy for all the courses (both theory and practical) in semester – I of M.Sc (Chemistry) for the students admitted in the academic year 2022-23 and onwards.

4. Resolved to implement the revised syllabus for both theory and practicals with revision for Semester-III students admitted in the year 2021-22. The courses of semester III are listed below.

Semester – III:

Paper	Title of the Paper	Code
Paper-I	Advanced Organic Spectroscopy	20CH3T1
Paper-II	Organic Reactions& Mechanisms	20CH3T2
Paper-III	Organic Synthesis	20CH3T3A
Paper-III	Asymmetric Synthesis, Phosporus& Sulphur Reagents, Synthetic Polymers, Biomolecules & Bio organic Chemistry	20CH3T3B

Paper-IV	Environmental Chemistry and Analysis	20CH3T4A
Paper-IV	Chemistry of Natural Products	20CH3T4B
Pract-I	Organic Preparations	20CH3L1
Pract-II	Mixture Analysis	20CH3L2
Open Elective - II	Polymer Chemistry	20OECH- 2

A.G.& S.G.SIDDHARTHADEGREE COLLEGE OF ARTS & SCIENCE

DEPARTMENT OF CHEMISTRY

M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)

I SEMESTER

W.E.F 2022-23 (R22 Regulations)

Title of thePaper:GENERAL CHEMISTRY

Course Code	**22CH1T1**	Course Delivery Method	Class Room / Blended Mode -
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2017- 18	Year of Offering: 2022– 23	Year of Revision:2022-23	Percentage of Revision:40 %

S.No	COURSE OUTCOMES	PO`S
	After completion of the course, the student will be able to :	
1	Recollect the concepts of titrimetric analysis, statistical rules, visible spectrophotmetryand group theory in chemistry	2
2	Identify the role of titrimetric analysis, specific statistical rules, microwave spectroscopy, Rotational vibrational spectroscopy and group theory in chemistry.	1,7
3	**D**emonstrate knowledge of titrometric analysis microwave spectroscope, rotational vibrational	1,4
4	Test the conceptual knowledge gained in titrimetric analysis, statistical rules / principles, Microwave spectroscopy, rotational vibrational spectroscopy and group theory in chemistry	1,6

Syllabus

Course Details:-

Unit	Learning Units	Lecture Hours
I	**Treatment of analytical data** : Classification of errors – Determinate and indeterminate errors –Minimisation of errors – Accuracy and precision – Distribution of random errors – Gaussian distribution – Measures of central tendency – Measures of precision – Standard deviation – Standard error of mean – student's t test – Confidence interval of mean – Testing for significance – Comparison of two means – F – test – Criteria of rejection of an observation – propagation of errors – Significant figures and computation rules – Control charts – Regression analysis – Linear least squares analysis.	12
II	**Titrimetric Analysis:**Classification of reactions in titrimetric analysis- Primary and secondary standards-Neutralisation titrations-Theory of Neutralization indicators-Mixed indicators-Neutralisation curves-Displacement titrations-Precipitation titrations-Indicators for precipitation titrations-Volhard method-Mohr method- Theory of adsorption indicators-Oxidation reduction titrations-Change of electrode potentials during titration of Fe(II)	12

	with Ce(IV)- Detection of end point in redox titrations- Complexometric titrations- Metal ion indicators-Applications of EDTA titrations-Titration of cyanide with silver ion.	
III	**Visible spectro photometry** – Theory of spectrophotometry and colorimetry, Beer-Lambert's law - Deviations from Beers law. Classification of methods of colour measurement or comparison (standard series method, Duplication method, Dilution method, photoelectric-photometer method, spectrophotometer method)- Instrumentation – Applications-determination of phosphates, chlorides, Iron, Manganese, chromium - Photometric titrations- Spectrophotometric determination of pK value of an indicator.	12
IV	**Symmetry and Group theory in Chemistry I** Symmetry elements [Rotational axis of symmetry (C n), Plane of Symmetry(σ) amd Classification ofplanes of symmetry i.e., Vertical plane(σ v) Dihedral Plane(σ d) and Horizontal Plane(σ h), Improperrotational axis of symmetry(S n), Inversion centre or Centre of symmetry(i) and Identityelement(E)]. Identification of possible symmetry elements in the molecules H_2O, NH_3 , BF_3 , CH_4 ,$[PtCl_4]^{-2}$, C_6H_6 , symmetry operation, Axioms of group theory- definition of group, sub group(Trivial and non-trivial sub groups), GMT tables- construction of GMT table Abelian(C_{2v}) and non abelian groups(C_{3v}), relation between order of a finite group and its sub group. Point symmetry group. Schoenflies symbols, Group generating elements, Classification of molecules- MLS, MHS,& MSS. Procedure to Find out Point group of a molecule (yes or no Method),	12
V	**Symmetry and Group theory in Chemistry II** Representation of groups by Matrices (representation for the Cn, C_{nv}, C_{nh}, Dn etc. groups to be worked out explicitly). Definition of Class and importance of similarity transformation in identifying symmetry class with c_{3v} as example, Character of a representation. Reducible and Irreducible representations - Mulliken notations for Irreducible representations The great orthogonality theorem (without proof) and its importance. Character tables and their use.Construction of Character table (C_{2v} and C_{3v} only). Application of group theory in IR and Raman spectroscopy taking H_2O, NH_3, BF_3 examples. Mutual Exclusion principle with special reference to cis N_2F_2 and trans N_2F_2.	12

Reference Books:

1. Vogel's text book of quantitative analysis. (3rdedition)Addition Wesley Longmann Inc.
2. Quantitative analysis R.A Day and A.L.Underwood. Prentice Hall Pvt.Ltd.
3. Fundamentals of Analytical Chemistry – Skoog and West
4. Instrumental Methods of analysis – B K Sharma.

Course Focus: Employability.

A.G.& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

DEPARTMENT OF CHEMISTRY

M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)

I SEMESTER

W.E.F 2022-23 (R22 Regulations)

Title of the Paper: INORGANIC CHEMISTRY

Course Code	22CH1T2	Course Delivery Method	Class Room / Blended Mode
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2017-18	Year of Offering: 2022 - 23	Year of Revision: ----	Percentage of Revision: 0%

S.No	COURSE OUTCOMES	PO`S
	After completion of the course, the student will be able to :	
1	Memorize the basic concepts of quantum chemistry, co-ordination chemistry and chemical Bonding.	2
2	Comprehend the role of basic and advanced concepts of quantum chemistry, co-ordination chemistry and chemical bonding.	1,7
3	Execute the conceptual knowledge gained in the concepts of quantum chemistry, co-ordination chemistry and chemical bonding in chosen job role.	1,4
4	Investigate the role and importance of concepts of quantum chemistry, co-ordination chemistry and chemical bonding in various allied fields of chemistry.	1,7

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Introduction to Exact Quantum Mechanical Results:** Schrodinger equation, importance of wave function, Operators, Eigen values and Eigen functions, derivation of wave equation using operator concept. Discussion of solutions of Schrodinger's equation to some model systems viz. particle in one dimensional box (applications), three-dimensional box, Rigid rotator system and the Hydrogen atom. Variation theorem, linear variation principle, perturbation theory (first order and non-degenerate), Application of variation method to the Hydrogen atom.	12
II	**Chemistry of non- transition elements:** Halogen oxides and oxyfluorides, Spectral and Magnetic properties of Lanthanides and Actinides. Analytical applications of Lanthanides and Actinides. Synthesis, properties and structure of B-N, S-N, P-N cyclic compounds. Intercalation compounds. **Metal π- complexes:** preparation, structure and bonding in Nitrosyl, Dinitrogen and Dioxygencomplexes.	12
III	**Structure and Bonding:** pπ-dπ bonding, Bent's rule, Non-valence cohesive forces, VSEPR theory. Molecular Orbital theory, Molecular orbitals in triatomic (BeH_2) molecules and ions (NO_2^-) and energy level diagrams. Walsh diagrams for linear (BeH_2) and bent (H_2O) molecules.	12

IV	**Metal–ligand bonding:** Crystal Field Theory of bonding in transition metal complexes-Splitting of d-orbitals in octahedral, tetrahedral, square planar, Trigonal bipyramidal and Square pyramidal fields. Tetragonal distortions - Jahn-Teller effect. Applications and limitations of CFT. Experimental evidences for covalence in complexes. Molecular Orbital Theory of bonding for Octahedral, tetrahedral and square planar complexes. π-bonding and MOT - Effect of π - donor and π -acceptor ligands on Δo. Experimental evidence for π - bonding in complexes.	12
V	**Metal – ligand Equilibria in solutions:** Step wise and over all formation constants. Trends in stepwise formation constants (statistical effect and statistical ratio). Determination of formation constants by Spectrophotometric method (Job's method) and pH metric method (Bjerrum's). Stability correlations - Irwing -William's series. Hard and soft acids and bases (HSAB).	12

Reference Books:

1. Inorganic Chemistry Huheey, Harper and Row.
2. Physical methods in inorganic chemistry, R.S. Drago. Affliated East-West Pvt. Ltd.
3. Concise inorganic chemistry, J. D. Lee, ELBS.
4. Modern Inorganic Chemistry, W. L. Jolly, McGrawHill.
5. Inorganic Chemistry , K. F. Purcell and J. C. Kotz Holt Saunders international.
6. Concepts and methods of inorganic chemistry, B. E. Douglas and D.H.M.C.
7. Daniel, oxford Press.
8. Introductory quantum mechanics , A. K. Chandra
9. Quantum Chemistry,R. K. Prasad.
10. Inorganic Chemistry ,Atkins, ELBS
11. Advanced Inorganic Chemistry ,Cotton and Wilkinson, Wiley Eastern
12. Quantum Chemistry, Levine.
13. Text book of Coordination chemistry ,K.SomaSekharrao and K.N.K. Vani, Kalyani Publishers.
14. Theoretical Inorganic Chemistry by G.S.Manku, Tata Mc GrawHill, 2000, reprint.
15. Concise co-ordination chemistry, R.Gopal, Ramalingam, Vikas Publishing, House, 2014.
16. Inorganic Chemistry – Huheey, A.Keiter, L.Keiter, 4th edition, Pearson education, Asia.

Course Focus: Employability.

A.G.& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

DEPARTMENT OF CHEMISTRY

M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)

I SEMESTER

W.E.F 2022-23 (R22 Regulations)

Title of the Paper: ORGANIC CHEMISTRY

Course Code	22CH1T3	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100

S.No	COURSE OUTCOMES	PO`S
	After completion of the course, the student will be able to :	
1	Recollect the basic concepts of aromaticity, reactive intermediates, addition, elimination and Substitution reactions.	2
2	Explain the basic and advanced concepts of aromaticity, reactive intermediates, addition, elimination and substitution reactions.	2,7
3	Solve high level concepts in organic chemistry with conceptual knowledge gained in aromaticity, reactive intermediates, addition, elimination and substitution reactions.	1,7
4	Exercise the knowledge about aromaticity, reactive intermediates, addition, elimination and substitution reactions in understanding the properties of organic compounds.	1,5

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Nature of bonding:** Localised and Delocalized, Delocalised chemical bonding conjugation, cross conjugation, hyper conjugation, Tautomerism. **Aromaticity**: Concept of Aromaticity, Aromaticity of five membered, six membered rings - Non benzonoid aromatic compounds:- cyclopropenylcation, Cyclobutadienyldication, cyclopentadienyl anion-tropyllium cation and cyclooctatetraenyl dianion. Homoaromaticity, Anti aromaticity	12
II	**Reactive intermediates & Reactive Species:** **Reactive intermediates:**Generation, Structure, Stability, Detection and Reactivity of Carbocations, Carbanions, Free radicals, Carbenes, Nitrenes and Arynes. **Reactive Species:** Generation and reactivity of Electrophiles, Nucleophiles, Dienophiles, Ylids.	12
III	**Addition Reactions:** Additions: Addition to carbon – carbon multiple bonds, HX, X2, HOX, stereo chemistry of addition, formation and reaction of epoxides, syn and anti hydroxylation, hydrogenation(catalytic and Non catalytic), synthetic reactions of CO and CN and Cram's rule.	12

IV	**Eliminations Reactions**:Types of elimination (E1, E1cB, E2) reactions, mechanisms, stereochemistry and orientation, Hofmann and Saytzeff's rules, Syn elimination versus anti elimination. Competitions between elimination and substitution.Dehydration, dehydrogenation, dehalogenation, decarboxylative elimination, pyrolytic eliminations.	12
V	**Substitution Reactions:** **Aliphatic Nucleophilic substitutions:**The SN^2, SN^1, mixed SN^1 and SN^2 and SNireactions : Mechanism, effect of structure, nucleophile, leaving group on substitutions. The neighbouring group mechanism, participation by σand πbonds, anchimeric assistance. **Aromatic Nucleophilic substitution:**The SN^{Ar} (Addition – Elimination), SN^1(Ar)mechanisms and benzyne mechanism (Elimination – Addition). Reactivity- effect of substrate structure, leaving group and attacking nucleophile. The Von-Richter, Sommelet – Hauser and Smiles rearrangements.	12

Reference Books:

1. Advanced organic chemistry- Reaction, mechanism and structure, Jerry March, John Wiley.
2. Advanced organic chemistry, F.A. Carey and R.J. Sundberg, Springer, New York.
3. A guide book to Mechanism in organic chemistry, Peter Sykes, Longman.
4. Organic chemistry, I.L. Finar, Vol. I & II, Fifth ed. ELBS.
5. Organic chemistry, Hendrickson, Cram and Hammond (McGraw – Hill).
6. Modern organic Reactions, H.O. House, Benjamin.
7. Structure and mechanism in organic chemistry, C.K. Ingold, Cornell University Press.
8. Principles of organic synthesis, R.O.C. Norman and J.M. Coxon, Blakie Academic & Professional.
9. Reaction Mechanism in Organic Chemistry, S.M. Mukherji and S.P. Singh, Macmillan.
10. Basic Principles of Organic Chemistry by J. B. Roberts and M. Caserio.

Course Focus: Employability &**E**ntrepreneurship

A.G.& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

DEPARTMENT OF CHEMISTRY

M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)

I SEMESTER

W.E.F 2022-23 (R22 Regulations)

Title of the Paper: PHYSICAL CHEMISTRY

Course Code	22CH1T4	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam	70
Total Number of Lecture	60	Total Marks	100

S.No	COURSE OUTCOMES	PO`S
	After the completion of the course, Students will be able to	
1	Recall the basic concepts of thermodynamics, surface chemistry, electrochemistry, chemical Kinetics and potentiometry in detail.	2
2	Apply the spontaneous and non spontaneous reaction and derive various thermodynamic and Chemical kinetic derivations.	1,7
3	Describe the physical significance of thermodynamics, chemical kinetics and electrochemistry in Explaining the chemical properties and reactivity of molecules.	1,6
4	Analyse the important techniques of surfaces with the help of ESCA, Auger electron spectroscopy and potentiometric techniques of complexometric, neutralization, oxidation and reduction Titrations.	1,7

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Thermodynamics – I** Classical thermodynamics - Brief review of first and second laws of thermodynamics - Entropy change in reversible and irreversible processes - Entropy of mixing of ideal gases - Entropy and disorder – Free energy functions - Gibbs-Helmholtz equation - Maxwell partial relations - Conditions of equilibrium and spontaneity - Free energy changes in chemical reactions: Van't Hoff reaction isotherm - Van't Hoff equation - Clausius Clapeyron equation - partial molar quantities - Chemical potential - Gibbs- Duhem equation - partial molar volume - determination of partial molar quantities - Fugacity - Determination of fugacity - Thermodynamic derivation of Raoult's law.	12
II	**Surface phenomena and phase equilibria** - Surface tension - capillary action - pressure difference - across curved surface (young - Laplace equation) - Vapour pressure of small droplets (Kelvin equation) - Gibbs-Adsorption equation - BET equation - Estimation of surface area - catalytic activity of surfaces – ESCA , X- ray fluorescence and Auger electron spectroscopy. **Surface active agents** - classification of surface active agents - Micellization - critical Micelle concentration (CMC) - factors affecting the CMC of surfactants, microemulsions - reverse micelles - Hydrophobic interaction.	12

III	**Electrochemistry – I -** Electrochemical cells - Measurement of EMF - Nernst equation – Equilibrium constant from EMF Data - pH and EMF data - concentration cells with and without transference – Liquid junction potential and its determination - Activity and activity coefficients - Determination by EMF Method - Determination of solubility product from EMF measurements. Debye Huckel limiting law and its verification.Effect of dilution on equivalent conductance of electrolytes - Anomalous behaviour of strong electrolytes. Debye Huckel-Onsagar equation - verification and limitations, conductometric titrations.	12
IV	**Chemical kinetics-** Methods of deriving rate laws - complex reactions - Rate expressions for opposing, parallel and consecutive reactions involving unimolecular steps. Theories of reaction rates - collision theory - Steric factor - Activated complex theory - Thermodynamic aspects – Unimolecular reactions - Lindemann's theory - Lindemann-Hinshelwood theory. Reactions in solutions - Influence of solvent - Primary and secondary salt effects - Elementary account of linear free energy relationships - Hammet - Taft equation - Chain reactions - Rate laws of H_2-Br_2, photochemical reaction of H_2 - Cl_2, Decomposition of acetaldehyde and ethane - Rice-Herzfeld mechanism.	12
V	**Potentiometry:** Advantages of potentiometric methods - Reference electrode - Standard hydrogen electrode .Acid- alkali or Neutralisation titration, Oxidation – reduction titrations, Precipitation titrations, complexometric titrations, Methods of end point location (Graphical, Differentiation method, Pinkhof- Treadwell method). Calomel electrode -Indicator electrodes: Metal-metal ion electrodes - Inert electrodes -Membrane electrodes - theory of glass membrane potential - Direct potentiometry, potentiometric titrations - Applications.	12

Reference Books:

1. Physical chemistry, G.K.Vemulapalli (Prentice Hall of India).
2. Physical chemistry, P.W.Atkins. ELBS
3. Chemical kinetics - K.J.Laidler, McGraw Hill Pub.
4. Text book of Physical Chemistry, Samuel Glasstone, Macmillan pub.
5. Polymer Sceince, Gowriker,Viswanadham, Sreedhar
7. Elements of Nuclear Science, H.J.Arniker, Wiley Eastern Limited.
8. Quantitative Analysis, A.I. Vogel, Addison Wesley Longmann Inc.
9. Physical Chemistry-G.W.Castellan, Narosa Publishing House, Prentice Hall
10. Physical Chemistry, W.J.Moore, Prentice Hall
11. Polymer Chemistry – Billmayer

Course Focus: Employability.

A.G.& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

DEPARTMENT OF CHEMISTRY

M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)

I SEMESTER

W.E.F 2022-23 (R22 Regulations)

Title of the Paper: PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS

Course Code	**22PG101**	Course Delivery Method	Class Room / Blended Mode -
Credits	3	CIA Marks	30
No. of Lecture Hours / Practical Hours Week	3/1	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100

The Course will introduce the students to

1) Learn to achieve the highest goalhappily.
2) Become a person with stable mind, pleasing personality anddetermination.
3) Learn to build positive attitude, self-motivation, enhancing self-esteem and emotional intelligence
4) Learn to develop coping mechanism to mange stress through Yoga and meditation techniques
5) Awaken wisdom amongthem.

Course Learning Outcomes:

At the end of this course the students should be able to:

- Develop their personality and achieve their highest goals oflife.
- Lead the nation and mankind to peace and prosperity
- Practice emotional selfregulation.
- Develop a positive approach to work andduties
- Develop a versatilepersonality

Syllabus

Course Details:-

Unit	Learning Units	Lecture Hours
I	**Introduction to Personality Development:-**The concept of personality - Dimensions of Personality – Theories of Personality development (Freud & Erickson) – The concept of Success and Failure – Factors responsible for Success – Hurdles in achieving Success and Overcoming Hurdles — Causes of failure – Conducting SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis.	12

II	**Attitude, Motivation and Self-esteem**:-Conceptual overview of Attitude – Types of Attitudes – Attitude Formation – Advantages/Disadvantages of Positive/Negative Attitude - Ways to Develop Positive Attitude. **Concept of motivation:** Definition and Nature of Motivation/Motive – Internal and external motives – Theories of Motivation – Importance of self- motivation- Factors leading to de- motivation. **Self-esteem**: - Definition and Nature of self-esteem – Do's and Don"ts to develop positive self- esteem – Low self esteem - Personality having low self esteem - Positive and negative self esteem.	12
III	**Other Aspects of Personality Development:-** Body language - Problem-solving - Conflict Management and Negation skills - Decision-making skills - Leadership and qualities of a successful leader – Character building -Team-work – Time management - Work ethics – Good manners and etiquette – Emotional Ability/Intelligence – Dimensions of Emotional Intelligence – Building Emotional Intelligence.	12
IV	**Neetisatakam-Holistic Development of Personality:** Verses- 19,20,21,22 (wisdom) – Verses- 29,31,32 (pride and heroism) – Verses- 26,28,63,65 (virtue) **Personality of Role Model – Shrimad Bhagwadgeeta** Chapter2-Verses 17 – Chapter 3-Verses 36,37,42 – Chapter 4-Verses 18, 38,39 – Chapter18 – Verses 37,38,63.	12
V	**Yoga & Stress Management :**Meaning and definition of Yoga - Historical Perspective of Yoga - Principles of Astanga Yoga by Patanjali – Meaning and Definition of Stress - Types of Stress - Eustress and Distress –Stress Management – Pranayama-Pranayama: Anulom and Vilom Pranayama - Nadishudhi Pranayama - Kapalabhati-Pranayama - Bhramari Pranayama - Nadanusandhana Pranayama – Meditation techniques: Om Meditation - Cyclic meditation : Instant Relaxation technique (QRT), Quick Relaxation Technique (QRT), Deep Relaxation Technique (DRT) (Theory & Practical).	12

PRACTICAL COMPONENTS:

- Students should identify different types of personality to know their own personality. Students are to describe the characteristics of their personalities and submit the same for assessment.
- Students are to form in groups (a group consists of 4-6 students) to identify and write a brief note on famous personalities of India andWorld.
- Students are required to identify different types of attitudes and give any five examples ofeach.
- Students are expected to check their attitudes and develop ways to improve their attitudes at work place andhome.
- Students are required to identify keys to self-motivation to achieve theirgoals.
- Students are expected to identify at least seven types of body language and conduct

activities with thefollowing:

S. No.	Pose	Possible Interpretations
1	Standing with your hands on your hips	Aggressive, disgusted
2	Standing upright	Confidence
3	Arms crossed on your chest	Defensive
4	Resting your hand on your cheek	Thinking
5	Touching or rubbing your nose	Doubt, lying
6	Resting your head in your hands	Boredom, tired
7	Tapping your fingers	Impatience
8	Biting your nails	Nervous, insecure
9	Playing with your hair	Insecure
10	Rubbing your eyes	Disbelief, doubt

- **Conduct the following exercise to develop communication skills – Negotiation Skills andEmpathy**

Exercise: Card Pieces

In this activity, team members trade pieces of playing cards to put together complete cards.

Uses -This exercise is useful for showing team members others' perspectives. It builds communication and negotiation skills**, and helps people to develop** empathy**.**

People and Materials

- Enough people for at least three teams oftwo.
- Playing cards – use between four and six for each person.
- A privateroom.

Time -
15minutes.
Instructions:

1. Cut each playing card into half diagonally, then in half diagonally again, so youhave four triangular pieces for eachcard.
2. Mix all the pieces together and put equal numbers of cards into as many envelopes as you haveteams.
3. Divide people up into teams of three or four. You need at least three teams. Ifyou're short of people, teams of two will work just aswell.
4. Give each team an envelope of playing cardpieces.
5. Each team has three minutes to sort its pieces, determine which ones it needsto make complete cards, and develop a bargainingstrategy.
6. After three minutes, allow the teams to start bartering for pieces. People can barter on their own or collectively with their team. Give the teams eight minutes tobarter.
7. When the time is up, count each team's completed cards. Whichever team hasthe most cards wins theround.

Advice for the Teacher/Facilitator

After the activity, ask your team members to think about the strategies they used. Discuss these questions:

1) Which negotiation strategies worked? Whichdidn't?
2) What could they have donebetter?
3) What other skills, such as **active listening**or**empathy**, did they need touse?

- **Conduct following Time management activity - Ribbon ofLife**

  Take a colored ribbon length of approximately 1 meter/100 cm. and scissors. Start with the followingquestions:

  1. If the life span of an individual is say, 100 years. Consider that each cm represents one year. The response will be that few live that long. Assuming a life of 75 to 90 years, cut 10 to 25 cm off the ribbon,accordingly.
  2. What is the average age of the participants sitting here, the response would be 25 to 30 depending on the group, in that case, cut another 25 cms of the ribbon and say that is gone you cannot do anything.
  3. What is left is 50 years? People will say, "Yes," but the answer isNO.
  4. Every year we have 52 weeks, that is 52 Sundays. If we multiply that by 50 years, it comes to 7.14 years. Reduce the ribbon by another 7.14cm.
  5. We also usually have Saturdays off, so reduce another 7.cms.
  6. Public/National holidays are 10 multiple with 50 years. That comes to another 1.5 years. Reduce ribbon by another 1.5cms.
  7. Your casual leave, sick leave, and annual holidays approx. 40 days a year, multiplied by 50. Cut off another 5 cms. Now you are left with about 29.5 years. But, the calculation is not overyet.
  8. You sleep an average of 8 hours daily; multiply that by 365 days and again by 50 years (i.e. 122 days X 50 = almost 17 years). Cut off another 17cm.
  9. You spend time eating lunch, breakfast, snacks, and dinner total 2 hours daily (i.e. 30 days a year X 50 years= 4 years or so). Cut off another 4cm.
  10. Last, let"s figure we spend about 1 hour a day travelling from place to place for activitiesandsuch.(that"sabout2moreyears).We"redownto6(SIX)yearsoflife to make it or breakit.

Exercise Decision making skills - Create YourOwn

In this exercise, teams must create their own, brand new, problem-solving activity.

Uses

This game encourages participants to think about the problem-solving process. It builds skills such as creativity, negotiation and decision making, as well as communication and time management. After the activity, teams should be better equipped to work together, and to think on their feet.

What You'llNeed

- Ideally four or five people in eachteam.
- A large, privateroom.

  Paper, pens and flipcharts

Time -Around one hour.

Instructions:

1. As the participants arrive, you announce that, rather than spending an hour on a problem-solving team building activity, they must design an original one of their own.
2. Divide participants into teams and tell them that they have to create a new problem- solving team building activity that will work well in their organization. The activity must not be one that they have already participated in or heardof.
3. After an hour, each team must present their new activity to everyone else, and outline its keybenefits.
4. **Advice for theTeacher/Facilitator**:

   There are four basic steps in problem solving: defining the problem, generating solutions, evaluating and selecting solutions, and implementing solutions. Help your team to think

creativelyat each stage by getting them to consider a wide range of options. If ideas run dry, introduce an alternative brainstorming technique, such as brainwriting . This allows your people to develop one others' ideas, while everyone has an equal chance tocontribute.
After the presentations, encourage teams to discuss the different decision-makingprocesses they followed. You might ask them how they communicated and managedtheir time . Another question could be about how they kept their discussion focused. And to round up, you might ask them whether they would have changed their approach after hearing the other teams' presentations.
Studentsareaskedtoreciteverses:26,28,63,65(virtue)ofNeetisatakam-Holisticdevelopment of personality.

Students are asked to identify personality of role Mmodels from Shrimad Bhagwadgee ta and portray the roles of thesame.
Students are asked to practice Yoga and meditationtechniques

REFERENCE BOOKS:

1. Hurlock, E.B. Personality Development, 28th Reprint. New Delhi: Tata McGraw Hill, 2006.
2. Gopinath,Rashtriya Sanskrit Sansthanam P, Bhartrihari"sThreeSatakam, Niti-sringar-vairagya, New Delhi,2010
3. Swami Swarupananda, Srimad Bhagavad Gita, AdvaitaAshram,Publication Department, Kolkata, 2016.
4. Lucas, Stephen. Art of Public Speaking. New Delhi. Tata - Mc-Graw Hill.2001
5. Mile, D.J Power of positive thinking. Delhi. Rohan Book Company,(2004).
6. Pravesh Kumar. All about Self- Motivation. New Delhi. Goodwill Publishing House. 2005.
7. Smith, B. Body Language. Delhi: Rohan Book Company.2004
8. Yogic Asanas for Group Training - Part-I: Janardhan Swami Yogabhyasi Mandal, Nagpur.
9. Rajayoga or Conquering the Internal Nature by Swami Vivekananda, Advaita Ashrama (Publication Department),Kolkata.
10. Nagendra H.R nadNagaratna R, Yoga Perspective in Stress Management, Bangalore, Swami Vivekananda YogaPrakashan.

Online Resources:

1. https://onlinecourses.nptel.ac.in/noc16_ge04/preview
2. https://freevideolectures.com/course/3539/indian-philosophy/11

A.G.& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

DEPARTMENT OF CHEMISTRY

M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)

I SEMESTER

W.E.F 2022-23 (R22 Regulations)

Title of the Paper: Practical – I – Inorganic Chemistry Practical

(22CH1L1)

S.No	COURSE OUTCOMES	PO`S
	After completion of the course, the student will be able to :	
1	Memorize the basic principles involved in quantitative and qualitative inorganic analysis.	1,7
2	Understand the importance of inorganic qualitative and quantitative analysis and their use in research and industry.	2,6
3	Apply the procedures of quantitative analysis and tests for identification of cations and anions in chosen field.	1,5
4	Evaluate how far these methods are accurate in quantitative determination.	1,4

List of experiments:

1. Preparation of Potassium trisoxalato ferrate (III). (CO – 3, L - 3)
2. Preparation of Tris thiourea copper (1) sulphate. (CO – 4, L - 4)
3. Preparation of Cis and trans potassium diaquodioxalato chromate (III). (CO – 3, L - 3)
4. Preparation of Hexa ammine cobalt (III) chloride. (CO – 4, L - 4)
5. Determination of Zn^{2+} with potassium ferro cyanide. (CO – 3, L - 3)
6. Determination of Mg^{2+} using EDTA. (CO – 4, L - 4)
7. Determination of Ni^{2+} using EDTA. (CO – 3, L - 3)
8. Determination of hardness of water using EDTA. (CO – 4, L - 4)
9. Gravimetric determination of nickel using dimethyl glyoxime. (CO – 3, L - 3)
10. Gravimetric determination of Zn using diammonium hydrogen phosphate. (CO – 4, L - 4)
11. Semi micro qualitative analysis of six radical mixtures (CO – 4, L - 4)
    (One interfering anion and one less familiar cation for each mixture)
    (minimum three mixtures).

Anions: S^{2-}, SO_3^{2-}, Cl^-, Br^-, I^-, NO_3^-, SO_4^{2-}, CH_3COO^-, $C_2O_4^{-2}$, $C_4H_4O_6^{-2}$, PO_4^{3-}, CrO_4^{2-}, BO_3^{3-}

Cations: Ammonium (NH_4^+)

1st group: Ag^+, Pb^{+2}, W^{+6}

2nd group: Pb^{+2}, Bi^{+3}, Cu^{+2}, Cd^{+2}, Sn^{+2}, Sn^{+4}, Mo^{+6}.

3rd group: Fe^{+2}, Fe^{+3}, Al^{+3}, Cr^{+3}, Ce^{+4}, Th^{+4}, Zr^{+4}, VO^{+2}, Be^{+2}.

4th group: Zn^{+2}, Mn^{+2}, Co^{+2}, Ni^{+2}.

5th group: Ca^{+2}, Ba^{+2}, Sr^{+2}.

6th group: Mg^{+2}, K^+, Li^+.

Text books/ Reference books:

1. Vogel's, "Quantitative chemical Analysis"J.Mendham, R.C.Denney, B.Sivasankar. 6th Edition.
2. Experimental Inorganic Chemistry, Dr.M.K.Shah.
3. Practical Inorganic Chemistry, Shikha Gulati, J.L.Sharma, ShagunManocha.
4. Vogel's, "Text book of macro and semimicro Qualitative inorganic Analysis"G.Svehla, 5th Edition.
5. Vogel's, "Text book of Quantitative Chemical Analysis" G.H.Jefery, 5th Edition.

A.G.& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

DEPARTMENT OF CHEMISTRY

M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)

I SEMESTER

W.E.F 2022-23 (R22 Regulations)

Title of the Paper:Organic Practical-I (22CH1L2)

S.No	COURSE OUTCOMES	PO`S
	After completion of the course, the student will be able to :	
1	Understand the importance of organic compound synthesis and separation and their role in research and industry.	2,5,6
2	Understand the mechanisms for the synthesis of organic compounds in different steps.	1,7
3	Apply the procedure of synthesis and separation of organic compounds in required field.	1,5,7
4	Interpret the role of separation of organic compounds and synthesis in the core areas of research.	1,5,6

List of experiments:

1. Separation of Binary mixtures of Carboxylic acid + Neutral organic compounds (Solvent extraction method). (CO – 3, L - 3)
2. Separation of Binary mixtures of Basic nature + Neutral organic compounds (Solvent Extraction method). (CO – 3, L - 3)
3. Separation of Binary mixtures of Phenolic compounds + Neutral organic compounds (Solvent extraction method). (CO – 3, L - 3)
4. Preparation of Phthalimide from Phthalic anhydride – High Temperature. (CO – 3, L - 3)
5. Preparation of p-nitro acetanilide – Low temperature. (CO – 3, L - 3)
6. Preparation of Iodoform – Room temperature. (CO – 3, L - 3)
7. Paper chromatography - separate the given mixture of sugars. (CO – 4, L - 4)
8. Paper chromatography - separate the given mixture of amino acids. (CO – 4, L - 4)
9. Thin layer chromatography - separate the given mixture of phenols (CO – 4, L - 4)
10. Thin layer chromatography - separate the given mixture of 2,4-DNP derivatives of carbonyls compounds. (CO – 4, L - 4)

Text books/ Reference books:

1. A.I. Vogel, "A Text Book of Practical Organic Chemistry", Longman
2. A.I. Vogel, "Elementary Practical Organic Chemistry", Longman
3. F.G. Mann and B.C. Saunders, "Practical Organic Chemistry", Longman
4. Reaction and Synthesis in Organic Laboratory, B.S. Furniss, A.J. Hannaford, Tatchell, University Science Books mills valley.

5. Purification of Laboratory chemicals, manual, W.L.F. Armarego EDD Perrin
6. Reaction and Synthesis in Organic Chemistry Laboratory, Lutz-Friedjan- Tietze, Theophil Eicher,University Science Book.

A.G.& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

DEPARTMENT OF CHEMISTRY

M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)

I SEMESTER

CIA Practicals

Total Marks – 30 M

We are assessing 10 marks for each practical. The scheme is as follows

Experiment – 6M

Observation– 2M

Result - 2M

We have no practical internal examination at the end of the each semester. However we consider 10 marks for each practical of total 10 practicalsi.e (10 x 10M = 100M), then we reduce to 30M as internal practical marks.

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M.Sc. DEGREE EXAMINATION

External Practical Model Paper

Time: 6 hours **Maximum Marks: 70**

1. To write the principle and procedure / mechanism related to practical as listed in the practical syllabus – 5 M
2. Record – 10 M
3. Experiment (Procedure / Tabulation / calculation etc.,) – 50 M
4. Result / Graphs / Yield / Report – 5

M.Sc. DEGREE EXAMINATION
FIRST SEMESTER

Paper-I :: General Chemistry

Time: 3 hours **Maximum Marks: 70**

SECTION – A

Answer all the questions. Each question carries 4 marks. (5x4M=20M)

1. (a) Discuss the role of control charts in large scale production. (CO-2, L - 2)

(Or)

(b) Elaborate the measures of accuracy? (CO-2, L - 2)

2. (a) Explain the terms primary & secondary standards in titrimetric analysis. (CO-2, L - 2)

(Or)

(b) Enumerate the significance of mixed indicators. (CO-2, L- 2)

3. (a) Give an account on classification of molecules in microwave spectroscopy. (CO-2, L-2)

(Or)

(b) Write a short note on degrees of freedom. (CO-2, L - 2)

4. (a) What are hot bands? (CO-2, L - 2)

(Or)

(b) Construct the group multiplication of C_{2v} point group (CO-2, L - 2)

5. (a) List out the possible symmetry elements and write the point group of the molecule HCHO. (CO-2, L –2)

(Or)

(b) Define a class. Explain with an example. (CO-2, L - 2)

SECTION – B **(10x5=50M)**

UNIT - I

6. (a) Write notes on determinate errors. (CO-2, L - 2) **(Or)**

(b)(i) What are the criteria for rejection of an observation? (CO-2, L - 2)

(ii) Write notes on significant figures and computational rules. (CO-2, L - 2)

UNIT – II

7. (a) Explain the theory of neutralization indicators. (CO-2, L -

(Or)

(b)Describe the Volhard & Mohr method in precipitation titrations. (CO-2, L -

UNIT – III

8. (a) Explain the spectrophotometric determination of Pk value of an indicator. (CO-3, L - 3)

(Or)

(b) Discuss the procedure involved in the determination of phosphate ion and manganese. (CO-3, L - 3)

UNIT - IV

9. (a) Elaborate in detail the symmetry elements & symmetry operations with suitable examples and necessary theory.(CO-4, L - 4)

(Or)

(b)(i) Identify the possible symmetry elements in CH_4& C_6H_6 molecules and analyze the point group.(CO-4, L- 4)

(ii) Analyze the classification of molecules basing on possible symmetry elements into MLS, MHS & MOS with examples. (CO-4, L-4)

UNIT - V

10 (a) Enumerate the role of group theory in IR & Raman spectroscopy. (CO-3, L-3)

(Or)

(b) Explain the construction of C_{2v} character table. . (CO-3, L- 3)

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M.Sc. DEGREE EXAMINATION
FIRST SEMESTER

Paper-II :: Inorganic Chemistry

Time: 3 hours **MaximumMarks: 70**

SECTION – A

Answer all the questions. Each question carries 4 marks. (5x4M=20M)

1. (a) Explain the significance of approximation methods. (CO-2, L - 2)

(Or)

(b) Define operator. Explain the significance of operators in quantum mechanics. (CO-2, L - 2)

2. (a) Discuss about Intercalation compounds. (CO-2, L - 2)

(Or)

(b) Enumerate the significance of natural oxygen carriers. (CO-2, L- 2)

3. (a) Explain the role of VSEPR theory in predicting the geometry of molecule. (CO-2, L - 2)

(Or)

(b) Give an account on important features of MO theory. (CO-2, L - 2)

4. (a)Explain the splitting of d-orbitals in square pyramidal crystal field. (CO-2, L - 2)

(Or)

(b) Discuss about crystal field stabilization energy. (CO-2, L - 2)

5. (a) Derive a relation between stepwise and overall formation constants. (CO-2, L – 2)

(Or)

(b) What is chelate effect? Explain with an example.(CO-2, L - 2)

SECTION – B **(10x5=50M)**

UNIT – I

6.(a)Write down the wave equation for rigid rotor and solve it to get eigen functions. (CO-3, L - 3)

(Or)

(b)Arrive at the expression for first order non degenerate eigen values of perturbation method. (CO-3, L - 3)

UNIT – II

7.(a) Write an account on phosphorus-nitrogen cyclic compounds. (CO-2, L

(Or)

(b)Explain the structure and bonding in nitrosyl complexes. (CO-2, L

UNIT – III

8. (a) Draw and explain the molecular orbital energy level diagram of BeH_2 molecule. (CO-3, L

(Or)

(b)Explain the evidences for pπ – dπ bonding in non-transition metal compounds. (CO-3, L - 3)

UNIT - IV

9. (a) Justify the reason for tetragonal distortion in an octahedral complex with a suitable theory. (CO-4, L - 4)

(Or)

(b)Why CN^- and CO cause greater crystal field splitting and I^- and Br^- cause lesser crystal field splitting? Explain with necessary theory.(CO-L-4)

UNIT - V

10. (a) Describe the spectrophotometric method for the determination of stability Constant. (CO-2, L- 2)

(Or)

(b)Give a detailed account on HSAB theory. (CO-2, L- 2)

******

M.Sc. DEGREE EXAMINATION
FIRST SEMESTER
Paper-III : Organic Chemistry

Time: 3 hours **Maximum Marks: 70**

SECTION – A

Answer all the questions. Each question carries 4 marks. (5x4M=20M)

1. (a) Explain anti aromaticity with example. (CO-2, L - 2)

(Or)

(b) Explain cross conjugation with example. (CO-2, L - 2)

2. (a) Explain the structure of nitrenes. (CO-2, L - 2)

(Or)

(b) Discuss the structure of carbenes. (CO-2, L - 2)

3.(a) Discuss cram's rule with suitable examples. (CO-2, L - 2)

(Or)

(b) Write notes on epoxidation. (CO-2, L - 2)

4. (a) Define Hoffmann's rule. Give suitable examples. (CO-2, L - 2)

(Or)

(b) Discuss syn elimination versus anti elimination. (CO-2, L - 2)

5. (a) Give mechanism of Von-Richter rearrangement. (CO-2, L - 2)

(Or)

(b) Write noters on SNi mechanism. (CO-2, L - 2)

SECTION – B **(10x5=50M)**

UNIT - I

6. a) Define delocalized chemical bonding. What are different types of delocalized chemical bonding. (CO – 2, L - 2)

(Or)

b) Explain the following terms (i) Cross Conjugation (ii)Hyper Conjugation.(CO – 2,L - 2)

UNIT - II

7. a) Discuss the generation, stability and reactivity of carbocations. (CO –2, L - 2)

(Or)

b) Explain synthesis and few reactions of the following
(i) Free radicals (ii) Carbanions (CO – 2, L - 2)

UNIT - III

8. a) Give an account of the addition of the following to carbon carbon multiple bonds
(i) HX (ii) HOX (CO – 2, L - 2)

(Or)

b) Discuss in detail about the following
(i) Syn and Anti hydroxylation (ii) Hydrogenation (CO –2, L - 2)

UNIT – IV

9. a) Discuss pyrolytic eliminations and its orientation. (CO –2, L - 2)

(Or)

b) Write a detailed account of E1CB mechanism. (CO –2, L - 2)

UNIT – V

10.a) What is anchimeric assistance. Discuss neighboring group participation by σ and π bonds with suitable examples. (CO –4, L - 4)

(Or)

b) Explain the following (i) Benzene mechanism (ii) SN^{Ar} mechanism with applications.

(CO –4, L - 4

M.Sc. DEGREE EXAMINATION
FIRST SEMESTER

Paper-IV: Physical Chemistry

Time: 3 hours **Maximum Marks: 70**

SECTION – A

Answer all the questions. Each question carries 4 marks.
(5x4M=20M)

1. (a) Explain the second law of thermodynamics. (CO-2, L - 2)

(Or)

(b) Write the Gibbs Duham equation and describe all the terms present. (CO-2, L - 2)

2. (a) Discuss briefly the surface active agents. (CO-2, L - 2)

(Or)

(b)Explain the micro emulsions in brief. (CO-2, L - 2)

3. (a)Write the Nernst equation and describe all the terms present in it. (CO-2, L - 2)

(Or)

(c) Explain the principle in conductometric titrations. (CO-2, L - 2)

4. (a) Write the mechanism in Lindemann's theory of unimolecular reactions.(CO-2, L - 2)

(Or)

(b) Describe the mechanism in decomposition of Acetaldehyde. (CO-2, L - 2)

5. (a) Describe the advantages of potentiometric methods over classical methods. (CO-2, L - 2)

(Or)

(b) Explain the calomel electrode in short. (CO-2, L - 2)

SECTION – B **(10x5=50M)**

UNIT - I

6. (a) Derive the Maxwell's thermodynamic relations. (CO-2, L - 2) **(Or)**

(b) What is fugacity? Give its physical significance. Describe the different methods of determination of fugacity. (CO-2, L - 2)

UNIT - II

7. (a) Discuss the theory involved in ESCA. How are this techniques used in the analysis of surfaces? (CO-2, L - 2)

(Or)

(b) What is CMC?How is it determined? What are the factors effecting CMC?(CO-2, L - 2)

UNIT - III

8. (a)What is activity? How is activity coefficient determined from EMF? (CO-2, L - 2)

(Or)

(b)What is the effect of dilution on equivalent conductance of electrolytes?(CO-2, L - 2)

UNIT – IV

9. (A) Discuss and analyze the kinetics of consecutive reactions. (CO-4, L - 4)

(Or)

(b)Discuss and analyze the kinetics of $H_2 - Br_2$ reaction in detail. (CO-4, L - 4)

UNIT – V

10. (a) Explain the theory of precipitation titrations in detail(CO-2, L - 2)

(Or)

(b) Discuss the potentiometric titrations in detail. (CO-2, L - 2)

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NAAC reaccredited at 'A'level

Autonomous -ISO 9001 – 2015Certified

Title of the Paper: ADVANCED ORGANIC SPECTROSCOPY

Semester: III

Course Code	**20CH3T1**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: 0%

CourseObjective: Themainobjectiveofthispaperistogiveabasicandupdatedknowledgeforthe studentsonProton&13CNMRSpectroscopy,StructuralElucidationofOrganiccompoundsUsing UV, IR,1H-NMR,13C-NMR, 2D NMR spectroscopy and Optical Rotatory Dispersion (ORD) & CD spectroscopy.

Course Outcomes:-

CO1: Summarizetheprinciple,theoryandadvancedaspectsof^{1}HNMR,^{13}CNMR,2DNMR, ORD&CDspectroscopictechniques.

CO2: Displaytheknowledgegainedintheareasof^{1}HNMR,^{13}CNMR,2DNMR,ORD&CD Spectroscopictechniquesinchosenjobrole.

CO3: Interpretthespectraldataof^{1}HNMR,^{13}CNMR,2DNMR,ORD&CDinelucidatingthe Structure of themolecule.

CO4: Assessthathowfarthespectraldataof^{1}HNMR,^{13}CNMR,2DNMR,ORD&CDareuseful inestablishingthestructureofthemolecule.

Syllabus

Course Details:-

Unit	Learning Units	Lecture Hours
I	**Proton NMR Spectrscopy**: Determination of structure of organic compounds using PMR data. Spin system, Nomenclature of spin system, spin system of simple and complex PMR spectrum (Study of AB – A2 – AB2. ABX – ABC – AMX interactions) Simplification of complex spectra- nuclear magnetic double resonance, chemical shift reagents, solvent effects on PMR Spectrum . Nuclear Overhauser Effect (NOE).	12
II	**13C-NMR spectroscopy:** Similarities and Difference between PMR and CMR-CMR recording techniques -BBC-BBD-SFORD-Gate pulse CMR spectrum. General considerations, chemical shift (aliphatic, olefinic, alkyne, aromatic, heteroaromatic and carbonylcarbon), coupling constants.Typical examples of CMR spectroscopy – simple problems.	12
III	**ORD& CD Curves:** Optical rotatory dispersion : Theory of optical rotatory dispersion – Cotton effect –CD curves-types of ORD and CD curves-similarities and difference between ORD and CD curves. α- Halo keto rule, Octant rule – application in structural studies.	12
IV	**2D NMR spectroscopy:** Definitions and importance of COSY, DEPT, HOMCOR, HETCOR,INADEQUATE, INDOR, INEPT, NOESY, HOM2DJ, HET2DJ. Study of COSY ,DEPT, HOMCOR, HETCOR, INADEQUATE INDOR INEPT ,NOESY HOM2DJ, HET2DJ, taking simple organic compounds as examples.	12
V	Structural Elucidation of Organic compounds Using UV, IR, 1H-NMR, 13C-NMR and Mass spectroscopy.	12

Reference Books:

1. Introduction to Spectroscopy – D. L. Pavia, G.M. Lampman, G. S. Kriz, 3rdEd. (Harcourt College publishers).
2. Spectrometric identification of organic compounds R. M. Silverstein, F. X. Webster, 6th Ed.John Wiley andSons.
3. Spectroscopic methods in organic chemistry - D. H. Williams and I Flemming McGraw Hill, 4thedition.
4. Absorption spectroscopy of organic molecules – V. M.Parikh
5. Organic structural Spectroscopy- Joseph B.Lambert, Shurvell, Lightner,Cooks, Prentice-Hall (1998).
6. Organic structures from spectra –Field L.D., Kalman J.R. and Sternhell S. 4thEd. John Wiley and sonsLtd.
7. Organic spectroscopy – Principle & Applications – Jag Mohan, Narosa, 2ndedition, Publishinghouse.

Course Focus: Employability &**E**ntrepreneurship.

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NAAC reaccredited at 'A' level

Autonomous -ISO 9001 – 2015 Certified

Title of the Paper: ORGANIC REACTIONS & MECHANISMS
Semester: III

Course Code	**20CH3T2**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: -----	Percentage of Revision: 0

CourseObjective: Themainobjectiveofthispaperistogiveabasicandupdatedknowledgeforthe studentsonOxidations,Reductions,MolecularRearrangements,PericyclicReactionsandOrganic PhotoChemistry.

Course Outcomes:-

CO1 : Acquire sound knowledge of oxidations, reductions, molecularrearrangements, pericyclic reactions and photochemistry.
CO2 : Understand the concepts involved in oxidations, reductions, molecularrearrangements, pericyclic reactions and photochemistry.
CO3 : Apply the conceptual knowledge gained in oxidations, reductions, molecular rearrangements, pericyclic reactions and photo chemistry in chosen fields.
CO4 : Analyse and categorise the various types oxidations, reductions, molecular rearrangements, pericyclic reactions and photo chemistry in a given reactions.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Oxidations** Definition and types of Oxidations, oxidations with ruthenium tetroxide, NBS, iodobenzenediacetate, Tl(III) nitrate, Chromium (VI) oxidants, Lead tetra acetate, SeO_2, MnO_2, Ag_2CO_3, Oppenauer oxidation, perhydroxylation using $KMnO_4$, OsO_4, HIO_4, oxidation with iodine silver carboxylate (Woodward and Prevostconditions), Definition & mechanism of epoxidation by peracids.	12

II	**Reductions** Definition and types of reductions, reduction by dissolving metals - Reduction with metal and liquid ammonia (Birch Reduction of aromatic compounds), Reduction with metal acid - Clemensons reduction, Reduction by hydride transfer reagents, Aluminiumalkoxide - MeerweinPondorfVerley Reduction, $LiAlH_4$, $NaBH_4$, Diisobutylaluminiumhydride(DIBAL), Sodium cyanoborohydride, trialkyl borohydrides, Reduction with diimide,. Wolff-Kishnerreduction.	12
III	**Molecular Rearrangements** Migration to electron deficient carbon atom. Pinacole-Pinacolone rearrangement, Wagner-Meerwein rearrangement, Dienone-Phenol rearrangement, Benzil-Benzilic acid rearrangement, Favorski rearrangement, ARNDT Eistert rearrangement,Sommelet – Hauser rearrangement. Migration to electron deficient hetero atom:.Wolf, Hofmann, Curtius, Lossen, Schmidt, Beckmann rearrangement, Baeyer-Villiger rearrangement, Stevens, Neber rearrangements. Fries, Fischer-Hepp,Orton,Bamberger,Dakin,CumeneHydroperoxide rearrangement.	12
IV	**Pericyclic Reactions – I:** Definition, classification of pericyclic reactions, Molecular Orbital energy level diagrams, electronic configuration in ground and first excited states of Ethylene, 1,3-Butadiene, 1,3,5 – Hexatriene, allyl system, stereo chemical notations – suprafacial, antarafacial, conrotatory and disrotatory modes, Woodward and Hoffmann selection rules. **Electrocyclic reactions**: Mechanism, Stereochemistry of (4n) and (4n+2) π systems. PMO, FMO and correlation methods. **Cyclo additions**: Mechanism, stereochemistry of (2+2) and (4+2) π systems, PMO, FMO and correlation methods. **Sigmatropic rearrangements**: Classification, mechanism for FMO and PMO approach under thermal and photo chemical conditions. (Detailed treatment of Claisen, Cope rearrangements fluxional molecules, aza-cope rearrangements).	12
V	**Photochemistry:** Photochemical processes: Energy transfer, sensitization and quenching. Singlet and triplet states and their reactivity. Photochemistry of olefins – conjugated olefins, Aromatic compounds–isomerisation–additions. Photochemistry of carbonyl compounds – Norrish type I and II reactions –Paterno – Buchi Reaction. Photoreduction, Photochemical rearrangements–Photo Fries rearrangement, Di-π-methane rearrangement, Barton reaction.	12

Reference Books:

1. Molecular reactions and Photochemistry by Charles Dupey and O. Chapman, PrenticeHall.
2. Reaction mechanism in organic chemistry. 3rd edition, S.M.Mukherji&singh.
3. Advanced Organic Chemistry-Reactions, Mechanisms and Structure, Jerry March, John Wiley and sons, 6thedition.
4. Advanced Organic Chemistry, F.A. Carey and R.J Sundberg,Plenum.
5. Modern methods of organic synthesis, Cambridge University press, 3rd edition,W.Carruthers.
6. Organic Reaction Mechanisms, V.K.Ahluwalia, 4th edition,Narosa.
7. Reactions, rearrangements and reagents.S.N.Sanyal,4thedition.
8. Organic Photo chemistry and Pericyclic reactions' M.G.AroraAnmol Publications Pvt.Ltd.
9. Fundamentals of Photochemistry by K.K.Rohatgi–Mukherjee New Age internationalpublishers.

Course Focus: Employability &**E**ntrepreneurship.

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Title of the Paper: ORGANIC SYNTHESIS
Semester: III

Course Code	**20CH3T3A**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: -----	Percentage of Revision: 0%

CourseObjective: Themainobjectiveofthispaperistogiveabasicandupdatedknowledgeforthe studentsonFormationofC-Csingle&doublebonds,Diels–Aiderandrelatedreactions,Retro SyntheticAnalysisandProtectingGroups.

Course Outcomes:

CO1 : Memorize the concepts, principles and theories related to formation of C – C single bond, C – C double bond, Diel's Alder related reactions. Protecting groups and disconnection approach in organic synthesis.

CO2 : Understand the role and significance of formation of C – C single bond, C – C double bond, Diel's Alder related reactions. Protecting groups and disconnection approach in organic synthesis.

CO3 : Apply the conceptual knowledge gained in formation of C – C single bond, C – C double bond, Diel's Alder related reactions. Protecting groups and disconnection approach in organic synthesis as and when required.

CO4 : Analyze the role of various reagents in carrying out the organic reactions like formation of C – C single bond,C – C double bond, Diel's Alder related reactions. Protecting groups and disconnection approach in organic synthesis.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Formation of carbon-carbon single bonds:** Alkylation of relatively acidic methylene groups, alkylation of ketones, enamine and related reactions, umplong (dipole inversion). Allylic alkylation of alkenes, alkylation of α-thiocarbanions-α- selenocarbanions, formation of carbon carbon single bonds by the addition of free radicals to alkenes, synthetic applications of carbenes and carbenoids.	12

II	**Formation of carbon-carbon double bonds** Pyrolytic syn elimination reactions sulphoxide-sulphonate rearrangement, synthesis of allyl alcohols, the witting reaction, alkenes from sulphones, decarboxylation of β-lactones, alkenes from aryl sulphonyl hydrazones. Stereo selective synthesis of tri and tetra substituted alkenes, oxidative decarboxylation of carboxylic acids, stereospecific synthesis from 1,2-diols, reductive dimerization of carbonyl compounds.	12
III	**Diels–Aider and related reactions**: The dienophile, heterodienophile, oxygen as dienophile, The diene, acyclic dienes, heterodienes, 1,2-dimethylene cycloalkanes, vinyl cycloalkenes, and vinyl arenes, cyclic dienes and furans. Intra molecular Diels –Alder reactions, stereochemistry and mechanism of Diels – Alder reaction, retro Diels – Alder reaction, catalysis by lewis acids, photosensitized Diels- Alder reactions and 1,3-dipolar cycloaddition reactions, the ene reaction.	12
IV	**Disconnection approach** Introduction to Retro-synthetic analysis, Disconnection approach with suitable examples, Definitions: FGI, Disconnection, synthons, synthetic equivalent, reagent, target molecule, General strategy: choosing a disconnection, greatest simplification, symmetry, high yielding steps, recognizable startingmaterials. Chemo, regio and stereo selectivity with examples. One group C-C disconnections-Alcohols, carbonyl compounds, alkene synthesis, two group disconnections: 1,3 – dicarbonyl compounds, α,β – unsaturated carbonyl compounds.	12
V	**Protecting groups:** Theory and importance of functional group protection and deprotection in organic synthesis:-Protecting agents for the protection of functional groups: Hydroxyl group, Amino group, Carbonyl group and Carboxylic acid group carbon-carbon multiple bonds; chemo- and regioselective protection and deprotection. Illustration of protection and deprotection in organic synthesis.	12

Reference Books:

1. Modern methods of Organic synthesis ,W. Carruthers Cambridge Press (3rdedition)
2. Principles of Organic synthesis by, ROC Norman, 3rd edition, CRCpress.
3. Modern Method of Organic Synthesis ,Carruthers and ColdhamSachinkumar Ghosh, Canbridge New Central Book Agency,1stedition.
4. Advances in Organic Reaction mechanism and structure, J. March, 6th edition, McGrewHill
5. Organic Synthesis: Ratnakumarkar, vol – II, NCBAPublications.

Course Focus: Employability &Entrepreneurshi

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Title of the Paper: CHEMISTRY OF NATURAL PRODUCTS

Semester: III

Course Code	**20CH3T4B**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2020-2021	Year of Offering: 2021 - 22	Year of Revision: ------	Percentage of Revision: 0%

Course Objective: The main objective of this paper is to give a basic and updated knowledge for the students on Alkaloids, Terpenoids, Steroids, Flavonoids, Isoflavonoids and Plant pigments.

Course Outcomes:-

CO1 : Memorize the concepts related to Alkaloids, Terpenoids, Steroids, Flavonoids and Isoflavonoids andPigments.

CO2 : Understand the chemical role of Alkaloids, Terpenoids, Steroids, Flavonoids and Isoflavonoids andPigments.

CO3 : Execute the conceptual knowledge gained in the areas of Alkaloids, Terpenoids, Steroids, Flavonoids and Isoflavonoids and Pigments.

CO4 : Analyze the role of methods involved in structure elucidation of Alkaloids, Terpenoids, Steroids, Flavonoids and Isoflavonoids and Pigments.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	**Alkaloids:** Introduction, Definition, occurrence, role of alkaloids in plants, classification, isolation and general methods for structural elucidation of alkaloids. Structure elucidation of Morphine, Quinine.	12
II	**Terpenoids**:Introduction,Definition,nomenclature,classification, isolation, isoprene rule and general methods for structural elucidation of Terpenoids. Structure elucidationof Zingiberene, , farnesol.	12
III	**Steroids:** Introduction, Definition, nomenclature, classification. Occurrence, isolation, physiological action, structure elucidation of Androsterone, Progesterone.	12
IV	**Flavonoids and Isoflavonoids:** Introduction, Definition, classification, isolation, physiological action, structure elucidation of Kaempferol and Quercetin.	12
V	**Pigments:** Introduction, classification of natural pigments, introduction and classification of carotenoids, functions of carotenoids in plants and animals, structure and synthesis of α – carotene and β – carotene.	12

Reference Books:

1. Organic Chemistry, Vol:2, I.L.Finar, 5thEdition.
2. Chemistry of Natural Products,K.W.Bentley, oxford AT the clarendon press, 1stedition.
3. ChemistryofNaturalproductsbyP.S.KalsiKalyaniPublishers.1983, low cost university edition.
4. Chemistry and physiology ofalkaloids by ManskeVol.I&II,VII, Academic press Inc., publishers Newyork, 1stedition.

Course Focus: Employability & Entrepreneurship.

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Title of the Paper: POLYMER CHEMISTRY
Semester: III

Course Code	**20OECH**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction : 2021 - 22	Year of Offering: 2021 - 22	Year of Revision: ----	Percentage of Revision: ----

CourseObjective: Themainobjectiveofthispaperistogiveabasicandupdatedknowledgeforthe students on Polymerchemistry.

Course Outcomes:

CO1 : Memorize the concepts related to polymer chemistry

CO2 : Understand the concepts of polymer chemistry

CO3 : Apply the knowledge gained in polymer chemistry in chosen job role.

Syllabus

Course Details

Unit	Learning Units	Lecture Hours
I	Introduction, Classification of polymers, Polymerization, chain polymerization, step polymerization, Co polymerization, Free radical chain polymerization, cationic polymerization, anionic polymerization, Polymerization Techniques, Graft and Block Copolymers.	12
II	Polymer Synthesis,Isolation and Purification of polymers, Polymer Fractionation, Molecular weight determination,Molecular weight determination curve, Processing Techniques.	12
III	Polymer Reactions–Introduction, Hydrolysis, Acidolysis, Aminolysis, Hydrogenation, Addition and Substitution Reactions, Cyclisation reactions, Cross-linking Reactions.	12

IV	Polymer Degradation – Definition, Types of Degradation, Thermal Degradation, Mechanical Degradation, Degradation by Ultrasonic Waves, Photodegradation, Degradation by High-Energy Radiation, Oxidative Degradation, Hydrolytic Degradation.	12
V	Plastics, Fibres, Elastomers-Polyethylene, Polystyrene, PolyEsters, PolyAcrylonitrile, Polyurethanes, Polyvinyl Chloride, Polyisoprenes. Resins–Phenol Formaldehyde Resin, Urea Formaldehyde and Melamine–Formaldehyde Resins,Epoxy Polymers, Silicon Polymers.	12

Reference Books:

1. Textbook of Polymer Science byFrod,W.Billmayer,

2. An Introduction to Polymer Chemistry byMoore.

3. Polymer Chemistry-An Introduction byM.P.Stevens.

4. Polymer Science –VRGowariker, NVViswanathan,JayadevSreedhar.

Course Focus : Employability .

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Title of the Paper: ORGANIC PREPARATIONS

Semester: III

Course Code	**20CH3L1**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: -----	Percentage of Revision:0%

Course Objective: The main objective of this paper is to give a basic and updated knowledge for the students on organic chemistry practical.

Course Outcomes:-

CO1: Memorize the principle involved in various organic preparations.

CO2: Understand the mechanism involved in organic preparation.

CO3: Apply the knowledge of organic preparations in their chosen field.

Syllabus

Course Details:-

1. Preparation of organic compounds: Three stage preparations by reactions involving nitration, halogenation, oxidation, reduction, alkylation, acylation, condensation and rearrangement. (A student is expected to prepare at least five different organic compounds by making use of the reactions given above).

2. Green Procedures for organic compound preparations (atleast 5preparations).

Course Focus: Skill Development & Employability

A.G.& S.G. SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

Vuyyuru- 521165.

NAAC reaccredited at 'A' level

Autonomous -ISO 9001 – 2015Certified

Title of the Paper: Mixture Analysis

Semester: III

Course Code	**20CH3L2**	Course Delivery Method	Class Room / Blended Mode - Both
Credits	4	CIA Marks	30
No. of Lecture Hours / Week	4	Semester End Exam Marks	70
Total Number of Lecture Hours	60	Total Marks	100
Year of Introduction :2020-21	Year of Offering: 2021 - 22	Year of Revision: -----	Percentage of Revision: 0 %

Course Objective: The main objective of this paper is to give a basic and updated knowledge for the students on Analysis of organic binary mixtures.

Course Outcomes:-

CO1 : Get familiarized with the tests involved to identification of various functional groups.

CO2 : Understand the theory involved in identification and separation of the given organic mixture based on the solubility

CO3 : Apply the knowledge to identify various functional groups present in the given organic compound by using a systematic procedure.

Syllabus

Course Details:-

Analysis of organic binary mixtures: Separation and identification of organic binary mixtures (The students must be given training in at least 10 mixtures with different functional groups).

Note: For semester end examinations the student has to submit at least two solid derivatives for each individual component.

Course Focus: Skill Development & Employability

M.Sc. DEGREE EXAMINATION
THIRD SEMESTER
Paper-I:: ADVANCED ORGANIC SPECTROSCOPY

Time:3hours **Maximum Marks:70**

SECTION – A

Answer all the questions. Each question carries2marks. (10x2M=20M)

1. a) Explain the importance ofDoubleirradiation. (CO-1)
   b) Write a short note on nomenclature ofspinsystems. (CO-1)
   c) Explain the α, β &γ effects in 13 C NMR withsuitableexamples. (CO-1)
   d) Discuss the importance of off resonance decouplingCMRspectrum. (CO-1)
   e) What isCottoneffect? (CO-1)
   f) Predict the sign of cotton effect in 3-methyl cyclohaxanone when substituent is in equatorial position. (CO-1)
   g) What information is possible from theCOSYexperiment? (CO-2)
   h) Discuss about various periods involved in2D NMR. (CO-1)
   i) Discuss briefly the IR signals for the compound C6H5 – CH2 – O – CO –CH3. (CO-2)
   j) Predict the possible number of ^{1}H NMR signals for the compound CH3 – (CO) – CH2 – CH3.(CO-2)

SECTION–B **(10x5=50M)**

UNIT - I

2. a) Explain the effect of solvent onPMR spectrum. (CO-2)

(Or)

   b) Differentiate between first order and non firstorder PMR spectrumswithexamples. (CO-2)

UNIT – II

3. a) Discuss the importance of BBD & SFORD techniques in 13CNMRspectroscopy. (CO-2)

(Or)

   b) A compound of MF C4H10 in its CMR Spectrum show 17.1(q) 67.4(T). Determine the structure of compound by usingCMRdata. (CO-2)

UNIT – III

4. a) Explain the following i) Axial halo ketone rule ii) Types of optical rotatory dispersioncurves. (CO-1)

(Or)

   b) Explain the applications ofOctantrule. (CO-2)

UNIT – IV

5 a) What information about a compound can be obtained from the 2D INADEQUATEexperiment? (CO–2)

   b) Discuss the importance ofNOESY technique withsuitableexample. (CO–2)

UNIT – V

6 a) Deduce the structure of the compound consistent with the following data elemental analysis: C=32.14%H 5.35% and Cl 62.5% UV: No absorption above 210 nm, IR (CCl4) 2941,2265 and 1460cm-1PMR δ 2.72(septet,J=6.7,1H),1.33(doublet,J=6.7,6H) (CO–3)

(Or)

   b) Deduce the structure of the compound consistent with the following data elemental analysis: C=32.14%H 5.35% and Cl 62.5% UV: No absorption above 210 nm IR (CCl4) 2940,1265 and 690cm-1 and PMR δ3.5(2H,D),3.3(1H,m)and1.25(3H,d) (CO-3)

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M.Sc. DEGREE EXAMINATION
THIRD SEMESTER
Paper-II:: ORGANIC REACTIONS & MECHANISMS

Time:3hours **Maximum Marks:70**

SECTION – A

Answer all the questions. Each question carries2marks. (10x2M=20M)

1. a) Discuss oxidationswithHIO4. (CO-2)
   b) Define oxidation and discuss the various typesofoxidations. (CO-1)
   c) Write notes on reductionwithdiimide. (CO-1)
   d) Give the definition and mechanism ofclemmenson'sreduction. (CO-2)
   e) Discuss Dienonephenolrearrangement. (CO-1)
   f) Write an account ofWolfrearrangement. (CO-2)
   g) What are pericyclic reactions? Givetheclassification. (CO-1)
   h) Write the molecular orbital energy level diagram for 1,3–Butadiene. (CO-2)
   i) Write notes onenergytransfer. (CO-1)
   j) ExplainBartonreaction. (CO-2)

SECTION–B **(5x10M=50M)**

UNIT - I

2. a) Explain oxidations withi)RuO_4 ii)SeO_2 (CO-3)

(Or)

b) Explain oxidations with i) $KMnO_4$ ii)MnO_2 (CO-3)

UNIT – II

3. a) Discuss Birch reduction ofaromatic compounds. (CO-2)

(Or)

b) Discuss the reductionswith$LiAlH_4$. (CO-2)

UNIT – III

4 a) Explain the following
   i) Wagner Meerweinrearrangement ii) Benzil – Benzilicacidrearrangement. (CO-2)

(Or)

   i) Baeyer Villigerrearrangement ii) Cumenehydroperoxiderearrangement. (CO-2)

UNIT - IV

5. a) Apply correlation method to 4nπ electrocyclic reaction for thermal and photochemical conditions. (CO-3)

(Or)

b) Apply FMO method to 1,5 sigmatropic shift and write Woodward and Hoffmann rules byPMOmethod. (CO-3)

UNIT - V

6 a) Discuss Norish type – I and type –IIreactions. (CO-2)

(Or)

b) Explain the following i) photochemistry of olefins ii) Di – π – methane rearrangement.(CO-2)

******

M.Sc. DEGREE EXAMINATION
THIRD SEMESTER
Paper-III:: ORGANIC SYNTHESIS

Time:3hours **Maximum Marks:70**

SECTION – A

Answer all the questions. Each question carries2marks. (10x2M=20M)

1. a) What are acidicmethylene groups? (CO-2)
   b) Explainaboutcarbenes. (CO-1)
   c) Discuss in short aboutsynelimination. (CO-1)
   d) Elaborate Wittig reaction withanexample. (CO-2)
   e) Describe dienophile withanexample. (CO-1)
   f) What are lewis acids? Explain withan example. (CO-2)
   g) Enumerate the significance of Disconnection approach inorganicsynthesis. (CO-2)
   h) Write a short noteonsynthon. (CO-1)
   i) Discuss the role of functional group protection & deprotection in organic synthesis.(CO-2)
   j) Explain the importance ofregioselectiveprotection. (CO-2)

SECTION–B **(5x10M=50M)**

UNIT - I

2. a) Explain enamine andrelatedreactions. (CO-2)

(Or)

b) Discuss in detail the synthetic applications of carbenes and carbenoids with examples. (CO-2)

UNIT – II

3. a) Write an account of reductive dimerisationof carbonyl compoundswithexamples. (CO-2)

(Or)

b) Discuss any three methods for the stereoselective synthesis of tri and tetra substituted alkenes. (CO-2)

UNIT – III

4. a) What is Diels Alder reaction? Discuss the mechanismandstereochemistry. (CO-2)

(Or)

b) Write note on 1,3 – dipolarcycloaddition reactions. (CO-2)

UNIT - IV

5. a) Discuss the various methods of disconnectionofalcohols. (CO-3)

(Or)

b) Give an account of disconnections of 1,3 –dicarbonylcompounds. (CO-2)

UNIT – V

6. a) Discuss about the protecting agents to protect the following functionalgroups
   (i) AMINOgroup (ii)carboxylicacid. (CO-3)

(Or)

b) List out the reagents and apply them for the protection and deprotection of hydroxyl and carbonyl groups. (CO-3)

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M.Sc. DEGREE EXAMINATION
THIRD SEMESTER
Paper–IV:: CHEMISTRY OF NATURAL PRODUCTS

Time:3hours **Maximum Marks:70**

SECTION – A

Answer all the questions. Each question carries2marks. (10x2M=20M)

1. a) What arealkaloids?Explain. (CO-2)
   b) Discuss the general classificationofalkaloids. (CO-1)
   c) DiscussIsoprenerule. (CO-1)
   d) Write the structureofZingiberine. (CO-2)
   e) Write the synthesisoffarnesol. (CO-2)
   f) Discuss the nomenclatureof steroids. (CO-1)
   g) Give a short notes on classificationofflavonoids? (CO-1)
   h) Discuss the isolation of flavonoidsandisoflavonoids. (CO-2)
   i) Discuss the classification ofnaturalpigments. (CO-1)
   j) Discuss the functions of carotenoidsinplants. (CO-2)

SECTION–B **(10x5=50M)**

UNIT - I

2. a) Outline the synthesisof Morphine. (CO-2)

(Or)

b) Discuss the structure elucidationofQuinine. (CO-3)

UNIT – II

3. a) Explain the structure elucidationof santonin. (CO-2)

(Or)

b) Write notes on structure elucidation ofabieticacid. (CO-2)

UNIT – III

4. a) Establish the structure of nucleus and size of the rings A,B,C and D incholesterol. (CO-3)

(Or)

b) Establish the structure of progesterone and write any one method of synthesis. (CO-3)

UNIT - IV

5. a) Write structure elucidationofkaempferol. (CO-3)

(Or)

b) Write structure elucidationofQuercetin. (CO-3)

UNIT - V

6. a) Discuss the structure elucidation of α–carotene. (CO-3)

(Or)

b) Discuss the structure elucidation of β-carotene (CO-3)

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M.Sc.
DEGREEEXAMINATION
THIRD SEMESTER
POLYMERCHEMISTRY

Time:3hours **Maximum Marks:70**

SECTION – A

Answer all the questions. Each question carries2marks. (10x2M=20M)

1. a) Discuss about classification ofpolymers. (CO-1)
   b) Explain one polymerization reaction which involves free radical mechanism. (CO-2)
   c) Give a short account on isolation of polymers. (CO-1)
   d) Describe the purification method of polymers. (CO-1)
   e) What is hydrolysis? Explain with an example. (CO-2)
   f) What is cross – linking reaction? Explain its impact. (CO-2)
   g) List out the types of degradation methods. (CO-1)
   h) Explain ultrasonic waves degradation with an example. (CO-2)
   i) What are elastomers? Explain in brief. (CO-2)
   j) Discuss the method for the synthesis of polystyrene. (CO-2)

SECTION–B **(10x5=50M)**

UNIT - I

2. a) Explain in detail about cationic polymerization withsuitableexamples. (CO-2)

(Or)

   b) Give a detailed account on Graft andBlockcopolymers. (CO-2)

UNIT – II

3. a) Discuss in detail about molecularweightdetermination. (CO-2)

(Or)

   b) Explain elaborately about variousprocessingtechniques. (CO-2)

UNIT – III

4. a) Illustrate the following with suitable examples (i) Aminolysis (ii)Cyclisationreactions. (CO-2)

(Or)

   b) Write an account on addition & substitution reactions withsuitableexamples. (CO-2)

UNIT – IV

5 a) Describe the following degradation methods with suitableexamples
   (i) Thermaldegradation (ii)Photodegradation (CO–2)
   b) Discuss the significance of oxidative degradation andhydrolytic degradation. (CO–2)

UNIT – V

6 a) Give an account on the following (i) Polyacrylonitrile(ii)Polyurethanes (CO–2)

(Or)

   b) Elaborate the following in detail (i) Epoxy polymers (ii)Siliconpolymers (CO-2)

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AG & SG SIDDHARTHA DEGREE COLLEGE OF ARTS &SCIENCE
(AUTONOMOUS) VUYYURU- 521165

Re-Accredited by NAAC with 'A' Grade

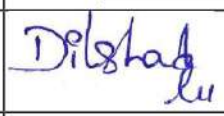
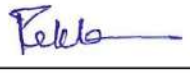
2022-2023

PG Department of Chemistry

Minutes of the meeting of Board of Studies

03-04-2023

Members Present:-

S.No	NAME		Signature
1	**Dr. V.Sreeram** Head, Dept. ofChemistry(P.G) AG & SG S College,Vuyyuru.	Chairman	
2	**Prof.C.Suresh Reddy** Department ofChemistry S.V. University,Tirupati.	University Nominee	
3	**Prof. Koya Prabakar Rao** Department of Chemistry Vignan University, Guntur.	Subject Expert	
4	**Dr.M.Sivanath** Associate prof. Dept. of Chemistry A.N.R.College, Gudivada.	Subject Expert	
5	**Dr.G.Raja** Manager(Q.A) Biophore India pharamaceuticals. Hyderbad.	Representative from Industry	
6	**Abdul Raheem**	One Post Graduate Meritorious Aluminous nominated by the Principal	
7	**N.V.Srinivasa Rao** Department of Mathematics AG & SG S College, Vuyyuru.	Representative Science Faculty Other Dept.	
8	**V.N.V.Kishore** Dept. of Chemistry(P.G) AG & SG S College, Vuyyuru	Member	
9	**Dilshad Begum** Dept. of Chemistry(P.G) AG & SG S College, Vuyyuru	Member	
10	**M.Rekha** Dept. of Chemistry(P.G) AG & SG S College, Vuyyuru	Member	

A.G. & S.G. Siddhartha Degree College of Arts &Science, Vuyyuru – 521165.
(An Autonomous College in the jurisdiction of Krishna University)

DEPARTMENT OF CHEMISTRY (P.G)

Board of Studies for the academic Year 2022-23 (Even (2& 4th) Semesters)

1. Agenda:

Agendafor Board of studies in **Chemistry** on 03-04-2023 through online mode at 04:00P.M.

1. Approval of programme structure II Semester for the batch of students admitted in the year 2022-2023 onwards
2. Approval of syllabus for II semester for the batch of students admitted in the year 2022 – 2023 as per revised guidelines / curriculum of Krishna University and with no revision of syllabus of IV semester for the batch of students admitted in the year 2021-2023 batch.
3. Approval of the syllabus of semester – II & IV with course out comes drafted inline with levels of blooms taxonomy.
4. Approval of modified model question papers for II semester & unmodified model question papers for IV semester inline with Bloom's taxonomy.
5. Any other with the permission of the chair.

A.G.& S.G.SIDDHARTHADEGREE COLLEGE OF ARTS & SCIENCE
DEPARTMENT OF CHEMISTRY

PROPOSED COURSE STRUCTURE FOR PG PROGRAMS (SCIENCE SRTREAM)

UNDER CHOICE BASED CREDIT SYSTEM (CBCS)
W.E.F 2022-23 (R22 Regulations)

I SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE / IDC/DSE/ SEC/OEC/ MOOCS	Internal Marks	External Marks	No. of Credits
		Lecture	Practical	Tutorial				
22CH1T1	General Chemistry	4	0	0	Core	30	70	4
22CH1T2	Inorganic Chemistry	4	0	0	Core	30	70	4
22CH1T3	Introductory Organic Chemistry	4	0	0	Core	30	70	4
22CH1T4	Physical Chemistry	4	0	0	Core	30	70	4
COMPULSORY 22PG101	**Personality Development through Life Enlightenment Skills**	3	1	0	Core	30	70	3
22CH1L1	Inorganic chemistry Practical	0	6	0	Core	30	70	3
22CH1L2	Organic chemistry Practical -I	0	6	0	Core	30	70	3
TOTAL FOR FIRST SEMESTER						**210**	**490**	**25**

II SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE / IDC/DSE/ SEC/ OEC/ MOOCS	Internal Marks	External Marks	No. of Credits
		Lecture	Practical	Tutorial				
22CH2T1	Advanced Inorganic Chemistry	4	0	0	Core	30	70	4
22CH2T	Advanced	4	0	0	Core	30	70	4

2	OrganicChemistry							
22CH2T3	Advanced Physical Chemistry	4	0	0	Core	30	70	4
COMPULSORY 22PG201	**Research Methodology & IPR**	3	1	0	SEC	30	70	3
DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY ONE)								
22CH2E1	Molecular Spectroscopy	4	0	0	DSE	30	70	4
22CH2E2	Instrumental methods of Analysis	4	0	0	DSE	30	70	4
22CH2E3	Analysis of foods & Drugs	4	0	0	DSE	30	70	4
LAB PRACTICALS								
22CH2L1	Physical chemistry Practical	0	6	0	Core	30	70	3
22CH2L2	Organic chemistry Practical-II	0	6	0	Core	30	70	3
TOTAL FOR SECOND SEMESTER						**210**	**490**	**25**

At the end of 2nd semester, every student must undergo summer Internship/ Apprenticeship/Project work/Industrial training/Research based Project work for Six weeks and must prepare a report concerned as per approved project guidelines, and submit the same to the University 14 days before the commencement of third semester end examinations.

III SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE / IDC/DSE / SEC/OEC/MOOCS	Internal Marks	External Marks	No. of Credits
		Lecture	Practical	Tutorial				
22CH3T1	Organic Spectroscopy	4	0	0	Core	30	70	4
DOMAIN SPE22CH3E1CIFIC ELECTIVE COURSES (CHOOSE ANY THREE)								
22CH3E1	Organic Reaction mechanism	4	0	0	DSE	30	70	4
22CH3E2	Organic Synthesis	4	0	0	DSE	30	70	4
22CH3E3	Natural Products	4	0	0	DSE	30	70	4
22CH3E4	Separation Techniques & Electro analytical	4	0	0	DSE	30	70	4

	techniques							
22CH3E5	Marine Chemistry or Chemistry of Drugs	4	0	0	DSE	30	70	4
22CH3E6	Antibiotics, Drugs, Vitamins & Steroid harmones	4	0	0	DSE	30	70	4
LAB PRACTICALS								
22CH3L1	Organic Preparations	0	6	0	Core	30	70	3
22CH3L2	Organic Binary mixture Analysis.	0	6	0	Core	30	70	3
OPEN ELECTIVE (INTERDISCIPLINARY/MULTIDISCIPLINARY) COURSES (CHOOSE ANY ONE)								
22OE301	Polymer Chemistry	3	0	0	OEC	30	70	3
22OE302	Basic Bio Chemistry	3	0	0	OEC	30	70	3
22OE303	Basic Analytical Chemistry	3	0	0	OEC	30	70	3
		3	0	0	OEC	30	70	3
		3	0	0	OEC	30	70	3
TOTAL FOR III SEMESTER						**210**	**490**	**25**

IV SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE / IDC/DSE/ SEC/OEC/MOOCS	Internal Marks	External Marks	No. of Credits
		Lecture	Practical	Tutorial				
22CH4T1	Advanced Organic Spectroscopy	4	0	0	Core	30	70	4
DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY THREE)								
22CH4E1	Green Chemistry	4	0	0	DSE	30	70	4
22CH4E2	Techniques for Modern Industrial applications	4	0	0	DSE	30	70	4
22CH4E3	Nano Chemistry	4	0	0	DSE	30	70	4
22CH4E5	Bio-organic chemistry	4	0	0	DSE	30	70	4
22CH4E6	Bio-Inorganic Chemistry	4	0	0	DSE	30	70	4
22CH4E7	Environmental chemistry	4	0	0	DSE	30	70	4
LAB PRACTICALS								
22CH4L1	Organic Estimations	0	6	0	Core	30	70	3
ENTREPRENURAL & INNOVATION/IT SKILL RELATED TO DOMAIN SPECIFIC ELECTIVE								

COURSES (CHOOSE ANY ONE)								
22CH4E8	Asymmetric Synthesis	3	0	0	SEC	30	70	3
22CH4E4	Organo metallic Chemistry	3	0	0	SEC	30	70	3
22CH4E9	Heterocyclic chemistry	3	0	0	SEC	30	70	3
CHOOSE MOOCs FROM SWAYAM/NPTEL SOURCES								
MOOCS	22CH4M1							4
PROJECT WORK EVALUATION AND VIVA-VOCE - 22CH4P1							100	4
TOTAL FOR IV SEMESTER						**180**	**520**	**30**

Note: Students may be allowed to register and appear for MOOCS from the third semester itself. However, students are to complete the MOOCS successfully and submit pass certificate of the same to the University through the Principal of the College concerned for approval and endorsement of the same on grade cards and PCs and ODs as per the regulations of the University.

Resolutions/ Recommendations

Resolution –I

1. It is resolved and recommended to implement the course structure as per R 22 regulations of Krishna University.

Resolution –II

2. a) It is resolved and recommended to continue with the same syllabus for the course code 22CH2T1. However here after the course title will be referred as Advanced Inorganic chemistry instead of Inorganic chemistry – II.
   b) It is resolved and recommended to continue with the same syllabus for the course code 22CH2T2. However here after the course title will be referred as Advanced organic chemistry instead of Organic chemistry –II.
   c) It is resolved and recommended to continue with the same syllabus for the course code 22CH3T3. However here after the course title will be referred as Advanced Physical chemistry instead of Physical chemistry – II.
   d) It resolved and recommended to Introduce new paper Reasearch methdology & IPR with Course code 22PG201 for the batch students admitted in 2022-2023 and onwards
   e) It is resolved and recommended to implement the modified & modified semester syllabus and modified model question papers for all the papers of Second semester.

Resolution –III

3. Resolved and recommended to introduce the course outcomes in line with the guidelines of OBE

Following Bloom's Taxonomy for all the courses (both theory and practical) in semester –I I of M.Sc (org.Chemistry) for the students admitted in the academic year 2022-23 and onwards.

4. Resolved to implement the revised syllabus for both theory and practicals with revision for Semester-IV students admitted batch 2021-23. The courses of semesters II& IV are listed below.

Semester – II:

Paper	Title of the Paper	Code
Paper-I	Advanced Inorganic Chemistry	22CH2T1
Paper-II	Advanced organic Chemistry	22CH2T2
Paper-III	Advanced Physical Chemistry	22CH2T3
Paper-IV	Molecular Spectroscopy	22CH2E1
Paper-V	Research Methodology & IPR	22PG201
Practical-I	Physical Chemistry Practical	22CH2L1
Practical-II	Organic Chemistry Practical-II	22CH2L2

Semester – IV:

Paper	Title of the Paper	Code
Paper-I	MooCs(Analytical Chemistry)	22CH4T1
Paper-II	Hetero Cyclic Chemistry	22CH4T2A
Paper-III	Green Chemistry	22CH4T2B
Paper-IV	Techniques For Modern Industrial Applications	22CH4T3A
Paper-V	Nano Chemistry	22CH4T3B
Paper-VI	Organo Metallic Reagents	22CH4T4
Practical-I	Organic Estimations	22CH4L1
Practical-II	Project Work	22CH4L2

A.G.& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE
DEPARTMENT OF CHEMISTRY
M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)
II SEMESTER
Paper Code & Title: 22CH2T1: ADVANCED INORGANIC CHEMISTRY

No. of hours per week: 04 **Total credits: 04**
Total marks: 100 **(Internal: 30 M & External: 70M)**

Course: Advanced Inorganic chemistry (code 22CH2T1)		
S.No	COURSE OUTCOMES	PO`S
	The graduate will be able to	
1	Memorize the fundamental concepts of Metallic & non metallic clusters, Inorganic reaction mechanisms, organo metallic chemistry, electronic spectra & magnetic properties of complexes and bioinorganic chemistry.	2,7
2	Comprehend the basic and advanced concepts of metallic & non metallic clusters, Inorganic reaction mechanisms, organo metallic chemistry, electronic & magnetic properties of complexes and bioinorganic chemistry.	1,2,6
3	Apply the conceptual knowledge gained in the areas of metallic & nonmetallic clusters, inorganic reaction mechanisms, organo metallic chemistry, electronic & magnetic properties of complexes and bio inorganic chemistry in other fields of chemistry as well as in research.	1,2,7
4	Analyze the role of metallic & non metallic clusters / cages, inorganic Reaction mechanisms, organo metallic chemistry, electronic & magnetic properties of complexes and bio inorganic chemistry in understanding the similarities and differences among the concepts of chemistry.	1,3,2

Unit-I: Non-metal cages and metal clusters:
Structure and bonding in phosphorous-oxygen, phosphorous-Sulphur cages; structure and bonding in higher boranes with (special reference to B12 icosahedra). Carboranes, metalloboranes, metallocarboranes. Classification- LNCs and HNCs**,** Isoelectronic and Isolobal relationships, electron counting rules: Wade's and Lauher's rules. M-M multiple bonding; preparation, structure and bonding in dinuclear [Re2Cl8] 2- ion, trinuclear [Re3Cl9], tetra nuclear W4(OR)16, hexa nuclear [Mo6Cl8]4+ and [Nb6Cl12]2-.

Unit-II: Organometallic chemistry of transition metals:

Classification and electron counting rules, hapticity, synthesis, structure and bonding of Olefinic complexes, Acetylene complexes, ferrocene, dibenzene chromium, cyclo heptatriene and tropylium complexes of transition metals. Reactions of organometallic compounds - oxidative addition reductive elimination, insertion and elimination. Applications of organometallic compounds, Catalytic hydrogenation,
Hydroformylation, alkene polymerization.

Unit-III: Reaction mechanism of transition metal complexes:
Kinetics of octahedral substitution, acid hydrolysis, base hydrolysis-conjugate base (CB) mechanism. Direct and indirect evidences in favour of CB mechanism. Anation reactions. Reactions without metal-ligand bond cleavage. Factors affecting the substitution reactions in octahedral complexes. Trans effect on substitution reactions in square planar complexes. Mechanism of redox reactions, outer sphere mechanism, cross reactions and Marcus –Hush equation, inner sphere mechanism.

Unit-IV: Term symbols and Electronic spectra: Term symbols:
Term symbols and their derivation, Microstates, Hunds rules to predict ground terms and ground states. List of ground energy and higher energy terms from d1 to d9 configurations;
Electronic spectra of transition metal complexes:
Spectroscopic terms. Selection rules, Slator–Condon parameters, Racah parameters, Term separation energies for dn configurations, Orgel diagrams. Tanabe-Sugano diagrams for d1 to d9 configurations. Calculations of Dq, B and β parameters. Charge transfer spectra.

Unit-V: Bio-inorganic chemistry and Magnetic properties of complexes:
Storage and transport of dioxygen by Hemoglobin and Myoglobin, Vitamin B12 and its importance.
Magnetic properties of transition metal complexes:
Types of magnetism, factors affecting Para magnetism, anomalous magnetic moments - Orbital and spin contribution, spin-orbit coupling and magnetic moments chiro optical properties, cotton effect and Faraday effect.

Text books/ Reference books:

1. Inorganic Chemistry by Huheey. Harper and Row.
2. Concise inorganic chemistry by J. D. Lee, ELBS.
3. Inorganic chemistry, K.F. Purcell and J.C. Kotz, Holt Saunders international
4. Organometallic chemistry by R.C. Mehrotra and A. Singh. New Age International.
5. Advanced Inorganic Chemistry by Cotton and Wilkinson, Wiley Eastern
6. Inorganic reaction mechanism by Basolo and Pearson, Wiley Eastern
7. Bioinorganic Chemistry by K. Hussan Reddy
8. Biological Aspects of inorganic chemistry by A. W.Addiso, W. R. Cullen, D.Dorphin and G. J. James. WelieyInterscience.
9. Photochemistry of coordination compounds by V. BalzaniandV.Carassiti. Academic Press.
10. Text book of Coordination chemistry by K. Soma Sekhara Rao and K.N.K. Vani, Kalyani Publish

A.G.& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE
DEPARTMENT OF CHEMISTRY
M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)
II SEMESTER

Paper Code & Title: 22CH2T2: ADVANCED ORGANIC CHEMISTRY

No. of hours per week: 04 **Total credits: 04**
Total marks: 100 **(Internal: 30 M & External: 70M)**

Course: Advanced Organic chemistry (code 22CH2T2)		
S.No	COURSE OUTCOMES	PO`S
	The student will be able to	
1	Understand the basic and advanced concepts of stereochemistry, conformational analysis, green chemistry, nanochemistry and named reactions.	2,7
2	Apply the concepts related to stereochemistry, conformational analysis, green and nano chemistry in establishing the mechanism of the reaction.	1,2,3
3	Assess that how far the knowledge gained in stereochemistry, green chemistry and nanochemistry is useful in understanding the nature of product.	1,5,6
4	Evaluate the role of stereochemistry, green principles and nano chemistry in establishing the mechanism of a reaction as well as in other areas of chemistry.	1,4,7

Unit-I: Named reactions:
Aldol condensation, Benzoin condensation, Cannizzaro condensation, claisen condensation, Dieckmann condensation, Perkin condensation, Stobbe condensation, Reformatsky reaction, Mannich reaction, Reimer-Tiemann reaction, Vilsmeier-Haack reaction, Shapiro reaction, McMurray reaction, Michael addition reaction, Wittig reaction, Stork – Enamine reaction, Acyloin condensation, Robinson ring annulation and Simmon-Smith reaction.

Unit-II: Stereo Chemistry-I:
Concept of chirality, Recognition of Symmetry elements. Definition and classification of Stereoisomers, Enantiomer, Diastereomer, Homomer, Epimer, Anomer, Configuration and Conformation, Configurational nomenclature: D,L and R, S nomenclature. Molecular representation of organic molecules: Fischer, Newman and Sawhorse projections and their inter-conversions. Geometrical Isomerism. Cis-trans, E, Z- and Syn and anti nomenclature, Methods of determining configuration of Geometrical isomers using physical, spectral and chemical methods.

Unit-III: Stereo Chemistry-II:

Definition of Conformation, Conformational analysis of acyclic molecules – alkanes and substituted alkanes. Conformational analysis of monocyclic molecules – cyclohexane – chair, boat and twist boat - mono and disubstituted cyclohexanes and conformation around carbon hetero atom bonds having C–O & C–N. Confirmation and intramolecular hydrogen bonding.

Unit-IV: Green chemistry:
Introduction to Green chemistry, Principles and concepts of Green chemistry, Green Catalysis, Biocatalysis, renewable resources, Green Reagents, examples of green reactions-synthesis of Ibuprofen, Clean Fischer-Indole synthesis comparison of the above with conventional methods. Introduction to Microwave organic synthesis: introduction, advantages and disadvantages. Applications: solvents (water and organic solvents), solvent free reactions (Solid state reactions).

Unit-V: Chemistry of Nanomaterials:
Introduction, carbon nanotubes: structure of single and multi-walled carbon nanotubes, synthesis-solid and gaseous carbon source-based production techniques, synthesis with controlled orientation. Growth mechanism of carbon nano tubes-catalyst free growth, catalyst activated growth, general properties and applications.

Reference Text books:

1. Advanced organic chemistry –Reaction, mechanism and structure, Jerry March, John Wiley.
2. A guide book to Mechanism in organic chemistry, Peter Sykes, Longman.
3. Organic chemistry, I.L. Finar, Vol. I & II, Fifth ed. ELBS, 1975.
4. Stereo Chemistry of carbon compounds – E.L. Eliel.
5. Nano, The Essentials: T. Pradeep, The Mc. Graw Hill & Co.
6. Principles of organic synthesis, R.O.C. Norman and J.M. Coxon, Blakie Academic & Professional.
7. Reaction Mechanism in organic chemistry, S.M. Mukherji and S.P. Singh, Macmillan.
8. Green chemistry Theory and Practice by Paul T. Anastas and John C. Warner, Oxford University press.
9. Methods and reagents for Green chemistry, PietroTundo, AlvisePerosa, FulvioZecchini, John Willey& sons Inc.

NOTE: Percentage ofChange - 0%

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II SEMESTER

Paper Code & Title: 22CH2T3: ADVANCED PHYSICAL CHEMISTRY

No. of hours per week: 04 **Total credits: 04**

Total marks: 100 **(Internal: 30 M & External: 70M)**

Course: Advanced Physical chemistry (code 22CH2T3)		
S.No	COURSE OUTCOMES	PO`S
	The student will be able to	
1	Remember the concepts of thermodynamics, polymer chemistry, electro chemistry, chemical kinetics, photo chemistry and Radio chemistry.	1,2,7
2	Understand the concepts of thermodynamics, polymer chemistry, electro chemistry, chemical kinetics, photo chemistry and Radio chemistry.	1,2,7
3	Apply the concepts of thermodynamics, polymer chemistry, electro chemistry, chemical kinetics, photo chemistry and Radio chemistry in research and other allied fields.	1,2,4
4	Analyze the role and significance of concepts of thermodynamics, polymer chemistry, electro chemistry, chemical kinetics, photo chemistry and Radio chemistry.	1,2,7
5	Evaluate the role of concepts of thermodynamics, polymer chemistry, electro chemistry, chemical kinetics, photo chemistry and Radio chemistry in understanding the named concepts in chemistry.	1,2,7

Unit-I: Third law of Thermodynamics and Statistical thermodynamics:
Nernst Heat theorem - Third law of thermodynamics - Its limitations - Determination of absolute entropy -
Thermodynamic probability and most probable distribution, Entropy and probability - Boltzmann-Plank equation. Ensembles, Maxwell-Boltzmann distribution, Fermi-Dirac statistics, Bose Einstein statistics. Partition function - calculation of thermodynamic properties in terms of partition function - Chemical equilibrium and partition function - Translational, rotational and electronic partition function - Entropy of Monoatomic gases (Sackur-Tetrode equation).

Unit-II: Polymer chemistry and Raman Spectroscopy:
Classification of polymers - Free radical, ionic and Zeigler -Natta Polymerization - kinetics of free radical polymerization -Techniques of polymerization -Glass transition temperature - Factors influencing the glass transition temperature. Number average and Weight average, Molecular weights –molecular weights determinations – Membrane Osmometry, Light scattering phenomenon. Classical and quantum theories of Raman effects, pure rotational, vibrational and Vibrational- rotational Raman spectra, selection rules, mutual exclusion principle

Unit-III: Electro Chemistry-II:
Reference electrode - Standard hydrogen electrode. Calomel electrode -Indicator electrodes: Metal-metal ion electrodes - Inert electrodes -Membrane electrodes - theory of glass membrane potential, potentiometric titrations, advantages of potentiometric titrations, Conductometric titrations. Electrode potentials - Double layer at the interface - rate of charge transfer - Decomposition potential - Over potential - Tafel plots - Derivation of Butler- Volmer equation for one electron transfer - electro chemical potential.

Unit-IV: Chemical kinetics and Photo chemistry:
Branching Chain Reactions – Hydrogen oxygen reaction - lower and upper explosion limits - Fast reactions - Study of kinetics by flow methods - Relaxation methods - Flash photolysis. Acid base catalysis –protolytic and prototropic mechanism. Enzyme catalysis - Michelis-Menten kinetics.

Photochemistry:
Quantum yield and its determination, Actinometry, Reactions with low and high quantum yields, Photo sensitization, Exciplexes and Excimers, Photochemical equilibrium, Kinetics of collisional quenching - Stern- Volmer equation.

Unit-V:
Radioactivity and Isotopes: Introduction to radioactivity, properties of alpha rays, beta rays and gamma rays, theory of radioactive disintegration, rate of disintegration, Geiger – Nuttal rule, radioactive equilibrium. Isotopes - radioactive and non-radioactive isotopes, group displacement law. Analysis of isotopes – Aston's mass spectrograph, Dempster's method, Bainbridge's method. Separation methods of isotopes. Applications of Radio isotopes in Industry and medicine.

Course Learning Outcome(S):
After studying this paper, students will acquire the knowledge of Third law of Thermodynamics and Statistical thermodynamics, Polymer chemistry and Raman Spectroscopy, Electro Chemistry, Chemical kinetics and Photo chemistry, Radio activity and isotopes.

Text books/ Reference books:

1. Physical chemistry, G.K. Vemulapalli (Prentice Hall of India).
2. Physical chemistry, P.W. Atkins. ELBS.
3. Chemical kinetics - K.J. Laidler, McGraw Hill Pub.
4. Text book of Physical Chemistry, Samuel Glasstone, Macmillan pub.
5. Statistical Thermodynamics - M.C.Gupta.
6. Polymer Sceince, Gowriker,Viswanadham, Sreedhar.
7. Quantitative Analysis, A.I. Vogel, Addison Wesley Longmann Inc.
8. Physical Chemistry by G.W.Castellan, Narosa Publishing House, Prentice Hall.
9. Physical Chemistry by W.J. Moore, Prentice Hall.
10. Polymer Chemistry by Billmayer.
11. Fundamentals of Physical Chemistry by K K. Rohatgi-Mukherjee. Wiley Eastern Ltd publications.
12. Statistical Thermodynamics by M.Dole.
13. Fundamentals of photochemistry by Rohatgimukherjee, New Age international Publications.

14. Essentials of Nuclear chemistry by H.J.Armikar, New Age international Publications.

NOTE: Percentage ofChange

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II SEMESTER

Paper Code & Title: 22PG201: RESEARCHMETHODOLOGY&INTELLECTUAL PROPERTYRIGHTS(IPR)

No. of hours per week: 04 **Total credits: 03**
Total marks: 100 **(Internal: 30 M & External: 70M)**

Course: Research Methodology & Intellectual Property Rights (IPR) (code 22PG201)		
S.No	COURSE OUTCOMES	PO`S
	The student will be able to	
1	Memorize the basic concepts of research and its methodologies.	2,7
2	Understand some basic and advanced concepts of research and its methodologies.	1,4,7
3	Demonstrate the ability to choose methods appropriate to research aims and objectives.	1,3,6
4	Analyze the role of research methodologies in designing the new strategies.	1,4,5

UNITI

FoundationsofResearch

MeaningofResearch–DefinitionsofResearch–MotivationinResearch–GeneralCharacteristicsofResearch–CriteriaofGoodResearch–TypesofResearch–ResearchProcess–ResearchMethodsvs.Methodology–DefiningandFormulatingtheResearchProblem – Review of Literature – Approaches to Critical Literature Review – Importance ofLiterature Review in Identifying Research Gaps and Defining a Problem – Development ofWorkingHypothesis.

UNITII

ResearchDesign,SamplingConcepts,andDataCollectionMethods

Meaning,SignificanceandCharacteristicsofGoodResearchDesign–TypesofResearchDesign: Exploratory, Conclusive Research andExperimental – Sampling Theory:Types ofSampling and Errors in Sampling – Data Collection: Types of Data – Data Collection Methodsand TechniquesforPrimaryand SecondaryData.

UNITIII

Measurement & Scaling Techniques, Hypothesis Formulation and Testing, Overview ofDataAnalysis and Report Writing

Basic measurement scales – Reliability & Validity – Definition and Types of Hypothesis – Hypothesis Formulation and Testing Procedure – Overview of Data Analysis: Methods, Processand Types – Report Writing: Significance of Report Writing, Different Steps in Writing Report,Layout of the Research Report, Types of Reports, Oral Presentation, Mechanics of Writing aResearch Report, Precautions for WritingResearchReports– HowtoWriteaResearchProposal, Research Ethics,ConflictofInterestandPlagiarism.

UNITIV

IntellectualPropertyRights(IPR)

DefinitionandNatureandFeaturesofIntellectualPropertyRights(IPR)– TypesofIntellectualPropertyRights – Procedurefor Grantsof Patents–Rights ofaPatent –Scopeof aPatentRights
– LicensingandTransferofTechnology–Whyprotectionofintellectualpropertyisimportant?
– EnforcementofIPR–InfringementofIPR.

UNITV

IndianandInternationalScenarioandNewDevelopmentsinIPR

IPR Developments in India for the past Five Years – Development of IPR Laws in India – International Cooperation onIPR– New DevelopmentsinIPR– Administration of PatentSystem–InternationalPatent protection– CaseStudies inIndianandGlobal Contexts.

REFERENCEBOOKS:

1. Garg,B.L.,Karadia,R.,Agarwal,F.andAgarwal,U.K.,2002,AnintroductiontoResearchMethodology,RBSA Publishers.
2. Cohen,L.Lawrence,M.,&Morrison,K.(2005),ResearchMethodsinEducation(5thedition).Oxford: Oxford UniversityPress.
3. Kothari,C.R.,1990,ResearchMethodology:MethodsandTechniques,NewAgeInternational.
4. Dornyei,Z.(2007).ResearchMethodsinAppliedLinguistics.Oxford:OxfordUniversityPress.
5. Anthony,M.,Graziano,A.M.andRaulin,M.L.,2009,ResearchMethods:AProcessofInquiry,Allynand Bacon.
6. Fink,A.,2009,ConductingResearchLiteratureReviews:FromtheInternettoPaper.SagePublications.
7. Day,R.A., 1992,Howto Writeand Publisha ScientificPaper,CambridgeUniversityPress.
8. Wadehra,B.L.2000,Law relatingtopatents, trade marks,copyright designsandgeographicalindications.UniversalLaw Publishing.
9. Coley,S.M.andScheinberg,C.A.,1990,ProposalWriting,SagePublications.
10. Carlos,C.M.,2000.Intellectualpropertyrights,theWTOanddevelopingcountries:theTRIPSagreement and policyoptions,ZedBooks,New York.
11. Leedy,P.D.andOrmrod,J.E.,2004,PracticalResearch:Planning andDesign,PrenticeHall.
12. Satarkar,S.V., 2000. Intellectual propertyrightsand Copyright.EssEss Publications

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DEPARTMENT OF CHEMISTRY
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II SEMESTER Paper Code & Title: 22CH2E1: MOLECULAR SPECTROSCOPY

No. of hours per week: 04 **Total credits: 04**
Total marks: 100 **(Internal: 30 M & External: 70M)**

Course: Molecular Spectroscopy (code 22CH2E1)		
S.No	COURSE OUTCOMES	PO`S
	The graduate will be able to	
1	Memorize the basic principles and theory involved in molecular absorption spectroscopy.	2,7
2	Comprehend the advanced concepts of molecular absorption spectroscopy.	1,2,5
3	Apply the knowledge of spectroscopy in calculating the bond length, identifying the functional group present in molecules.	1,5,6
4	Identify the role UV – visible spectroscopy in the determination of absorption maximum and ESR spectroscopy in studying the properties of paramagnetic substances.	1,3,4

UNIT- I

Introduction to Molecular Spectroscopy: Motion of molecules-Degrees of freedom – Energy associated with the degrees of freedom-Type of spectra**.**

Microwave spectroscopy: Classification of molecules, rigid rotator model, effect of isotopic substitution on the transition frequencies, Intensities non-rigid rotator-Microwave spectra of polyatomic molecules.

UNIT – II

Infrared spectroscopy:

Harmonic oscillator, vibrational energies of diatomic molecules, zero point energy, force constant and bond strengths, anhormonicity Morse potential energy diagram. Vibration – rotation spectroscopy. PQR braches, Born – oppenheimer approximation, Break down Born – openheimer approximation, normal modes of vibration group frequencies, overtones, hot bands, application of IR spectra to polyatomic molecules.

UNIT – III

Unit-II: Raman Spectroscopy:

Classical and quantum theories of Raman effects, pure rotational, vibrational and Vibrational-rotational Raman spectra, selection rules, mutual exclusion principle, Resonance Raman spectroscopy, coherent antistrokes Raman Spectroscopy (CARS).

UNIT – IV

UV- Visible Spectroscopy:

Electronic Spectra of diatomic molecules, vibrational structure of an electronic transition, classification of bands, rotational fine structure of electronic vibrational transition. Electronic Spectra of Polyatomic Molecules.

UNIT – V

Electron Spin Resonance Spectroscopy:

Basic Principles, zero field splitting and kranners's degeneracy, factors affecting the 'g' value. Istropic and anisotropic hyperfine coupling constants, spin hamiltenia, spin densities measurement techniques - simple applications like methyl radical, ethyl radical etc.,

Text books/ Reference books:

1. Introduction to Spectroscopy – D. L. Pavia, G.M. Lampman, G. S. Kriz, 3rd Ed. (Harcourt college publishers).
2. Absorption spectroscopy of organic molecules – V. M. Parikh
3. Nuclear Magnetic Resonance – Basic Principles- Atta-Ur-Rehman, Springer-Verlag (1986).
4. Molecular spectroscopy by Kalidas&B.K.Sharma
5. Vibrational Spectroscopy by D.N.Sathyanarayana New Age Int. Pub.
6. Spectroscopy by Aruldas.
7. Symmetry & Spectroscopy of molecules by K.Veerareddy

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II SEMESTER

Paper Code & Title: 22CH2E2: INSTRUMENTALMETHODSOFANALYSIS
No. of hours per week: 04 **Total credits: 04**
Total marks: 100 **(Internal: 30 M & External: 70M)**

Course: Instrumental Methods of Analysis (code 22CH2E2)		
S.No	COURSE OUTCOMES	PO`S
	The graduate will be able to	
1	Memorize the basic principles of the modern methods of analysis.	2,7
2	Understand the basic and advanced concepts of modern methods (i.e Instrumental methods) of analysis.	1,2,7
3	Apply the instrumental methods of analysis in any chosen job role.	1,4,5
4	Interpret the role of these instrumental methods in the quantitative determination of constituents.	1,3,6

UNIT-I: **Spectro-analytical methods of analysis** :**Flamephotometry:**
Theory,instrumentation, combustion flames, detectors and analysis of Na, K, Ca, Mg.
Atomic AbsorptionSpectrometer: theory, instrumentation, flame and non-flame techniques, resonancelinesources,hollowcathodelamp,chemicalandspectral interferences, applications with specialreference to analysis of trace metalsin oils,alloysandtoxic metals in drinking waterandeffluents.
Inductively coupled plasma spectrometer (ICP-AES, ICP-MS):
Principles, instrumentation,plasma ,AESdetectors,quadrupolemassspectrometers,differencebetweenthetwodetectors,applications.

UNIT-II:ThermalmethodsofAnalysis:Thermometry
:Theory,instrumentation,applicationswith specialreference to $CuSO_4.5H_2O$,$CaC_2O_4.2H_2O$, $CaCO_3$, $(COOH)2.2H_2O$
Differential thermal analysis: Principle, instrumentation, difference betweenTGandDTA-applicationswithspecialreferencetotheclaysandminerals,coals(fuels).
Differential scanningcalorimetry : Principle, instrumentation, applications to inorganic materials like chlorates and per chlorates, ammonium nitrate, organic compoundsand drugs.

UNIT-III: Electro analytical Methods-1: Polarographic analysis:
Principle and Instrumentation, Dropping mercury electrode (DME),advantages and disadvantages of DME, qualitative and quantitative analysis of inorganic ions-Cu, Bi,Pb,Cd,Zn,ACpolarography,pulsepolarography.
Anodestrippingvoltametry:Principle,instrumentation,Hanginmercury dropelectrode,applicationintheanalysisofPbandCdinenvironmentalsamples,principle ofcathode strippingvoltametry.

UNIT-IV: **Electro analytical methods -2** Principle,importanttermsin electrogravimetry, decomposition voltage or decomposition potential, over voltageandtheirimportance,instrumentation,electrolysisatconstantcurrent,determinationofCu^{2+} by constant current electrolysis, electrolysis at controlled potentials, determination of Cu, Pb,Sn in brass and bronze by controlled potential electrolysis.

Coulometricanalysis: Principlesof coulometric analysis with constant current and controlled potential, coulometric analysiswithcontrolledpotential,applicationsofcoulometricmethodsforthe analysis of cations-As(III), Fe(II) and $I^-$and $S^{2-}$by using I_2 liberations and Ce^{4+} liberation in solutions.

UNIT-V: **Electro analytical methods-3 Amperometry:**Introduction, principle, conditionsfor performing amperometric titrations, advantages, titrations with rotating platinum electrode,applications.

Biamperometry: Principle,biamperometrictitrationsanditscurves,applications.

Cyclicvoltametry: Basic principles,applications.

Referencebooks:

1. Instrumentalmethodsof analysis- H.HWillard,MerittJr.andJ.ADean.
2. Principlesofinstrumentalanalysis-SkoogandWest.
3. Vogel's Textbook of Quantitative Inorganic analysis - J. Basset, R.C. Denney, G.H. Jeffereyand J.Madhan.
4. Instrumentalmethodsof analysis-B.KSarma,GoelPublishingHouse,Meerut.
5. Instrumentalmethodsof Analysis-ChatwalandAnand.
6. InstrumentalmethodsofAnalysis-EwingW.Wendtland.
7. ThermalAnalysis,John WileySons, NewYork.

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DEPARTMENT OF CHEMISTRY
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II SEMESTER

Paper Code & Title: 22CH2E3: ANALYSIS OF DRUGS, FOODS, DAIRY PRODUCTS & BIOCHEMICALANALYSIS

No. of hours per week: 04 **Total credits: 04**
Total marks: 100 **(Internal: 30 M & External: 70M)**

Course: Analysis Of Drugs, Foods, Diary Products &BiochemicalAnalysis (code 22CH2E3)		
S.No	COURSE OUTCOMES	PO`S
	The graduate will be able to	
1	Memorize the basic principles of analysis drugs. Food, dairy products and biological analysis.	2,7
2	Understand the basic and advanced concepts of drugs. Food, dairy products and biological analysis.	1,4,7
3	Apply the analysis of drugs, foods, dairy products and biological analysis in any chosen job role.	1,4,6
4	Interpret the role of the analysis of drugs, foods and biological analysis, quantitatively.	1,3,5

UNITI

Analysisofthefollowingdrugsandpharmaceuticalspreparations:(Knowledgeofmolecularformula, structure and analysis) Analysis of analgesics and antipyretics like aspirin and paracetamolAnalysisof antimalerialslikecholoroquine.Analysisof drugsinthetreatmentofinfectionsandinfestations: Amoxycillin., chloramphenicol, metronidazole, penicillin, tetracycline. Anti tuberculousdrug-isoniazid.

UNITII

Analysisofthefollowingdrugsandpharmaceuticalspreparations:(Knowledgeofmolecularformula,structureandanalysis)Analysisofantihistaminedrugsandsedativeslike:allegra,zyrtec(citirizine),alprazolam,trazodone,lorazepem.

UNITIII

Analysis of anti epileptic and anti convulsant drugs like phenobarbital and phenacemide. Analysis ofdrugsusedincaseofcardiovasculardrugs:atenolol,norvasc(amlodipine),AnalysisofLipitor(atorvastatin)adrugforthepreventinofproductinofcholesterol.
Analysis of diuretics like: furosemide (Lasix), triamterene Analysis of prevacid (lansoprazole) a drugusedforthepreventionofproductionofacidsinstomach.

UNITIV

Analysis of Milk and Milk Products: Acidity, total solids, fat, total nitrogen, protenines, lactose,phosphate activity,casein,chlorideAnalysis offoodmaterials.

Preservatives: Sodium carbonate, sodium benzoate sorbic acid Flavoring agents - Vanilla, diacetyl,isoamyl acetate, limonene, ethylpropionate, allyl hexanoate and Adulterants in rice and wheat, wheatflour,sago,coconutoil,coffeepowder,teapowder,milk.

UNITV

ClinicalAnalysisofBlood: Compositionofblood,clinicalanalysis,traceelementsinthebody.Esti mationofblood cholesterol,glucose,enzymes,RBC &WBC,Bloodgasanalyser.

ReferenceBooks:

1) F.J.Welcher-Standardmethodsofanalysis,
2) A.I.Vogel-AtextbookofquantitativeInorganicanalysis-ELBS,
3) F.D.Snell&F.M.Biffen-Commercialmethodsofanalysis-D.B.Taraporavala&sons,
4) J.J.ElvingandI.M.Kolthoff- Chemicalanalysis-Aseriesofmonographson
5) Analyticalchemistryanditsapplications--InterScience-VolItoVII.,
6) AanalyticalAgricultrualChemistrybyS.L.Chopra&J.S.Kanwar-KalyaniPublishers
7) Quantitativeanalysisofdrugsinpharmaceuticalformulationsby P.D.Sethi,CBSPublishersand Distributors,NewDelhi.
8) G.Ingram-Methodsoforganicelementalmicroanalysis-ChapmanandHall.
9) H.WincciamandBobbles(HenryJ)-Instrumentalmethodsofanalysisoffood additives.,
10) H.Edward-TheChemicalanalysisoffoods;Practicaltreatiseontheexaminationoffoodstuffsandthe detectionofadulterants,
11) Thequantitativeanalysisofdrugs- D.C.Garratt-Chapman&Hall,
12) AtextbookofpharmaceuticalanalysisbyK.A.Connors-Wiley-International,12.Comprehensivemedicinalchemistry-EdCorwinHanschVol5,PergamonPress.

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II SEMESTER
Paper Code & Title: 22CH2L1: ORGANIC CHEMISTRY PRACTICAL-II

No. of hours per week: 06 **Total credits: 03**
Total marks: 100 **(Internal: 30 M & External: 70M)**

Practical – I – Organic Chemistry (22CH2L1)

S.No	COURSE OUTCOMES	PO`S
	After completion of the course, the student will be able to :	
1	To understand the importance of organic compound synthesis and identify various functional groups in the given organic compound by using systematic procedures.	1,5,7
2	To get familiarized with the procedures of different steps involved in the compound synthesis and solubility nature of organic substances of different functional groups.	1,4,6
3	To understand mechanism for synthesis and formation of derivatives of functional groups.	1,3,6
4	To apply the procedure of recrystallisation of organic compounds and preparation of functional group derivatives as and when required.	1,6,3

List of experiments:

1. Preparation of organic compounds: Single stage preparations by reactions involving nitration, halogenation, oxidation, reduction, alkylation, acylation, condensation and rearrangement. (A student is expected to prepare at least 5 different organic compounds by making use of the reactions given above).
2. Preparation of organic compounds: Two stage preparations by reactions involving nitration, halogenation, oxidation, reduction, alkylation, acylation, condensation and rearrangement. (A student is expected to prepare at least 5 different organic compounds by making use of the reactions given above).
3. Systematic qualitative analysis of organic compounds with different functional groups (5 different compounds)

Course Learning Outcome(S): After studying this paper, students will acquire the knowledge of
Organic chemistry practical.

Text books/ Reference books:
1. A.I.Vogel, "A Text Book of Practical Organic Chemistry", Longman

2. A.I.Vogel, "Elementary Practical Organic Chemistry", Longman
3. Practical Organic Chemistry, F.G.Mann and B.C.Saunders, Longman.
4. Reaction and Synthesis in Organic Laboratory, B.S.Furniss, A.J.Hannaford, Tatchell, University Science Books Mills valley.
5. Purification of Laboratory chemicals, manual, W.L.F. Armarego EDD Perrin.
6. Reaction and Synthesis in Organic Chemistry Laboratory, Lutz-Friedjan-Tietze, TheophilEicher, University Science Book.

NOTE: Percentage ofChange - 0% (Sem – I & II merged)

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II SEMESTER

Paper Code & Title: 22CH2L2: PHYSICAL CHEMISTRY PRACTIAL

No. of hours per week: 04 **Total credits: 03**
Total marks: 100 **(Internal: 30 M & External: 70M)**

Course: Physical chemistry (code 22CH2L2)		
S.No	COURSE OUTCOMES	PO`S
	The student will be able to	
1	Develop skills in problem solving, critical thinking and analytical reasoning in finding the CST of phenol water system and partition coefficient of benzoic acid between benzene and water, potentiometric tritrations of Fe(II) with $K_2Cr_2O_7$.	1,2,5
2	Determine the rate constants of first and second order reactions, P^H and conductance of strong &weak acids and bases.	1,2,5
3	Understand the practical knowledge on Beer's law	3,5
4	Communicate the results of analysis with ethics and responsibility	1,2,4

List of experiments:

1. Relative strengths of acids by studying the hydrolysis of ethyl acetate / methyl acetate.
2. Determination of equilibrium constant of KI3 KI + I2 by partition coefficient.
3. Determination of unknown concentration of potassium iodide by partition coefficient method.
4. Distribution coefficient of Benzoic acid between Benzene and water.
5. Determination of critical solution temperature of phenol-water system.
6. Study of the effect of electrolyte on the miscibility of phenol-water system.
7. Determination of Coordination number of cuprammoniumcation.
8. Potentiometric determination of Fe(II) with Cr (VI).
9. Potentiometric determination of Fe(II) with Ce (IV).
10. pH-metric determination of strong acid with strong base.
11. Conductometric titration of strong acid with strong base.
12. Conductometric titration of strong acid + Weak acid with strong base.
13. Dissociation constant of weak acid (CH3COOH) by conductometric method.
14. Determination of cell constant.
15. Verification of Beers Law using potassium permanganate/Potassium dichromate.

Course Learning Outcome(S): After studying this paper, students will acquire the knowledge of
Inorganic and Physical chemistry experiments.

Text books/ Reference books:

1. Experimental Physical chemistry by V.D. Athawale, Paul Mathur, New Age International publishers.
2. Physical chemistry experiments by V. P. Kudesia, Pragati Prakasan publishers.
3. Advanced practical Physical chemistry by J.B. Yadav, Krishna's educational publishers.

A.G.& S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE
DEPARTMENT OF CHEMISTRY
M.Sc – CHEMISTRY (ORGANIC CHEMISTRY)
IV SEMESTER

22CH4T1: MOOCS – ANALYTICAL CHEMISTRY

Course:MOOCS - ANALYTICAL CHEMISTRY		
S.No	COURSE OUTCOMES	PO`S
	The student will be able to	
1	Memorize basic concepts of analytical chemistry, chemical equilibrium, absorption spectrometry, thermal methods of analysis and potentiometry.	2,7
2	Understand the principle, theory and advanced aspects of analytical chemistry, chemical equilibrium, absorption spectrometry, thermal methods of analysis and potentiometry.	1,3,7
3	Display the knowledge gained in the areas of analytical chemistry, chemical equilibrium, absorption spectrometry, thermal methods of analysis and potentiometry in chosen job role.	1,6,4
4	Analyse the role of analytical chemistry, chemical equilibrium, absorption spectrometry, thermal methods of analysis and potentiometry as and when required.	1,5,7

UNIT – 1

Basic introduction to nature of analytical chemistry Quantitative methods Qualitative methods , Flow diagrams ,Chemistry in toxicology ,Examples for quantitative and qualitative methods, real life examples ROLE : sample preparation basic techniques for analysis physical separation , separation in liquids ,micro analytical balance ,filtration techniques ,wet washing ,dry Ashing , crucibles, filter paper uses of crucibles and filter papers stereo chemical modes are applied [supra +supra] : supra-anta Antra, supra Antra- anta.

UNIT - 2

Chemical equilibria, Chemical equilibria in nature chemical equilibria in analytical chemistry, equilibria between strong and week acids , equilibrium state, different acids, types of equilibria as basis of chemical analysis, equilibria and equilibria constants , importance in analytical chemistry, salt hydrolysis, titration curves , common ion effect , formation constant for complex ions, Introduction from different titrimetric methods, hendersonhesselbalch equation, spectro chemical methods , acid base titrations, acid base titration indicators.

UNIT- 3

Absorption Spectrometry , instruments , beers law, different transitions , chromophores , d-d , f-f, C-T transitions and applications, chromophoric reagents , analysis of mixture , applying beers law to mixtures , applications – photometric titrations, spectro photometric titrations, A) complexing agent B) complex ion in solution , infrared absorption spectroscopy A)theory B) principle C) instrumentation for IR, FTIR techniques A) theory B) principle, instrumentation of FTIR , uses and interterometer.

UNIT – 4

Thermal method of analysis, Introduction ,dynamic measurement, thermo gravimetric analysis, differential thermal analysis , differential scanning calorimerty, thermo balance, thermal

techniques and uses , thermal analysis – solids , Standardisation, geometric estimation, water content, TG-plot , thermo gravimetry – example, mixture of solids in TG, introduction of DTG, samples , furnaces and crucibles, DT, uses of DTG data, food analysis, introduction to DTG, DTA , instruments, uses and applications, DSC, instruments uses and applications, Introduction, electron transfer reactions, electrodes, electrode potential, standard electrode potential, nernest equation, applications of nernest equation, precipitaion /complex ions in nernest equation, electro chemical method of analysis, potentiometry, reference electrode

UNIT 5

Potentiometers, cells, potentiometric titrations, Use of oxidising and reducing agents , redox potential, potentiometric titrations, uses of oxidising and reducing agents, electrode potentials, IR drop In electrochemical cells, ohmic potential electro gravimetric method , controlled potential coulrometry, Its uses in synthesis , colorimetric titrations Applications, electrochemical methods, volumetric methods, analytical method , voltametry, cyclic voltametry – waveforms , CV plot, CV and its application to identity, potential pulses, Differential pulses.

Reference Books:

1. Physical chemistry, G.K. Vemulapalli (Prentice Hall of India).
2. Physical chemistry, P.W. Atkins. ELBS**.**
3. Text book of Physical Chemistry, Samuel Glasstone, Macmillan pub.
4. Quantitative Analysis, A.I.Vogel, Addison Wesley Longmann Inc.
5. Fundamentals of Analytical Chemistry, Skoog & West
6. Quantitative Analysis, Day & Underwood.
7. Instrumental Methods of Analysis, H.H.WAILLARD, Merritt.Jr and J.A.D.Can
8. Instrumental Methods of Analysis, Ewing W.Wend&Pand
9. Instrumental Methods of Analysis, B.K.Sharma
10. Instrumental Methods of Analysis, Chatwel& Anand.
11. Analytical Chemistry, An introduction, D.A.Skoog, D.M.West&F.J.Holler, Sanders college Publishing,
Newyork.

22CH4T2A:HETE RO CYCLIC CHEMISTRY

Course:HETERO CYCLIC CHEMISTRY		
S.No	COURSE OUTCOMES	PO`S
	The student will be able to	
1	Memorize the synthetic routes and reactions related to three, four, five, six membered and fused heterocyclic compounds.	2,7
2	Understand the concepts of synthesis and reactions of three, four, five, six membered and fused heterocyclic compounds.	1,7
3	Apply the conceptual knowledge gained in the synthesis and reactions of organic synthesis three, four, five, six membered and fused heterocyclic compounds as and when required.	1,6,4
4	Analyse and categorize the various reactions involved in the synthesis of three, four, five, six membered and fused heterocyclic compounds	1,5,7

Course Learning Objective(S): The main objective of this paper is to give a basic and updated knowledge for the students on Heterocyclic Chemistry.

UNIT-I

Definition, Classification and Nomenclature (Hantzsch Widman System) of hetero cycles.
Three membered Heterocyclic Compounds: Synthesis, reactivity, and importance of the following ring systems: Aziridines, Oxiranes, Thiiranes, azirine.

UNIT-II

Four membered Heterocyclic Compounds: Synthesis, reactivity, and importance of the following ring systems :Azitidines, oxetanes, Thietanes.
Fused systems: Synthesis and reactivity of Penicillins G and V.

UNIT-III

Five membered Heterocyclic Compounds with two hetero atoms: Synthesis, reactivity, aromatic character, and importance of the following heterocycles: Pyrazole, Imidazole, Oxazole, Isoxazole, Thiazole.
Fused systems: Synthesis and reactivity of Indoles and Benzimidazoles.

UNIT-IV

Six-membered Heterocyclic Compounds with two hetero atoms: Synthesis, reactivity, aromatic character and importance of the following heterocycles: Pyridazines, Pyrazine, Oxazine, Thiazine.
Fused systems: Acridines and Benzodiazines.

UNIT- V

Larger ring and other Heterocycles: Synthesis and reactivity of Azepines, Oxepines and Thiepines. Synthesis and reactivity of Benzodiazepines.

Course Learning Outcome(S): After studying this paper, students will acquire the knowledge of Heterocyclic Chemistry.

Reference books:

1. Some Modem Methods of Organic Synthesis W.Caruthers, Cambridge University Press, Cambridge.
2. Organic Synthesis viz Boranes, HerbetC. BrownGray, W.KramerAlanB.Levy and M.MarkMidland JohnWilly&Sons, NewYork.
3. Heterochemistry, T.L.Gilchrist, Longman science and tech.
4. Anintroduction to the Chemistry of Heterocyclic Compounds, R.M.Acheson, Interscience Publishers, NewYork
5. Principle of Organic Chemistry, RocNorman, J.M.Coxon, Nelson Throms
6. Advanced Organic Chemistry, F.ACarey and R.J.Sundberg. Plenum.
7. Heterocyclic chemistry by Jai JackLie, Springer publications.

22CH4T2 B: GREEN CHEMISTRY

Course:GREEN CHEMISTRY		
S.No	COURSE OUTCOMES	PO`S
	The student will be able to	
1	Memorize the principles of green chemistry and concepts related to green organic synthesis.	2,7
2	Understand the role and significance of green organic synthesis.	1,5,7
3	Exercise the basic and advanced knowledge gained in green organic synthesis in chosen job role.	1,4,6
4	Analyse how far green methods are environmentally benign over conventional methods of synthesis.	1,3

Unit-I

Principles of Green Chemistry: Prevention of waste / by-products, atom economy, Hazardous products-Designing of safer chemicals-energy requirements Selection of appropriate solvents and starting materials-Use of protecting groups and catalysis-Designing of biodegradable products. green organic synthesis of paracetamol, catechol, adipic acid, urethane and ibuprofen.

Unit-II

Microwave assisted reactions: Theory ofMicrowave, advantages, disadvantages, applications-water as solvent: Hoffmann elimination, hydrolysis, oxidation of Toluene, oxidation of alcohols, hydrolysis of methyl benzoate to benzoic acid.

Organic solvents: Esterification reactions, Fries rearrangement, Ortho ester Claisen rearrangement, DielsAlder reactions, synthesis of chalcones, decarboxylation.

Solid state reactions (solvent free): De acetylation, deprotection, saponification of esters, synthesis of anhydrides from dicarboxylic acid, synthesis of nitriles from aldehydes.

Unit-III

Phase Transfer Catalysis: Definition, Mechanism, Types, advantages and applications of PTC – C-alkylation, N-alkylation, Darzen's reaction, Wittig reaction, Benzoyl cyanides from benzoyl chloride, alcohols from alkyl halides, Crown ethers – Introduction,synthetic applications: esterfication, saponification, Anhydride formation, $KMnO_4$ oxidation, aromatic substitution, elimination.

Unit-IV

Ultrasound assisted green synthesis: Introduction, instrumentation, types of sono chemical reactions – Homogeneous reactions – Curtius rearrangement of Benzoyl azide to phenyl isocyanate. Heterogeneous Liquid-Liquid reactions - Esterification, saponification, Hydrolysis, substitutions, additions. Heterogeneous Solid – Liquid Reactions–oxidation, reduction, hydroboration, coupling, Bouveault reaction, Strecker reaction.

Unit-V

Ionic liquids: Definition-Types of Ionic Liquids- properties- Application in organic synthesis-alkylation, allylation, oxidation, hydrogenation, hydroformylation, alkoxycarbonylation, carbon-carbon bond forming reactions-suzuki coupling, Heck reaction, stille coupling.

Textbooks/Referencebooks:

1. New Trends in Green Chemistry by V.K.Ahluwalia, M.Kidwai.
2. Green Chemistry: Environment Friendly Alternatives by Rashmi Sanghi, M.M.Srivastava
3. Green Solvents for Organic Synthesis by V.K.Ahluwalia, RajenderS.Varma.
4. Organic synthesis – special Techniques, V.K.Ahluwalia, Renu Aggarwal.
5.Green Chemistry - V.K.Ahluwalia, Ane Books Pvt. Ltd.,

22CH4T3 A: TECHNIQUES FOR MODERN INDUSTRIAL APPLICATIONS

COURSE :TECHNIQUES FOR MODERN INDUSTRIAL APPLICATIONS		
S.No	COURSE OUTCOMES:	PO`S
	The student will be able to	
1	Comprehend the concepts of purification methods and chromatographic methods.	2,7
2	Exercise the knowledge gained in purification and chromatographic techniques in their chosen job role.	1,4,6
3	Assess that how far the purification and chromatographic techniques are useful in assessing the purity of the compound.	1,3,7
4	Evaluate that how far a compound is purified / separated using purification and chromatographic techniques.	1,5,7

UNIT-I

Classical Methods of purification Recrystallization: Basic principle, choice of solvent, seeding, filtration, centrifugation and drying. Concepts of fractional crystallization.
Distillation: Basic principle. Distillation types- continuous distillation, batch distillation, fractional distillation, vacuum distillation and steam distillation.

UNIT-II

Thin Layer chromatography:

Basic Principle, Common stationary phases, Methods of preparing TLC plates, Selection of mobile phase, Development of TLC plates, Rf value. Application of TLC in monitoring organic reactions. identification and quantitative analysis.

UNIT-III

Paper chromatography:

Basic Principle, Ascending and descending types. Selection of mobile phase, Development of chromatograms, One and two dimensional paper chromatography, Applications of paper chromatography.

UNIT-IV

Gas chromatography:

Basic Principle, Different types of GC techniques. Selection of columns and carrier gases. Instrumentation. detectors; Rf values. Applications in the separation, identification and quantitative analysis of organic compounds.

UNIT-V

High Performance liquid chromatography(HPLC):

Basic Principle, Normal and reversed Phases. Selection of column and mobile phase. Instrumentation. Detectors; Rf values. Applications in the separation, identification and quantitative estimation of organic compounds.

REFERENCE BOOKS:

1. Principles of Instrumental Analysis by D. A. Skoog, F. J. Holler and T. A. Nieman, Harcourt College Pub.
2. Separation Techniques by M. N. Sastri, Himalaya Publishing House (HPH), Mumbai.
3. Bio Physical Chemistry by A. Upadhyay, K. Upadhyay and N. Nath,(HPH) , Mumbai.
4. A Hand Book of Instrumental Techniques for Analytical Chemistry- Ed-F. A. Settle, Prearson Edn, Delhi.27
5. Introduction to Organic Laboratory Techniques-D. L. Pavia, G. M. Lampman,G. S. Kriz and R.
   G. Engel, Saunders College Pub (NY).
6. Instrumental methods of Chemical Analysis by B. K. Sharma, Goel Publish House, Meerut.
7. Instrumental methods of Chemical Analysis by H. Kaur, Pragati Prakasan, Meerut.
8. Protein Purification-Principles and practice, III Edn- R. K. Scopes, Narosa Publishing House , Delhi.

22CH4T3 B : NANO CHEMISTRY

Course:NANO CHEMISTRY		
S.No	COURSE OUTCOMES	PO`S
	The student will be able to	
1	Memorize the basic concepts of nanochemistry and nano materials.	2,7
2	Understand the basic and advanced concepts of nanochemistry and nano materials	1,5,7
3	Apply the knowledge gained in the field of nanochemistry as and when required.	1,3,6
4	Analyse the role of nanochemistry in various interdisciplinary sciences.	1,5

Course Learning Objective(S): The main objective of this paper is to give a basic and updated knowledge for the students on Nano Chemistry.

Unit-I

Introduction to Nano chemistry: Definition of terms-nanoscale, nanomaterials, nanoscience, nanotechnology-scale of materials natural and manmade-nanoscience practiced during ancient and modern periods-contributors to the field of Nanochemistry.

Unit-II

Synthesis of Nanomaterials: Top down and bottom- up approaches-synthesis of carbon nanotubes, quantumdots, gold and silver nanoparticles.

Unit-III

Characterization of Nano materials: Electron microscopy techniques-scanning electron microscopy, transmission electron microscopy and atomic force microscopy.

Unit-IV

Application of Nanomaterials: Solar cells-smart materials-molecular electronics-biosensors-drug delivery and therapy-detection of cancerous cells.

Unit-V

NanochemistryinNature: The science behind the nanotechnology in lotuseffect-self-cleaning property of lotus-gecko foot climbing ability of geckos-water strider-anti wetting property of water striders-spider silk mechanical properties of the spidersilk.

Textbooks/ Referencebooks:

1. Nano: The Essentials: Understanding Nanoscience and Nanotechnology, T.Pradeep, McGraw-Hill Professional Publishing,2008.
2. Introduction to Nanoscience, J.Dutta, H.F.Tibbals and G.L.Hornyak, CRCpress, BocaRaton, 2008.

22CH4T4: ORGANO METALLIC REAGENTS

Course:ORGANO METALLIC REAGENTS		
S.No	COURSE OUTCOMES	PO`S
	The student will be able to	
1	Memorize the synthetic roots and applications of organo metallic reagents.	2,7
2	Appreciate the methods of synthesis and reactivity of various organo metallic reagents	1,3,7
3	Investigate the conceptual knowledge in various organo metallic reagents in organic synthesis	1,6,3
4	Assess the role of specific organic reaction reagents in the synthesis	1,6,5

Course Learning Objective(S): The main objective of this paper is to give a basic and updated knowledge for the students on Organometallic Reagents.

UNIT-I

Organo Magnesium and Lithium compounds: Preparation of Grignard reagents with alkyl, allyl, and propargyl halides, alkylation reaction with carbonyl compounds, esters, imines and nitriles, epoxides, acids, acid chlorides, carbondioxide, carbondisulfide, sulfurdioxide. Preparation of alkyllithium reagents, Lithium Di isopropyl amide (LDA) and its synthetic applications.

Unit-II

Organo Copper and Nickel compounds: Organo copper reagents - preparation, reactions, organocuprates, lithium organocuprates (Gilmanreagents). Organonickel compounds: π-allylnickel complexes, preparation of 1,5 cyclic dienes, nickelcarbonyl.

Unit-III

Organo Palladium compounds: Preparation of palladium reagents, π-allyl palladium complexes – formations, reactions – prenylation, formation of conjugated dienes, synthesis of macro cyclic nitrogen hetero cyclic. Heck reaction, Stille coupling reaction, Sonogashira coupling reaction, suzuki coupling reaction.

Unit-IV

Organoboranes: Preparation of Organobornaes viz hydroboration with BH_3-THF, dicylohexyl boranes, disiamylborane, thexylborane, 9-BBN and catechol boranes .protonolysis, oxidation, isomerization and cyclization. Free radical reactions of organoboranes, reactions with α-bromoketones, α-bromoesters, carbonylation, the cyanoborate process and the reaction of alkenyl boranes and trialkyltrialkynyl borates.

Unit-V

Organosilanes: Synthetic applications of organo silicon compounds, protection of functional groups, trimethylsilly ethers, sillylenolethers, trimethylsilyliodide, trimethylsilyl triflate, Peterson olefination. Synthetic applications of α-silylcarbanion and β-silylcarbonyl compounds, alkenylsilanes, Allylsilanes, the β-effect - control of rearrangement of carbonium ions by silicon.

Referencebooks:

1. Organometallic in Synthesis AManualbyMSchlosser, L.Hegedus, B.Lipshutzetal, JohnWily&sons.
2. Modern methods of organic synthesis by W.Carruthers (Cambridge).
3. Organic synthesis by H.O.House.
4. Organo metallics: Aconcise introduction, ChristophElschenbroich, 3rdedition,Willey-VCH.
5. Advanced Organic Chemistry, F.ACarey and R.J.Sundberg.Plenum.
6. Transition metals in the synthesis of complex organic molecules, Hegedus, L.S,secondedition, University Science, Book ,CA,1999.
7. Organo metallic Chemistry and Catalysis, Astruc, D,Springer Verlag, 2007.
8. Organo transition metal chemistry: Applications to organic synthesis, Davies, S.G,Pergamon Press, NewYork, 1986.

22CH4L1: ORGANIC ESTIMATIONS

Course: ORGANIC ESTIMATIONS (22CH4L1)		
S.No	COURSE OUTCOMES	PO`S
	The student will be able to	
1	Memorize the basic principles involved in organic quantitative analysis.	2,7
2	Understand the importance of organic quantitative analysis and their use on research and industry.	1,3,4
3	Exercise the procedure of quantitative analysis in chosen job roles.	1,6,3
4	Evaluate how far these methods are accurate in quantitative determinations.	1,5

Expt. 1: Estimation of phenol (bromination method)
Expt. 2: Estimation of aniline (Bromination method)
Expt.3: Estimation of sugars –glucose and sucrose by using Fehlings solution
Expt. 4: Determination of iodine value of oil or fat
Expt. 5: Determination of saponification value of oil or fat
Expt. 6: Estimation of vitamin 'C' in lime juice.
Expt. 7: Estimation of Nitro group
Expt. 8: Estimation of formaldehyde
Expt. 9: Isolation of caffeine from tea/coffee sample.

22CH4L2: PROJECT WORK

Project: PROJECT WORK (code 22CH4L2)		
S.No.	COURSE OUTCOMES	PO`S
	The student will be able to	
1	Acquire required skills to implement theoretical knowledge gained.	1,3,4,7
2	Assimilate the required knowledge for future research through practical knowledge gained in the project work.	1,2,7
3	Gain the required ability to start up own industry.	1,4,5,6
4	Comprehend the ability to draft and communicate the practical work.	1,2,7

The project will be assigned in the final semester. The project will be performed at the established industry (or) in the department under the supervision of the faculty or research institutes. It may involve experimental and/or theoretical work as well as critical review of the literature. Each of the students has to carry out original research in a topic in accordance with the work chosen under the guidance and supervision of a teacher in the concerned Department of the college.

Dissertation must be submitted at the end of the semester which will be assessed by the external examiners. Dissertation must be prepared with introduction, Review of the literature, Experimental Session, Results and Discussion, Conclusion and References.

The final dissertation should have at least 40 – 60 pages typed in Times New Roman 12 font except Headings and side headings with 1.5 line spacing.

A0G & SG SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE VUYYURU

(AUTONOMOUS)

(MANAGED BY SIDDHARTHA ACADEMY OF GENERAL & TECHNICAL EDUCATION VIJAYAWADA)

Department of Environmental studies

Minutes of the meeting of Board of Studies

27-10-2022

Minutes of the meeting of Board of studies in Environmental Studies for the Autonomous courses of AG & SG Siddhartha Degree College of Arts & Science, Vuyyuru, held at *10.30 A.M on 29-11-2021* in the

Department of ENVIRONMENTAL STUDIES

Sri R.V. Sivarao ..... ***Presiding***

Members Present:

1) R.V. Siva Rao **(Sri.R.V. Sivarao)**	Chairman	Head, Department of Environmental Studies AG & SG S Degree College of Arts & Science Vuyyuru-521165
2) Brii Ra **(Dr.P.Brahmaji Rao)**	University Nominee	Dept of Environmental Science Acharya Nagarjuna University Guntur
3) K. Lakshmi **(Dr.K.Lakshmi)**	Subject Expert	Dept of Zoology S.D.M.Siddhartha Mahila Kalasala Vijyawada.
4) V. Sai G. **(V.Sailaja)**	Subject Expert	Lecturer in Zoology KTR Women's College Gudiwada

Agenda for B.O.S Meeting

1 .To recommend the syllabi for I, semester of 1st Degree B.A, B.Com B.Sc , Environmental Studies Paper Under CBCS for the Academic year 2022-2023
2. To recommend the Teaching and Evaluation Methods to be followed under Autonomous Status.
3. Any other matter.

RESOLUTIONS

1). Discussed and Recommended The Syllabi, Model Question Papers Under CBCS and Guidelines to be followed by the Question paper Setters of I Semester of Ist degree B.A,B.Com , B.Sc for the Approval of the Academic Council (enclosed) for the Academic year 2022– 2023.

2). Discussed and Recommended the Teaching and evaluation methods for approval of Academic Council.

A) **Teaching methods:**

Besides the conventional methods of teaching, it is also resolved to use various other methods like Group discussions, Quiz, for the better understanding of the contents.

B) Evaluation of a student is done by the following procedure:

a) **There is no Internal Assessment Examinations.**

b) **Semester-End Examinations:**

i) The maximum marks for Semester-End examinations shall be 50 and duration of the examination shall be 2 Hours.

ii) Semester-End examinations shall be conducted at the end of Ist Semester.

3).There is no internal Examination for this paper only External Examination will be conducted for 40 Marks But the question paper setting pattern is changed from Academic year 2021-2022. 10 marks Allocated for internal Examinations and 40 marks Allocated for External Examinations

4)Resolved to authorize the Chairman of Board of Studies to suggest the Panel of Paper setters and Examiners to the Controller of Examinations as per the requirement.

R.V.Siva Rao
Chairman

Semester: I

Course Code	Title of the Course	Instruction Hours per week	Credits	Evaluation		
		2		CIA MARKS	SEE MARKS	SEE DURATION
CLSC 001	**Environmental Studies**	30	2	10	40	2Hrs

ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE, VUYYURU-521165, KRISHNA Dt., A.P. (AUTONOMOUS).

LIFE SKIL COURSE

CLSC001 **2022 -'23** **B.A., B.Com., & B.Sc.**

ENVIRONMENTAL STUDIES

CO1: Realize the importance of environment, the goods and services of a healthy biodiversity, dependence of humans on environment.

CO2: Evaluate the ways and ill effects of destruction of environment, population explosion on ecosystems and global problems consequent to anthropogenic activities.

CO3: Discuss the laws/ acts made by government for environmental conservation and acquaint with international agreements and national movements and realize citizen's role in protecting environment and nature.

Unit 1: Environment and Natural Resources (8 Periods)

Multidisciplinary nature of environmental education. Scope and importance of vironmental education. A brief account of forest, water and renewable energy resources. Biodiversity introduction, Levels of Biodiversity: genetic, species and ecosystem diversity. Concept, Structure and functions of an Ecosystem.

Unit 2 : Environmental degradation and Impacts (12 Periods)

Threats to Biodiversity: Natural calamities, habitat destruction and fragmentation, over exploitation, hunting and poaching, introduction of exotic species, pollution, predator and pest control. A brief account of causes and effects of Air, Water, Soil and Noise pollution.

Non-renewable energy resources, their utilization and influences. Climate change, Global warming, Acid rains, Ozone depletion. Human population growth and its impacts on environment; land use change, land degradation, soil erosion and desertification.

Unit 3: Conservation of Environment (10 Periods)

Conservation of biodiversity: In-situ and ex-situ conservation of biodiversity.

Control measures for various types of pollution; use of renewable and alternate sources of energy.

Solid waste management- Measures for safe urban and Industrial wastes disposal.

Environment Laws: Environment Protection Act; Wildlife Protection Act; Forest Conservation Act.

International agreements: Montreal and Kyoto protocols. Environmental movements: Bishnois of Rajasthan, Chipko, Silent valley.

Suggested activities to learner:

1. Visit to a local polluted site-Urban/Rural/Industrial/Agricultural site.
2. Visit to a local waste disposal/ land filling site

Reference Books :

1. Environmental Studies by Dr.M.Satyanarayana, Dr.M.V.R.K.Narasimhacharyulu, Dr.G. Rambabu and Dr.V.VivekaVardhani, Published by Telugu Academy, Hyderabad.
2. Environmental Studies by R.C.Sharma, Gurbir Sangha, published by Kalyani Publishers.
3. Environmental Studies by Purnima Smarath, published by Kalyani Publishers