Adusumilli Gopalakrishnaiah & Sugar Cane Growers Siddhartha Degree College ofArts & Science, Vuyyuru, Krishna District, Andhra Pradesh
(An Autonomous College in the Jurisdiction of Krishna University, Machilipatnam)
Accredited by NAAC with "A" GradeISO 9001:2015 Certified Institution

DEPARTMENT OF BOTANY

HIGHLIGHTED SYLLABUS OF B.Sc. BOTANY
2019-20

Syllabus in Relevance to Employability, Skill Development and Entrepreneurship i highlighted as mentioned: Employability in yellow Color, Skill Development in Sky blu colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

A.G & S.G. Siddhartha Degree College of Arts & Science

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BOTANY	BOT- 101C	w.e.f. 2019-20	B. Sc. (BZC)

SEMESTER - I **PAPER - I**

Microbial Diversity, Algae and Fungi

Total hours of teaching 60 hrs @ 4 hrs per week **Credits: 3**

UNIT- I: Origin and Evolution of Life, Microbial diversity (12 hrs)

1. Origin of life - theories introduction: Lamarckism, Darwinism and Neo Darwinism.
2. Geological time scale
3. Microbial diversity: Mycoplasma - Chlamydia – Archaebacteria - Actinomycetes

UNIT- II: VIRUSES AND BACTERIA (12 hrs)

1. Viruses: General account of Viruses, structure, replication and transmission of plant Diseases caused by Viruses.
2. Bacteria**:** Structure, nutrition, reproduction and economic importance. Outlines of Plant diseases of important crop plants caused by Bacteria (Citrus canker, leaf blight of rice, Angular leaf spot of Cotton) and their control.

UNIT III: CYANOBACTERIA AND LICHENS (12 hrs)

1. Cyanobacteria: General account of cell structure, thallus organization and their uses as Biofertilizers.
2. Structure, reproduction and life history of Nostoc and Scytonema.
3. Lichens – Morphology – Anatomy –Reproduction –Economic importance.

UNIT –IV Algae (12 hrs)

1. General account, Fritsch classification of Algae and economic importance.
2. Structure, reproduction, life history of Oedogonium, Vaucheria and Ectocarpus.

UNIT V: FUNGI (12 hrs)

1. General characters, classification (Alexopolous) and economic importance.
2. Structure, reproduction and life history of Albugo, Penicillium, Puccinia.
3. General account of plant diseases caused by Fungi (Late blight of potato, Red rot of Sugarcane and Paddy Blast) and their control.

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BOTANY	BOT-301C	w.e.f. 2019-20	B. Sc. (BZC)

II B. Sc - BOTANY

SEMESTER - III PAPER – III

Plant Taxonomy and Plant Physiology

Hours: 60 @ 4 hrs per week **Credits: 3**

UNIT – I: Introduction to Plant Taxonomy (12 hrs)

1. Fundamental components of taxonomy (identification, nomenclature, classification types and phylogeny)
2. Salient features and comparative account of Bentham & Hooker and Engler & Prantl's classification.
3. Role of chemotaxonomy, cytotaxonomy and Embryology in relation to Taxonomy.
4. APG IV System of Classification – 2016.

UNIT –II: Systematic Taxonomy (12 hrs)

1. Nomenclature and Taxonomic resources:An introduction to International Code of Botanical Nomenclature; Principles, Rules and Recommendations.
2. Systematic study and economic importance of plants belonging to the following families: Annonaceae, Capparidaceae, Rutaceae, Cucurbitaceae and Apiaceae

UNIT –III: Systematic Taxonomy (12 hrs)

1. Systematic study and economic importance of plants belonging to the following families: Asteraceae, Asclepiadaceae, Lamiaceae, Euphorbiaceae, Orchidaceae and Poaceae.

Plant Physiology

UNIT – IV: Plant – Water relations (12 hrs)

1. Importance of water to plant life, physical properties of water,
2. Diffusion, Imbibition and osmosis; water potential, osmotic potential and pressure potential.
3. Absorption, transport of water, ascent of sap.
4. Transpiration – types, stomata structure, movements and significance.

UNIT –V: Mineral nutrition, Fertilizers and Enzymes(12 hrs)

1. Mineral Nutrition**:** Essential macro and micro mineral nutrients and their role, mineral uptake (active and passive), deficiency symptoms.
2. Nitrogen cycle- biological nitrogen fixation.
3. Enzymes**:** Nomenclature, characteristics, mechanism and regulation of enzyme action, enzyme kinetics, factors regulating enzyme action.

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BOTANY	BOT-501C	2019-20	B.Sc. (BZC)

PAPER – V **Cell Biology, Genetics and Plant Breeding** **SEMESTER-V (**2019-20**)**

Total Hours of teaching 60 hrs @ 6 hrs for WeekCredits: 03

UNIT-I Cell Biology(12 hrs)

1. Cell, Ultra Structure and functions of cell wall.

2. Molecular Organization of cell membranes.

3. Chromosomes; morphology, organization of DNA in a chromosome (Nucleosome model)Euchromatin and Heterochromatin.

UNIT-II Genetic Material(12 hrs)

1. DNA as the Genetic Material: Griffith's and Avery's Transformation Experiment. Hershey - Chase Bacteriophage experiment.
2. DNA Structure (Watson & crick model) and replication of DNA (Semi Conservative).
3. Types of RNA (mRNA, tRNA, rRNA), their structure and function.

UNIT-III Mendelian Inheritance(12 hrs)

1. Mendelian Inheritance (Mono – Di-hybrid Crosses), Back cross and Text cross.

2. Linkage: concept, complete and In-complete Linkage, Coupling and Repulsion; Linkage Maps Based on Two and Three Point cross.

3. Crossing over concept and significance.

UNIT-IV Gene Expression(12 hrs)

1. Organization of gene, Transcription and Translation.
2. Mechanism and regulation of Gene Expression in Prokaryotes (Lac operan).
3. Mutations: Chromosomal Aberrations, Gene Mutations and Transposable Elements.

UNIT-V Plant Breeding(12 hrs)

1. Introduction and objectives of Plant Breeding.

2. Methods of Crop Improvement: Procedure, Advantages and limitations of Introduction, Selection and Hybridization (Out lines only).

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BOTANY	BOT-502	2019-20	B.Sc. (BZC)

SEMESTER-V (2019-20) **PAPER – VI**

PLANT ECOLOGY & PHYTOGEOGRAPHY Credits-03

Total Hours of teaching 60 hrs @ 6 hrs for Week

UNIT-I.ELEMENTS OF ECOLOGY(12 hrs)

1. Ecology: Definition, branches and significance of ecology.

2. Claimatic factors: Light, Temperature.

3. Edaphic factor: Origin, formation, composition and soil profile.

4. Biotic factor, Ecological adaptations of Plants.

Unit– II. Ecosystem Ecology(12 hrs)

1. Ecosystem: concept and components, energy flow, food chain, food web, Ecological Pyramids.
2. Productivity of ecosystem-Primary, Secondary and Net productivity.
3. Biogeochemical cycles- Carbon, Nitrogen and Phosphorous.

Unit –III Population & Community ecology.(12 hrs)

1. Population-defination, characteristics and importance (Density,Natality, Mortality, Growth Curves) outlines-ecotypes.
2. Plant communities- characters of a community, outlines – Frequency, density, cover, life forms, Biological Spectrum.
3. Ecological Succession: Hydrosere and Xerosere

Unit-IV Phytogeography(12 hrs)

1. Principles of Phytogeography, Distribution (Wides, Endemic, Discontinous species.

2. Phytogeographic regions of India.

3. Endemism – types and Causes.

Unit-V Plant Biodiversity and its Importance(12 hrs)

1. Definition, Levels of Biodiversity – genetic, species and ecosystem.

2. Biodiversity and Hot-spots of India: North Eastern, Himalayas and Western Ghats.

3. Loss of Biodiversity-causes and Conservation (In-situ and Ex-Situ Methods).

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NAAC reaccredited at 'A 'level

DEPARTMENT OF BOTANY

BOSMEETING 15-10-2019

ACADEMIC YEAR - (2019-20)

EVEN SEM –II, IV &VI

A.G & S.G. Siddhartha Degree College of Arts & Science

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BOTANY	BOT- 201C	w.e.f.2019-20	B. Sc. (BZC)

I B. Sc - BOTANY SYLLABUS

PAPER CODE : BOT – 201C **SEMESTER- II**

Paper II: Diversity of Archegoniate& Plant Anatomy

Total hours of teaching 60 hrs @ 4 hrs per week **Credits: 3**

UNIT – I: BRYOPHYTA **(14 hrs)**

1. Bryophyta: General characters and classification (up to classes only).

2. Structure, reproductionand Life history of Marchantia and Polytrichum.

3. Evolution of Sporophyte in Bryophytes.

UNIT - II: PTERIDOPHYTA **(14 hrs)**

1. Pteridophyta: General characters and Classification (up to classes only).

2. Structure,reproduction and life history of Lycopodium and Marsilea.

3. Heterospory and seed habit

4. Stelar Evolution in Pteridophytes

UNIT – III: GYMNOSPERMS **(12 hrs)**

1. Gymnosperms: General characters and classification (up to classes only).

2. Morphology, Anatomy,reproduction and life history of Pinus and Gnetum.

UNIT – IV: Tissues and Tissue systems **(10 hrs)**

1. Tissues: Meristematic and permanent tissues (Simple and Complex).

2. Shoot apical meristems and its histological organization.

3. Root apical meristems and its histological organization.

UNIT –V: Secondary growth. **(10 hrs)**

1. Anomalous secondary growth in Dracaena, Boerhaavia and Bignonia.

2. Wood structure- general account, Study of local timbers Teak, Rosewood, Red sanders and Terminalia tomentosa.

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BOTANY	BOT-401C	w.e.f. 2019-20	B. Sc. (BZC)

SEMESTER - IV**II B. Sc - BOTANY SYLLABUS** PAPER – IV

Plant Embryology and Plant Metabolism

Hours: 60 @ 4 hrs per week

UNIT – I: EMBRYOLOGY (12hrs)

1. Introduction:History and Importance of Embryology.
2. Anther structure, Microsporogenesis and development of male gametophyte.
3. Ovule structure and types; Megasporogenesis; Monosporic; Bisporic and Tetrasporic types of female gametophyte / embryosac development.
4. Pollination -Types, Fertilization.

UNIT –II: EMBRYOLOGY AND PALYNOLOGY (12 hrs)

1. Endosperm Development and types.
2. Embryo - development and types.
3. Polyembryony and Apomixis - an outline.
4. Palynology: Principles and applications.

UNIT –III: PLANT METABOLISM- I (12 hrs)

1. Photosynthesis: Electromagnetic spectrum, absorption and action spectra; Red drop and Emerson enhancement effect, concept of Z scheme in photosystems, Photosynthetic pigments, mechanism of photosynthetic electron transport and evolution of oxygen, photo phosphorylation, carbon assimilation pathways: C_3, C_4& CAM and Photorespiration.
2. Translocation of organic substances: Mechanism of phloem transport, source-sink relationships.

UNIT –IV: PLANT METABOLISM- II (12 hrs)

1.Respiration: Aerobic and Anaerobic, Glycolysis, Krebs cycle, electron transport system, mechanism of oxidative phosphorylation, pentose phosphate pathway.

2. Lipid Metabolism**:** Structure and functions of lipids, conversion of lipids to carbohydrates, Beta-oxidation.

UNIT –V: GROWTH AND DEVELOPMENT (12 hrs)

1. Growth and development: Definition, phases and kinetics of growth, Physiological effects of phytohormones - auxins, gibberellins, cytokinins, ABA and ethylene
2. Physiology of flowering and photoperiodism, role of phytochrome in flowering.
3. Stress Physiology: Concept and plant responses to water, salt and temperature stresses.

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BOTANY	BOT-601 (GE)	2019-2020	B.Sc. (BZC)

PAPER – VII ELECTIVE-C SEMESTER- VI

Plant tissue culture and its Biotechnological applications

Total hours of teaching 45hrs @ 3hrs per week Credits: 3

Unit I: PLANT TISSUE CULTURE – 1

(12hrs)

1. History of plant tissue culture research - basic principles of plant tissue callus culture, meristems culture, organ culture, Totipotency of cells.

2. Sterilization procedures, culture media mcomposition and preparations of explanats. Murashige and Skoog's (MS medium), Cell and protoplast culture.

3. Somatic Hybrids and Cybrids (out lines), Artificial Seeds, Somaclonal variations. Applications of Tissue culture (Brief account).

UNIT-II: Plant Tissue culture -2 **(12hrs)**

1. Endosperm culture – Embryo culture -culture requirements – applications, embryo rescue technique.
2. Cryopreservation; Germ plasm conservation.

Unit III: Recombinant DNA technology **(12hrs)**

1. r-DNA technology: Steps in r-DNA technology and tools.

2. Cloning Vectors: Prokaryotic (pBR322, Ti plasmid and Lambda phage, Eukaryotic Vectors (YAC and briefly PAC).

3. Gene cloning (Bacterial Transformation and selection of recombinant clones, PCR Mediated gene cloning)

Unit IV: Methods of gene transfer **(12hrs)**

1. Methods of gene transfer- Agrobacterium-mediated, direct gene transfer By Electroporation, Microinjection, Micro projectile bombardment.

2. Selection of transgenics– selectable marker and reporter genes (Luciferase, GUS, GFP).

Unit V: Applications of Biotechnology **(12 hrs)**

1. Applications of Plant Genetic Engineering – crop improvement, herbicide resistance, insect resistance, virus resistance.

2. Genetic modification – transgenic plants for pest resistant (Bt-cotton); herbicide resistance (Round Up Ready soybean); improved agronomic traits flavrSavr tomato, Golden rice.

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III-BZC B. Sc	BOTANY-VIII	BOT-602 (CE)	2019-20

Paper – VIII-A-1: PLANT DIVERSITY AND HUMAN WELFARECredits: 3
Total hours of teaching 60hrs @ 6hrs per week

Unit- I: Plant diversity and its scope: **(12hrs)**

1. Genetic diversity, Species diversity, Plant diversity at the ecosystem level,
2. Agro biodiversity and Vavilov Crop centers.
3. Values and uses of biodiversity: Ethical and aesthetic values, Uses of plants.

Unit -II: Loss of biodiversity: **(12hrs)**

1. Loss of genetic diversity, Loss of species diversity, Loss of ecosystem diversity, Loss of agro biodiversity, projected scenario for biodiversity loss.
2. Management of plant biodiversity: Organizations associated with biodiversity Management-Methodology for execution-IUCN, UNEP, UNESCO, WWF, NBPGR; Biodiversity legislation and conservations, Biodiversity information management and Communication.

Unit-III: Contemporary practices in resource management: **(12hrs)**

1. Environmental Impact Assessment (EIA), Geographical Information System GIS,
2. Solid and liquid waste management.

Unit -IV: Conservation of biodiversity **(12hrs)**

1. Conservation of genetic diversity, species diversity.
2. Social approaches to conservation, Biodiversity awareness Programmes,Sustainable development.

Unit- V: Role of plants in relation to Human Welfare **(12hrs)**

1 Importance of forestry, their utilization and commercial aspects-
a) Avenue trees, b) ornamental plants of India.
2 Fruits and nuts: Important fruit crops their commercial importance.
Wood, fiber and their uses.

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III. BZC (B. Sc)	BOTANY-VIII	BOT- 603 (CE)	2019-20

Paper – VIII-A-2 Credits: 3

ETHNOBOTANY AND MEDICINAL BOTANY

Total hours of teaching 60hrs @ 6hrs per week

Unit –I: Ethnobotany(12hrs)

1. Introduction, concept, scope and objectives
2. Major and minor ethnic groups or Tribal's of India, and their lifestyles.
3. Plants used by the tribal populations:

a) Food plants, b) Intoxicants
c) Beverages, d) Resins and oils and miscellaneous uses.

Unit -II:Role of ethnobotany in modern Medicine(12hrs)

1. Role of Ethnobotany in modern medicine with special example; Rauvolfiasepentina, Artemisia annua, Withaniasomnifera.
2. Significance of the following plants in ethno botanical practices (along with their habitat and morphology)

a)Azadirachtaindica, b)Vitexnegundo,c)Ocimum sanctum,,d) phyllanthus niruri

3. Medico-Ethnobotanical Sources of India.

Unit-III: Ethno botany as a tool to protect interests of ethnic groups(12hrs)

1. Sharing of wealth concept with few examples from India.
2. Biopiracy, Intellectual Property Rights and Traditional Knowledge.

Unit -IV:History, Scope and Importance of Medicinal Plants, Indigenous Medicinal Sciences(12hrs)

1. Definition and Scope-Ayurveda: History, origin, panchamahabhutas, saptadhatu and tridosha concepts, Rasayana, plants used in ayurvedic treatments.

2 Homeopathy: Origin of Homeopathy medicinal systems, Basis of Homeopathy, plants used in Homeopathy medicine.

Unit -V:Conservation of endangered and endemic medicinal plants (12hrs)

1. Definition: endemic and endangered medicinal plants,
2. Red list criteria
3. In situ conservation: Sacred groves, National Parks
4. Ex situ conservation: Botanical Gardens, Seed Banks.

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III-BZC B.Sc	BOTANY-VIII	BOT-604- (CE)	2019-20

SEM-VI: **Pharmacognosy and Phytochemistry** Credits: 3
Total hours of teaching 60hrs @ 6hrs per week

Unit-I: Pharmacognosy **(12hrs)**

1. Definition, Importance
2. Classification of drugs - Chemical and Pharmacological
3. Drug evaluation methods

Unit –II: Organoleptic and microscopic studies: (12hrs)

1. Organoleptic and microscopic studies with reference to nature of active principles and common adulterants of
2. a) Adhatoda vasica(leaf) b) Strychnosnuxvomica (seed), c)Rauwolfia serpentina(root) d)Zinziberofficinalis e)Catharanthusroseus.

Unit-III: Secondary Metabolites: **(12hrs)**

1. Definition of primary and secondary metabolites and their differences, Major types - terpenes, Phenolics, alkaloids, terpenoids, steroids.
2. A brief idea about extraction of alkaloids. Origin of secondary metabolites–detailed account of Mevalonate pathway,Shikimate pathway.

UNIT-IV: Phytochemistry: (12hrs)

`Biosynthesis and sources of drugs:

1. Structural type biosynthesis importance of simple Phenolic compounds, coumarins, Flavonoids.
2. Steroids, sterols: Biosynthesis, commercial importance.
3. Alkaloids: Different groups, biosynthesis, bioactivity.
4. Volatile oils, aromatherapy.

UNIT-V: Enzymes, proteins and amino acids as drugs: **(12hrs)**

1. Vaccines, toxins and toxoids, immune globulins, antiserums,
2. Vitamins, Antibiotics – chemical nature, mode of action.
3. Pharmacological action of plant drugs – tumor inhibitors, PAF antagonists, antioxidants, phytoestrogens and others.

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DEPARTMENT OF CHEMISTRY

HIGHLIGHTED SYLLABUS OF B.Sc. CHEMISTRY

2019-20

Syllabus in Relevance to Employability, Skill Development and Entrepreneurship is highlighted as mentioned: Employability in yellow Color, Skill Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU

(Accredited at "A" Grade by NAAC, Bangalore)

ACADEMIC YEAR-2019-20

SEMESTER-I

PAPER CODE : CHE-101C

PAPER TITLE : INORGANIC ,ORGANIC &PHYSICAL CHEMISTRY, PAPER – I

UNIT –I

P-block elements –I

- **Group-13:** Synthesis and structure of diborane .
- Structures of higher boranes(B_4H_{10} and B_5H_9**)**
- boron-nitrogen compounds (B3N3H6 and BN) Structure and Synthesis.
- **Group - 14:** Silicones Defination, Classification,Preparation(Straightchain,Cyclic,& Cross linked),Types Of Silicones and Applications of Silicones(uses).
- **Group - 15:** Preparation, reactions and Structure of hydrazine.
  Preparation, reactions and Structure of hydroxylamine.

UNIT-II

P-block elements –II

- **Group - 16:** Classifications of oxides based on (i) Chemical behaviour and (ii) Oxygen content.
- **Group-17:** Inter halogen compounds(AX,AX3,AX5&AX7 Types)
- Pseudo halogens. (Preparation& Properties)

2. Organometallic Chemistry

- Definition - classification of Organometallic compounds - nomenclature, preparation,

  properties and applications of alkyls of Li and Mg.

ORGANIC CHEMISTRY

UNIT-III

Structural theory in Organic Chemistry

- Types of bond fission & Organic reagents-Examples (electrophiles, nucleophiles & free radicals including neutral molecules).Types of Carbenes and Nitrenes.
- Electron displacement effects in covalent bonds-Inductive effect-applications-Basicity of amines, acidity of carboxylic acids and stability of carbonium ions.
- Mesomeric / Resonance effect- applications- acidity of Phenol & carboxylic acids. Hyper conjugation-applications.
- Types of Organic reactions-Addition, Substitution & Elimination reactions.

UNIT-IV

l. Acyclic Hydrocarbons

Alkenes - Preparation of alkenes. Properties: Addition of hydrogen - heat of hydrogenation and stability of alkenes. Addition of halogen and its mechanism. Addition of HX, Markonikov's rule, addition of H_2O, HOX, H_2SO_4 with mechanism and addition of HBr in the presence of peroxide (anti - Markonikov's addition). Dienes - Types of dienes, reactions of conjugated dienes - 1,2 and 1,4 addition of HBr to 1,3 – butadiene and Diel's - Alder reaction.

Alkynes - Preparation by dehydrohalogenation of dihalides, dehalogenation of tetrahalides, Properties; Acidity of acetylenic hydrogen (formation of Metal acetylides). Preparation of higher acetylenes, Metal ammonia reductions, Physical properties. Chemical reactivity - electrophilic addition of X_2, HX, H_2O (Tautomerism), Oxidation with $KMnO_4$, OsO_4, reduction and Polymerisation reaction of acetylene.

2. Alicyclic hydrocarbons (Cycloalkanes)

Nomenclature, Preparation by Freunds method, Wislicenus method. Properties - reactivity of cyclopropane and cyclobutane by comparing with alkanes, Stability of cycloalkanes - Baeyer's strain theory, Sachse and Mohr predictions and Pitzer's strain theory. Conformational structures of cyclobutane, cyclopentane, cyclohexane.

UNIT-V Weightage (10+5)

Benzene and its reactivity

- Concept of resonance, resonance energy. Heat of hydrogenation, heat of combustion of

  Benzene, mention of C-C bond lengths and orbital picture of Benzene.
- Concept ofaromaticity - aromaticity (definition), Huckel's rule - application to Benzenoid (Benzene,

  Naphthalene) and Non - Benzenoid compounds (cyclopropenyl cation, cyclopentadienyl anion and tropylium cation)
- Reactions - General mechanism of electrophilic substitution, mechanism of nitration,
- Friedel Craft's alkylation
- Friedel Craft's acylation.
- Orientation of aromatic substitution - Definitionof ortho, para and meta directing groups. Ring activating and deactivating groups withexamples
- (Electronic interpretation of various groups like NO2 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)

A.G.&S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU

(Accredited at A Grade by NAAC, Bangalore) ACADEMIC YEAR-2019-20

Simple Salt Analysis	PAPER CODE : CHE-101P

Salt mixture Analysis

30 hrs (2h / w) Credits: 2

Analysis of salt mixture containing two anions and two cations from the following.

Anions: Carbonate, acetate, chloride, bromide, nitrate, sulphate, borate, phosphate

Cations: Lead, copper, iron, aluminum, zinc, manganese, nickel, calcium, Strontium, barium, potassium and ammonium.

1. **Analysis of simple salt-I**
2. **Analysis of simple salt-II**
3. **Analysis of simple salt-III**
4. **Analysis of simple salt-IV**
5. **Analysis of simple salt-V**
6. **Analysis of simple salt-VI**

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU.
(Accredited at "A" Grade by NAAC, Bangalore)

SEMESTER – III	SUBJECT: CHEMISTRY	PAPER CODE: CHE-301C
PAPER TITLE : INORGANIC, ORGANIC PHYSICAL CHEMISTRY, PAPER - III		

INORGANIC CHEMISTRY

60 hrs (4 h / w) Credits - 3

UNIT – I

Theories of bonding in metals:

- Metallic properties and its limitations, Valence bond theory, Free electron theory, Explanation of thermal and electrical conductivity of metals, limitations,
- Band theory, formation of bands, explanation of conductors, semiconductors and insulators.

UNIT – II

1. Metal carbonyls

- Effective atomic number(EAN),Calculation of EAN of metal atom.classification of metal carbonyls, structures and shapes of metal carbonyls of V, Cr, Mn, Fe, Co and Ni.

2. Organometallic Chemistry

- Definition - classification of Organometallic compounds - nomenclature, preparation and applications of alkyls of Li and Mg.

ORGANIC CHEMISTRY

UNIT-III

Carbonyl compounds

- Nomenclature of aliphatic and aromatic carbonyl compounds, structure of the carbonyl group. Synthesis of aldehydes from acid chlorides, synthesis of aldehydes and ketones using 1,3-dithianes, synthesis of ketones from nitriles and from carboxylic acids.
- **Physical properties**: Reactivity of carbonyl group in aldehydes and ketones.
- **Nucleophilic addition reaction** with a) $NaHSO_3$, b) HCN, c) RMgX, d) NH_2OH, e)$PhNHNH_2$, f) 2-4 DNPH, g) Alcohols-formation of hemiacetal and acetal.
- **Base catalysed reactions**: a) Aldol, b) Cannizzaro reaction, c) Perkin reaction, d) Benzoin condensation, e) Haloform reaction, f) Knoevenagel reaction.
- Oxidation of aldehydes- Baeyer-Villiger oxidation of ketones.
- **Reduction**: Clemmensen reduction, Wolf-Kishner reduction, MPV reduction, reduction with $LiAlH_4$ and $NaBH_4$.
- **Analysis of aldehydes and ketones** with a) 2,4-DNT test, b) Tollen's test, c) Fehling test, d) Schiff's test, e) Haloform test (with equation)

UNIT-IV

1. Carboxylic acids and derivatives

- Nomenclature, classification and structure of carboxylic acids.
  Methods of preparation by a) Hydrolysis of nitriles, amides
  b) Hydrolysis of esters by acids and bases with mechanism
  c) Carbonation of Grignard reagents.
- Special methods of preparation of aromatic acids by
  a) Oxidation of side chain.
  b) Hydrolysis by benzotrichlorides.
  c) Kolbe reaction.
- **Physical properties**: Hydrogen bonding, dimeric association, acidity- strength of acids with examples of trimethyl acetic acid and trichloroacetic acid. Relative differences in the acidities of aromatic and aliphatic acids.
- **Chemical properties**: 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, decarboxylation by Schimdt reaction, Arndt-Eistert synthesis, halogenation by Hell-Volhard- Zelinsky reaction.

2. Active methylene compounds

- **Acetoacetic esters**: keto-enol tautomerism, preparation by Claisen condensation, Acidhydrolysis and ketonic hydrolysis.
- Preparation of a) monocarboxylic acids(Acetic acid, Propaonic acid).
  b) Dicarboxylic acids(Succinic acid, Adipic acid).C)Reaction with urea
- **Malonic ester**: preparation from acetic acid.
  Synthetic applications: Preparation ofa) monocarboxylic acids (propionic acid and n-butyric acid). b) Dicarboxylic acids (succinic acid and adipic acid) c) α,β-unsaturated carboxylic acids (crotonic acid).Reaction with urea.

PHYSICAL CHEMISTRY

UNIT-V

Dilute solutions

- Colligative properties. Raoult's law, relative lowering of vapour pressure, its relation to molecular weight of non-volatile solute. Experimental method-Ostwald method.
- Elevation of boiling point , Derivation of relation between molecular weight and elevation in boiling point, Experimental method –Cottrell's method
- Depression in freezing point. Derivation of relation between molecular weight and depression in freezing point, Experimental method – Beckmann's method.
- Osmosis,osmotic pressure, Determination of molecular weight of non-volatile solute from osmotic pressure. Experimental method-Berkeley-Hartley method. Abnormal Colligative properties- Van't Hoff factor.

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Organic qualitative analysis-I	**PAPER CODE : CHE-301 P**

PRACTICAL SYLLABUS

30 hrs. (2h / w), Credits-2

Organic Qualitative Analysis: 50M

Analysis of an organic compound through systematic qualitative procedure for functional group identification including the determination of melting point and boiling point . Alcohols, Phenols, Aldehydes, Ketones, ,Carboxylic acids,

SEMESTER – V

COURSE CODE: CHE-501C

PAPER TITLE : INORGANIC,ORGANIC & PHYSICAL CHEMISTRY

INORGANIC CHEMISTRY

UNIT – I

Coordination Chemistry:

IUPAC nomenclature - bonding theories - Review of Werner's theory and Sidgwick's Concept of coordination - Valence bond theory - geometries of coordination numbers 4-tetrahedral and square planar and 6-octahedral and its limitations,crystal filed theory - Splitting of d-orbitals in octahedral, tetrahedral and square-planar complexes - low spin and high spin complexes - factors affecting crystal-field splitting energy, merits and demerits of crystal-field theory. Isomerism in coordination compounds – structural isomerism and stereo isomerism, stereochemistry of complexes with 4 and 6 coordination numbers

UNIT-II

1. Spectral and magnetic properties of metal complexes:

Types of magnetic behavior, spin-only formula, calculation of magnetic moments, experimental determination of magnetic susceptibility-Gouymethod.

2. Stability of metal complexes:

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.

ORGANIC CHEMISTRY

UNIT- III

Nitro hydrocarbons:

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.

UNIT – IV

Nitrogen compounds

Amines (Aliphatic and Aromatic): Nomenclature, Classification into 1°, 2°, 3° Amines and Quarternary ammonium compounds. Preparative methods –1.Ammonolysis of alkyl halides 2. Gabriel synthesis 3. Hoffman's bromamide reaction (mechanism). Reduction of Amides and Schmidt reaction. Physical properties and basic character - Comparative basic strength of Ammonia, methyl amine, dimethyl amine, trimethyl amine and aniline - comparative basic strength of aniline, N-methylaniline and N,N-dimethyl aniline (in aqueous and non-aqueous medium), steric effects and substituent effects. Chemical properties: a) Alkylation b) Acylation c) Carbylamine reaction d) Hinsberg separation e) Reaction with Nitrous acid of 1°, 2°, 3° (Aliphatic and aromatic amines). Electrophillic substitution of Aromatic amines – Bromination and Nitration. Oxidation of aryl and Tertiary amines, Diazotization.

PHYSICAL CHEMISTRY

UNIT- V

Thermodynamics (10+5+5+5)

16h

The first law of thermodynamics-statement, definition of internal energy and enthalpy. Heat capacities and their relationship. Joule-Thomson effect- coefficient. Calculation of w, 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. Concept of entropy, entropy as a state function, entropy changes in reversible and irreversible processes. Entropy changes in spontaneous and equilibrium processes.

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PRACTICAL SYLLABUS

Practical Paper – V **Organic Qualitative Analysis**	**PAPER CODE : CHE-501 P**

30 hrs (2 h/W) **Credits: 2**

Organic Qualitative Analysis: 50M

Analysis of an organic compound through systematic qualitative procedure for functional group identification including the determination of melting point and boiling point .

Alcohols, Phenols, Aldehydes, Ketones, Carbohydrates,
Carboxylic acids, Aromatic Primary Amines.

SEMESTER – V
PAPER CODE: CHE-502C
PAPER TITLE : INORGANIC,ORGANIC & PHYSICAL CHEMISTRY

INORGANIC CHEMISTRY

UNIT-I

1. Reactivity of metal complexes:

Labile and inert complexes, ligand substitution reactions - SN^1 and SN^2, substitution reactions of square planar complexes - Trans effect and applications of trans effect.

2.Bioinorganic chemistry:

Essential elements, biological significance of Na, K, Mg, Ca, Fe, Co, Ni, Cu, Zn and Cl-. Metalloporphyrins – Structure and functions of hemoglobin, Myoglobin and Chlorophyll.

ORGANIC CHEMISTRY

UNIT- II

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.

UNIT-III

Carbohydrates

Monosaccharides: **Glucose** (aldo hexose) - Evidence for cyclic structure of glucose (some negative aldehydes tests and mutarotation) - Proof for the ring size (methylation, hydrolysis and oxidation reactions) - Pyranose structure (Haworth formula and chair conformational formula). **Fructose** (ketohexose) - Evidence of 2 - ketohexose structure (formation of pentaacetate, formation of cyanohydrin its hydrolysis and reduction by HI). Cyclic structure for fructose (Furanose structure and Haworth formula) - osazone formation from glucose and fructose – Definition of anomers with examples.

Interconversion of Monosaccharides: Aldopentose to Aldohexose (Arabinose to D- Glucose, D-Mannose) (Kiliani - Fischer method). Epimers, Epimerisation - Lobry de bruyn van Ekenstein rearrangement. Aldohexose to Aldopentose (D-Glucose to D- Arabinose) by Ruff degradation. Aldohexose to Ketohexose [(+) Glucose to (-) Fructose] and Ketohexose to Aldohexose (Fructose to Glucose)

UNIT- IV

Amino acids and proteins 12h

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 carboxylic acid b) Malonic ester 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.

PHYSICAL CHEMISTRY

UNIT-V

1. Chemical kinetics (10+5) **9h**

Rate of reaction - Definition of order and molecularity. Derivation of rate constants for first, second, third and zero order reactions and examples. Derivation for time half change. Methods to determine the order of reactions. Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy.

2. Photochemistry (10+5) **9h**

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, hydrogen- bromine reaction. Qualitative description of fluorescence, phosphorescence, Photosensitized reactions- energy transfer processes (simple example)

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PRACTICAL SYLLABUS

Practical Paper –VI **Physical Chemistry**	**COURSE CODE : CHE-502 P**

30 hrs (2 h/W) **Credits: 2**

1. Determination of rate constant for acid catalyzed ester hydrolysis.
2. Determination of molecular status and partition coefficient of benzoic acid in Benzene and water.
3. Determination of Surface tension of liquid
4. Determination of Viscosity of liquid.
5. Adsorption of oxalic acid on silica gel , verification of Freundlisch isotherm.

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU.

(Accredited at "A" Grade by NAAC, Bangalore) ACADEMIC YEAR-2018-19

SEMESTER - II	PAPER CODE :CHE-201C
PAPER TITLE : INORGANIC, ORGANIC & PHYSICAL CHEMISTRY, PAPER- II	

60 hrs (4 h / w) Credits - 3

INORGANIC CHEMISTRY

UNIT – I

1. d-block elements

Characteristics of d-block elements with special reference to electronic configuration, variable valence, Colour,magnetic properties, catalytic properties and ability to form complexes. Stability of various oxidation states.

UNIT-II

1. f-block elements:

Chemistry of lanthanides - electronic structure, oxidation states, lanthanide contraction, Consequences of lanthanide contraction, magnetic properties. Chemistry of actinides - electronic configuration, oxidation states, actinide contraction, comparison of lanthanides and actinides.

2. **Chemical Bonding**

Molecular orbital theory - LCAO method, construction of M.O. diagrams for homo nuclear and hetero-nuclear diatomic molecules (N_2, O_2, CO and NO).

ORGANIC CHEMISTRY

UNIT-III

Benzene and its reactivity

- Concept of resonance, resonance energy. Heat of hydrogenation, heat of combustion of Benzene, mention of C-C bond lengths and orbital picture of Benzene.
- Aromaticity - Huckel's rule - application to Benzenoid(Benzene & Naphthalene) Non - Benzenoid compounds (cyclopropenyl cation, cyclopentadienyl anion and tropylium cation)
- Reactions - General mechanism of electrophilic substitution, mechanism of nitration,Friede-Craft's alkylation and acylation.
- Orientation - Definition, ortho, para and meta directing groups, examples.
- 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)

UNIT-IV

1. Halogen compounds

- Nomenclature and classification of alkyl (into primary, secondary, tertiary), aryl, arylalkyl, allyl, vinyl, benzyl halides.
- Nucleophilic aliphatic substitution reaction- classification into SN^1 and SN^2 – reaction mechanism with examples – Ethyl chloride, t-butyl chloride and optically active alkylhalide 2-bromobutane.

2. Hydroxy compounds

- Nomenclature and classification of hydroxy compounds.
- **Alcohols**: Preparation with hydroboration reaction, Grignard synthesis of alcohols.
- **Phenols**: Preparation- i) from diazonium salt, ii) from aryl sulphonates, iii) from cumene.
- **Chemical properties**:
  Dehydration of alcohols. Oxidation of alcohols by CrO_3, $KMnO_4$.
- Special reaction of Phenols: Bromination, Kolbe-Schmidt reaction, Riemer-Tiemann reaction, Fries rearrangement, azocoupling, Pinacol- Pinacolone rearrangement.

PHYSICAL CHEMISTRY

UNIT-V

Solutions

- Types of solutions, Solutions of liquids in liquids, Raoult's law, Ideal & Non -ideal solutions, Difference b/n ideal and Non-ideal solutions.
- Liquid mixtures-Completely miscible liquid mixtures-examples-Azeotropes (a.HCl-H2O,b.Ethanol-water) Fractional distillation.
- Partially miscible liquids mixtures-Phenol –water, Triethyl amine-water & Nicotine-water system. Effect of impurity on consulate temperature.
- Immiscible liquid mixtures-steam distillation-Nernst distribution law & its applications. Henrys law-applications.

List of Text & Reference Books

1. Inorganic Chemistry J E Huheey, E A Keiter and R L Keiter
3. A Text Book of Organic Chemistry by Bahl and Arun bahl
4. A Text Book of Organic chemistry by I L Finar Vol
5. Advanced Organic Chemistry by F A Carey and R J Sundberg
6. Advanced Physical chemistry by Bahl and Tuli
7. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu and Madan

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PRACTICAL SYLLABUS ACADEMIC YEAR-2018-19

Analysis of Salt mixture	PAPER CODE : CHE-201P

30 hrs (2 h / w) Credits: 2

Qualitative inorganic analysis:

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, aluminum, zinc, manganese, calcium, strontium, barium, Potassium and ammonium.

1. **Analysis of salt mixture-I**
2. **Analysis of salt mixture -II**
3. **Analysis of salt mixture-III**
4. **Analysis of salt mixture -IV**
5. **Analysis of salt mixture -V**
6. **Analysis of salt mixture-VI**

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SEMESTER – IV	SUBJECT: CHEMISTRY	PAPER CODE: CHE-401C
PAPER TITLE: INORGANIC,ORGANIC SPECTROSCOPY & PHYSICAL CHEMISTRY, PAPER-IV		

60 hrs (4h/w) Credits-3

INORGANIC CHEMISTRY

UNIT- I

Coordination Chemistry-I:

- IUPAC nomenclature - bonding theories - Review of Werner's theory and Sidgwick's Concept of coordination - Valence bond theory - geometries of coordination numbers-4-tetrahedral and square planar and 6-octahedral and its limitations.

ORGANIC SPECTROSCOPY

UINT-II

1. Spectrophotometry

- General features of absorption - Beer-Lambert's law and its limitations, transmittance, Absorbance, and molar absorptivity. Single and double beam spectrophotometers.
- Application of Beer-Lambert law for quantitative analysis of 1. Chromium in K2Cr2O7 2. Manganese in Manganous sulphate

2. Electronic spectroscopy:

- Interaction of electromagnetic radiation with molecules and types of molecular spectra. 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 and auxochrome

.

UNIT-III

1. Infra red spectroscopy

- Different Regions in Infrared radiations. Modes of vibrations in diatomic and polyatomic molecules. Characteristic absorption bands of various functional groups. Interpretation of spectra-Alkanes, Aromatic, Alcohols carbonyls, and amines with one example to each.

2. Proton magnetic resonance spectroscopy (1H-NMR)

- 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.

PHYSICAL CHEMISTRY

UNIT-V

Electrochemistry

- Specific conductance, equivalent conductance. Variation of equivalent conductance with dilution. Application of conductivity measurements- conductometric titrations.
- Arrhenius theory of electrolyte dissociation and its limitations.
- Ostwald's dilution law. Debye-Huckel-Onsagar's equation for strong electrolytes (elementary treatment only).
- Definition of transport number, determination by Hittorfs method.

- Single electrode potential, Nernst equation, Reversible and irreversible cells, Types of electrode-Standard Hydrogen electrode, calomel electrode, Indicator electrode, metal – metal ion electrode, Inert electrode.
- Applications of EMF measurements -Potentiometric titrations.

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Instrumentation	PAPER CODE : CHE - 401 P

PRACTICAL SYLLABUS

30 hrs (2h /w) Credits-2

I. Conductometric Titrations

1. Determination of concentration of HCl conductometrically using standard NaOH solution.
2. Determination of concentration of acetic acid conductometrically using standard NaOH Solution.

II. Potentiometric titrations

3. Determination of Concentration of Ferrous ion potentiometrically using standard $KMnO_4$ solution.
4. Determination of concentration of ferrous ion potentiometrically using standard $K_2Cr_2O_7$Solution.

III. Colorimetric titrations

5. Verification of Beer-Lamberts Law for $KMnO_4$ solution and determine the concentration of given test solution.
6. Verification of Beer-Lamberts Law for $K_2Cr_2O_7$ solution and determine the concentration of given test solution.

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

SEMESTER – VI
PAPER CODE:CHE-601GE
PAPER TITLE : ANALYTICAL METHODS IN CHEMISTRY

UNIT-I
Quantitative analysis:
a) Importance in various fields of science, steps involved in chemical analysis**.** Principles of volumetric analysis :. Theories of acid-base, redox, complexometric, iodometric and precipitation titrations - choice of indicators for these titrations.

UNIT-II
Treatment of analytical data:
Types of errors, significant figures and its importance, accuracy - methods of expressing accuracy, error analysis and minimization of errors, precision - methods of expressing precision, standard deviation and confidence limit.

UNIT-III
Separation Techniques in Chemical analysis

SOLVENT EXTRACTION: Introduction,principle,techniques,factors affecting solvent Extraction, Batch extraction, continuous extraction and counter current extraction. Synergism. Application - Determination of Iron (III), organic mixture analysis.

ION EXCHANGE: Introduction, action of ion exchange resins, separation of inorganic mixtures, applications,

UNIT – IV
Chromatography(10+5+5)
Classification of chromatography methods, principles of differential migration adsorption phenomenon, Nature of adsorbents, solvent systems, R_f values, factors effecting R_f values.

Paper Chromatography: Principles, R_f values, experimental procedures, choice of paper and solvent systems, developments of chromatogram - ascending, descending and radial. Two dimensional chromatography, applications.

UNIT -V
Thin layer Chromatography (TLC): Advantages. Principles, factors effecting R_f values. Experimental procedures. Adsorbents and solvents. Preparation of plates. Development of the chromatogram. Detection of the spots. Applications.

Column Chromatography: Principles, experimental procedures, Stationary and mobile Phases, Separation technique. Applications.
GC:Principle and applications

HPLC : Basic principles and applications.

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PRACTICAL SYLLABUS

Paper title: Chromatography & Volumetric analysis	**Paper code : CHE-601GE-P**

Marks:50 30hrs (2 h /W) Credits-2

1. Identification of amino acids by paper chromatography.
2. Determination of Zn using EDTA
3. Determination of Mg using EDTA
4. Hardness of water.

SEMESTER – VI
PAPER CODE:CHE-602CE
PAPER TITLE : ORGANIC SPECTROSCOPIC TECHNIQUES

UNIT-I
NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY

Nuclear spin, Principles of NMR-Classical and Quantum Mechanical methods, Larmour Frequency. Instrumentation. Saturation, Relaxation spin-spin & spin lattice relaxation. Chemical shifts, Shielding and Deshielding mechanism-Factors influencing Chemical shift.

UNIT – II

Spin-Spin interactions-factors affecting spin-spin interactions, Deuterium exchange (H^+), coupling constant- types of coupling constant-vicinal, Geminal and long range coupling constant-Factors influencing coupling constants.
Types of PMR Spectrums –AX, AX2 and AB type with one example.

UNIT-III
Electron Spin Resonance Spectroscopy
Basic Principles, Theory of ESR, Comparison of NMR & ESR. Instrumentaion, Factors affecting the 'g' value, determination of 'g' value. Isotropic and Anisotropic constants. Splitting hyper fine splitting coupling constants. Line width, Zero field splitting and Kramer degeneracy. Crystal field splitting, Crystal field effects.

Applications:- Detection of free radicals; ESR spectra of (a) $H^{\bullet}$- radical (b)Deuterium radical (c) Methyl radical(CH_3) (d) Benzene anion (C_6H_6) (e) $[Cu(H_2O)_6]^{+2}$

UNIT-IV
UV & VISIBLE SPECTROSCOPY
Electronic spectra of diatomic molecules. The Born-oppenheimer approximation.
Vibrational coarse structure: Intensity of Vibrational-electronic spectra: The Franck-Condon principle.
Electronic structure of diatomic molecules.Types of transitions, Chromophores, Auxochrome, types of shifts in UV Visible spectrum, Conjugated dienes, trienes and polyenes, unsaturated carbonyl compounds-Woodward – Fieser rules.

UNIT-V
Electronic spectra of polyatomic molecules Chemical analysis by Electronic Spectroscopy – Beer-Lambert's Law. Deviation from Beer's law.
Quantitative determination of metal ions (Mn^{+2}, Fe^{+2}).
Simultaneous determination of Chromium and Manganese in a mixture.

SEMESTER – VI
PAPER CODE:CHE-603CE
PAPER TITLE : ADVANCED ORGANIC REACTIONS

UNIT – I

ORGANIC PHOTOCHEMISTRY

Organic photochemistry : Molecular orbitals, carbonyl chromophore–triplet states, Jablonski diagram, inter–system crossing. Energy transfer.

Photochemical reactions: Photo reduction, - mechanism, example-aromatic compounds. sensitizer and influence of sensitizer

UNIT – II

ORGANIC PHOTOCHEMISTRY

Norrisch cleavages, type -I: Mechanism, acyclic cyclicdiones, Photo Fries rearrangement. Norrisch type II cleavage: Mechanism and stereochemistry, Type- II reactions of esters: 1: 2 diketones, photo decarboxylation., Di - π methane Rearrangement, Photochemistry – of conjugated dienes, Decomposition of nitrites – Barton reaction

UNIT – III

PROTECTING GROUPS AND ORGANIC REACTIONS

Principles of (1) Protection of alcohols – ether formation including silyl ethers – ester formation, (2) Protection of diols – acetal,ketal and carbonate formation, (3) Protection of carboxylic acids – ester formation, benzyl and t–butyl esters, (4) Protection of amines – acetylation, benzoylation, benzyloxy carbonyl, triphenyl methyl groups and fmoc, (5) Protection of carbonyl groups – acetal, ketal, 1,2–glycols and 1,2–dithioglycols formation.

UNIT – IV

SYNTHETIC REACTIONS:

Mannich reaction – Mannich bases – Robinson annulations. The Shapiro reaction, Stork–enamine reaction. Use of dithioacetals – Umpolung, phase transfercatalysis – mechanisms and use of benzyl trialkyl ammonium halides. Witting reaction.

UNIT –V : NEW SYNTHETIC REACTIONS

Define with example and mechanism- Suziki coupling, Click reaction,Baylis–Hillman reaction, RCM olefm metathesis, Mukayama aldol reaction.

Define with one example: (Mechanism not required**)**

Mitsunobu reaction, McMurrey reaction, Julia–Lythgoe olefination, Stille coupling and Heck reaction,

SEMESTER – VI
PAPER CODE:CHE-604CE
PAPER TITLE :PHARMACEUTICAL AND MEDICINAL CHEMISTRY

UNIT-I
Pharmaceutical chemistry Terminology: Pharmacy, Pharmacology, Pharmacophore, Pharmacodynamics, Pharmacokinetics (ADME, Receptors - brief treartment) Metabolites and Anti metabolites.

UNIT-II
Drugs:
Nomenclature: Chemical name, Generic name and trade names with 10-examples
Classification based on structures and therapeutic activity with one example each.

UNIT-III
Synthesis and therapeutic activity of the compounds:
a. Chemotheraputic Drugs
l.Sulphadrugs(Sulphamethoxazole) 2.Antibiotics - β-Lactam Antibiotics-Isolation of Pencilline by submerged culture method, 3. Anti malarial Drugs (chloroquine)

b. Psycho therapeutic Drugs:
1.Anti pyretics(Paracetamol) 2.Hypnotics, 3.Tranquilizers(Diazepam) 4.Levodopa

UNIT-IV
Pharmacodynamic Drugs:
1. Antiasthma Drugs (Solbutamol) 2. Antianginals (Glycerol Trinitrate)
3. Diuretics (Frusemide)

UNIT-V
HIV-AIDS:
Immunity - CD-4cells, CD-8cells, Retro virus, Replication in human body, Investigation available, prevention of AIDS, Drugs available - examples with structures: PIS: Indivanir (crixivan), Nelfinavir(Viracept).

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Practical syllabus

Paper title: Preparations of Organic compounds	Paper code : CHE-602CE-P

30 hrs (2 h / W)

1. Preparation of Aspirin
2. Preparation of Paracetamol
3. Preparation of Acetanilide
4. Preparation of Barbutiric Acid
5. Preparation of Phenyl Azo β-naphthol

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Practical syllabus

Paper title: Preparations of Organic compounds by Green procedure	**Paper code : CHE-603CE-P**

30 hrs (2h / W)

1. Green procedure for organic qualitative analysis: Detection of N, S andhalogens
2. Acetylation of 1_0 amine by green method: Preparation of acetanilide
3. Rearrangement reaction in green conditions: Benzil-Benzilic acid rearrangement
4. Electrophilic aromatic substitution reaction: Nitration of phenol
5. Radical coupling reaction: Preparation of 1, 1-bis -2-naphthol
6. Green oxidation reaction: Synthesis of adipic acid
7. Green procedure for Diels Alder reaction between furan and maleic anhydride

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Department of Chemistry

Paper title: **Project work**	Paper code : CHE-604CE-P

The students have chosen chemistry as cluster elective. Three projects have been selected and distributed the same among the students.

S.no	Name of the Project	No. of students allotted
1.	Instrumentation	
2.	Laboratory Reagents	
3.	Effects of Drugs	

AdusumilliGopalakrishnaiah& Sugar Cane Growers Siddhartha Degree College ofArts & Science, Vuyyuru, Krishna District, Andhra Pradesh

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DEPARTMENT OF COMPUTER SCIENCE

2019-20(EVEN SEMESTER)

HIGHLIGHTED SYLLABUS OF COMPUTER SCIENCE

Syllabus in Relevance to Employability, Skill Development and Entrepreneurship **is** highlighted as mentioned: Employability in yellow Color, Skill Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

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An Autonomous college withinthe jurisdiction of Krishna University A.P, India.
(With Effect from Academic Year 2017-'18)

COMPUTER SCIENCE	CSC-201C	2019-'20	B.Sc. (MPCs, MCCs.)

SEMESTER – II PAPER – II Max. Marks 70 Pass Marks 28 Total Hrs: 60

Syllabus **PROGRAMMING IN C** **NO. Of. Hours: 4**

Credits: 3

UNIT I **15Hrs**

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms -Some more Algorithms – Flow Charts – Pseudo code – Programming Languages – Generation of Programming Languages – Structured Programming Language.

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 – Type Conversion and Type Casting

UNIT II **15Hrs**

Decision Control and Looping Statements: Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement **Functions**: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables –Storage Classes Recursive functions – Type of recursion – Towers of Hanoi – Recursion vs Iteration

UNIT III **10Hrs**

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array – Calculating the length of the Array – Operations on Array – one dimensional array for inter-function communication – Two dimensional Arrays –Operations on Two Dimensional Arrays - Two Dimensional Arrays for inter-function communication – Multidimensional Arrays – Sparse Matrices **Strings:** Introduction –Suppressive Input – String Taxonomy – String Operations – Miscellaneous String and Character functions

UNIT IV **10Hrs**

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers – Generic Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Passing Array to Function – Difference between Array Name and Pointer – Pointers and Strings – Array of pointers – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions – Self referential Structures – Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types

UNIT V **10Hrs**

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data from Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments – Functions for Selecting a Record Randomly - Remove() – Renaming a File – Creating a Temporary File

REFERENCE BOOKS

1. Introduction to C programming by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. E Balagurusamy: ―COMPUTING FUNDAMENTALS & C PROGRAMMING – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.
4. Henry Mullish & Huubert L.Cooper: The Spirit of C An Introduction to modern Programming, Jaico Pub. House,1996.

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COMPUTER SCIENCE	CSC-201P	2019-'20	B.Sc.(MPCs, MCCs.)

SEMESTER – II **PAPER – II** **Max. Marks 50** **Pass Marks 25**

LABLIST **PROGRAMMING IN C**

No. of Hours per week: 2 **External: 25** **Internal: 25** **Credits: 2**

1. Find out the given number is perfect number or not using c program.
2. Write a C program to check whether the given number is Armstrong or not.
3. Write a program to find roots of quadratic equation.
   Root 1 = (-b + sqrt (b^2 - 4ac) / 2a Root 2 = (-b - sqrt (b^2 - 4ac) / 2a
4. Write a C program to find the sum of individual digits of a positive integer.
5. Write a C program to print the Fibonacci series
6. Write a C program to generate the first n terms of the Fibonacci sequence.
7. Write a program to find factorial of a given number using recursion
8. Write a program to perform all arithmetic operations using switch case
9. Write a C program to generate all the prime numbers between 1 and n, where n is a Value supplied by the user.
10. Write a C program to find both the largest and smallest number in a list of integers.
11. Write a C program that uses functions to perform the following:
    a. Addition of Two Matrices
    b. Multiplication of Two Matrices
12. Write a program to perform various string operations
13. Write a program to swap two numbers using pointers.
14. Write C program that implements searching of given item in a given list
15. Write a C program to sort a given list of integers in ascending order

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COMPUTER SCIENCE	**CCSC-203C**	**2019-'20**	**B.Com.(C.A)**

SEMESTER –II PAPER – II Max. Marks 70 Pass Marks 28 Totals Hrs 60

Syllabus: ENTERPRISE RESOURCE PLANNING

NO. Of. Hours: 5 Credits: 4

Unit-I: Introduction: **12Hrs**

Overview of enterprise systems – Evolution - Risks and benefits - Fundamental technology - Issues to be consider in planning design and implementation of cross functional integrated ERP systems.

Unit- II: ERP Solutions and Functional Modules: **12Hrs**

Overview of ERP software solutions- Small, medium and large enterprise vendor solutions, BPR and best business practices - Business process Management, Functional modules.

Unit-III: ERP Implementation: **12Hrs**

Planning Evaluation and selection of ERP systems -Implementation life cycle - ERP implementation, Methodology and Frame work- Training – Data Migration - People Organization in implementation-Consultants, Vendors and employees.

Unit-IV: Post Implementation: **10Hrs**

Maintenance of ERP- Organizational and Industrial impact; Success and Failure factors of ERP Implementation.

Unit-V: Emerging Trends on ERP: **14Hrs**

Extended ERP systems and ERP add-ons -CRM, SCM, Business analytics - Future trends in ERP systems-web enabled, Wireless technologies, cloud computing.

References:

1. Alexis Leon, ERP demystified, second Edition Tata McGraw-Hill, 2008.
2. Sinha P. Magal and Jeffery Word, Essentials of Business Process and Information System, Wiley India, 2012
3. Jagan Nathan Vaman, ERP in Practice, Tata McGraw-Hill, 2008
4. Alexis Leon, Enterprise Resource Planning, second edition, Tata McGraw-Hill, 2008.
5. Mahadeo Jaiswal and Ganesh Vanapalli, ERP Macmillan India, 2009
6. Vinod Kumar Grag and N.K. Venkitakrishnan, ERP- Concepts and Practice, PHI, 2006.
7. Summer, ERP, Pearson Education, 2008

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COMPUTER SCIENCE	**ICT-I-201**	**2019-'20**	**B.A, B.Com, B.Sc.**

SEMESTER – II PAPER – I Max. Marks 50 Pass Marks 20 Total Hrs: 30

Syllabus **Computer Fundamentals & Office Tools** **NO. Of Hrs: 2 Credits: 2**

Unit-I : Basics of Computers **6 Hrs**

Definition of a Computer - Characteristics and Applications of Computers – Block Diagram of a Digital Computer – Classification of Computers based on size and working Central Processing Unit – Input, Output and I/O Devices

Unit-II: Memory Devices & Operating Systems **6Hrs**

Primary, Auxiliary and Cache Memory – Memory Devices – Software, Hardware, Firmware and People ware –Definition and Types of Operating System – Functions of an Operating System – MS-DOS MS-Windows – Desktop, Computer, Documents, Pictures, Music, Videos, Recycle Bin, Task Bar – Control Pane

Unit-III: MS-Word **6 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-IV: MS-PowerPoint **6 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-V : MS-Excel **6 Hrs**

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

Reference Books :

1. Fundamentals of Computers by V.Raja Raman, Publishers : PHI
2. Fundamentals of Computers by Reema Thareja, Publishers : Oxford University Press, India
3. Microsoft Office 2010 Bible by John Walkenbach, Herb Tyson, Michael R.Groh and Faithe Wempen, Publishers : Wiley

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COMPUTER SCIENCE	CSC-401C	2019-'20	B.Sc.(MPCs. , MCCs.)

SEMESTER – IV PAPER – IV Max. Marks 75 Pass Marks 30 Total Hrs 60

Syllabus **DATA STRUCTURES** **NO Of Hours: 4** **Credits: 4**

UNIT I **15 Hrs**

Concept of Abstract Data Types (ADTs)- Data Types, Data Structures, Storage Structures, and File Structures, Primitive and Non-primitive Data Structures, Linear and Non-linear Structures. **Linear Lists** - ADT, Array and Linked representations, Pointers.

Arrays - ADT, Mappings, Representations, Sparse Matrices, Sets - ADT, Operations

Linked Lists: Single Linked List, Double Linked List, Circular Linked List, applications

UNIT II **10 Hrs**

Stacks: Definition, ADT, Array and Linked representations, Implementations and Applications

Queues: Definition, ADT, Array and Linked representations, Circular Queues, De-queues, Priority Queues, Implementations and Applications.

UNIT III **15 Hrs**

Trees: Binary Tree, Definition, Properties, ADT, Array and Linked representations, Implementations and Applications. Binary Search Trees (BST) - Definition, ADT, Operations and Implementations, BST Applications. Threaded Binary Trees, Heap trees

UNIT IV **10Hrs**

Graphs – Graph and its Representation, Graph Traversals, Connected Components, Basic Searching Techniques, Minimal Spanning Trees

UNIT- V **10 Hrs**

Sorting and Searching: Selection, Insertion, Bubble, Merge, Quick, Heap sort, Sequential And Binary Searching.

TEXT BOOKS

1. Hubbard John R. and Hurray Anita, Data Structures with Java Paperback Prentice-Hall 2005 ISBN-10: 8120327454
2. Samanta D, Classic Data Structures, Prentice-Hall of India, 2001.
3. David Cousins, Introducing Data Structures with Java Kindle Edition, Pearson Education; First edition, 2011, ISBN-10: 8131758648, 464 pages

REFERENCE BOOKS

1. Sahani S, Data Structures, Algorithms and Applications in C++, McGraw-Hill, 2002
2. D S Malik, Data Structures Using C++, Thomson, India Edition 2006
3. Tremblay P, and Sorenson P G, Introduction to Data Structures with Applications, Tata McGraw-Hill,

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COMPUTER SCIENCE	CSC-401P	2018-'19	B.Sc.(MPCs., MCCs.)

SEMESTER – IV PAPER – IV Max. Marks 50 Pass Marks 25

TotalHrss:30

LAB LIST **DATA STRUCTURES**

No. of Hours per week: 2 External: 25 Internal: 25 Credits: 2

1. Write a Program to implement the Linked List operations
2. Write a Program to implement the Stack operations using an array.
3. Write Programs to implement the Queue operations using an array.
4. Write Programs to implement the Stack operations using a singly linked list.
5. Write Programs to implement the Queue operations using a singly linked list.
6. Write a program to search an item in a given list using Linear Search and Binary Search
7. Write a program for Quick Sort
8. Write a program for Merge Sort
9. Write a program for insertion sort
10. Write a program for Bubble Sort.
11. Write a program for selection Sort.
12. Write a program for Graph traversals

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COMPUTER SCIENCE	**CCSC-403C**	**2019-'20**	**B.Com.(C.A)**

SEMESTER –IV PAPER – IV Max. Marks 75 Pass Marks 30 Total Hrs 60

Syllabus: **Business Analytics** **NO. Of. Hours: 5 Credits: 4**

Unit-I: **12Hrs**

Introduction - Business Analytics Life Cycle - Business Analytics Process - Data concepts - Data exploration & visualization - Business Analytics as Solution for Business Challenges .

Unit-II: **12Hrs**

Automated Data Analysis: Tabulation and Cross Tabulation of Data: Univariate, Bivariate and Multivariate Data Analysis – ANOVA.

Unit-III: **12Hrs**

Hypothesis Testing: Type 1 & 2 errors - T-test, ANOVA, Chi-Square and correlation- Linear Regression Analysis - Logistic Regression - Cluster Analysis - Market Basket Analysis.

Unit-IV: **14Hrs**

Business Data Management: Master Data Management: Data Warehousing and kinds of Architecture – Data Extraction – Transformation and Up-loading of Data – Data Mining – Meta Data – Data Marts – Creating Data Marts – Data Integration – OLTP and OLAP.

Unit-V: **10Hrs**

SPSS Packages – Applications and Case Studies.

Suggested Books:

1. Gupta S.P. "Statistical Methods", Sultan Chand, New Delhi, 2010.
2. K.V. Rao, "Research Methodology in Commerce and Management", Sterling Publishers, New Delhi, 2012.
3. T.S. Wilkinson & P.L. Bhandarkar, "Methodology and Techniques of Social Research", 2010.
4. Richard A.Johnson & Dean W.Wichern, "Applied Multivariate Statistical Analysis", Prentice Hall International Inc., 2007.
5. R.N Prasad and Seema Acharya, "Fundaments of Business Analytics", Wiley India
6. Pang-Ning Tan, Michael Steinbach & Vipin Kumar, "Introduction to Data Mining", Pearson, 2009.
7. Alex Berson, Stephen Smith & Kurt Thearling, "Building Data Mining Application forCRM", Tata McGraw Hill, New Delhi,2000.

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COMPUTER SCIENCE	**CSC-601(GE)**	**2019-'20**	**B.Sc.(MPCs)**

SEMESTER – VI **PAPER – VII** **Max. Marks 75**

Syllabus: WEB TECHNOLOGIES

NO Of Hours: 4 **No of Credits: 3** **Pass Marks 30**

Course Objectives:

1. To provide knowledge on web architecture, web services, client side and server side scripting technologies to focus on the development of web-based information systems and web services.
2. To provide skills to design interactive and dynamic web sites.

Unit -I Introduction to XHTML: **12 Hrs**

Introduction to HTML, Basic html, Document body text, Hyper links, Adding more formatting Lists, Tables, Images, Multimedia Objects, Frames, Forms and XHTML.

Unit- II: CSS: **12 Hrs**

Cascading Style Sheets: Introduction, Defining your own styles, properties and values in styles, Formatting blocks of information, Layers.
Java Script: java Script, the basics, Variables, String Manipulations, Mathematical functions, Statements, Operators, Arrays, Functions.

Unit –III: Objects in Java Script & Dynamic HTML with Java Script **12 Hrs**

Objects in Java Script: Data and objects in java script, Regular expressions, Exception Handling, Built in objects, Events.
Dynamic HTML with Java Script: Data validation, Opening a new window, Messages and Confirmations, The status bar, Writing to a different frame, Rollover buttons, Moving images, Multiple pages in a single download, A text-only menu system, Floating logos.

Unit –IV: XML Defining Data for Web Applications **12 Hrs**

XML: Introduction to XML, Basic XML, document type definition, XML Schema, Document object model, presenting XML, Using XML parser.

UNIT-V: JSP: JSP Lifecycle, Basic Syntax, EL (Expression Language), EL Syntax, Using EL Variables

Prescribed Books:

1. Chris Bates, Web Programming Building Internet Application, Second Edition, Wiley (2007)
2. Head First Servlets and JSP 2nd Edition, Bryan Basham, Kathy Sierra
3. Uttam Kumar Roy, Web Technologies from Oxford University Press

Student Activities:

1. Prepare a web site for your college
2. Prepare your personal website

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COMPUTER SCIENCE	CSC-601(GE)	2018-'19	B.Sc.(MPCS)

SEMESTER – VI **PAPER – VI** **Max. Marks 50**

Lab List **WEB TECHNOLOGIES** **Pass Marks 25**

No. of Hours per week: 2 **External: 25** **Internal: 25** **Credits: 2**

1. Write an HTML program to demonstrate text formatting, working with images and hyper links
2. Write an HTML program to create Student Marks sheet preparation.
3. Write an HTML program to explain String manipulation-using functions.
4. Write an HTML program to explain <form> events
5. Write an HTML program to perform all arithmetic operations using java script.
6. Develop a HTML Form, which accepts any Mathematical expression. Write JavaScript code to Evaluates the expression and Displays the result.
7. Create a form for Student information. Write JavaScript code to find Total, Average, Result and Grade.
8. Create a form for Employee information. Write JavaScript code to find DA, HRA, PF, TAX, Gross pay, Deduction and Net pay.
9. Create a form consists of a Multiple choice questions that validates the answer dynamically and displaying result using java script.
10. Write a java script to work with following

a. Date display b. Calendar c. Copy Selected Text

b. IP Address

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COMPUTER SCIENCE	CSC-602CE	2019-'20	B.Sc.(MPCs)

SEMESTER – VI **PAPER – VIII** **Max. Marks 75**

Syllabus : PHP, MySql & Word Press

NO Of Hours:4 **Credits: 3** **Pass Marks 30**

Course Objective: To introduce the concept of PHP and to give basic Knowledge of PHP. Learn about PHP Syntax., Arrays, PHP Loops, PHP and MySQL connectivity, PHP form validation, PHP form handling. Overview of MySQL and PHPMyAdmin, Understand basic concepts of how a database stores information via tables, Understanding of SQL syntax used with MySQL, Learn how to retrieve and manipulate data from one or more tables, Know how to filter data based upon multiple conditions, Updating and inserting data into existing tables, Learning how the relationships between tables will affect the SQL, The advantages of store procedures with storing data using variables and functions, How SQL can be used with programming languages like PHP to create dynamic websites for visitors, Review of some sample PHP projects interacting with MySQL.

UNIT-1: Installing and Configuring MySQL: **10 Hrs**

Current and Future Versions of MySQL, How to Get MySQL, Installing MySQL on Windows, Trouble Shooting your Installation, Basic Security Guidelines, Introducing MySQL Privilege System, Working with User Privileges. Installing and Configuring Apache: Current and future versions of Apache, Choosing the Appropriate Installation Method, Installing Apache on Windows, Apache Configuration File Structure, Apache Log Files, Apache Related Commands, Trouble Shooting. Installing and Configuring PHP: Building PHP with Apache on Windows, php.ini.Basics, The Basics of PHP scripts. 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.

Unit – II: Working with Functions: **10 Hrs**

What is function?, Calling functions, Defining Functions, Returning the values from User-Defined Functions, Variable Scope, Saving state between Function calls with the static statement, more about arguments. Working with Arrays: What are Arrays? Creating Arrays, Some Array-Related Functions. Working with Objects: Creating Objects, Object Instance 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.

Unit – III: Working with Forms: **15 Hrs**

Creating Forms, Accessing Form Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user, Sending Mail on Form Submission, Working with File Uploads. Working with Cookies and User Sessions: Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables, passing session IDs in the Query String, Destroying Sessions and Unsetting Variables, Using Sessions in an

Environment with Registered Users. Working with Files and Directories: Including Files with inclue(), Validating Files, Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from Files, Writing or Appending to a File, Working with Directories.

Unit – IV: Introduction to MySQL **15Hrs**

Introduction to My SQLand Interfacing with Databases through PHP Understanding the database design process: The Importance of Good Database Design, Types of Table Relationships, Understanding Normalization. Learning basic SQL Commands: Learning the MySQL Data types, Learning the Table Creation Syntax, Using Insert Command, Using SELECT Command, Using WHERE in your Queries, Selecting from Multiple Tables, Using the UPDATE command to modify records, Using RELACE Command, Using the DELETE Command, Frequently used string functions in MySQL, Using Date and Time Functions in MySQL. Interacting with MySQL using PHP: MySQL Versus MySQLi Functions, Connecting to MySQL with PHP, Working with MySQL Data.

Unit – V: Word press **10Hrs**

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. Working with themes-parent and child themes, using featured images, configuring settings.

References:

1. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach yourself, Pearson Education (2007).
2. Xue Bai Michael Ekedahl, The web warrior guide to Web Programming, Thomson (2006).

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COMPUTER SCIENCE	CSC-602CE	2018-'19	B.Sc.(MPCS)

SEMESTER – VI **PAPER – VIII** **Max. Marks 50**

Lab List **PHP, MySQL & Word Press Lab** **Pass Marks 25**
No. of Hours per week: 3 **External: 25** **Internal: 25**

Credits: 2

MySQL Lab Cycle

Cycle -1

An Enterprise wishes to maintain the details about his suppliers and other corresponding details. For that he uses the following details.
Suppliers (sid: Integer, sname: string, address: string)
Parts (pid: Integer, pname: string, color: string)
Catalog (sid: integer, pid: integer, cost: real)

The catalog relation lists the prices charged for parts by suppliers.

Write the following queries in SQL:

1. Find the pnames of parts for which there is some supplier.
2. Find the snames of suppliers who supply every part.
3. Find the snames of supplier who supply every red part.
4. Find the pnames of parts supplied by London Supplier abd by no one else.
5. Find the sid's of suppliers who charge more for some part than the average cost of that part.
6. For each part, find the sname of the supplier who charges the most for that part.
7. Find the sid's of suppliers who supply only red parts.
8. Find the sid's of suppliers who supply a red and a green part.
9. Find the sid's of suppliers who supply a red or green part.
10. Find the total amount has to pay for that suppler by part located from London.

Cycle – 2

An organisation wishes to maintain the status about the working hours made by his employees. For that he uses the following tables.

Emp (eid: integer, ename: string, age: integer, salary: real)
Works (eid: integer, did: integer, pct_time: integer)
Dept (did: integer, budget: real, managerid: integer)
An employee can work in more than one department; the pct_time field of the works relation shows the percentage of time that a given employee works in a given

department.

Resolve the following queries.

1. Print the names and ages of each employee who works in both Hardware and Software departments.
2. For each department with more than 20 full time equivalent employees (i.e., where the part-time and full-time employees add up to at least that many full-time employees), print the did's together with the number of employees that work in that department.

3. Print the name of each employee whose salary exceeds the budget of all of the departments that he or she work in.
4. Find the managerid's of managers who manage only departments with budgets greater than 1,000,000.
5. Find the enames of managers who manage the departments with largest budget.
6. If a manager manages more than one department, he or she controls the sum of all the budgets for those departments. Find the managerid's of managers who control more than 5,000,000.
7. Find the managerid's of managers who control the highest amount.
8. Find the average manager salary.

PHP Lab Cycle

1. Write a PHP program to Display "Hello"
2. Write a PHP Program to display the today's date.
3. Write a PHP Program to read the employee details.
4. Write a PHP Program to display the
5. Write a PHP program to prepare the student marks list.
6. Write a PHP program to generate the multiplication of two matrices.
7. Write a PHP Application to perform demonstrate the college website.
8. Write a PHP application to add new Rows in a Table.
9. Write a PHP application to modify the Rows in a Table.
10. Write a PHP application to delete the Rows from a Table.
11. Write a PHP application to fetch the Rows in a Table.
12. Develop an PHP application to make following Operations
    i. Registration of Users.
    ii. Insert the details of the Users.
    iii. Modify the Details.
    iv. Transaction Maintenance.
        a) No of times Logged in
        b) Time Spent on each login.
        c) Restrict the user for three trials only.
        d) Delete the user if he spent more than 100 Hrs of transaction.

Wordpress Lab

1. Installation and configuration of word press.
2. Create a site and add a theme to it.

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COMPUTER SCIENCE	CSC-603CE	2019-'20	B.Sc.(MPCs)

SEMESTER – VI **PAPER – VIII** **Max. Marks 75**

Syllabus : Advanced java Script: JQUERY/AJAX/JSON/ANGULAR JS

NO Of Hours:4 **Credits: 3** **Pass Marks 30**

Course Objective: To impart knowledge in designing a webpage in a structured way by using advanced java script ie., using different scripting languages

UNIT-1: JQuery – Basics: **10 Hrs**

String, Numbers, Boolean, Objects, Arrays, Functions, Arguments, Scope, Built-in Functions. jQuerySelectors: CSS Element Selector, CSS Element ID Selector, CSS Element Class Selector, CSS Universal Selector, Multiple Elements E, F, G Selector, Callback Functions. jQuery – DOM Attributes: Get Attribute Value, Set Attribute Value. jQuery – DOM Traversing : Find Elements by index, Filtering out Elements, Locating Descendent Elements, JQuery DOM Traversing Methods.

Unit – II: jQuery – CSS Methods : **10 Hrs**

Apply CSS Properties, Apply Multiple CSS Properties, Setting Element Width & Height, JQuery CSS Methods. jQuery – DOM Manipulation Methods: Content Manipulation, DOM Element Replacement, Removing DOM Elements, Inserting DOM elements, DOM Manipulation Methods. jQuery – Events Handling: Binding event handlers, Removing event handlers, Event Types, The Event Object, The Event Attributes. jQuery – Effects: JQuery Effect Methods, jQuery Hide and Show, jQuery Toggle, jQuery Slide – slideDown, slideUp, slideToggle, jQuery Fade – fadeIn, fadeOut, fadeTo, jQuery Custom Animations

Unit – III: Intro to jQuery UI **15 Hrs**

, Need of jQuery UI in real web sites, Downloading jQuery UI, Importing jQuery UI, Draggable, Droppable, Resizable, Selectable, Sortable, Accordion, Auto Complete, Button Setϖ, Date Picker, Dialog, Menu, Progress Bar, Slider, Spinner, Tabs, Tooltip, Color Animation, Easing Effects, addClass, removeClass, Effects, jQuery UI themes, Customizing jQuery UI widgets / plug-ins, jQuery UI with CDN, Consuming jQuery Plug-ins from 3rd party web sites jQuery Validations, Intro to jQuery validation plug-in, Using jQuery validation plug-in, Regular expressions.

Unit – IV: Intro to AJAX **15 Hrs**

Need of AJAX in real web sites, Getting database data using jQueryAJAX, Inserting, Updating, Deleting database data using jQuery-AJAX Grid Development using jQuery-AJAX Intro to JSON JSON syntax, Need of JSON in real web sites, JSON object, JSON array, Complex JSON objects, Reading JSON objects using jQuery.

Unit – V: Intro to AngularJS **15 Hrs**

Need of AngularJS in real web sites, Downloading AngularJS, AngularJS first example, AngularJS built-in directives, AngularJS expressions, AngularJS modules, AngularJS controllers, AngularJS scope AngularJS dependency injection AngularJS, bootstrapping AngularJS data bindings, AngularJS $watch, AngularJS filters, AngularJS events, AngularJS AJAX, Ng-repeat, AngularJS with json arrays, AngularJS registration form and login form, AngularJS CRUD operations, AngularJS Animations, AngularJS validationsϖ AngularJS $q, AngularJS custom values, AngularJS custom factories, AngularJS custom services,

AngularJS custom directives, AngularJS custom providers, AngularJS Routing, AngularUI Routing.

References:

1. jQuery UI 1.8: The User Interface Library for jQuery by Dan Wellman
2. jQuery Fundamentals by Rebecca Murphey
3. Ajax: The Complete Reference by Thomas A. Powell

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COMPUTER SCIENCE	CSC-603CE	2018-'19	B.Sc.(MPCS)

SEMESTER – VI **PAPER – VIII** **Max. Marks 50**

Lab List **Advanced java Script: JQUERY/AJAX/JSON/ANGULAR JS** **Pass Marks 25**

No. of Hours per week: 3 **External: 25** **Internal: 25**

Credits: 2

1. Using jQuery find all textareas, and makes a border.Then adds all paragraphs to the jQuery object to set their borders red.
2. Using jQuery add the class "w3r_font_color" and w3r_background to the last paragraph element.
3. Using jQuery add a new class to an element that already has a class.
4. Using jQuery insert some HTML after all paragraphs.
5. Using jQuery insert a DOM element after all paragraphs.
6. Convert three headers and content panels into an accordion. Initialize the accordion And specify the animate option
7. Convert three headers and content panels into an accordion. Initialize the accordion and specify the height.
8. Create a pre-populated list of values and delay in milliseconds between a keystroke occurs and a search is performed.
9. Initialize the button and specify the disable option.
10. Initialize the button and specify an icon on the button.
11. Initialize the button and do not show the label.
12. Create a simple jQuery UI Datepicker. Now pick a date and store it in a textbox.
13. Initialize the date picker and specify a text to display for the week of the year column heading.

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COMPUTER SCIENCE	**CSC PROJ-602 P**	**2018-'19**	**B.Sc.(MPCs)**

SEMESTER – VI **PROJECT (PHP & MYSQL)** **Max. Marks 100**

OBJECTIVE

The objective of the Project Course is to help the students to study, analyze and design software or utility for different problems or applications. This will improve the skills of software development of the students.

MARKS FOR PROJECT EVALUATION

The project course will be evaluated for **100** Marks, of which **75** marks are meant for the practical evaluation of a project and **25** marks are allotted for attending viva-voce examination. The passing minimum in the project work will be 50% of the total mark. i.e. the student should get minimum 50% marks in the project evaluation and the viva-voce examination. Thus, the minimum mark the student is required to obtain is 50 out of 100 marks.

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COMPUTER SCIENCE	**COM-CSC-605**	**2019-'20**	**B.Com (C.A)**

SEMESTER –VI **PAPER – IX** **Total: 60 Hrs**

Syllabus: TALLY

Credits 3 **NO Of Hours 5** **Pass Marks 30**

Unit-I: Introduction to Tally: **12Hrs**

Introduction, Software versions of Tally, Terminology related to Accounts credit & Debit, Journal, Ledger, Voucher, Group etc. Difference between Manual Accounting and Accounting Packages. Features and advantages of Tally. SQL &

Unit-II: Introduction of Tally Software **12Hrs**

Introduction of Tally Software Creation of a company, Gateway of Tally, Accounts Information, Groups, pre defined Groups, Creation of New Groups, Creation of sub Group.

Unit-III: Ledgers **12Hrs**

Ledger Creation Single and multiple Ledgers, Displaying & altering Ledgers, configure Ledger, Stock Ledger, Ledgers and their Group Allocation.

Unit-IV: Vouchers **12Hrs**

Types of vouchers – recording of vouchers – entry of payment voucher, Receipt voucher, sales voucher, purchase voucher, Journal Voucher, Contra Voucher, Debit & Credit Note. Creating New Voucher types, customizing the Existing voucher types, Alternation of Voucher, Deletion of Voucher.

Unit-V: Final Accounts **12Hrs**

Customizing the final accounts – Profit and Loss Account, Balance Sheet. Key board shortcuts in Tally. Generating the Reports from Tally, Trial Balance, Account Books, Sales, Purchase, Journal Registers, Statement of Accounts, Day Book, List of Accounts.

Reference Books:

1. K. Kiran Kumar, Tally ERP9.
2. Tally 9 In Simple Steps, Kogent solutions Inc., John Wiley & Sons, 2008.
3. Narmata Agarwal, Financial Accounting on Computers Using Tally, Dreamtech Press, 2000.
4. Tally 9.0, Google eBook, Computer World.
5. Vikas Gupta, Comdex Computer and Financial Accounting with Tally 9.0, 2007.
6. Tally ERP 9 Made Simple Basic Financial Accounting, BPB Publisher.
7. Avichi Krishnan, Tally ERP 9 for Real Time Accounting, Book Ganga.

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COMPUTER SCIENCE	COMCSC-605P	2017-18	B.Com.(C.A.)

SEMESTER – VI **PAPER – V** **Max. Marks:50**
Pass Mark: 25

TALLY

No. Of Hours per week: 3 **External: 25** **Internal: 25** **Credits: 2**
Lab list

1. Architecture and customization of Tally
2. Configuration of Tally
3. Tally Screens and Menus
4. Creation of new company and groups.
5. Preparation of voucher entries.
    a. Payment voucher creation
    b. Receipt voucher creation
    c. Sales voucher creation
    d. Purchase voucher creation
    e. Contra voucher creation
    f. Journal voucher creation
6. Ledger Creation.
7. Preparation of VAT
8. Preparation of TDS
7. Preparation of Trail balance
8. Preparation of Profit and loss statement.
9. Preparation of Balance Sheet
10. Preparation of Bank Reconciliation Statement.
11. Example Exercise

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COMPUTER SCIENCE	**COM-CSC-606**	**2019-'20**	**B.Com (C.A)**

SEMESTER –VI **PAPER – X** **Total: 60 Hrs**

Syllabus : E-COMMERCE

Credits 3 **NO Of Hours 5** **Pass Marks 30**

Unit-I: Introduction to E-Commerce

Scope, Definition, e-Commerce and the Trade Cycle, Electronic Markets, Electronic Data Interchange, Internet Commerce. Business Strategy in an Electronic Age: Supply Chains, Porter's Value Chain Model, Inter Organizational Value Chains, Competitive Strategy, First Mover Advantage – Sustainable Competitive Advantage, Competitive Advantage using E-Commerce – Business Strategy.

Unit-II: Business-to-Business Electronic Commerce

Characteristics of B2B EC, Models of B2B EC, Procurement Management by using the Buyer's Internal Market place, Just in Time Delivery, Other B2B Models, Auctions and Services from traditional to Internet Based EDI, Integration with Back-end Information System, Role of Software Agents for B2B EC, Electronic marketing in B2B, Solutions of B2B EC, Managerial Issues, Electronic Data Interchange (EDI), EDI: Nuts and Bolts EDI and Business.

Unit-III: Internet and Extranet

Automotive Network Exchange, Largest Extranet, Architecture of the Internet, Intranet and Extranet, Intranet software, Applications of Intranets, intranet Application Case Studies, Considerations in Intranet Deployment, Extranets, Structures of Extranets, Extranet products and services, Applications of Extranets, Business Models of Extranet Applications, Managerial Issues. Electronic Payment Systems: Issues and Challenges .

Unit-IV: Public Policy:

From Legal Issues to Privacy : Legal Incidents, Ethical and Other public Policy Issues, Protecting Privacy, Protecting Intellectual Property, Free speech, Internet Indecency and Censorship, Taxation and Encryption Policies, Other Legal Issues: Contracts, Gambling and More, Consumer and Seller Protection in EC.

Unit-V: Infrastructure For EC

Network of Networks, Internet Protocols, Web- Based client/Server, Internet Security, Selling on the Web, Chatting on the Web, Multimedia delivery, Analyzing Web Visits, Managerial Issues, Equipment required for establishing EC Sites – problems in Operation – Future of EC.

Reference Books

1. David Whiteley, "E-Commerce", Tata McGraw Hill, 2000.
2. E Business by Parag Kulakarni and Sunitha Jahirabadkar from Oxford University Press.
3. E Business by Jonathan Reynolds from Oxford University Press.
4. Eframi Turban, Jae Lee, David King, K. Michael Chung, "Electronic Commerce",
5. Pearson Education, 2000.

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COMPUTER SCIENCE	**CCSC-607CE**	**2019-'20**	**B.Com (C.A)**

SEMESTER –VI **PAPER – XI**

Syllabus : **PHP& MY SQL** **Credits 5**

Unit-I: 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: Defining Functions, Calling functions, returning the values from UserDefined Functions, Variable Scope, Saving State between Function calls with the Static statement, more about arguments.

Unit-II: Working with Arrays:

Arrays, Creating Arrays, Some Array-Related Functions. Working with Objects: Creating Objects, Object Instance. 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.

Unit-III: Working with Forms:

Creating Forms, Accessing Form – Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user, Sending Mail on Form Submission, Working with File Uploads. Working with Cookies and User Sessions: Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables, passing session Ids in the Query String, Destroying Sessions and Unsetting Variables, Using Sessions in an Environment with Registered Users.

Unit-IV: Working with Files and Directories:

Including Files with include(), Validating Files, Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from Files, Writing or Appending to a File, Working with Directories, Open Pipes to and from Process Using popen (), Running Commands with exec(), Running Commands with system ( ) or passthru ( ). Working with Images: Understanding the Image-Creation Process, Necessary Modifications to PHP, Drawing a New Image, Getting Fancy with Pie Charts, Modifying Existing Images, Image Creation from User Input.

Unit-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.

References:

1. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach Yourself, Pearson Education (2007).
2. Xue Bai Michael Ekedahl, The Web Warrior Guide toWebProgramming, Thomson (2006).

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COMPUTER SCIENCE	**CCSC-607**	**2017-18**	**B.Com (C.A)**

SEMESTER –VI **PAPER – VI** **Total: 60 Hrs**

Lab List **PHP, MySQL** **Pass Marks 25**
No. of Hours per week: 2 **External: 25** **Internal: 25**

Credits: 2

MySQL Lab Cycle

Cycle -1
An Enterprise wishes to maintain the details about his suppliers and other corresponding details. For that he uses the following details.
Suppliers (sid: Integer, sname: string, address: string)
Parts (pid: Integer, pname: string, color: string)
Catalog (sid: integer, pid: integer, cost: real)

The catalog relation lists the prices charged for parts by suppliers.

Write the following queries in SQL:

1. Find the pnames of parts for which there is some supplier.
2. Find the snames of suppliers who supply every part.
3. Find the snames of supplier who supply every red part.
4. Find the pnames of parts supplied by London Supplier abd by no one else.
5. Find the sid's of suppliers who charge more for some part than the average cost of that part.
6. For each part, find the sname of the supplier who charges the most for that part.
7. Find the sid's of suppliers who supply only red parts.
8. Find the sid's of suppliers who supply a red and a green part.
9. Find the sid's of suppliers who supply a red or green part.
10. Find the total amount has to pay for that suppler by part located from London.

Cycle – 2

An organisation wishes to maintain the status about the working hours made by his employees. For that he uses the following tables.

Emp (eid: integer, ename: string, age: integer, salary: real)
Works (eid: integer, did: integer, pct_time: integer)
Dept (did: integer, budget: real, managerid: integer)
An employee can work in more than one department; the pct_time field of the works relation shows the percentage of time that a given employee works in a given department.

Resolve the following queries.

1. Print the names and ages of each employee who works in both Hardware and Software departments.
2. For each department with more than 20 full time equivalent employees (i.e., where the part-time and full-time employees add up to at least that many full-time employees), print the did's together with the number of employees that work in that department.
3. Print the name of each employee whose salary exceeds the budget of all of the departments that he or she work in.
4. Find the managerid's of managers who manage only departments with budgets greater than 1,000,000.
5. Find the enames of managers who manage the departments with largest budget.
6. If a manager manages more than one department, he or she controls the sum of all the budgets for those departments. Find the managerid's of managers who control more than 5,000,000.
7. Find the managerid's of managers who control the highest amount.
8. Find the average manager salary.

PHP Lab Cycle

1. Write a PHP program to Display "Hello"
2. Write a PHP Program to display the today's date.
3. Write a PHP Program to read the employee details.
4. Write a PHP Program to display the
5. Write a PHP program to prepare the student marks list.
6. Write a PHP program to generate the multiplication of two matrices.
7. Write a PHP Application to perform demonstrate the college website.
8. Write a PHP application to add new Rows in a Table.
9. Write a PHP application to modify the Rows in a Table.
10. Write a PHP application to delete the Rows from a Table.
11. Write a PHP application to fetch the Rows in a Table.
12. Develop an PHP application to make following Operations
    i. Registration of Users.
    ii. Insert the details of the Users.
    iii. Modify the Details.
    iv. Transaction Maintenance.
        a) No of times Logged in
        b) Time Spent on each login.
        c) Restrict the user for three trials only.
        d) Delete the user if he spent more than 100 Hrs of transaction.

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DEPARTMENT OF COMPUTER SCIENCE

2019-20(ODD SEMESTER)

HIGHLIGHTED SYLLABUS OF COMPUTER SCIENCE

Syllabus in Relevance to Employability, Skill Development and Entrepreneurship **is** highlighted as mentioned: Employability in yellow Color, Skill Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

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COMPUTER SCIENCE	CSC-501C	2019-20	B.Sc.(MPCs)

SEMESTER – V **PAPER – V** **Max. Marks 75**

Syllabus **DATA BASE MANAGEMENT SYSTEMS**

NO Of Hours: 4 **No Of Credits: 3** **Pass Marks 30**

Course Objective: Design & develop database for large volumes & varieties of data with optimized data processing techniques.

Unit – I: 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, Degree of Data Abstraction.

Unit - II: Relational Database & Data Modelling **12 Hrs**

The Relational Database Model: A logical view of Data, Keys, Integrity Rules, Relational Set Operators, The Data Dictionary and the system Catalog, Indexes, Codd's relational database rules. *Entity Relationship Model:* The ER Model ***Advanced Data Modelling****:* The Extended Entity Relationship Model, Entity clustering, Entity integrity.

Unit- III: Normalization and Database Design **14 Hrs**

Normalization of database tables: Data base Tables and Normalization, The need for Normalization, The Normalization Process, High level Normal Forms, Normalization and database design, de normalization.

Database Design: The Information System, The Systems Development Life Cycle, The Database Life Cycle, Centralized Vs Decentralized design.

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, Sub queries and correlated queries, SQL Functions.

Unit-V: Procedural SQL **10 Hrs**

Introduction to PL/SQL: Triggers, Stored Procedures, Pl/ SQL Stored Functions

Prescribed Text Book:

1. **P**eter 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, .
2. C.J.Date, A.Kannan, S.Swamynathan, An Introduction to Database Systems, Eight edition,
3. "DatabaseSystemConcepts" by AbrahamSilberschatz, Henry Korth, and S.Sudarshan,
4. Atul Kahate, Introduction to Database Management Systems, Pearson Education (2006).

Student Activity: 1. Create your college database for placement purpose. 2. Create faculty database of your college with their academic performance scores

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COMPUTER SCIENCE	CSC-501P	2019-20	B.Sc.(MPCS)

SEMESTER – V **PAPER – V** **Max. Marks 50**

Lab List : **DATA BASE MANAGEMENT SYSTEMS** **Pass Marks 25**

No. of Hours per week: 2 **External: 25** **Internal: 25** **Credits: 2**

1. Creation of college database and establish relationships between tables
2. Explain various data type in Oracle.
3. Show the structure of the Emp table.
4. Show the structure of the DEPT table.
5. Explain the syntax of SELECT statement.
6. Create a query to display the name, job, hiredate and employee number from emp table.
7. Create a query to display unique jobs from the emp table.
8. Create a query to display the empno as EMP#, ename as EMPLOYEE and Hire_date from emp.
9. Create a query to display all the data from the EMP table. Separate each column by a comma and name the column THE_OUTPUT.
10. Create a query to display the name and salary of employees earning more than 2850.
11. Create a query to display the name and salary for all employees whose salary is not in the range of 1500 and 2850.
12. Display the employee name, job and start date of employees hired between February 20 ,1981 and May 1, 1981. Order the query in ascending order of start date
13. Display the employee name and department number of all the employees in departments 10 and 30 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 commission.
16. Display the name and job title of all employees who do not have a manager.
17. Display the name, job and salary for all employees whose job is Clerk or Analyst and their salary is not equal to 1000, 3000 or 5000.
18. Display the names of all employees where the third letter of their name is an 'A'.
19. Display the names of all employees who have two 'L's in their name and are in department 30 or their manager is 7782.
20. Display the name , salary and commission for all employees whose commission amount is grater than their salary increased by 10%.
21. Explain all the character functions.
22. Explain all the number functions.
23. Explain all the Date functions.
24. Explain different types of JOIN.
25. Write a query to display the name, department number and department name for all employees.
26. Create a unique listing of all jobs that are in department 30. and include the location of department 30 in the output.

27. Write a query to display the employee name, department name and location of all employees who earn a commission.
28. Write a query to display the name ,job department number and department name for all employees who work in 'DALLAS'.
29. Create a query to display the name and hire date of any employee
30. hired after employee BLAKE.
31. . Display all employees names and hire dates along with their manager's name and hire date for all employees who were hired before their managers.
32. Create your own users and give permissions to you and explain GRANT and REVOKE Commands.

A. Create MOVIE database using the following tables.

MOVIE: Movie no: primary key, varchar2 Movie name: NOT NULL, varchar2 Movie Type: varchar2 Star: Varchar2

CUSTOMER: Customer No: primary key, varchar2 Customer Name: NOT NULL, varchar2

Address: NOT NULL Phone no: Number INVOICE: Invoice no: Varchar2, primary key Movie no: foreign key Customer no: foreign key

Price: NOT NULL, Number

Queries:

1. List the movie names that starts with 'p'
2. List the number of the movies those price ranges from 15000 and 20000
3. List the customers who have phone numbers.
4. List the customers who have no phone numbers.
5. Display the following string
   (a) A Customer "customer number" has bought the "movie number" "movie name" with "Price"
6. List the customers by calculating price as (price*tax)/100 where tax=0.5 and rename the column as 'tax'.
7. List the movies, which are owned by 2 customers.
8. List the customers, who bought 2 picture names.
9. List the customers, who are not the range of 15000 and 20000.

B. Create Student database using the following tables.

STUDENT: Sno : primary key, number Sname : NOT NULL, varchar2 Address: Varchar2

COURSE: Sno : Foreign key. Course Name : varchar2

Queries:

1. Alter table by adding a column fees in table COURSE.
2. Alter table by modifying the address to VARCHAR2(20)
3. Create a view on which the students who joined in one course only.

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.
6. Write A Procedure Update The Salary Of Employee, Who is Not Getting Commission by 10%.

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	CSC-502C	2019-'20	B.Sc.(MPCs)

SEMESTER – V **PAPER – VI** **Max. Marks 75**

Syllabus: SOFTWARE ENGINEERING

NO of Hours: 4 **No Of Credits: 3** **Pass Marks 30**

Course Objectives

The Objective of the course is to assist the student in understanding the basic theory of software engineering, and to apply these basic theoretical principles to a group software development project.

UNIT-I: Introduction to Software Engineering & Process **12Hrs**

The Evolving Role of Software– Software - The Changing Nature of Software, Software Myths, Legacy Software.

Process: Software Engineering-A Layered Technology - A Process Framework - The Capability Maturity Model Integration (CMMI) - Process Patterns, Process Assessments - Personal And Team Process Models: Personal Software Process(PSP), Team Software Process (TSP).

Unit-II: Process Models **12Hrs**

The Waterfall Models - Increment Process Models: The Increment Model, The RAD Model - Evolutionary Process Models: Prototyping, The Spiral Model, The Concurrent Development Model - The Unified Process: Phases of The United Process, Unified Process Work Products.

Unit-III: Requirements Engineering **14 Hrs**

Requirements Engineering Tasks - Initiating The Requirements Engineering Process - Eliciting Requirements: Collaborative Requirements Gathering, Quality Function Deployment, User Scenarios, Elicitation Work Products - Negotiating Requirements - Validating Requirements.

Unit-IV: Analysis Model **12 Hrs**

Requirements Analysis -Analysis Modelling Approaches - Data Modelling Concepts - Object-Oriented Analysis - Scenario-based Modelling - Flow-Oriented Modelling - Class-Based Modelling - Creating a Behavioural Model: Identifying Events with the Use-Case, State Representations.

Unit-V: Design Engineering **10Hrs**

Design Process And Design Quality - Design Concepts - The Design Model: Data Design Elements, Architectural Design Elements, Interface Design Elements, Component-Level Design Elements, Deployment -Level Design Elements.

Prescribed Text Book:

1. Software Engineering – A Practitioner's Approach, Sixth Edition - Roger S Pressman, TATA McGrawHill: Chapters: 1,2,3,7,8 and 9)

Reference Books:

1. Software Engineering Principles and Practice by Deepak Jain Oxford University Press
2. Sommerville, "Software Engineering", Eighth Edition, Pearson Education, 2007

Student Activity: Visit any financial organization nearby and prepare requirement analysis report 2. Visit any industrial organization and prepare risk chart.

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COMPUTER SCIENCE	CSC-502C	2019-'20	B.Sc.(MPCS)

SEMESTER – V **PAPER – VI** **Max. Marks 50**

Lab List **SOFTWARE ENGNEERING** **Pass Marks 25**

No. of Hours per week: 2 **External: 25** **Internal: 25** **Credits: 2**

A. ATM

1. Objective of an ATM System.
2. Use-case Diagram of an ATM System
3. Class Diagram of an ATM System
4. Sequence Diagram of an ATM System
5. Activity Diagram of an ATM System
6. State Diagram of an ATM System
7. Deployment Diagram of an ATM System
8. ER Diagram of an ATM System

B. Library management System

1. Objective of Library management System.
2. Use-case Diagram of Library management
3. Class Diagram of Library management System
4. Sequence Diagram of Library management
5. Activity Diagram of Library management System
6. State Diagram of Library management
7. Deployment Diagram of Library management System
8. ER Diagram of Library management

C. Barcode Reader

1. Objective of Barcode Reader
2. Use-case Diagram of Barcode Reader
3. Class Diagram of Barcode Reader
4. Sequence Diagram of Barcode Reader
5. Activity Diagram of Barcode Reader
6. State Diagram of Barcode Reader
7. Deployment Diagram of Barcode Reader
8. ER Diagram of Barcode Reader

D .Safe Home System

1. Objective of Safe Home System.
2. Use-case Diagram of Safe Home System
3. Class Diagram of Safe Home System
4. Sequence Diagram of Safe Home System
5. Activity Diagram of Safe Home System
6. State Diagram of Safe Home System
7. Deployment Diagram of Safe Home System
8. ER Diagram of Safe Home System

E. Online Book Store System

1. Objective of Online Book Store System
2. Use-case Diagram of Online Book Store System
3. Class Diagram of Online Book Store System
4. Sequence Diagram of Online Book Store
5. Activity Diagram of Online Book Store System
6. State Diagram of Online Book Store System
7. Deployment Diagram of Online Book Store System
8. ER Diagram of Online Book Store

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COMPUTER SCIENCE	CCSC 505C	2019-'20	B.Com.(C.A.)

SEMESTER – V **PAPER – V** **Max. Marks 75**

Syllabus **PROGMAMMING IN C**

NO Of Hours: 5 **No Of Credits: 3** **Pass Marks 30**

Unit- I: Introduction to Algorithms and Programming Languages: **12 Hrs**

Algorithm – Key features of Algorithms – Some more Algorithms – Flow Charts. Introduction to C: 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 – Type Conversion and Type Casting

Unit-II: Decision Control and Looping Statements **12 Hrs**

Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Go to Statement

Unit- III: Functions **12 Hrs**

Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive function

Unit- IV: Arrays **12 Hrs**

Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array Calculating the length of the Array – Operations on Array – one dimensional array for inter-function communication – Two dimensional Arrays –Operations on Two Dimensional Arrays

Strings: Introduction String and Character functions

Unit-V: Pointers: **12 Hrs**

Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables Passing Arguments to Functions using Pointer.

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Unions – Enumerated Data Types.

Reference Books:

1. Reema Thareja, Introduction to C programming, Oxford University Press.
2. E Balagurusamy, Computing Fundamentals & C Programming – Tata McGraw-Hill, 2008.
3. Ashok N Kamthane, Programming with ANSI and Turbo C, Pearson Publisher, 2002. 4. Henry Mulish & Hubert L.Coo Reema Thareja: The Spirit of C: An Introduction to Modern Programming, Jaico Publishing House,1996.

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COMPUTER SCIENCE	CCSC-505P	2019-'20	B.Com.(C.A.)

SEMESTER – V PAPER – III Max. Marks 50 Pass Marks 25

LABLIST **PROGRAMMING IN C**

No. of Hours per week: 2 External: 25 Internal: 25 Credits: 2

1. Find out the given number is perfect number or not using c program.
2. Write a C program to check whether the given number is Armstrong or not.
3. Write a program to find roots of quadratic equation.

   Root 1 = (-b + sqrt (b^2 - 4ac) / 2a Root 2 = (-b - sqrt (b^2 - 4ac) / 2a
4. Write a C program to find the sum of individual digits of a positive integer.
5. Write a C program to print the Fibonacci series
6. Write a C program to generate the first n terms of the Fibonacci sequence.
7. Write a program to find factorial of a given number using recursion
8. Write a program to perform all arithmetic operations using switch case
9. Write a C program to generate all the prime numbers between 1 and n, where n is a Value supplied by the user.
10. Write a C program to find both the largest and smallest number in a list of integers.
11. Write a C program that uses functions to perform the following:
    a. Addition of Two Matrices
    b. Multiplication of Two Matrices
12. Write a program to perform various string operations
13. Write a program to swap two numbers using pointers.
14. Write C program that implements searching of given item in a given list
15. Write a C program to sort a given list of integers in ascending order

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COMPUTER SCIENCE	CCSC 506C	2019-'20	B.Com.(C.A.)

SEMESTER – V **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.

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's Outlibe series, Tata McGraw Hill (2007).
3. C.J.Date, A.Kannan, S.Swamynathan, An Introduction to Database Systems, Eight edition, Pearson Education (2006).
4. "DatabaseSystemConcepts" by AbrahamSilberschatz, Henry Korth, and S.Sudarshan, McGrawhill
5. Atul Kahate, Introduction to Database Management Systems, Pearson Education (2006).

Student Activity:

1. Create your college database for placement purpose.
2. Create faculty database of your college with their academic performance scores

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COMPUTER SCIENCE	CCSC-505P	2019-'20	B.Sc.(MPCS)

SEMESTER – V **PAPER – IV** **Max. Marks 50**
Lab List: DATA BASE MANAGEMENT SYSTEMS **Pass Marks 25**
No. of Hours per week: 2 **External: 25** **Internal: 25** **Credits: 2**

1. Creation of college database and establish relationships between tables
2. Explain various data type in Oracle.
3. Show the structure of the Emp table.
4. Show the structure of the DEPT table.
5. Explain the syntax of SELECT statement.
6. Create a query to display the name, job, hiredate and employee number from emp table.
7. Create a query to display unique jobs from the emp table.
8. Create a query to display the empno as EMP#, ename as EMPLOYEE and Hire_date from emp.
9. Create a query to display all the data from the EMP table. Separate each column by a comma and name the column THE_OUTPUT.
10. Create a query to display the name and salary of employees earning more than 2850.
11. Create a query to display the name and salary for all employees whose salary is not in the range of 1500 and 2850.
12. Display the employee name, job and start date of employees hired between February 20 ,1981 and May 1, 1981. Order the query in ascending order of start date
13. Display the employee name and department number of all the employees in departments 10 and 30 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 commission.
16. Display the name and job title of all employees who do not have a manager.
17. Display the name, job and salary for all employees whose job is Clerk or Analyst and their salary is not equal to 1000, 3000 or 5000.
18. Display the names of all employees where the third letter of their name is an 'A'.
19. Display the names of all employees who have two 'L's in their name and are in department 30 or their manager is 7782.
20. Display the name , salary and commission for all employees whose commission amount is grater than their salary increased by 10%.
21. Explain all the character functions.
22. Explain all the number functions.
23. Explain all the Date functions.

Create Student database using the following tables.

STUDENT: Sno : primary key, number Sname : NOT NULL, varchar2 Address: Varchar2

COURSE: Sno : Foreign key. Course Name : varchar2

Queries:

1. Alter table by adding a column fees in table COURSE.
2. Alter table by modifying the address to VARCHAR2(20)
3. Create a view on which the students who joined in one course only.

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	**CCSC-507C**	**2019-'20**	**B.Com.(CA)**

SEMESTER – V **PAPER – VIII** **Max. Marks 75**

Syllabus **WEB TECHNOLOGIES**

NO Of Hours: 5 **No of Credits: 3** **Pass Marks 30**

Unit -I Introduction to XHTML:

Introduction to HTML, Basic html, Document body text, Hyper links, Adding more formatting Lists, Tables, Images, Multimedia Objects, Frames, Forms and XHTML.

Unit- II: CSS:

Cascading Style Sheets: Introduction, Defining your own styles, properties and values in styles, Formatting blocks of information, Layers.
Java Script: java Script, the basics, Variables, String Manipulations, Mathematical functions, Statements, Operators, Arrays, Functions.

Unit –III: Objects in Java Script & Dynamic HTML with Java Script

Objects in Java Script: Data and objects in java script, Regular expressions, Exception Handling, Built in objects, Events.
Dynamic HTML with Java Script: Data validation, Opening a new window, Messages and Confirmations, The status bar, Writing to a different frame, Rollover buttons, Moving images, Multiple pages in a single download, A text-only menu system, Floating logos.

Unit –IV: XML Defining Data for Web Applications

XML: Introduction to XML, Basic XML, document type definition, XML Schema, Document object model, presenting XML, Using XML parser.

Unit -V: JSP:

JSP Lifecycle, Basic Syntax, EL (Expression Language), EL Syntax, Using EL Variables

Prescribed Books:

1.Chris Bates, Web Programming Building Internet Application, Second Edition, Wiley
2.Head First Servlets and JSP 2nd Edition, Bryan Basham, Kathy Sierra
3.Uttam Kumar Roy, Web Technologies from Oxford University Press

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COMPUTER SCIENCE	CSC-301C	2019-'20	B.Sc.(MPCs, MCCs.)

SEMESTER – III **PAPER – III** **Max. Marks 70** **Pass Marks 28**

Syllabus **OBJECT ORIENTED PROGRAMMING USING JAVA**

Total Hrs: 60 **NO. Of. Hours: 4** **Credits: 3**

UNIT-I **15Hrs**

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 & Data Types:** 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**.

UNIT-II **15 Hrs**

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. **Classes, Objects & Methods**: Introduction, Defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method overloading, Static members, Nesting of methods;

UNIT-III **10 Hrs**

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;

UNIT-IV **10 Hrs**

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, Runtime errors, Exceptions, Exception handling, Multiple Catch Statements, Using finally statement,

UNIT-V **10 Hrs**

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. **Packages:** Introduction, Java API Packages, Using System Packages, Naming conventions, Creating Packages, Accessing a Package, using a Package. **Managing Input/ Output Files in Java:** Introduction, Concept of Streams, Stream classes, Byte Stream Classes, Input Stream Classes, Output Stream Classes, Character Stream classes: Reader stream classes, Writer Stream classes, Using Streams;

Prescribed Text Book:

1. E.Balaguruswamy, Programmingwith 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

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COMPUTER SCIENCE	CSC-301P	2019-'20	B.Sc.(MPCs, MCCs.)

SEMESTER – III **PAPER – III** **Max. Marks 50**

Lab List **OBJECT ORIENTED PROGRAMMING USING JAVA** **Pass Marks 25**

No. of Hours per week: 2 **External: 25** **Internal: 25** **Credits: 2**

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 to implement Exception handling
10. Write a program to create packages in Java
11. Write a program on interface in java
12. Write a program to Create Multiple Threads in Java
13. Write a program to Write Applets to draw the various polygons
14. Write a program to assign priorities to threads in java
15. Write an Applet Program to design a Simple Calculator.

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COMPUTER SCIENCE	ICT-II-301C	2019-'20	B.A, B.Com, B.Sc.

SEMESTER – III PAPER – II Max. Marks 50 Pass Marks 20 Total Hrs 30

Syllabus: Internet Fundamentals and Web Tools

NO. Of Hrs: 2 **Credits: 2**

Unit-I : **6Hrs**

Fundamentals of Internet : Networking Concepts, Data Communication – Types of Networking, Internet and its Services, Internet Addressing – Internet Applications – Computer Viruses and its types – Browser –Types of Browsers.

Unit-II: **6Hrs**

Internet applications: Using Internet Explorer, Standard Internet Explorer Buttons, Entering a Web Site Address, Searching the Internet – Introduction to Social Networking: twitter, tumbler, LinkedIn, face book, flicker, Skype, yelp, vimeo, yahoo, Google+, YouTube, WhatsApp, etc.

Unit-III : **6Hrs**

E-mail : Definition of E-mail - Advantages and Disadvantages – User-Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, Message Composition, Mail Management, Email Inner Workings.

Unit IV: **6Hrs**

WWW- Web Applications, Web Terminologies, Web Browsers, URL – Components of URL, Searching WWW – Search Engines and Examples

Unit-V : **6Hrs**

Basic HTML: Basic HTML – Web Terminology – Structure of a HTML Document – HTML, Head and Body tags – Semantic and Syntactic Tags – HR, Heading, Font, Image and Anchor Tags –Different types of Lists using tags – Table Tags, Image formats – Creation of simple HTML Documents.

Reference Books :

1. In-line/On-line : Fundamentals of the Internet and the World Wide Web, 2/e - by Raymond Greenlaw and Ellen Hepp, Publishers : TMH

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COMPUTER SCIENCE	CCSC-303C	2019-'20	B.Com. (C.A)

SEMESTER – III PAPER – III Max. Marks 70 Pass Marks 28 Total Hrs: 60

Syllabus **Office Automation Tools** **NO. Of. Hours: 5** **Credits: 4**

Unit-I: **12Hrs**

MS-Excel: features of Ms-Excel, Parts of MS-Excel window, entering and editing data in worksheet, number formatting in excel, different cell references, how to enter and edit formula in excel, auto fill and custom fill, printing options.

Unit-II: **12 Hrs**

Formatting options: Different formatting options, change row height, formulae and Functions, **Functions:** Meaning and advantages of functions, different types of functions available in Excel.

Unit-III: **12Hrs**

Charts: Different types of charts, Parts of chart, chart creation using wizard, chart operations, data maps, graphs, data sorting, filtering. Excel sub totals, scenarios, what-if analysis.

Macro: Meaning and advantages of Macros, creation, editing and deletion of macros - Creating a macro, how to run, how to delete a macro.

Unit-IV: **12Hrs**

MS Access: 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: **12Hrs**

Finding, Sorting and Displaying Data: 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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COMPUTER SCIENCE	CCSC-303P	2019-'20	B.Com. (C.A)

SEMESTER – III PAPER – III Max. Marks 50 Pass Marks 20 Total Hrs: 30

Lab list: Office Automation Tools

Ms-Word

1. Create a vesting Card
2. Create a template for organization using Header & Footer
3. 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 1000 2004 800 80 500 900 2005 1200 190 400 800 2006 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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COMPUTER SCIENCE	**CSC-101C**	**2019-'20**	**B.Sc.(MPCs, MCCs.)**

SEMESTER – I PAPER – I Max. Marks 70 Pass Marks 28 Total Hrs 60

Syllabus: **Computer Fundamentals & Photoshop** **NO. Of. Hours: 4 Credits: 3**

UNIT-I: **12Hrs**

Introduction to computers, characteristics and limitations of computer, Block diagram of computer, types of computers, uses of computers, computer generations. Number systems: binary, hexa and octal numbering system.

UNIT-II: **12Hrs**

Input and output devices: Keyboard and mouse, inputting data in other ways, Types of Software: system software, Application software, commercial, open source, domain and freeware software, Memories: primary, secondary and cache memory. Windows basics: desktop, start menu, icons.

Unit –III: **15Hrs**

Introduction to Adobe Photoshop, Getting started with Photoshop, creating and saving a document in Photoshop, page layout and back ground, Photoshop program window-title bar, menu bar ,option bar ,image window ,image title bar ,status bar, ruler ,paletts, tool box ,screen modes ,saving files ,reverting files ,closing files.

Unit –IV: **10Hrs**

Images: working with images, image size and resolution, image editing, colour modes and adjustments, Zooming & Panning an Image, Rulers, Guides & Grids- Cropping & Straightening an Image, image backgrounds, making selections.
Working with tool box: working with pen tool, save and load selection-working with erasers-working with text and brushes-Colour manipulations: colour modes- Levels Curves - Seeing Colour accurately - Patch tool – Cropping-Reading your palettes - Dust and scratches- Advanced Retouching- smoothing skin.

Unit-V: **11Hrs**

Layers: Working with layers- layer styles- opacity-adjustment layers
Filters: The filter menu, Working with filters- Editing your photo shoot, presentation –how to create adds , artstic filter, blur filter, brush store filter, distort filters, noice filters, pixelate filters, light effects, difference clouds, sharpen filters, printing.

Reference Books:

1. Fundamentals of Computers by Reema Thareja from Oxford University Press
2. Adobe Photoshop Class Room in a Book by Adobe Creative Team.
3. Photoshop: Beginner's Guide for Photoshop - Digital Photography, Photo Editing, Colour Grading & Graphic...19 February 2016 by David Maxwell

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COMPUTER SCIENCE	CSC-101P	2019-'20	B.Sc.(MPCs, MCCs.)

SEMESTER – I **PAPER – I** **Max. Marks : 50** **Pass Marks 25**

No. of Hours per week: 2 **External: 25** **Internal: 25** **Credits: 2**

Lab List ***Photo Shop Lab***

1. Create your Visiting card
2. Create Cover page for any text book
3. Create a Paper add for advertising of any commercial agency
4. Design a Passport photo
5. Create a Pamphlet for any program to be conducted by an organization
6. Create Broacher for you college
7. Create Titles for any forthcoming film
8. Custom shapes creation
9. Create a Web template for your college
10. Convert colour photo to black and white photo
11. Enhance and reduce the given Image size
12. Background changes
13. Design Box package cover
14. Design Texture and patterns
15. Filter effects & Eraser effects

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COMPUTER SCIENCE	**CCSC-103C**	**2019-'20**	**B.Com.(C.A)**

SEMESTER – I PAPER – I Max. Marks 70 Pass Marks 28 Total Hrs 60

Syllabus: **Computer Fundamentals & Photoshop** **NO. Of. Hours: 4 Credits: 3**

UNIT-I: **12Hrs**

Introduction to computers, characteristics and limitations of computer, Block diagram of computer, types of computers, uses of computers, computer generations. Number systems: binary, hexa and octal numbering system.

UNIT-II: **12Hrs**

Input and output devices: Keyboard and mouse, inputting data in other ways, Types of Software: system software, Application software, commercial, open source, domain and freeware software, Memories: primary, secondary and cache memory. Windows basics: desktop, start menu, icons.

Unit –III: **15Hrs**

Introduction to Adobe Photoshop, Getting started with Photoshop, creating and saving a document in Photoshop, page layout and back ground, Photoshop program window-title bar, menu bar ,option bar ,image window ,image title bar ,status bar, ruler ,paletts, tool box ,screen modes ,saving files ,reverting files ,closing files.

Unit –IV: **10Hrs**

Images: working with images, image size and resolution, image editing, colour modes and adjustments, Zooming & Panning an Image, Rulers, Guides & Grids- Cropping & Straightening an Image, image backgrounds, making selections.
Working with tool box: working with pen tool, save and load selection-working with erasers-working with text and brushes-Colour manipulations: colour modes- Levels Curves - Seeing Colour accurately - Patch tool – Cropping-Reading your palettes - Dust and scratches- Advanced Retouching- smoothing skin.

Unit-V: **11Hrs**

Layers: Working with layers- layer styles- opacity-adjustment layers
Filters: The filter menu, Working with filters- Editing your photo shoot, presentation –how to create adds , artstic filter, blur filter, brush store filter, distort filters, noice filters, pixelate filters, light effects, difference clouds, sharpen filters, printing.

Reference Books:

1. Fundamentals of Computers by Reema Thareja from Oxford University Press
2. Adobe Photoshop Class Room in a Book by Adobe Creative Team.
3. Photoshop: Beginner's Guide for Photoshop - Digital Photography, Photo Editing, Colour Grading & Graphic...19 February 2016 by David Maxwell

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COMPUTER SCIENCE	CCSC-103P	2019-'20	B.Com. (CA.)

SEMESTER – I **PAPER – I** **Max. Marks : 50** **Pass Marks 25**

No. of Hours per week: 2 **External: 25** **Internal: 25** **Credits: 2**

Lab List ***Photo Shop Lab***

1. Create your Visiting card
2. Create Cover page for any text book
3. Create a Paper add for advertising of any commercial agency
4. Design a Passport photo
5. Create a Pamphlet for any program to be conducted by an organization
6. Create Broacher for you college
7. Create Titles for any forthcoming film
8. Custom shapes creation
9. Convert colour photo to black and white photo
10. Background changes
11. Design Texture and patterns
12. Filter effects & Eraser effects

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DEPARTMENT OF COMMERCE

HIGHLIGHTED SYLLABUS OF COMMERCE

2019-20

Syllabus in Relevance to Employability, Skill Development and Entrepreneurship **is** highlighted as mentioned: Employability in yellow Color, Skill Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

AG & SG SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE

VUYYURU(AUTONOMOUS)

(MANAGEDBYSIDDHARTHAACADEMYOFGENERAL& TECHNICALEDUCATION VIJAYAWADA)

Commerce	**CACC-101G/CC**	**2019-2020**	***I.B.Com(gen/comp)***

SEMESTER– I **SYLLABUS**

Fundamentals of Accounting -I

Unit-I–IntroductiontoAccounting

Need for Accounting – Definition – Objectives, Advantages – Book keeping and Accounting– Accounting concepts and conventions - Accounting Cycle - Classification of Accounts and itsrules - Double Entry Book-keeping - Journalization - Posting to Ledgers, Balancing of ledgerAccounts(problems).

Unit–II:SubsidiaryBooks:

Types of Subsidiary Books-Cash Book, Three-column Cash Book-Petty cashbook (Problems).

Unit-III:TrailBalance and Rectification of Errors:

Preparation of Trail balance - Errors – Meaning – Types of Errors – Rectification of Errors(Problems)

Unit-IV: **Bank Reconciliation Statement:**

Need for bank reconciliation - Reasons for difference between Cash Book and Pass BookBalances- Preparation of Bank Reconciliation Statement- Problems on both favorable and unfavorable balances.

Unit-V: Final Accounts:

Preparation of Final Accounts: Trading account – Profit and Loss account – Balance Sheet – Final Accounts with adjustments(Problems).

ReferenceBooks

1. T.S.Reddy& A.Murthy,Financial Accounting,Margham Publications

2. RLGupta&V.KGupta, PrinciplesandPracticeofAccounting,SultanChand& Sons

3. S.P.Jain&K.LNarang,Accountancy-I,KalyaniPublishers

4. Tulasian,Accountancy -I,TataMcGrawHillCo.

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VUYYURU(AUTONOMOUS)

(MANAGEDBYSIDDHARTHAACADEMYOFGENERAL& TECHNICALEDUCATION VIJAYAWADA)

Commerce	**CBO -102G/CC**	**2019-2020**	***I.B.Com(gen/comp)***

SEMESTER– I **SYLLABUS**

BusinessOrganization

Unit-I–Introduction

Concepts of Business, Trade , Industry and Commerce – Features of Business –Trade Classification - Aids to Trade – Industry – Classification – Relationship of Trade, Industry and Commerce.

UnitII-Business Functions and Entrepreneurship

Functions of Business and their relationship - Factors influencing the choice of suitable form oforganization – Meaning of Entrepreneurship – Characteristics of a good entrepreneur - Types –Functions of Entrepreneurship.

Unit–III –Forms of Business Organizations

Sole Proprietorship – Meaning – Characteristics – Advantages and Disadvantages – Partnership - Meaning – Characteristics- Kinds of partners – Advantages and Disadvantages – PartnershipDeed– Hindu-undivided Family–CooperativeSocieties.

Unit-IV-JointStockCompany

Joint Stock Company – Meaning – Characteristics –Advantages – Kinds of Companies - Differencesbetween Private Ltd andPublic Ltd Companies.

Unit-V-CompanyIncorporation

Preparation of important Documents for incorporation of Company – Memorandum ofAssociation – Articles of Association – Differences Between Memorandum of Association andArticlesof Association-Prospectusanditscontents.

ReferenceBooks:

1. C.D.BalajiandG.Prasad,BusinessOrganization -MarghamPublications,Chennai.
2. ..K.SharmaandShashiKGupta,Business Organization -

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Commerce	**Com-BOM-102CC**	**2019-2020**	**B.Com (Comp)**

SEMESTER– I

Business Organization and Management

Unit-I: Introduction: Concepts of Business, Trade , Industry and Commerce – Features of Business -Trade Classification - Aids to Trade – Industry – Classification – Relationship among Trade, Industryand Commerce.

Unit-II: Forms of Business Organizations: Forms of Business Organization: Sole Proprietorship, JointHinduFamilyFirm, Partnershipfirm, Joint Stock Company,Cooperative Society

Unit-III: Joint Stock Company: Company Incorporation: Preparation of important Documents forincorporation of Company – Memorandum of Association – Articles of Association – DifferencesBetweenMemorandum ofAssociationandArticlesofAssociation-Prospectusanditscontents–

Unit-IV: Management and Organization: Process of Management: Planning; Decision-making;Organizing: Line and Staff - Staffing - Directing and Controlling; Delegation and Decentralization ofAuthority.

Unit-V: Functional Areas of Management: Production - Manufacturing - Make in India - MarketingManagement:MarketingConcept;MarketingMix;ProductLifeCycle;PricingPolicies andPractices.

ReferenceBooks:

1. Kaul,V.K.,BusinessOrganizationandManagement,PearsonEducation,NewDelhi.
2. Chhabra,T.N.,BusinessOrganizationandManagement,SunIndiaPublications,NewDelhi.
3. KoontzandWeihrich,EssentialsofManagement,McGrawHill Education.
4. Basu,C.R.,BusinessOrganizationandManagement,McGrawHillEducation.
5. Jim,Barry,JohnChandler,HeatherClark; OrganizationandManagement,CengageLearning.
6. Allen,L.A.,Management andOrganization;McGrawHill,NewYork

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(VIJAYAWADA)

Commerce	**CACC-201G/CC**	**2019-2020**	***I.B.Com(gen/comp)***

SEMESTER– II **SYLLABUS**

Financial Accounting –II

Unit-I:**Depreciation**
Meaning of Depreciation - Methods of Depreciation: Straight line – Written down Value – Sum of theYears'Digits-Annuity andDepletion (Problems).

Unit-II:**ProvisionsandReserves**
Meaning – Provision vs. Reserve – Preparation of Bad debts Account – Provision for Bad anddoubtful debts – Provision for Discount on Debtors – Provision for discount on creditors -Repairs andRenewalsReserveA/c(Problems).

Unit-III:BillsofExchange
Meaning of Bill –Features of bill – Parties in the Bill – Discounting of Bill – Renewal of Bill –Entriesinthe books of Drawerand Drawee(Problems).

Unit-IV:**ConsignmentAccounts**
Consignment - Features - Proforma invoice - Account sales – Del-credre Commission -Accounting treatment in the books of consigner and consignee - Valuation of closing stock -Normal and Abnormallosses (Problems).

Unit-V:**JointVentureAccounts**
Joint venture - Features - Differences between Joint-venture and consignment – Accountingprocedure-Methodsof keepingrecords(Problems).

ReferenceBooks:

1.R.L.Gupta&V.K.Gupta,PrinciplesandPracticeofAccounting,SultanChand

2.T.S.ReddyandA.Murthy -Financial Accounting,Margham Publications.

3.S.P.Jain&K.LNarang,Accountancy-I,KalyaniPublishers.

4.Tulsan,Accountancy-I,TataMcGrawHill Co.

5.V.K.Goyal,FinancialAccounting,ExcelBooks

6.T.S.Grewal,IntroductiontoAccountancy,SultanChand& Co.

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Commerce	**CBEN-202GC**	**2019-2020**	***I.B.Com(gen)***

SEMESTER– II **SYLLABUS**

BusinessEnvironment

Unit-I

OverviewofBusinessEnvironment

Business Environment – Meaning – Macro and Micro Dimensions of BusinessEnvironment – Economic – Political – Social – Technological – Legal –Ecological – Cultural – Demographic – Changing Scenario and implications –Indian Perspective–Globalperspective.

Unit-II

EconomicGrowth

Meaning of Economic growth – Factors Influencing Development – BalancedRegional Development.

Unit-III

DevelopmentandPlanning

Rostow's stages of economic development - Meaning – Types of plans – Mainobjects of planning in India – NITI Ayog and National Development Council –Fiveyear plans.

Unit-IV

EconomicPolicies

Economic Reforms and New Economic Policy – New Industrial Policy – CompetitionLaw–FiscalPolicy –ObjectivesandLimitations –Unionbudget –StructureandimportanceofUnionbudget–MonetarypolicyandRBI.

Unit-V

Social,PoliticalandLegalEnvironment

Concept of Social Justice - Schemes - Political Stability - Leal Changes.

Suggested Readings:

1 RosyJoshiandSangamKapoor:BusinessEnvironment.
2 FrancisCherunilam:BusinessEnvironment.
3 S.K.MishraandV.K.Puri :EconomicEnvironment ofBusiness.

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Commerce	*CCA-301G/CC*	*2019-2020*	*II.B.Com(gen/comp)*

SEMESTER –III ***SYLLABUS***

CorporateAccounting

Unit -I:
Accounting for Share Capital - Issue, forfeiture and reissue of forfeitedshares- concept &process of book building - Issue of rights and bonus shares -Buybackof shares(preparationof Journaland Ledger).

Unit-II:
Profits prior to incorporation -Nature –need- ascertainment - treatment of profit /loss.(Includingproblems)
Unit–III:
Valuation of Goodwill and Shares: Need and methods - Normal ProfitMethod, Super Profits Method – Capitalization Method - Valuation of shares -Need for Valuation – Methods of Valuation - Net assets method, Yield basismethod,Fair valuemethod(including problems).

UNIT– IV:
Company Final Accounts: Preparation of Final Accounts – Adjustments relating to preparation of final accounts – Profit and loss account and balancesheet Preparation of final accounts using computers (includingproblems).

Unit–V
Provisions of the Companies Act, 2013 relating to issues of shares anddebentures - Book Building- Preparation of Balance Sheet and Profit and LossAccount – Schedule-III.

ReferenceBooks:
1. CorporateAccounting –Haneef&Mukherji,
2. CorporateAccounting–RLGupta&Radhaswami
3. CorporateAccounting –P.C.Tulsian
4. AdvancedAccountancy:JainandNarang
5. AdvancedAccountancy:R.L.GuptaandM.Radhaswamy,SChand.

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Commerce	*CBS-302G/CC*	*2019-2020*	*II.B.Com(gen/comp)*

SEMESTER –III ***SYLLABUS***

Business Statistics

Unit1:IntroductiontoStatistics:
Definition, importance and limitations of statistics - Collection of data - Schedule and questionnaire – Frequency distribution – Tabulation - Diagrammaticandgraphicpresentationofdatausing Computers(Excel).

Unit2:Measures ofCentral Tendency:
Characteristics of measures of Central Tendency-Types of Averages – Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Mode, Deciles,Percentiles,Properties of averages andtheirapplications.

Unit3:Measures ofdispersionandSkewness:
Properties of dispersion-Range-Quartile Deviation –Mean Deviation-StandardDeviation-Coefficient of Variation-Skewness definition-Karl Pearson's andBowley's Measures ofskewness-NormalDistribution.

Unit4:MeasuresofRelation:
Meaning and use of correlation – Types of correlation-Karlpearson's correlationcoefficient –Spearman's Rank correlation-probable error-Calculation ofCorrelation by Using Computers. Regression analysis comparison betweencorrelation and Regression – Regression Equations-Interpretation of RegressionCo-efficient.

Unit5:Analysis ofTimeSeries &Index Numbers:
Components of Time series- Measurement of trend and Seasonal Variations – Index Numbers-Methods of Construction of Index Numbers – Price IndexNumbers – Quantity Index Numbers –Tests of Adequacy of Index Numbers –Cost of Index Numbers-Limitations of Index Numbers –Use of ComputerSoftware.

SuggestedReadings:
1. BusinessStatisticsReddy,C.RDeepPublications.
2. Statistics-ProblemsandSolutionsKapoorV.K.

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Commerce	***CBT-303GC***	***2019-2020***	***II.B.Com(gen)***

SEMESTER –III ***SYLLABUS***

BankingTheory&Practice

Unit-I:Introduction
Meaning & Definition of Bank – Functions of Commercial Banks – Kinds ofBanks -CentralBankingVs.CommercialBanking.

Unit-II:BankingSystems
Unit Banking , Branch Banking, Investment Banking- Innovations in banking – e-banking - Online and Offshore Banking , Internet Banking - AnywhereBanking-ATMs-RTGS.

Unit-III:BankingDevelopment
Indigenous Banking - Cooperative Banks, Regional Rural banks, SIDBI,NABARD-EXIM Bank.

Unit-IV:BankerandCustomer
Meaning and Definition of Banker and customer – Types of Customers - GeneralRelationship and Special Relationship between Banker and Customer - KYCNorms.

Unit-V:CollectingBankerandPayingBanker
Concepts - Duties & Responsibilities of Collecting Banker – Holder for Value – Holderin Due Course – Statutory Protection to Collecting Banker - Responsibilities ofPayingBanker-Payment Gateways.

Books forReference
1. BankingTheory:Law&Practice: K PMSundram andVLVarsheney
2. BankingTheory,LawandPractice:B.Santhanam;MargamPublications
3. BankingandFinancialSystems:Aryasri
4. .IntroductiontoBanking:VijayaRaghavan
5. IndianFinancialSystem:M.Y.Khan
6. IndianFinancialSystem:Murthy&Venugopal

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Commerce	*CBTP-303G C*	*2019-20*	*II.B.Com(gen)*

SEMESTER –III SYLLABUS

Banking Theory & Practice

Unit-I: Introduction
Meaning & Definition of Bank – Functions of Commercial Banks – Kinds of Banks -Central Banking Vs. Commercial Banking.

Unit-II: Banking Systems
Unit Banking , Branch Banking, Investment Banking- Innovations in banking – e-banking - Online and Offshore Banking , Internet Banking - Anywhere Banking - ATMs- RTGS.

Unit-III: Banking Development
Indigenous Banking - Cooperative Banks, Regional Rural banks, SIDBI, NABARD -EXIM Bank.

Unit-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.

Unit-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.

Books for Reference

1. Banking Theory: Law &Practice : K P M Sundram and V L Varsheney
2. Banking Theory, Law and Practice : B. Santhanam; Margam Publications
3. Banking and Financial Systems : Aryasri
4. .Introduction to Banking : Vijaya Raghavan
5. Indian Financial System : M.Y.Khan
6. Indian Financial System : Murthy & Venugopal

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Commerce	*CASO-401G/CC*	*2019-2020*	*II.B.Com(gen/comp)*

SEMESTER –IV ***SYLLABUS***

Accounting for ServiceOrganizations

Unit-I:Non-Trading/ServiceOrganizations:
Concept - Types of Service Organizations – Section (8) and other Provisions ofCompaniesAct,2013.

Unit–IIElectricitySupplyCompanies:
Accounts of Electricity supply companies: Double Accounting system – Revenue Account – Net Revenue Account – Capital Account – General BalanceSheet (includingproblems).

Unit–III-BankAccounts
Bank Accounts – Books and Registers to be maintained by Banks – BankingRegulation Act, 1969 - Legal Provisions Relating to preparation of FinalAccounts (includingproblems).

Unit-IV:InsuranceCompanies
Life Insurance Companies –Preparation of Revenue Account, Profit and LossAccount,BalanceSheet (includingproblems)–LICAct,1956.

Unit–V: General Insurance
Principles – Preparation of final accounts – with special reference to fire andmarineinsurance (including problems)–GIC Act,1972.

SuggestedReadings
1. CorporateAccounting –RLGupta&M.RadhaSwami
2. CorporateAccounting –P.C.Tulsian
3. CompanyAccounts:Monga,GirishAhujaandShokSehagal

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Commerce	***CBL-402G/CC***	***2019-2020***	***II.B.Com(gen/comp)***

SEMESTER –IV ***SYLLABUS***

BusinessLaws

Unit-1Contract

Meaning and Definition of Contract-Essential elements of valid Contract - Valid,VoidandVoidable Contracts-Indian ContractAct,1872.

Unit-2 OfferandAcceptance

Definition of Valid Offer, Acceptance and Consideration -Essential elements ofaValid Offer, Acceptance and Consideration.

Unit-3CapacityofthePartiesandContingentContract

Rules regarding to Minors contracts - Rules relating to contingent contracts – Different modes of discharge of contracts-Rules relating to remedies to breachofcontract.

Unit-4SaleofGoodsAct1930

Contract of sale – Sale and agreement to sell – Implied conditions andwarranties–Rightsofunpaidvendor.

Unit-5:CyberLaws

CyberLawandContractProcedures-DigitalSignature-SafetyMechanisms.

SuggestedReadings:

1. J.Jayasankar,BusinessLaws,Margham Publication.Chennai-17
2. KapoorND,MercentileLaw ,SultanChand
3. BalachandramV,BusinesslawTata
4. Tulsian,BusinessLawTata

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Commerce	***CIT-403GC***	***2019-2020***	***II.B.Com(gen)***

SEMESTER –IV ***SYLLABUS***

IncomeTax

Unit-I
Introduction: Income Tax Law – Basic concepts: Income, Person, Assesse,Assessmentyear,AgriculturalIncome,Capitalandrevenue,Residentialstatus,Incomeexemptfrom tax(theoryonly).

Unit-II
Income from salary: Allowances, perquisites, profits in lieu of salary,deductionsfromsalaryincome,computationofsalaryincomeandqualified savings eligiblefordeductionu/s 80C(includingproblems).

Unit-III
Income from House Property: Annual value, let-out/self occupied/deemed tobe let-out house, deductions from annual value - computation of income fromhouseproperty(includingproblems).

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
Unit-V:
Computation of total income of an individual – Deductions under section - 80(includingproblems).

ReferenceBooks:
1. Dr.Vinod;K.Singhania;DirectTaxes –Law andPractice,TaxmanPublications
2. B.B.Lal;DirectTaxes;KonarkPublications
3. Dr.MehrotraandDr. Goyal;DirectTaxes–LawandPractice;Sahitya

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Commerce	*Com-BL-501(U)*	*2019-2020*	*B.Com(gen/comp)*

SEMESTER-V

SYLLABUS

BusinessLeadership

Unit-I: Introductory: Leadership - Traits, Skills and Styles- Leadership Development - Qualitiesof aGood Leader.

Unit-II: Decision-Making and Leadership: Leadership for Sustainability - Power,Influence, Impact - Leadership Practices - Organizations and Groups: Organizational CultureandLeadership -Leadership in Business Organizations

Unit-III: Special Topics: Profiles of a few Inspirational Leaders in Business – JemshedjiTata-Aditya Birla-Swaraj Paul-L NMittal -N R NarayanaMurthy -Azim Premji,etc.

References:

1. Northouse,PeterG.,Leadership:TheoryandPractice,SagePublications.
2. Daloz Parks, S., Leadership can be taught: A Bold Approach for a Complex World,Boston:Harvard Business School Press.
3. DruckerFoundation(Ed.), LeadingBeyondtheWalls,SanFrancisco: JosseyBass.
4. Al Gini and Ronald M. Green, Virtues of Outstanding Leaders: Leadership and Character,JohnWiley & Sons Inc.
5. S Balasubramanian, The Art of Business Leadership – Indian Experiences, SagePublications

Commerce	***Com-CA-502***	***2019-2020***	***B.Com(gen/comp)***

SEMESTER-V

SYLLABUS

CostAccounting

Unit-I:Introduction: Distinguish between Financial Accounting, Cost Accounting andmanagement accounting - Cost Concepts and Classification – Cost Centre and Cost Unit –PreparationofCost Sheet.

Unit-II: Elements of Cost: Materials: Material control – Selective control, ABC technique – Methods of pricing issues – FIFO, LIFO, Weighted average, Base stock methods, choice ofmethod(including problems).

Unit-III: Labour and Overheads: Labour: Control of labor costs – time keeping and timebooking – Idle time –Methods of remuneration – labour incentives schemes - Overheads:Allocationand apportionment ofoverheads– Machine hourrate.

Unit-IV: Methods of Costing: Job costing – Processcosting - treatment of normal andabnormal process losses – preparation of process cost accounts – treatment of waste andscrap,joint products andby products (including problems).

Unit -V: Costing Techniques: Marginal Costing – Standard costing – Variance Analysis(includingproblems).

References:

1. S.P.JainandK.L.Narang –AdvancedCostAccounting, KalyaniPublishers,Ludhiana.
2. M.N.Aurora–Atest bookofCost Accounting,Vikas PublishingHousePvt. Ltd.
3. S.P.Iyengar –Cost Accounting, SultanChand & Sons.
4. Nigam&Sharma–CostAccounting PrinciplesandApplications,S.Chand&Sons.
5. S.N.Maheswari–PrinciplesofManagementAccounting.
6. I.M.Pandey–ManagementAccounting,VikasPublishingHousePvt.Ltd.

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Commerce	*CTAX-503C C*	*2019-2020*	*III.B.Com(comp)*

SEMESTER –V *TAXATION*

SYLLABUS

Unit-I: Introduction: Objectives - Principles of Taxation - Brief History - Basic Concepts; Capitaland Revenue; Basis of Charge - Exempted Incomes - Residential Status – Incidence of Taxation.

Unit-II: Direct and Indirect Taxes – Service Tax – VAT – Central Sales Tax – Latest Developments.

Unit-III: Computation of income under different heads: Income from Salary; Income from HouseProperty; Deductions u/s 80C to 80U - Income from Capital Gains; Income from Other Sources(simples problems).

Unit-IV: Taxation System in India: Objectives; Tax Holiday; Modes of Tax Recovery (Section 190 and 202); Payments and Refunds; Filing of Returns.

Unit-V: **Tax Planning**: Tax Avoidance and Tax Evasion; Penalties and Prosecutions; Income TaxAuthorities.

References:
1. Vinod K. Singhania Direct Taxes - Law and Practice, Taxman Publication.
2. B.B. Lal: Direct Taxes, Konark Publisher (P) Ltd.
3. Bhagwati Prasad: Direct Taxes – Law and Practice, Wishwa Prakashan.
4. Dr. Mehrotra and Goyal: Direct Taxes – Law and Practice, Sahitya Bhavan Publication.

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Commerce	CGST-503G/C	*2019-2020*	*III.B.Com(gen)*

GOODS &SERVICE TAX FUNDAMENTALS

SEMESTER –V

SYLLABUS

Unit I:Introduction: Overview of GST - Concepts – Limitations of VAT – Need for Tax Reforms - Justification for introduction of GST - Shortcomings and advantages at the Central Level and State Level on introduction of GST- Process of Introduction of GST - Constitutional Amendments.

Unit II: GST:Principles – Models of GST: Austrlian, Candian, Kelkar-Shah – BagchiPoddar - Comprehensive structure of GST model in India: Single, Dual GST– Transactions covered under GST.

Unit-III:Taxes and Duties: Subsumed under GST - Taxes and Duties outside the purview of GST: Tax on items containing Alcohol – Tax on Petroleum products - Tax on Tobacco products - Taxation of Services

Unit-IV: Inter-State Goods and Services Tax: Major advantages of IGST Model – Interstate Goods and Service Tax: Transactions within a State under GST – Interstate Transactions under GST - Illustrations.

Unit-V: 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.

References:
1. Goods and Services Tax in India – Notifications on different dates.
2. GST Bill 2012.
3. Background Material on Model GST Law, Sahitya Bhawan Publications, Hospital Road, Agra - 282 003.
4. The Central Goods and Services Tax Act, 2017, NO. 12 OF 2017 Published by Authority, Ministry of Law and Justice, New Delhi, the 12thApril, 2017.

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Commerce	***Com-CG-504***	***2019-2020***	***B.Com(gen/comp)***

SEMESTER-V

SYLLABUS

CommercialGeography

Unit –I: The Earth: Internal structure of the Earth – Latitude – Longitude – Realms of theEarth –Evolution of the Earth – Environmental pollution - Global Warming - Measures to betakento protecttheEarth.

Unit -II: India – Agriculture: Land Use - Soils - Major crops – Food and Non-food Crops – Importanceof Agriculture– Problemsin Agriculture– AgricultureDevelopment.

Unit -III: India – Forestry: Forests – Status of Forests in Andhra Pradesh – Forest(Conservation)Act, 1980 – Compensatory Afforestation Fund (CAF) Bill, 2015 - ForestRightsAct, 2006 andits Relevance –NeedforprotectionofForestry.

Unit -IV: India – Minerals and Mining: Minerals – Renewable and non Renewable – Useof Minerals – Mines – Coal, Barites, etc. – Singareni Coal mines and Mangampeta Barites – DistrictwiseProfile.

Unit-V: India – Water Resources – Rivers: Water resources - Rationality and equitable useof water – Protection measures - Rivers - Perennial and peninsular Rivers - Interlinking ofRivers- Experienceof IndiaandAndhraPradesh.

References:

1. Shabiar Ahmad; Quazi ,Natural Resource Consumption and Environment Management,APHPublishing Corporation.
2. Tarachand,Economic andCommercialGeographyof India,VikasPublishingHouse.
3. Dr.S.Sankaran,CommercialGeography,MargamPublications,Chennai.
4. C.B.Memoria,CommercialGeography,LalAgarwal&Co.

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Commerce	***Com-CB505(E)***	***2019-2020***	***B.Com(gen)***

SEMESTER -V

SYLLABUS

CentralBanking

Unit-I: Introduction: Evolution and Functions of Central Bank - Development of CentralBanksinDevelopedandDeveloping countries - Trendsin CentralBankFunctions.

Unit-II:CentralbankinginIndia:ReserveBankofIndia-ConstitutionandGovernance,RecentDevelopments, RBIAct.-InterfacebetweenRBIand Banks.

Unit-III: Monetary and Credit Policies: Monetary policy statements of RBI - CRR - SLR – RepoRates -ReverseRepoRates-Currencyin circulation -Creditcontrolmeasures.

Unit-IV: Inflation and price control by RBI: Intervention mechanisms - Exchange ratestability-Rupeevalue-Controlling measures.

Unit-V: **Supervision and Regulation**: Supervision of Banks - Basle Norms, PrudentialNorms, EffectofliberalizationandGlobalization-Checkingofmoneylaundering andfrauds.

References:

1. ReserveBankof India Publication,FunctionsandWorkingoftheRBI.
2. VasantDesai,Central BankingandEconomic Development,HimalayaPublishing.
3. S.Panandikar,BankinginIndia, OrientLongman.
4. ReserveBankof India Publication,ReportonTrendsandProgressofBankinginIndia.
5. AnnualReportsofReserveBankofIndia.
6. RitaSwami, IndianBanking System,International Publishing HousePt.Ltd..

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Commerce	*Com-RFC-506(E)*	*2019-2020*	*B.Com(gen)*

SEMESTER-V

SYLLABUS

Rural and Farm Credit

Unit-I: Rural Credit: Objectives and Significance of Rural credit - Classification of rural credit -General CreditCard (GCC)–Financial Inclusion-Rupay Card.

Unit-II: Rural Credit Agencies: Institutional and Non-institutional Agencies for financingagriculture and Rural development - Self-Help Groups (SHG) - Financing for RuralIndustries.

Unit-III: Farm Credit: Scope - Importance of farm credit - Principles of Farm Credit - Types- Cost of Credit - - problems and remedial measures - Kisan Credit Card (KCC)Scheme.

Unit-IV: Sources of Farm Credit: Cooperative Credit: PACS - APCOB - NABARDSLBC- Lead Bank Scheme - Role of Commercial and Regional Rural Banks - Problems ofrecoveryand over dues.

Unit-V: Farm Credit Analysis: Eligibility Conditions - Analysis of 3 R's (Return,Repayment CapacityandRisk-bearingCapacity)-Analysisof3C'sofCredit(Character,CapacityandCapital)-Crop indexreflecting useand farmcredit-RuralCredit SurveyReports..

References:

1. NationalBankofAgriculturalandRural Development(NABARD)Annualreport.
2. EconomicSurvey,GovernmentofIndia.
3. RuralDevelopment,SundaramI.S.,Himalaya PublishingHouse,Mumbai.
4. RuralCreditinIndia,C.S.Rayudu,MittalPublications.
5. Farm Credit and Co-operatives in India, Tiruloati V., Naidu. V T Naidu, Vora & Co. Pub.Ltd.

Project Work: Rural Creditsurvey/Bankingoperations/CreditApp raisal

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Commerce	***CEM-601G/C***	***2019-2020***	***B.Com(gen/comp)***

SEMESTER-VI

SYLLABUS

EventManagement

Unit-I: Event Concept: Corporate Events and Customer's needs - Types of Events - Corporate hospitality – Exhibitions – Trade Fairs – Conferences –Business and GovernmentMeets-Corporateeventpackages-Menu Selection-Customization.

Unit-II: Outdoor Events: Logistics, Types of Outdoor events, Risk management – Health and safety,Marketing and sponsorship, HR Management, Programming and Entertainment.

Unit-III: Celebrity Events: Launches, Fashion shows, National festivals and high-profile charity events Liaison with agents, ContractNegotiations, Client briefings, Celebrity wishlists and expectations-Liaisoning with Govt. Departments.

References:

1. EventManagement:ABloomingIndustryandanEventfulCareerbyDeveshKishore,Ganga Sagar Singh -Har-and Publications Pvt. Ltd.
2. EventManagementbySwarupK.Goyal- AdhyayanPublisher.
3. EventManagement&PublicRelationsbySavitaMohan-EnkayPublishingHouse
4. EventEntertainmentandProduction-MarkSonder,CSEP,Wiley&Sons,Inc.
5. Special Event Production - Doug Matthews. 6. Fenich, G. Meetings, Expositions, Events,andConventions: Anintroduction totheindustry.New Jersey:Pearson PrenticeHall.

AG& SGSIDDHARTHADEGREECOLLEGEOF ARTS& SCIENCEVUYYURU
(AUTONOMOUS)
(MANAGEDBYSIDDHARTHAACADEMYOFGENERAL&TECHNICAL EDUCATIONVIJAYAWADA)

Commerce	***CM602GEG/C***	***2019-2020***	***B.Com(gen/comp)***

SEMESTER-VI

SYLLABUS

Marketing

Unit-I: **Introduction:** Concepts of Marketing: Product Concept – Selling Concept - SocietalMarketingConcept – MarketingMix-4 P'sofMarketing –MarketingEnvironment.

Unit-II: **Consumer Markets and Buyer Behaviour:** Buying Decision Process – Stages – Buying Behaviour – Market Segmentation – Selecting Segments – Advantages ofSegmentation.

Unit-III: Product Management: Product Life Cycle - New products, Product mix andProductline decisions - Design, Branding, Packagingand Labeling.

Unit-IV: Pricing Decision: Factors influencing price determination, Pricing strategies:Skimmingand Penetration pricing.

Unit-V: Promotion and Distribution: Promotion Mix - Advertising - Publicity – Publicrelations - Personal selling and Direct marketing - Distribution Channels – Online marketing-Globalmarketing.

References:

1. PhilipKotler,MarketingManagement,PrenticeHallof India.
2. PhilipKotler&GaryArmstrong,Principlesof Marketing,PearsonPrenticeHall
3. StantonJ.William&CharlesFutrel,FundamentalsofMarketing,McGrawHillCompany
4. V.S.RamaswamyS.NamaKumari,MarketingManagement–Planning,McMillan

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(MANAGEDBYSIDDHARTHAACADEMYOFGENERAL&TECHNICALEDUCATIONVIJAYAWADA)

Commerce	*CAU-603GEG/C*	*2019-2020*	*B.Com(gen/comp)*

SEMESTER-VI

SYLLABUS

Auditing

Unit-I: Auditing: Meaning – Objectives – Importance of Auditing – Auditing as a VigilMechanism – Role ofAuditor inchecking corporate frauds.

Unit-II: Types of Audit: Based on Ownership and time - Independent, Financial, Internal, Cost, Tax, Government, Secretarialaudits.

Unit-III: Planning of Audit: Steps to be taken at the commencement of a new audit - Auditprogramme- Audit notebook - Internalcheck, internalaudit andinternal control.

Unit-IV: Vouching and Investigation: Vouching of cash and trading transactions - Investigation,Auditing vs. Investigation

Unit-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.

References:

1. S.Vengadamani,"PracticalAuditing",MarghamPublications,Chennai.
2. Ghatalia,"PrinciplesofAuditing",AlliedPublishersPvt.Ltd.,NewDelhi.
3. PradeeshKumar,BaldevSachdeva&Jagwant Singh,"AuditingTheoryandPractice,KalyaniPublications, Ludhiana.
4. N.D.Kapoor,"Auditing",S.Chand,NewDelhi.
5. R.G.Saxena,"PrinciplesandPracticeofAuditing",HimalayaPublishingHouse,NewDelhi.
6. JagadeshPrakesh,"PrinciplesandPracticesofAuditing"KalyaniPublications,Ludhiana.

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Commerce	*CMA604GEG/C*	*2019-2020*	*B.Com(gen/comp)*

SEMESTER-VI

SYLLABUS

ManagementAccounting

Unit–I: Management Accounting: Interface with Financial Accounting and CostAccounting-
Financial Statement analysis and interpretation: Comparative analysis – Common sizeanalysisand trend analysis (including problems).

Unit–II: Ratio Analysis: Classification, Importance and limitations - Analysis andinterpretation of Accounting ratios - Liquidity, profitability, activity and solvency ratios(includingproblems).

Unit–III: Fund Flow Statement: Concept of fund: Preparation of funds flow statement.Usesand limitations of funds flowanalysis (including problems).

Unit–IV:CashFlowStatement: Concept of cashflow–Preparationofcashflowstatement –Usesandlimitationsofcashflowanalysis(includingproblems).

Unit–V: Break-Even Analysis and Decision Making: Calculation of Break-even point - Uses and limitations - Margin of safety – Make/Buy Decision - Lease/own Decision(includingProblems).

References:

1. S.N. Maheswari, A Textbook of Accounting for Management, S. Chand Publishing, NewDelhi.
2. I.MPandey,"ManagementAccounting",VikasPublishingHouse,NewDelhi,
3. ShashiK.Gupta&R.K.Sharma,"ManagementAccounting:PrinciplesandPractice", KalyaniPublishers,Ludhiana.
4. JawaharLal,AccountingforManagement,HimalayaPublishingHouse,NewDelhi.
5. Charles T. Horngren, et.al, "Introduction to Management Accounting" PersonEducationIndia,New Delhi, 2002.

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(AUTONOMOUS)
(MANAGEDBYSIDDHARTHAACADEMYOFGENERAL&TECHNICAL EDUCATIONVIJAYAWADA)

Commerce	*CFS605CEG*	*2019-2020*	*B.Com(gen)*

SEMESTER-VI

SYLLABUS

Financial Services

Unit-I: Financial Services: Role of Financial Services - Banking and Non BankingCompanies – Activities of Non Banking Finance Companies- Fund Based Activities - FeeBasedActivities .

Unit-II: Merchant Banking Services: Scope and importance of merchant banking services - VentureCapital -Securitization-Dematservices-CommercialPapers –Treasurybills

Unit-III: Leasing and Hire-Purchase: Types of Lease, Documentation and Legal aspects – Fixation of Rentals and Evaluation - Hire Purchasing- Securitization of debts - HouseFinance.

Unit-IV: **Credit Rating**: Purpose – Types – Credit Rating Symbols – Agencies: CRISIL andCARE– Equity Assessment vs. Grading– Mutualfunds.

Unit-V: Other Financial Services: Factoring and Forfaeiting- Procedural and financialaspects–InstallmentSystem -CreditCards-CentralDepositorySystems:NSDL,CSDL.

References:

1.B.Santhanam,FinancialServices,MarghamPublication,Chennai.
2.M.Y.Khan,Financial Services,TataMcGraw–Hill,NewDelhi.
3. MachendraRaja,FinancialServices,S.Chand Publishers,NewDelhi.
4. V.A.Avdhani,Marketing ofFinancialServices.
5. Machiraji,"IndianFinancialSystem",VikasPublishers.
6. SandeepGoel, FinancialServices,PHILearning.
7. L.M.Bhole,Financial InstitutionsandMarkets, TataMcGrawHill.

AG& SGSIDDHARTHpADEGREECOLLEGEOFARTS& SCIENCEVUYYURU
(AUTONOMOUS)
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Commerce	***CFMS606CEG***	***2019-2020***	***B.Com(gen)***

SEMESTER-VI

SYLLABUS

Marketing of Financial Services

Unit-I: Difference between Goods and Services: Managing Service Counters – IntegratedServiceManagement – ServiceElements.

Unit-II: Constructing Service Environment – Managing People for service Advantage – ServiceQuality and Productivity– Customer Loyalty.

Unit-III: Pricing and Promotion Strategies: Pricing strategies – Promotion strategies – B2BMarketing – Marketing Planning and Controlforservices.

Unit-IV: Distributing Services: Cost and Revenue Management – Approaches for providingservices-ChannelsforServiceprovision–Designing andmanaging ServiceProcesses.

Unit-V: Retail Financial Services - Investment services – Insurance services - CreditServices - Institutional Financial Services - Marketing practices in select Financial ServiceFirms.

References:

1. Aradhani"MarketingofFinancialServices"HimalayaPublications
2. SinhaandSaho,ServicesMarketing,Himalaya PublishingHouse
3. ReddyAppanaiah, AnilKumarandNirmala,ServicesMarketing,HimalayaPublishing.
4. Shajahan,ServicesMarketing,HimalayaPublishingHouse.

ProjectWork:

Working with Financial Services
Firms on Documentation for
Sanction of Loans and financial Services

Adusumilli Gopala krishnaiah & Sugar Cane Growers Siddhartha Degree College ofArts & Science, Vuyyuru, Krishna District, Andhra Pradesh
(An Autonomous College in the Jurisdiction of Krishna University, Machilipatnam)
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DEPARTMENT OF ENGLISH

HIGHLIGHTED SYLLABUS OF B.Sc. ENGLISH
2019-20

Syllabus in Relevance to Employability, Skill Development and Entrepreneurship **is** highlighted as mentioned: Employability in yellow Color, Skill Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

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

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ENGLISH	ENG 101C	2019-2020	B.A,B.Com &B.Sc

SEMESTER – I (CBCS)

PAPER – I

Year-I **Semester-I** **Subject: General English** **Year 2019-20**

Unit – I
PROSE

1. The Knowledge Society (*from Ignited Minds*) - A.P. J. Abdul Kalam
2. The Language of African Literature (*from Decolonizing the Mind*)- Ngugi WaThiong'o

Unit – II
POETRY

1. The Road Not Taken - Robert Frost
2. Night of the Scorpion - Nissim Ezekiel

Unit – III
SHORT STORY

1. Two Children - Raachakonda Viswanatha Sastry (Ravi Sastry)
2. What Men Live By (Taken from the book 'What Men Live By and Other Tales') –Leo Tolstoy

Unit – IV
ONE - ACT PLAY

The Merchant of Venice (Court Scene – Act IV, Scene -1) - William Shakespeare

Unit – V
LANGUAGE ACTIVITY

1. Classroom and Laboratory Activities
   i. Single Sentence Answer Questions on Vocabulary (spelling), Sound (pronunciation), Phonetic Transcription, Problematic Sounds in English, Sense (meaning) and Syntax (usage)
2. Classroom Activity
   i. Exercises in Articles and Prepositions
   ii. Exercises in Tenses

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ENGLISH	ENG 201C	2019-2020	B.A,B.Com & B.Sc

GENERAL ENGLISH

SEMESTER – II (CBCS)

PAPER – I

Unit – I

PROSE

1. J. B.S Haldane: The Scientific Point of View
2. Booker T. Washington: My Struggle for an Education
3.Dr.B.R.Ambedkar : Pride, Awkwardness and a Dangerous accident in Chalisgaon.

Unit – II

POETRY

1. John Keats: Ode to Autumn
2. Kishwar Naheed : I am not that Woman

(from *An Anthology of Commonwealth Poetry* edited by C.D. Narasimhaiah)

Unit –III

SHORT STORY

1. Ruskin Bond: The Boy Who Broke the Bank
2. R. K. Narayan: Half a Rupee Worth

Unit – IV

ONE ACT PLAY

Anton Chekhov: The Proposal

Unit – V

LANGUAGE ACTIVITY

1. Classroom and Laboratory Activities

i. Transformation of Sentences (Voice, Speech, Degrees & Simple, Compound and Complex)
ii. Dialogue Practice (Oral)
iii Question Tags
iv. Listening Comprehension

2. Classroom Activity

i. Guided Composition
ii. Dialogue Writing
iii. Reading Comprehension

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ENGLISH	ENG 301C	2019-2020	B.A,B.Com &B.Sc

SEMESTER – III (CBCS)

PAPER – II

Year-II **Semester-III** **Subject: General English** **Year 2019-20**

Unit – I
PROSE
1. Shyness My Shield (Taken from *The Story of My Experiments with Truth)* - M.K. Gandhi
2. Aurangzeb's Letter To His Teacher
3. A Letter From Abraham Lincoln To His Son's Teacher

Unit – II
POETRY
1. Once Upon a Time - Gabriel Okara
2. Our Casuarina Tree - Toru Dutt

Unit – III
SHORT STORY
1. The Open Window – Saki (H.H.Munro)
2. The Beloved Charioteer - Shashi Deshpande

Unit – IV
ONE ACT PLAY
Kanyasulkam,(Acts I & II) – Gurajada Apparao

Unit – V
LANGUAGE ACTIVITY

1. Classroom and Laboratory Activities
i. JAM Sessions
ii. Note Taking
iii. Reporting for the Media
iv. Expansion of an idea

2. Classroom Activity
i. Information Transfer – Tables, Bar Diagrams, Line Graphs, Pie Diagrams, Flow Charts, Tree Diagrams and Pictures
ii. Note Making
iii. Writing for the Media

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CSS	CSS 201C	2019-2020	B.A,B.Com &B.Sc

COMMUNICATION AND SOFT SKILLS -1 (CSS-1)
FOUNDATION COURSE SYLLABUS
Semester – II

Unit I: Vocabulary Building

1a. Prefixes and Suffixes
1b. Conversion
1c. Compounding
1d. Analogy
2. One-Word Substitutes
3. Words Often Confused
4. Synonyms and Antonyms
5. Phrasal Verbs

Unit II: Grammar – 1

1. Types of Verbs
2. Subject-Verb Agreement

Unit III: Grammar – 2

1. Meanings of Modals
2. Common Errors (Correction of Sentences)

Unit IV: Listening Skills

1. The Importance of Listening
2. Types of Listening
3. Barriers/Obstacles to Effective Listening
4. Strategies for Effective Listening

Unit V: Reading Skills

1. Skimming
2. Scanning
3. Intensive Reading and Extensive Reading
4. Comprehension

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Accredited at 'A' Grade by NAAC

CSS	CSS 301C	2019-2020	B.A,B.Com &B.Sc

B.A., B.Com. and B.Sc.

COMMUNICATION AND SOFT SKILLS

SYLLABUS

Semester – III

Unit I: Pronunciation - 1

The Sounds of English

Unit II: Pronunciation – 2

1. Word Accent
2. Intonation

Unit III: Speaking Skills -1

1. Conversation Skills
2. Interview Skills
3. Presentation Skills
4. Public Speaking

Unit IV: Speaking Skills -2

1. Role Play
2. Debate
3. Group Discussion

Unit V: Writing Skills

1. Spelling
2. Punctuation
3. Report Writing

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CSS	CSS 401C	2019-2020	B.A,B.Com &B.Sc

COMMUNICATION AND SOFT SKILLS -3 (CSS -3)

FOUNDATION COURSE SYLLABUS

Semester – IV

Unit I: Soft Skills

1. Positive Attitude
2. Body Language
3. SWOT/SWOC Analysis
4. Emotional Intelligence
5. Netiquette

Unit II: Paragraph Writing and Para Jumbles

1. Paragraph Structure
2. Development of Ideas
3. Matching Para Jumbles

Unit III: Paraphrasing and Summarizing

1. Elements of Effective Paraphrasing
2. Techniques for Paraphrasing
3. What Makes a Good Summary?
4. Stages of Summarizing

Unit IV: Letter Writing

1. Letter Writing (Formal and Informal)
2. E-correspondence

Unit V: Job Application, CV and Dialogue Writing

1. Resume and CV
2. Dialogue Writing

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DEPARTMENT OF ENVIRONMENTAL STUDIES

HIGHLIGHTED SYLLABUS OF ENVIRONMENTAL STUDIES

2019-20

Syllabus in Relevance to Employability, Skill Development and Entrepreneurship **is** highlighted as mentioned: Employability in yellow Color, Skill Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

ENVIRONMENTAL STUDIES

Common for BA/B.Com/BSc Programmes

COURSE CODE: ENS101 Semester – I(Total 30 Hours)

Unit-I : Natural Resources:

Definition, scope and importance. Need for public awareness. Brief description of; Forest recourses: Use and over-exploitation. Deforestation; timber extraction, mining, dams. Effect of deforestation environment and tribal people Water resources: Use and over–utilization. Effects of over utilisation of surface and ground water. Floods, drought. Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources. Food resources: World food problems, Effects of modern agriculture; fertilizer-pesticide, salinity problems. Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Land resources: Land as resources, land degradation, man induced landslides, soil erosion and desertification

Unit-II : Ecosystems, Biodiversity and its conservation

Concept of an ecosystem Structure and function of an ecosystem Producers, consumers and decomposers Food chains, food webs and ecological pyramids Characteristic features of the following ecosystems:- Forest ecosystem, Desert ecosystem, Aquatic ecosystem. Value of biodiversity: Consumptive use, productive use. Biodiversity in India. Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts. Endangered and endemic species of India Conservation of biodiversity

Unit-III : Environmental Pollution

Definition Causes, effects and control measures of :- a. Air pollution b. Water pollution c. Soil pollution d. Noise pollution Solid waste management; Measures for safe urban and industrial waste disposal Role of individual in prevention of pollution Disaster management: Drought, floods and cyclones

Unit-IV : Social Issues and the Environment

From Unsustainable to Sustainable development Water conservation, rain water harvesting, watershed management. Climate change, global warming, ozone layer depletion, Environment protection Act Wildlife Protection Act, Forest Conservation Act

Unit-V : Human Population and the Environment

Population explosion, impact on environment. Family welfare Programme Environment and human health Women and Child Welfare Value Education Role of Information Technology in Environment and humanhealth.

Reference Books :

1. Environmental Studies by Dr.M.Satyanarayana, Dr.M.V.R.K.Narasimhacharyulu, Dr.G. Rambabu andDr.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.

HUMAN VALUES AND PROFESSIONAL ETHICS

Common for BA/B.Com/BSc/ Programmes

COURSE CODE: HVPE101

I Semester(Total 30 Hrs)

Unit-I: Introduction to Value Education

1. Value Education, Definition, Concept and Need for Value Education 2. The Content and Process of Value Education 3. Self-Exploration as a means of Value Education 4. Happiness and Prosperity as parts of Value Education

Unit-II: Harmony in the Human Being

1. Human Being is more than just the Body 2. Harmony of the Self ('I') with the Body 3. Understanding Myself as Co-existence of the Self and the Body 4. Understanding Needs of the Self and the Needs of the Body

Unit-III: Harmony in the Family and Society and Harmony in the Nature

1. Family as a basic unit of Human Interaction and Values in Relationships 2. The Basics for respect and today's Crisis : Affection, Care, Guidance, Reverence, Glory, Gratitude and Love
3. Comprehensive Human Goal : The Five dimensions of Human Endeavour

Unit-IV: Social Ethics

1. The Basics for Ethical Human conduct 2. Defects in Ethical Human Conduct
3. Holistic Alternative and Universal order 4. Universal Human Order and Ethical Conduct

Unit-V: Professional Ethics

1. Value Based Life and Profession 2. Professional Ethics and Right Understanding
3. Competence in Professional Ethics 4. Issues in Professional Ethics – The Current scenario
5. Vision for Holistic Technologies, Production System and Management Models

Reference Books:

1. A.N.Tripaty, Human Values, New Age International Publishers, 2003
2. Bajpai.B.L., Indian Ethos and Modern Management, New Royal Book Co., Lucknow, Reprinted, 2004
3. Bertrand Russell, Human Society in Ethics and Politics
4. Corliss Lamont, Philosophy of Humanism

ENTREPRENEURSHIP

Syllabus, For all Degree Programmes.

COURSE CODE: ENP201

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.

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DEPARTMENT OF ECONOMICS

HIGHLIGHTED SYLLABUS OF ECONOMICS

2019-20

Syllabus in Relevance to Employability, Skill Development and Entrepreneurship **is** highlighted as mentioned: Employability in yellow Color, Skill Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS)
VUYYURU - 521 165 - ODD 2019-2020

SEMESTER - I
DSC 3A -Business Economics-I
IB.COM GENERAL

No. of Hours per week: 5 **No. of Credits: 4**

Max.Marks:100

Unit-I- Introduction

Meaning and Definitions of Business Economics - Nature and scope of Business Economics- Micro and Macro Economics and their differences.

Unit-II- Demand Analysis

Meaning and Definition of Demand - Determinants of Demand -- Demand function – Law of demand- Demand Curve - Exceptions to Law of Demand.

Unit –III- Elasticity of Demand

Meaning and Definition of Elasticity of Demand – Types of Elasticity of Demand – Measurements of Price elasticity of demand – Total outlay Method – Point Method – Arc Method.

Unit – IV- Cost and Revenue Analysis

Classification of Costs – Total - Average – Marginal and Cost function – Long-run – Short-run – Total Revenue - Average revenue – Marginal Revenue.

Unit-V- Break-Even Analysis

Type of Costs – Fixed Cost – Semi-variable Cost – Variable Cost– Cost behaviour - Breakeven Analysis - Its Uses and limitations.

References:

1. S.Sankaran, Business Economics, Margham Publications, Chennai.
2. Business Economics - Kalyani Publications.
3. Business Economics – Himalaya Publishing House.
4. Aryasri and Murthy Business Economics , Tata McGraw Hill.
5. Business Economics, Maruthi Publication

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VUYYURU – 521 165

I BA PROGRAMME - ECONOMICS SYLLABUS FOR THE YEAR
(CBCS PATTERN)
FIRST YEAR BA – FIRST SEMESTER (CORE PAPER)
2019-20

TITLE: MICRO ECONOMICS -1

No. of hours per week: 5

Credits: 4

MODULE -1:

Nature, Definition and Scope of economics –Wealth, welfare, Scarcity and modern definitions

MODULE -2

Methodology in economics-Micro and Macro, Static and Dynamic analysis; Normative and Positive science, Inductive and Deductive methods ; Partial and General Equlibrium

MODULE -3:

Utility analysis :– Cardinal approach –The Law of Diminishing marginal utility-the Law of Equi-marginal utility-concept of consumer's surplus

MODULE -4:

Demand analysis – Law of Demand – Elasticity of Demand – Measurement of elasticity of demand-Price, Income and Cross elasticities of Demand

MODULE -5:

Ordinal approaches; Indifference curve analysis – Properties of Indifference curves – Price or Budget line - Equilibrium of the consumer with the help of Indifference curves - samuelson's revealed preference theory.

REFERENCES:

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU

2019-20

B. A. ECONOMICS

II Year B. A. Programme (UG) Courses – Under

CBCS Semester – III

Paper – III (Core Paper) (5Hours)

Macro Economics - National Income, Employment and Money

Module - 1

Meaning, definition of Macro Economics - Importance of Macro Economics- Difference between Micro and Macro Economics - Paradox of Macro Economics -Limitations

Module - 2

National Income - Definitions, Concepts of National Income - Measurement of National Income- Circular flow of Income in Two, Three and Four Sector Economy.

Module - 3

Classical theory of Employment - Say's Law of Markets.

Module - 4

Keynesian Theory of Employment - Consumption function – Investment Function - Marginal Efficiency of Capital (MEC)- Concepts of multiplier and accelerator

Module - 5

Meaning and Functions of Money - Classification of money - Gresham's Law - RBI classification of Money. Theories of Money - Fisher's Quantity theory of Money Cambridge approach (Marshall, Pigou, Robertson& Keynes).

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(AUTONOMOUS), VUYYURU

2019-20

Final year BA Economics Syllabus Semester Paper – V

ECONOMIC DEVELOPMENT AND INDIAN ECONOMY – Semester –V

Credits - 4

Weekly 5 Hours,

PAPER CODE: ECO-501

Module - 1

Concept of Economic Growth - Distinction between economic growth and development - Measurement of economic development -Theories of Economic Growth:
Adam Smith, Rostow, Karl Marx and Harrod&Domar Models.

Module - 2

Sustainable development - Balanced and unbalanced growth-choice of techniques Labour intensive and capital intensive methods.

Module - 3

Basic features of the Indian Economy - Natural Resources - Important Demographic features- Concept of Population Dividend - Population Policy.

Module - 4

National Income in India - trends and composition-poverty, inequalities and Unemployment - Measures taken by the Government. - MGNREGS

Module - 5

Economic reforms - liberalization, privatization and globalisation - concept of inclusive growth.

REFERENCES:

1. Dhingra, I.C - "Indian Economy", Sultan Chand, 2014.
2. RuddarDutt 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.HanumanthaRao&N.VenuGopal (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
10. Telugu Academy Publications.
11. Dr. Ch.S.G.K. Murthy, Indian Economy - Gitam University

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2019-20

Final year BA Economics Syllabus Paper – V

INDIAN AND ANDHRAPRADESH ECONOMY – Semester –V

Weekly 5 Hours, **Credits - 4**

Paper Code : ECO-502 **Semester-5**

Indian and Andhra Pradesh Economy

Syllabus

Module - 1

Indian Agriculture - Importance of Agriculture in India - Agrarian structure and relations- Factors determining Productivity- Agricultural Infrastructure - Rural credit - Micro Finance - Self Help Groups (SHGs) - Agricultural Price policy- concept of Crop Insurance - Food Security.

Module - 2

Structure and growth of Indian Industry - Industrial policies of 1956 & 1991 Meaning of Micro small and Medium Enterprises (MSMEs)- Problems and Prospects of small scale Industries in India.

Module - 3

Disinvestment in India - FEMA - Foreign direct investment - Services Sector in India – Reforms in Banking and Insurance -, IT, Education and Health.

Module - 4

Planning in India Economy - Objectives of Five year plans - Review of Five year Plans - Current Five year plan- NITI Aayog

Module - 5

Andhra Pradesh Economy - Population - GSDP - Sector Contribution and trends - IT – Small Scale Industry - SEZs.

REFERENCES:

1. Dhingra, I.C - "Indian Economy", Sultan Chand, 2014.
2. RuddarDutt 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, 3/e.
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.HanumanthaRao&N.VenuGopal (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. Telugu Academy Publications.
10. Dr.Ch.S.G.K.Murthy, Indian Economy - Gitam University.

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EVEN (2019-2020)

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2019-20

I Year B. A. Programme (UG) Courses – Under CBCS

Semester – II. HOURS: 5 CREDITS: 4

Paper – II (Core Paper) **Micro Economics - Production and Price Theory**

Module - 1

Production function-Concept of homogeneous production function-Cobb- Douglas Production function- Law of variable proportions-Law of Returns to Scale - Different Concepts of Costs – Explicit & Implicit, Opportunity, Total – fixed and Variable Costs, Marginal & Average Costs & its Relationship. Concept of Revenue – Total, Marginal & Average Revenue and Break – Even Point .

Module - 2

Analyse different types of Market structures - Perfect Competition - Price determination and equilibrium of firm and industry under perfect competition - Monopoly - Price determination - Price discrimination.

Module - 3

Monopolistic competition - price determination - Oligopoly - Kinked demand curve approach.

Module - 4

Marginal Productivity theory of distribution - Theories of wage determination Subsistence theory of wages, Standard of living theory of wages, Modern theory of wages Wages and collective bargaining - concept of minimum wage.

Module - 5

Theory of Rent: Ricardian theory of rent - Quasi rent concept of Alfred Marshall. Theories of Interest - Classical, Neo-classical and Keynes Liquidity Preference theory - Profit - dynamic, innovations, Risk and Uncertainty theories.

REFERENCES:

1. R.G. Lipsey and K.A.Chrystal - "Economics", Oxford University Press, 10/e, 2004.
2. P.A.Samuelson & W.D. Nordhaus-"Economics", Tata Mc.Graw Hill, 18/e, 2005.
3. N.Gregory Mankiw-"Principles of Economics", Thompson 2015.
4. H.L.Ahuja-"Advanced Economic Theory"' S.Chand, 2004.
5. M.L.Seth-"Micro Economics", Laxmi Narayana Agarwal, 2015.
6. Bilas, A.-"Micro Economic Theory", International Student Edition, Mc.Graw Hill, 1971.
7. Telugu Academy Publications
8. D.M. Mithani & G.K. Murty - Business Economics, Himalaya Publishing, 2015.

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2019-20

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IB.COM GENERAL ---------- SEMESTER - II

DSC 3 B - Business Economics –II----------(CBE 203G)

No. of Hours per week: 5 **Max.Marks:100**

No. of Credits: 4

Unit-I: Production and Costs : Techniques of Maximization of output, Minimization of costs and Maximization of profit - Scale of production - Economies and Dis-economies of Scale - Costs of Production – Cobb-Douglas Production Function.

Unit-II: Market Structure-I : Concept of Market - Market structure - Characteristics - Perfect competition -characteristics equilibrium price - profit maximizing output in the short and long run Monopoly- characteristics - Profit maximizing out-put in the short and long run - Defects of Monopoly – Distinction between Perfect competition and Monopoly.

Unit-III: Market Structure-II : Monopolistic Competition - Characteristics – Product differentiation - Profit maximization - Price and output in the short and long - run – Oligopoly - characteristics - Price rigidity - Kinked Demand Curve - Distribution - Concepts - Marginal Productivity - Theory of Distribution.

Unit-IV: National Income And Economic Systems : National Income - Definition Measurement - GDP - Meaning Fiscal deficit - Economic systems - Socialism - Mixed Economic System - Free Market economy.

Unit-V: Structural Reforms : Concepts of Economic liberalization, Privatization, Globalization - WTO Objectives Agreements - Functions - Trade cycles - Meaning - Phases - Benefits of International Trade - Balance of Trade and Balance of payments.

Reference Books:

1. Aryasri and Murthy, Business Economics, Tata McGraw Hill
2. H.L Ahuja, Business Economics, Sultan Chand & Sons
3. KPM Sundaram, Micro Economics
4. Mankiw, Principles of Economics, Cengage Publications
5. Mithani, Fundamentals of Business Economics, Himalaya Publishing House
6. DAR Subrahmanyam &V Hari Leela, A Text Book on Business Economics, Maruthi Publishers.
7. A.V. R. Chary, Business Economics, Kalyani Publishers, Hyderabad.

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2019 – 20

DSC 2 B -Business Economics

I B.Com (Computers) ---- II SEMESTE

w.e.f. 2015-16 (Revised in April, 2016)

No. of Hours per week: 5 Max.Marks:100

No. of Credits: 4

Unit-I:- Introduction: Meaning and Definitions of Business Economics - Nature and scope of Business Economics- Micro and Macro Economics and their Interface.

Unit-II:- Demand Analysis: Definition - Determinants of Demand -- Demand function – Law of demand- Demand Curve - Exceptions to Law of Demand - Elasticity of Demand – Types of Elasticity of Demand – Measurements of Price elasticity of Demand :

Unit – III:- Cost and Revenue Analysis:- Classification of Costs – Total - Average – Marginal; Cost function – Long-run – Short-run – Total Revenue - Average revenue – Marginal Revenue - Production and Costs: Techniques of Maximization of output, Minimization of costs and Maximization of profit .

Unit-IV:- Market Structure: Concept of Market - Market structure - Perfect competition - characteristics - equilibrium price - Monopoly- characteristics - Defects of Monopoly – Distinction between Perfect competition and Monopoly - Monopolistic Competition – Characteristics-Product differentiation - Oligopoly - characteristics - Price rigidity.

Unit-V:- National Income And Economic Systems: National Income - Measurement - GDP -Growth Rates - Problems in Assessment - Economic Systems - Socialism - Mixed Economic System - Free Market Economy -

References:

1. S.Sankaran, Business Economics, Margham Publications, Chennai.
2. Business Economics - Kalyani Publications.
3. Business Economics – Himalaya Publishing House.
4. Aryasri and Murthy Business Economics , Tata McGraw Hill.
5. Aryasri and Murthy, Business Economics, Tata McGraw Hill
6. H.L Ahuja, Business Economics, Sultan Chand & Sons
7. Mankiw, Principles of Economics, Cengage Publications
8. Mithani, Fundamentals of Business Economics, Himalaya Publishing House
9. A.V. R. Chary, Business Economics, Kalyani Publishers, Hyderabad.DSC 3B: Enterprise Resource Planning

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B. A. ECONOMICS 2019-20

II Year B. A. Programme (UG) Courses – Under CBCS

Semester – IV

Paper – IV (Core Paper)

Banking and International Trade

Module - 1

Trade Cycles - meaning and definition - Phases of a Trade Cycle -Inflation - definition - types of inflation - causes and effects of inflation measures to control inflation.

Module - 2

Banking: Meaning and definition -Functions of Commercial Banks - Concept of Credit creation-Functions of RBI - Recent developments in banking sectors.

Module – 3

Non-Bank Financial Institutions – Types of NBFIs - Factors contributing to the Growth of NBFIs —Money market – Defects of Indian money market

Module – 4

Concepts of Shares-Debentures - Stock Market - Functions - Primary and Secondary Markets -SEBI - - Insurance - Life Insurance and General Insurance.

Module - 5

Macro Economic Policy - Fiscal, Monetary and Exchange rate policies

Objectives and Significance - Importance of International Trade - Regional and International Trade – Defining Balance of Trade and Balance of Payment.

REFERENCES:

1. G.Ackley - "Macro Economics Theory and Policy", Collier Macmillan, 1978.

2. E.Shapiro - "Macro Economic Analysis", Galgotia Publications, 1999.

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2019-20

B. A. ECONOMICS

III Year B. A. Programme (UG) Courses – Under CBCS

Semester – VI

Paper – VII-(A) (Elective Paper VII-(A)

AGRICULTURAL ECONOMICS

Module-1

Nature and Scope of Agricultural Economics. Factors affecting agricultural development: technological, institutional and general. Interdependence between agriculture and industry.

Module-2

Concept of production function : input-output and product relationship in farm production.

Module-3

Growth and productivity trends in Indian agriculture with special reference to Andhra Pradesh. Agrarian reforms and their role in economic development.

Module-4

Systems of farming, farm size and productivity relationship in Indian agriculture with special reference to Andhra Pradesh- New agriculture strategy and Green revolution : and its Impact

Module-5

Emerging trends in production, processing, marketing and exports; policy controls and regulations relating to industrial sector with specific reference to agro-industries in agribusiness enterprises.

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B. A. ECONOMICS
III Year B. A. Programme (UG) Courses – Under CBCS
Semester – VI
Paper – VIII-A; Cluster Elective–A: Agribusiness

Paper VIII-A-1: Agribusiness Environment in Andhra Pradesh

Module-1

Role of agriculture in development process in Andhra Pradesh vis-à-vis other developed states. Economy wide effects of agriculture in Andhra pradesh through trickle down effects. Backward and forward linkages of agriculture with rest of economy.

Module-2

Agricultural finance-importance in modern agriculture- performance of agricultural finance in Andhra Pradesh -problems of agricultural finance - Inter linkages of agricultural credit and other input markets and product markets.

Module-3

Dynamics of agriculture-crop (horticulture, field crops), sector-livestock (poultry dairy and fisheries) sector and inter linkages among the sectors. Agribusiness sector in Andhra Pradesh-salient futures, constraints, sub sectors of agribusiness-input sector, production sector, processing sector.

Module-4

Growth performance of major agricultural commodities in Andhra Pradesh-production and processing trends in exports and imports of major agricultural commodities.

Module-5

Marketing policy- structure of agri markets – regulated markets – need – activities – structure – APMC act – market legislations – Role of Farmer Groups in the marketing of Agricultural Produce.

References:

1. Adhikary M. 1986. Economic Environment of Business. S. Chand & Sons.
2. Aswathappa K. 1997. Essentials of Business Environment.Himalaya Publ.
3. Francis Cherunilam 2003. Business Environment.Himalaya Publ.
4. Agarwal Raj, 2001, Business Environment, Excel Books, New Delhi.

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B. A. ECONOMICS
III Year B. A. Programme (UG) Courses – Under CBCS
Semester – VI
Paper – VIII-A; Cluster Elective – A: Agribusiness

Paper VIII-A-2: Agricultural Output Marketing

Module-1
Structure and Model of Agri-Marketing Organizations with functions: Functions of intermediaries, Marketing Practices in Primary and secondary and terminal market, Regulated markets, co-operative marketing.

Module-2
Marketing costs and margins, Marketing Finance. Marketing Structure of Major agricultural commodities, food grains: Rice, and Maize. Cash Crops; Cotton, Oil Seeds, Vegetables and Fruits, Milk, Meat and Poultry products.

Module-3:
Problems and Challenges in Agriculture Marketing - Market Yards - Support prices - Rural Warehousing.

Module-4:
State Intervention in Agricultural Marketing, Role of Various agencies (Andhra Pradesh Agro, MARKEED, State Department, and FCI, Tobacco Board, Cotton Corporation) and its impact on market efficiency. Agriculture Price Commission.

Module-5:
Inter-regional and international trade in agriculture; emerging scenario of international trade in agricultural commodities; concept of terms of trade and balance of payments,. WTO and Indian agriculture with special reference to Andhra Pradesh .

ferences:
1. C.S.G.Krishnamacharyulu&LalithaRamakrishnan, "Rural Marketing: Text and Cases", Pearson Education, New Delhi.
2. Awadhesh Kumar Singh &SatyaprakashPandey, Rural Marketing: Indian Perspective, New Age International Publishers, New Delhi.
3. Mamoria, C.B. &Badri Vishal: Agriculture Problems in India
4. Arora, R.C., "Integrated Rural Development", S. Chand Limited, New Delhi.
5. Gopalaswamy, T.P., "Rural Marketing: Environment, Problems and Strategies, Vikas Publishing House Pvt. Ltd., New Delhi.
6. Bedi&Bedi, "Rural Marketing", Himalaya Publishing House, New Delhi.

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DEPARTMENT OF HISTORY

2019-2020

HIGHLIGHTED SYLLABUS OF B.A

Courses on Employability, Entrepreneurship and Skill-Development in the curriculum of all programs are highlighted as mentioned: Employability in yellow Color, Skill-Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

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CLASS: I B.A **SEMESTER – I (CBCS) PAPER-I**
SYLLABUS: HISTORY **Title of the Paper: ANCIENT INDIAN HISTORY& CULTURE (From Earliest Times to 600 A.D)**
Paper Code: HIS 101 **(W.e.f. 2019--2020)**
No. of Hours per week: 5 **No. of Credits: 4**

UNIT -I

Survey–Literary Sources – Archaeological Sources Influence of Geography on History – Unity in Diversity – Traces of Stone Age cultures(Circa 3,50,000 B.C to 3,000 B.C) – Indus Valley Civilization:(Circa 3000 B.C to 1,500 B.C) Origin, Extent, Salient Features of the Civilization.(**20 Hrs)**

UNIT -II

Vedic Age & Religious Reform Moments(Circa 1500 B.C to 600 B.C) Vedic and later Vedic Period – Political, Economic and Religious Conditions in the Society – Rise of New Religious Movements: Jainism – Buddhism –Casus, Doctrine, Spread, Importance and Impact.(**15Hrs)**

UNIT-III

Transition from Territorial States to Emergence of Empires (Circa 600 to 300 B.C) –Rise of Maha janapadas – Causes for Magadha's Success – Persian, Alexander's Invasions – Causes and its effects on India – The Mauryan Empire: Origin –, It's nature and propagation – Mauryan Administration, Society, Economy, Religion, Art and Architecture – Downfall of Mauryan Empire.(**20 Hrs**)

UNIT-IV

Conditions during 200 B. C. TO 300 A.D, Central Asian Contacts – Kushanas –Aspects of Polity, society, Economy, Religion, Art &Architecture – The Age of Satavahanas– Pattern of Administration Socio Economic Religious Cultural Developments.Sangam Age; Three Early Kingdoms (Chola-Chera &Pandya) – Society, Language & Literature. (**15 Hrs)**

UNIT-V

India between 300 A.D.- 600 A. D. The Rise and Growth of Guptas – Administrative System, Economy, Art, Architecture, Literature, Science and Technology – Golden Age of Guptas – decline. (**20 Hrs)**

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CLASS: I B.A HISTORY, SEMESTER – II (CBCS) PAPER-II
SYLLABUS: Title of the Paper: EARLY MEDIEVAL INDIAN HISTORY & CULTURE (From 600 to 1526 A.D)
Paper Code: HIS 201 (W.e.f. 2019-2020) No.of Hours per week:5 No. of Credits:4

UNIT –I

Harsha& His Times ,Administration, Religion –Hiuen Tsang –Polity , Society and Culture from 7th to 11th Century A.D. Under Chalukyas of Badami & Estern Chalukyas of Vengi.
20Hrs

UNIT – II

Age of later Pallavs during 7th &8th Centuries A.D. contribution to cultural Development & art & Architecture: The Chola from 9th to 12th Century A.D.: Rise of the Empire – Administration –and – Cultural Life**.**
15 Hrs

UNIT – III

Conditions in India on the eve of Turkish Invasions; Traces of Arab Invasions, Ghazani & Ghori ,Delhi Sultanate(1206 -1290 A.D); under Slave Dynasty.
25Hrs

UNIT –IV

Delhi Sultanate (1290 -1526 A.D.)Khalgis: Expansion & Consolidation, Administrative &Economic Reforms ; The Tughlaqs Decline and Dis integration of the Delhi Sultanate Administration ,society ,Economy, Technology, Religion, Art &Architecture under the Delhi Sultanate . **15 Hrs**

UNIT –V

Cultural Development in India between 13th&15th Centuries A.D. Impact of Islam on Indian society &Culture – Bhakti &Sufi Movements Emergence of Composite Culture.
15 Hrs

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CLASS: II B.A **SEMESTER – III (CBCS)**
Title of the Paper: LATE MEDIEVAL & COLONIAL HISTORY OF INDIA

Pass Mark: 30
Paper Code: HIS 301 C **Max Marks: 70**
No. of Hours per week: 5 **No. of Credits: 4**

Unit – I
(20hours)

India from1526 to 1707 A.D. Emergence of Mughal Empire- Sources – Political Condition in India on the eve of Babur Invasions, Brief Summary of Mughal Polity, Sher Sha – Sur Interregnum – Expansion & Consolidation of Mughal Empire.

Unit – II
(20hours)

Administration –Economy- Society – Cultural Developments Under Mughals, Dis integration of Mughals -Rise of Marathas-Peshwas.

Unit – III
(20hours)

India Under Colonial Hegemony: Beginning of European Settlements – English and French Struggle – Policies of Expansion – Subsidiary Alliance – Doctrine of Lapse. Consolidation of British Power in India up to 1857

Unit – IV
(15hours)

Economic Policies of the British (1757 -1857) – Land Revenue Settlements – Permanent – Ryotwari – Mahalwari Systems – Commercialization of Agriculture – Impact of Industrial Revolution on Indian Industry, Administration of Company –Regulating Acts, Cultural & Social Policies; Humanitarian Measures & Spread of Modern Education.

Unit – V (15hours)

Anti-Colonial Upsurge-Peasant and Tribal Revolts – 1857 Revolt-Causes: Results and Nature Consequences.

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CLASS: II B.A **SEMESTER – IV (CBCS)** **PAPER-IV**

SYLLABUS: HISTORY

Title of the Paper: Social Reform Movement & Freedom Struggle (From 1820-1947A.D)

Paper Code: HIS 401 **(w.e.f. 2019-20)**

No. of Hours per week:5 **No. of Credits:4**

Unit – I

Socio –Religious & Self Respect Movements – Brahma Samaj – AryaSamaj – Theosophical Society –Ramakrishna Mission – Aligarh Movement – Emancipation of Women Struggle against Caste – JyotibaPhule – Narayana Guru – Periyar and Dr. B. R. Ambedkar. (20hours)

Unit – II

Growth of Nationalism in the 2nd half of 19th Century-Impact of British Colonial policies under Viceroys Rule and the Genesis of Freedom Movement –Birth of Indian National Congress (15hours)

Unit - III

-Freedom Struggle (1885-1920) Moderate Phase Partition of Bengal-Emergence of Militant Nationalism-Swadeshi&Boycott Movement –Home Rule Movement...(25hours)

Unit - IV

Freedom Struggle (1920-1947) Gandhiji's role in Indian National Movement – Revolutionary Movements
SubhasChandraBose. **Additional topic -** DurgabaiDeshmukh&SarojiniNaidu.-(15hours)

Unit – V

Muslim League &Growth ofCommunalism – Partition of India – Integration of Princely States into Indian Union – SardarVallabhai Patel. (15hours)

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III BA History Syllabus:: Semester – V (CBCS) Paper – VTitle of the Paper :

Age of Rationalism and Humanism –The World Between 15th& 18th Centuries.

Paper Code; HIS-501 (w .e. f . 2019 - 2020)

No. of Hours per week:5 **No. of Credits:4**

Unit – 1

Feudalism -Geographical Discoveries: Causes – Compass & Maps – Portugal Leads and Western World Follows – Consequences;(15 Hrs)

Unit – II

The Renaissance Movement: Factors for the Growth of Renaissance – Characteristic Features - Transformation from Medieval to Modern World; Reformation & Counter Reformation Movements: The Background – Protestantism – Spread of the Movement– Counter Reformation– Effects of Reformation(20Hrs)

Unit - III

Emergence of Nation States: Contributory Factors - England and other Nation States – Impact due to the Emergence of Nation States.; Age of Revolutions: The Glorious Revolution (1688) – Origin of Parliament – Constitutional Settlement – Bill of Rights – Results(15Hrs)

. **Unit – IV**

Age of Revolutions: The American Revolution (1776) – Opening of New World – Causes – Course – Declaration of Independence, 1776 – Bill of Rights, 1791 – Significance(20Hrs).

Unit – V

Age of Revolutions: The French Revolution (1789) – Causes - Teachings of Philosophers - Course of the Revolution – Results(20Hrs)

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III BA. Semester – V (CBCS) Paper – VI

Subject:: History : Syllabus - Title of the Paper – History & Culture of Andhra Desa

Paper Code : HIS-502 (w .e. f 2019 - 2020)

No. of Hours per week:5 **No. of Credits:4**

Unit – 1

Andhra during 12th& 13th Centuries A.D.: Kakatiyas – Origin & its Antecedents – Administration – Social & Economic Life – Industries & Trade - Promotion of Literature and Culture – Architecture & Sculpture – Decline; The Age of Reddy Kingdoms: Patronage to Literature – Trade & Commerce.(20Hrs)

Unit – II

Andhra between 14th & 16th Centuries A.D.: Vijayanagara Empire: Polity, Administration, Society & Economy – Sri Krishna Devaraya and his contribution to Andhra Culture –Development of Literature & Architecture – Decline and Downfall.(15Hrs)

Unit - III

Andhra through 16th& 17th Centuries A.D.: Evolution of Composite Culture – The QutbShahis of Golkonda – Origin & Decline – Administration, Society & Economy –Literature & Architecture.(15Hrs)

Unit – IV

The 18th& 19th Centuries in Andhra: East India Company's Authority over Andhra – Three Carnatic Wars – Occupation of Northern Circars and Ceeded Districts –Early Uprisings – Peasants and Tribal Revolts.(20Hrs)

Unit – V

The 18th& 19th Centuries in Andhra: Impact of Company Rule on Andhra – Administration – Land Revenue Settlements – Society – Education - Religion – Impact of Industrial Revolution on Economy – Peasantry & Famines – Contribution of Sir Thomas Munroe, C. P. Brown & Sir Arthur Cotton – Impact of 1857 Revolt in Andhra.(20Hrs)

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III BA **Semester – VI (CBCS)** **Paper – VII (General Elective)**

Subject: **History**

Syllabus: Title of the Paper – **History of Modern Europe (from 19th Century to 1945 A.D)**

Paper Code ; **HIS-601GE** (w .e. f 2019 - 2020)

No. of Hours per week:5 **No. of Credits:4**

UNIT – 1

Industrial Revolution: Origin, Nature and Impact. (10 Hrs)

UNIT – II

Unification Movements in Italy & Germany and their Impact. (25 Hrs)

UNIT – III

Communist Revolution in Russia – Causes, Course and Results – Impact on World Order. (15 Hrs)

UNIT - IV

World War I: Age of Rivalry in Europe between 1870 and 1914 – Results of the War – Paris Peace Conference - League of Nations. (20 Hrs)

UNIT – V

World War II: Causes, Fascism & Nazism – Results; the United Nations Organization: Structure, Functions and Challenges. (20 Hrs)

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DEPARTMENT OF HINDI

HIGHLIGHTED SYLLABUS OF HINDI

Syllabus in Relevance to Employability, Skill Development and Entrepreneurship **is** highlighted as mentioned: Employability in yellow Color, Skill Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

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Hindi	Hindi - 101C	2019-20	I Degree

SYLLABUS FOR B.A., B.COM., B.Sc.

I Semester - Hindi

Text Book	Gadya Sandesh
1. गद्य संदेश (Prose)	साहित्य की महत्ता सच्ची वीरता मित्रता
2. कथा लोक (Non-detailed)	मुक्तिधन गूदड़ साई उसने कहा था
3. व्याकरण (Grammar)	लिंग वचन काल वाच्य वाक्यों की शुद्धि
4. व्याकरण (Grammar)	शब्द प्रयोग कार्यालयी हिन्दी (पारिभाषिक शब्दावली अंग्रेजी से हिन्दी) विलोम शब्द
5. पत्र लेखन (Letter Writing)	व्यक्तिगत और सरकारी पत्र

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

An Autonimous College in the jurisdiction of Krishna University, Machilipatnam

Hindi	Hindi - 301 C	2019-20	II Degree

Syllabus for B.A., B.Com., B.Sc

III Semester - Hindi

Text Book = Kavya Deep

A) Old poetry =
1. Kabirdas Sakhi 1 to 10 Dohas
2. Surdas ka Bal varnan

B) Modern poetry =
1. Matru Bhoomi
2. Thodthi pattar
3. Matru Bhasha ke prathi

C) History of Hindi literature = Bhaktikaal
1. Gnanashrayi shakha - Kabirdas
2. Premashrayi shakha - Jayasi

D) General Essays =
1. Samachar patra
2. Bekari ki samasya
3. Computer
4. Paryavaran aur pradushna
5. Sahitya aur Samaj

E) Translation = English to Hindi

5 sentences from prescribed text book

F) Functional Hindi =
1. Paripatra
2. Gnapan
3. Soochana

* * *

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

An Autonomous College in the jurisdiction of Krishna University, Machilipatnam

Hindi	Hindi - 201C	2019-20	I Degree

SYLLABUS FOR B.A., B.COM., B.Sc.,

II Semester - Hindi

Text Book	Gadya Sandesh
1. गद्य संदेश (Prose)	1. संस्कृति और साहित्य का परस्पर संबंध 2. भारत एक है 3. ऐच.आइ.वी (एड्स)
2. कथा लोक (Non-detailed)	कथा लोक 1. जरिया 2. भूख हडताल 3. परमात्मा का कुत्ता
3. व्याकरण (Grammar)	1. शब्दों का प्रयोग 2. संधिविच्छेद 3. शुद्ध करके लिखना
4. अनुवाद (Translation)	हिन्दी से अंग्रेजी
5. पत्र लेखन (Letter Writing)	अधिकारिक पत्र

Adusumilli Gopalakrishnaiah & Sugar Cane Growers Siddhartha Degree College of Arts & Science, Vuyyuru– 521165, Krishna District, Andhra Pradesh
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DEPARTMENT OF MATHEMATICS

2019-2020

HIGHLIGHTED SYLLABUS OF MATHEMATICS

Courses on Employability, Entrepreneurship and Skill-Development in the curriculum of all programs are highlighted as mentioned: Employability in yellow Color, Skill-Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

A.G & S.G SIDDHARTHA DEGREE COLLEGE OF ARTS AND SCIENCE
VUYYURU-521165, KRISHNA Dt, A.P.
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MATHEMATICS	**MAT-101**	**I B.Sc**	**2019-2020**
SEMESTER-I	**PAPER-I**		**Max.Marks:100**
Hours/ Week: 6	**DIFFERENTIAL EQUATIONS**		**No.of Credits: 5**

UNIT – I (12 Hours), Differential Equations of first order and first degree:
Linear Differential Equations; Differential Equations Reducible to Linear Form; Exact Differential Equations; Integrating Factors; Change of Variables.

UNIT – II (12 Hours): Orthogonal Trajectories, Differential Equations of first order but not of the first degree.
Equations solvable for p; Equations solvable for y; Equations solvable for x; Equations that do not contain. x (or y); Equations of the first degree in x and y – Clairaut's Equation.

UNIT – III (14 Hours), Higher order linear differential equations-I :
Solution of homogeneous linear differential equations of order n with constant coefficients; Solution of the non-homogeneous linear differential equations with constant coefficients by means of polynomial operators.
General Solution of f(D)y=0
General Solution of f(D)y=Q when Q is a function of x.
f (D) is Expressed as partial fractions.
P.I. of f(D)y = Q when Q= be^{ax}
P.I. of f(D)y = Q when Q is b sin ax or b cosax.

UNIT – IV (12 Hours), Higher order linear differential equations-II :
Solution of the non-homogeneous linear differential equations with constant coefficients.
P.I. of f(D)y = Q when Q= bx^k
P.I. of f(D)y = Q when Q= $e^{ax}V$
P.I. of f(D)y = Q when Q= xV
P.I. of f(D)y = Q when Q= $x^m V$

UNIT –V (10 Hours), Higher order linear differential equations-III :
Method of variation of parameters; Linear differential Equations with non-constant coefficients; The Cauchy-Euler Equation.

Reference Books :
1. Differential Equations and Their Applications by Zafar Ahsan, published by Prentice-Hall of India Learning Pvt. Ltd. New Delhi-Second edition.
2. A text book of mathematics for BA/BSc Vol 1 by N. Krishna Murthy & others, published by S. Chand & Company, New Delhi.
3. Ordinary and Partial Differential Equations Raisinghania, published by S. Chand & Company, New Delhi.
4. Differential Equations with applications and programs – S. BalachandraRao& HR Anuradhauniversities press.

Suggested Activities:
Seminar/ Quiz/ Assignments/ Project on Application of Differential Equations in Real life.

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

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MATHEMATICS MAT-201 I B.Sc 2019-2020

SEMESTER-IIPAPER-II Max.Marks:100

Hours/Week: 6 **SOLID GEOMETRY** **No.of Credits: 5**

UNIT – I (10hrs) : The Plane :

Equation of plane in terms of its intercepts on the axis, Equations of the plane through the given points, Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, Orthogonal projection on a plane.

UNIT – II (12hrs) : The Line :

Equation of a line; Angle between a line and a plane; The condition that a given line may lie in a given plane; The condition that two given lines are coplanar; Number of arbitrary constants in the equations of straight line; Sets of conditions which determine a line; The shortest distance between two lines; The length and equations of the line of shortest distance between two straight lines; Length of the perpendicular from a given point to a given line;

UNIT – III (12hrs) : Sphere :

Definition and equation of the sphere; Equation of the sphere through four given points; Plane sections of a sphere; Intersection of two spheres; Equation of a circle; Sphere through a given circle; Intersection of a sphere and a line; Power of a point; Tangent plane; Plane of contact; Polar plane; Pole of a Plane; Conjugate points; Conjugate planes;

UNIT – IV (14hrs) : Sphere &Cones :

Angle of intersection of two spheres; Conditions for two spheres to be orthogonal; Radical plane; Coaxial system of spheres; Simplified from of the equation of two spheres.

Definitions of a cone; vertex; guiding curve; generators; Equation of the cone with a given vertex and guiding curve; Enveloping cone of a sphere; Equations of cones with vertex at origin are homogenous; Condition that the general equation of the second degree should represent a cone; Condition that a cone may have three mutually perpendicular generators;

UNIT – V (12hrs) Cones &Cylinders :

Intersection of a line and a quadric cone; Tangent lines and tangent plane at a point; Conditionthat a plane may touch a cone; Reciprocal cones; Intersection of two cones with a common vertex; Right circular cone; Equation of the right circular cone with a given vertex; axis and semi-vertical angle. Definition of a cylinder; Equation to the cylinder whose generators intersect a given conic and are parallel to a given line; Enveloping cylinder of a sphere; The right circular cylinder; Equation of the right circular cylinder with a given axis and radius.

Reference Books :

1.Analytical Solid Geometry by Shanti Narayan and P.K. Mittal, Published by S. Chand & Company Ltd. 7th Edition.

2. A text book of Mathematics for BA/B.ScVol 1, by V Krishna Murthy & Others, Published by S. Chand & Company, New Delhi.

3.A text Book of Analytical Geometry of Three Dimensions, by P.K. Jain and Khaleel Ahmed, Published by Wiley Eastern Ltd., 1999.

4.Co-ordinate Geometry of two and three dimensions by P. Balasubrahmanyam, K.Y. Subrahmanyam, G.R. Venkataraman published by Tata-MC Gran-Hill Publishers Company Ltd., New Delhi.

Suggested Activities:

Seminar/ Quiz/ Assignments/ Project on Application of Solid Geometry in Engineering.

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)

MATHEMATICS MAT-301 B.Sc.(E.M,T.M& CS) 2019-2020

SEMESTER-IIIPAPER-III Max.Marks:100

Hours per week: 6 **Abstract Algebra and Real Analysis-I** **No.of Credits:5**

UNIT – 1 : (10Hrs) GROUPS : -

Binary Operation – Algebraic structure – semi group-monoid – Group definition and elementaryproperties Finite and Infinite groups – examples – order of a group. Composition tables with examples.

UNIT – 2 : (10Hrs) SUBGROUPS : -

Complex Definition – Multiplication of two complexes Inverse of a complex-Subgroup definition– examples-criterion for a complex to be subgroups.Criterion for the product of two subgroups to be a subgroup-union and Intersection of subgroups.

Co-sets and Lagrange's Theorem: -Cosets Definition – properties of Cosets–Index of a subgroups of a finite groups–Lagrange'sTheorem.

UNIT –3 : (12Hrs) NORMAL SUBGROUPS : -

Definition of normal subgroup – proper and improper normal subgroup–Hamilton group – criterion for a subgroup to be a normal subgroup – intersection of two normal subgroups – Subgroup of index 2 is a normal sub group – simple group – quotient group – criteria for the existenceof a quotient group.

UNIT – 4 (14 hrs) : REAL NUMBERS :

The algebraic and order properties of R, Absolute value and Real line, Completeness property of R, Applications of supreme 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 – Cauchey's general principle of convergence theorem.

UNIT –5 (14 hrs) : INFINITIE SERIES :

Series: Introduction to series, convergence of series. Cauchey's general principle of convergence for series tests for convergence of series, Series of Non-Negative Terms.

1. P-test, 2. Cauchey's n^{th}root test or Root Test. 3.D'-Alemberts' Test or Ratio Test.
4. Alternating Series – Leibnitz Test. Absolute convergence and conditional convergence.

Reference Books:

1. Abstract Algebra, by J.B. Fraleigh, Published by Narosa Publishing house.
2. Real Analysis by Rabert&Bartely and .D.R. Sherbart, Published by John Wiley.
3.A text book of Mathematics for B.A. / B.Sc. by B.V.S.S. SARMA and others, Published byS.Chand& Company, New Delhi.
4.Modern Algebra by M.L. Khanna.

Suggested Activities:

Seminar/ Quiz/ Assignments/Group discussions.

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

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MATHEMATICS	**MAT-401**	**B.Sc (E.M,T.M, CCs & CS)**	**2019-2020**
SEMESTER-IV		**PAPER-IV**	**Max.Marks:100**
Hours/ Week: 6			**No.of Credits: 5**

Abstract Algebra and Real Analysis – II

UNIT – 1 : (14Hrs) HOMOMORPHISM : -

Definition of homomorphism – Image of homomorphism elementary properties of Homomorphism – Isomorphism – automorphism definitions and elementary properties– kernel of ahomomorphism – fundamental theorem on Homomorphism and applications.

UNIT – 2 : (12Hrs) PERMUTATIONS AND CYCLIC GROUPS : -

Definition of permutation – permutation multiplication – Inverse of a permutation – cyclic permutations – transposition – even and odd permutations – Cayley's theorem.

Cyclic Groups: -Definition of cyclic group – elementary properties – classification of cyclic groups.

UNIT – III (10 hrs) : LIMITS AND CONTINUITY :

Limits : Real valued Functions, Boundedness 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 hrs) : 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; Role's Theorem, Lagrange's Theorem, Cauchhy's Mean value Theorem

UNIT – V (12 hrs) : 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.

Reference Books :

1. Real Analysis by Rabert&Bartely and .D.R. Sherbart, Published by John Wiley.
2. A Text Book of B.Sc Mathematics by B.V.S.S. Sarma and others, Published by S. Chand & Company Pvt. Ltd., New Delhi.
3. Elements of Real Analysis as per UGC Syllabus by Shanthi Narayan and Dr. M.D. Raisingkania Published by S. Chand & Company Pvt. Ltd., New Delhi.
4. Modern Algebra by M.L. Khanna.

Suggested Activities:

Seminar/ Quiz/ Assignments/Group discussions.

A.G &S.G SIDDHARTHA DEGREE COLLEGE, VUYYURU-521165
(An Autonomous College in the jurisdiction of Krishna University, Machilipatnam)

MATHEMATICS MAT-501C 2019-20 III B.Sc.

SEMESTER-V PAPER-V Max.Marks:100
Hours/ Week: 5 No.of Credits: 5

RING THEORY & VECTOR CALCULUS

UNIT – 1 RINGS-I: - **(18 hrs)**

Definition of Ring and basic properties, Boolean Rings, divisors of zero and cancellation laws Rings, Integral Domains, Division Ring and Fields, The characteristic of a ring – The characteristic of an Integral Domain, The characteristic of a Field. Sub Rings, Ideals

UNIT – 2 RINGS-II: - **(18 hrs)**

Definition of Homomorphism – Homorphic Image – Elementary Properties of Homomorphism – Kernel of a Homomorphism – Fundamental theorem of Homomorphism Maximal Ideals – Prime Ideals.

UNIT –3 VECTOR DIFFERENTIATION: - **(18 hrs)**

Vector Differentiation, Ordinary derivatives of vectors, Differentiability, Gradient, divergence, Curl operators, Formulae Involving these operators.

UNIT – 4 VECTOR INTEGRATION: - **(18 hrs)**

Line Integral, Surface Integral and Volume integral with examples.

UNIT – 5 VECTOR INTEGRATION APPLICATIONS: - **(18 hrs)**

Theorems of Gauss and Stokes, Green's theorem in plane and applications of these theorems.

Reference Books:-

1. Abstract Algebra by J. Fralieh, Published by Narosa Publishing house.
2. Vector Calculus by SanthiNarayana, Published by S. Chand & Company Pvt. Ltd., New Delhi.
3. A text Book of B.Sc., Mathematics by B.V.S.S.Sarma and others, published by S. Chand & Company Pvt. Ltd., New Delhi.
4. Vector Calculus by R. Gupta, Published by Laxmi Publications.
5. Vector Calculus by P.C. Matthews, Published by Springer Verlagpublicattions.
6. Rings and Linear Algebra by Pundir&Pundir, Published by PragathiPrakashan.

Suggested Activities:

Seminar/ Quiz/ Assignments/ Project on Ring theory and its applications.

A.G & S.G SIDDHARTHA DEGREE COLLEGE: VUYYURU-521165

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

MATHEMATICS MAT-502C 2019-20 III B.Sc (MPC, MPCs)

SEMESTER-V **PAPER-VI**

Hours/ Week: 5 **No. of Credits: 5**

LINEAR ALGEBRA

UNIT – I Vector Spaces-I: **(12 hrs)**

Vector Spaces, General properties of vector spaces, n-dimensional Vectors, addition and scalar multiplication of Vectors, internal and external composition, Null space, Vector subspaces, Algebra of subspaces, Linear Sum of two subspaces, linear combination of Vectors, Linear span Linear independence and Linear dependence of Vectors.

UNIT –II Vector Spaces-II: **(12 hrs)**

Basis of Vector space, Finite dimensional Vector spaces, basis extension, co-ordinates, Dimension of a Vector space, Dimension of a subspace, Quotient space and Dimension of Quotient space.

UNIT –III Linear Transformations: **(12 hrs)**

Linear transformations, linear operators, Properties of L.T, sum and product of LTs, Algebra of Linear Operators, Range and null space of linear transformation, Rank and Nullity of linear transformations – Rank – Nullity Theorem.

UNIT –IV Matrix: **(12 hrs)**

Matrices, Elementary Properties of Matrices, Inverse Matrices, Rank of Matrix, Linear Equations, Characteristic Roots, Characteristic Values & Vectors of square Matrix, Cayley – Hamilton Theorem.

UNIT –V Inner product space: **(12 hrs)**

Inner product spaces, Euclidean and unitary spaces, Norm or length of a Vector, Schwartz inequality, Triangle in Inequality, Parallelogram law, Orthogonality, Orthonormal set, complete orthonormal set, Gram – Schmidt orthogonalisation process. Bessel's inequality and Parseval's Identity.

Reference Books:

1. Linear Algebra by J.N. Sharma and A.R. Vasista, published by Krishna Prakashan Mandir, Meerut- 250002.
2. Matrices by Shanti Narayana, published by S.Chand Publications.
3. Linear Algebra by Kenneth Hoffman and Ray Kunze, published by Pearson Education (low priced edition), New Delhi.
4. Linear Algebra by Stephen H. Friedberg et al published by Prentice Hall of India Pvt. Ltd. 4th Edition 2007.

Suggested Activities:

Seminar/ Quiz/ Assignments/ Project on "Applications of Linear algebra Through Computer Sciences"

A.G & S.G SIDDHARTHA DEGREE COLLEGE: VUYYURU-521165

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

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MATHEMATICS	**MAT-601GE**	**2019-20**	**III B.Sc**

SEMESTER-VI **PAPER-VII** **Max.Marks:100**

Hours/ Week: 5 **No.of Credits: 5**

ELECTIVE–VII-(B); NUMERICAL ANALYSIS

UNIT- I: **10 hours**

Errors in Numerical computations: Errors and their Accuracy, Mathematical Preliminaries, Errors and their Analysis, Absolute, Relative and Percentage Errors, A general error formula, Error in a series approximation.

UNIT – II: **12 hours**

Solution of Algebraic and Transcendental Equations: The bisection method, the iteration method, the method of false position, Newton Raphson method, Generalized Newton Raphson method.

UNIT – III: **12 hours**

Finite Differences and Interpolation: Errors in polynomial interpolation, Finite Differences, Forward differences, Backward differences, Symbolic relations, Detection of errors by use of Differences Tables, Differences of a polynomial, Newton's formulae for interpolation

UNIT – IV: **12 hours**

Central Differences: Central Differences, Central Difference Interpolation Formulae, Gauss's central difference formulae, Stirling's central difference formula, Bessel's Formula, Everett's Formula.

UNIT – V: **14 hours**

Interpolation – III:

Interpolation with unevenly spaced points, Lagrange's formula, Error in Lagrange's formula, Divided differences and their properties, Relation between divided differences and forward differences, Relation between divided differences and backward differences Relation between divided differences and central differences, Newton's general interpolation Formula, Inverse interpolation.

Reference Books:

1. Numerical Analysis by S.S.Sastry, published by Prentice Hall of India Pvt. Ltd., New Delhi. (Latest Edition)
2. Numerical Analysis by G. SankarRao published by New Age International Publishers, New –
Hyderabad.
3. Finite Differences and Numerical Analysis by H.C Saxena published by S. Chand and Company, Pvt. Ltd., New Delhi.
4. Numerical methods for scientific and engineering computation by M.K.Jain, S.R.K.Iyengar, R.K. Jain.

Suggested Activities:

Seminar/ Quiz/ Assignments.

A.G & S.G SIDDHARTHA DEGREE COLLEGE: VUYYURU-521165

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MATHEMATICS	**MAT-602CE**	**2019-20**	**III B.Sc**

SEMESTER-VI **PAPER-VIII** **Max.Marks:100**

Hours/ Week: 5 **No.of Credits: 5**

Cluster Elective- VIII-A-1: INTEGRAL TRANSFORMS

UNIT–1:Application of Laplace Transform to solutions of Differential Equations **12 hrs**

Solutions of ordinary Differential Equations. Solutions of Differential Equations with constants co-efficient Solutions of Differential Equations with Variable co-efficient

UNIT – 2:Application of Laplace Transform : - **12 hrs**

Solution of simultaneous ordinary Differential Equations.Solutions of partial Differential Equations.

UNIT – 3:Application of Laplace Transforms to Integral Equations : - **12 hrs**

Integral Equations-Abel's, Integral Equation-Integral Equation of Convolution Type, Integro Differential Equations. Application of L.T. to Integral Equations.

UNIT –4: Fourier Transforms-I : - **12 hrs**

Definition of Fourier Transform – Fourier'sine Transform – Fourier cosine Transform – Linear Property of Fourier Transform – Change of Scale Property for Fourier Transform – sine Transform and cosine transform shifting property – modulation theorem.

UNIT – 5: Fourier Transform-II : - **12 hrs**

Convolution Definition – Convolution Theorem for Fourier transform – parseval'sIndentify Relationship between Fourier and Laplace transforms – problems related to Integral Equations.

Finte Fourier Transforms : -

Finte Fourier Sine Transform – Finte Fourier Cosine Transform – Inversion formula for sine and cosine Transforms only statement and related problems.

Reference Books :-

1. Integral Transforms by A.R. Vasistha and Dr. R.K. Gupta Published by Krishna Prakashan Media Pvt. Ltd. Meerut.
2. A Course of Mathematical Analysis by ShanthiNarayana and P.K. Mittal, Published by S. Chand and Company pvt. Ltd., New Delhi.
3. Fourier Series and Integral Transforms by Dr. S. Sreenadh Published by S.Chand and Company Pvt. Ltd., New Delhi.
4. Lapalce and Fourier Transforms by Dr. J.K. Goyal and K.P. Gupta, Published by Pragathi Prakashan, Meerut.
5. Integral Transforms by M.D. Raising hania, - H.C. Saxsena and H.K. Dass Published by S.Chand and Company pvt. Ltd., New Delhi.

Suggested Activities:

Seminar/ Quiz/ Assignments

A.G & S.G SIDDHARTHA DEGREE COLLEGE: VUYYURU-521165

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MATHEMATICS	**MAT-603CE**	**2019-20**	**III B.Sc**
SEMESTER-VI	**PAPER-VIII**		**Max.Marks:100**
Hours/ Week: 5		**No.of Credits: 5**	

ELECTIVE – VIII-A-2: ADVANCED NUMERICAL ANALYSIS

Unit – I Curve Fitting: **10 Hours**

Least – Squares curve fitting procedures, fitting a straight line, Polynomial fitting, Curve fitting by a power functions and exponential function.

UNIT- II Numerical Differentiation: **12 hours**

Derivatives using Newton's forward difference formula, Newton's backward difference formula, Derivatives using central difference formula, stirling's interpolation formula, Newton's divided difference formula, Maximum and minimum values of a tabulated function.

UNIT- III Numerical Integration: **12 hours**

General quadrature formula, Trapezoidal rule, Simpson's 1/3 – rule, Simpson's 3/8 – rule, Boole's rule and Weddle's rules (only problems),

UNIT – IV Solutions of simultaneous Linear Systems of Equations: **14 hours**

Solution of linear systems – Direct methods, Matrix inversion method, Gaussian elimination methods, Gauss-Jordan Method , Method of factorization. Iterative methods – Jacobi's method, Gauss-siedal method.

UNIT – V Numerical solution of ordinary differential equations: **12 Hours**

Introduction, Solution by Taylor's Series, Picard's method of successive approximations, Euler's method, Modified Euler's method, Runge – Kutta methods.

Reference Books :

1. Numerical Analysis by S.S.Sastry, published by Prentice Hall India (Latest Edition).
2. Numerical Analysis by G. SankarRao, published by New Age International Publishers, Hyderabad.
3. Finite Differences and Numerical Analysis by H.C Saxena published by S. Chand and Company, Pvt. Ltd., New Delhi.
4. Numerical methods for scientific and engineering computation by M.K.Jain, S.R.K.Iyengar, R.K. Jain.

Suggested Activities:

Seminar/ Quiz/ Assignments

A.G & S.G SIDDHARTHA DEGREE COLLEGE: VUYYURU-521165

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MATHEMATICS	**MAT-604CE**	**2019-20**	**III B.Sc**
SEMESTER-VI	**PAPER-VIII**		**Max.Marks:100**
Hours/ Week: 5			**No.of Credits: 5**

ELECTIVE – VIII-A-3: Project

Applications of advanced Numerical Analysis with 'C' Programme

Adusumilli Gopalakrishnaiah & Sugar Cane Growers Siddhartha Degree College ofArts & Science, Vuyyuru– 521165, Krishna District, Andhra Pradesh

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

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DEPARTMENT OF POLITICAL SCIENCE

2019-2020

HIGHLIGHTED SYLLABUS OF POLITICAL SCIENCE

Courses on Employability, Entrepreneurship and Skill-Development in the curriculum of all programs are highlighted as mentioned: Employability in yellow Color, Skill-Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

DEPARTMENT OF POLITICAL SCIENCE

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

(AUTONOMOUS), VUYYURU – 521 165

I B.A - 1st Semester

(2019-2020)

Paper I-Basic concepts of political science

Work load: 90hrs per semester **5 hrs/week**

Work load: 90hrs per semester **5 hrs/week**

UNIT I (15 hours)

1. Introduction of Political science:

Significance of political science,Meaning,Definition,Scope of Political Science

UNIT II : (20hours)

2. State

Nation,Nationality,Nationalism,Theories of Origin of the State Theories-Devine Rights,the Social Contract Theory of Hobbs,Lock, and Rouessau,the Historical Evolutionary Theory

UNIT III (15 hours)

3. Sovereignty

Meaning.Definitions,Charecters,Kinds of Sovereignty Austrian Theory of Sovereignty,The Theory of Puralists

UNIT IV (20 hours)

4.Law-Liberty-Equality Meaning,Definition,Feautures,Kinds of Law Sources of Law,Meaning,Definition,Importance,Kinds of Liberty,Meaning,Definition,Importance,Kinds of Equality

UNIT V (20hours)

5.Rights and Duties

Meaning,Definition and Feautures of Rights ,Classification of Rights,Women Rights,Safe Guards of Women Rights Duties of Citizens

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS), VUYYURU – 521 165
I B.A 2nd Semester
(2019-2020)

Paper II: CONCEPTS THEORIES AND INSTITUTIONS

Work load:90 hrs per semester **5 hrs/week**

UNIT- I (15 hours)

1.Democracy

Kinds of Democracy, Success of Democracy,Meaning,Definition,Merits and Demerits of Democracy

UNIT- II _(20 hours)

2. Ideology

1)Individualism,Anarchism,Fascisim,Marxism and Ghandhism
2)Theory of Seperation of Powers Montesque

UNIT- III (20 hours)

Constitutionalism

Legislation,unicameralism and Bicameralism Powers and Functions of Legislature-Role of the Opposition Party in the Legislature,Comitte System,Law Making Process,Importance of Legislature

UNIT –IV (20 hrs)

4. Executive

1)Meaning,Importance,Types,Functions of Executive Feautures Merits and Demerits of Parliamentary and Presidential Executives 2)JudiciaryMeaning,Definition,Importance,Structure,Powers and Functions of Judiciary

UNIT- V (15 hrs)

5.Poular control

Human Rights Welfare State Methods of popular control Feautures of Welfare State,Reasons,Growth,Importance of the Welfare State,Functions of Welfare State

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II B.A. 3rd Semester

(2019-2020)

Paper III: Indian Constitution

Work load:90 hrs per semester **5 hrs/week**

UNIT- I .. (15 hrs)

1.Introduction of the Indian Constitution

1)Constitutional Assembly of India and it's Composition
2)Sources of Indian Constitution
3)Sailent Feautures of Indian Constitutions

UNIT –II .. (`20 hrs)

2. Philosophy of Indian Constitution
1)Preamble
2)Fundamentsl Rights
3)Directive Principles of State Policy
4)Fundamental Duties

UNIT- III .. (20 hrs)

3. Union Government

1)Union Executive President Election,Impeachment,Powers,Prime Minister And Functions
2)Indian Parliament-Rajya Sabha,Vice President,Lok Sabha,Speaker
3)Parliamentary Comimittees-Public Account,Estimate,Public Sector Undertaking Committees

UNIT- IV ..(15 hrs)

4.Fedaralism in India

1)Unitar and Federal Features in Indian Constituion
2)Legislative,Administrative and aFinancial Relations-Central and State
3) Central State Relations Sarkaria Commission

UNIT- V .. (20 hrs)

5.Judiciary

1)Supreme Court of India-Composition-Powers and Funtions
2)Public Interest,Litigation,Judicial Review,Judicial Activitism

A.G. & S.G.SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE (AUTONOMOUS), VUYYURU – 521 165

II B.A 4th Semester

(2019-2020)

Paper IV: Indian Political Process

Work load:90 hrs per semester **5 hrs/week**

UNIT- I .. (20 hours)

1.Introduction to Indian Party System

1)Definition and Role of Political Parties
2)Characteristics of Indian Party System
3)Classification of Indian Political Parties

UNIT- II ..(15 hours)

2.Elections in India

1)Election Commission-Structure,Powers and Functions
2)Electoral Reforms
3)A Critical Study of Recent Lok Sabha and Legistlative Assembly Elections in A.P

UNIT- III ..(20 hours)

3. Political Parties in India

1)Indian National Congress-Organisation,Policies and Programmes
2)B.J.P-Organisation,policiesamd Programmes-it's Role in National Politics
3)Communist Parties-C.P.I and C.P.I (M)-Policies and Programmes Causes for 1964
4)D.M.K,A.I.D.M.K,Telugu Desam Party,T.R.S,Akali Dal

UNIT- IV ..(20 hours)

4.Voting behavior

1)Voting Behaviour and it's Determinants
2)Caste in Politics
3)Class in Politics
4)Gender in Politics
5)Religion in Politics

UNIT- V ..(15 hours)

5. Trends in Political System

1)Coalition Politics in India-Causes and Limitation
2)National Integration-=Meaning,Importance,Threats
3)Social Movments-Women and Environmental Movements

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III B.A. 5th Semester

(2019-2020)

Paper V: Indian Political Thought

Work load : 90 hrs per semester **5 hrs/week**

Course Code : POL 501C

Unit – I (15hours)

1.Traditions of Ancient Indian Political Thought

1)Sources and Feautures of Ancient Indian Political Thought
2)Manu-Social Laws
2)Kautilya—Theory of State

Unit – II (15hours)

2. Renaissance Thought

1)Rammohun Roy-Religious and Social Reforms
2)PanditaRamabai-Gender

Unit-III(20hours)

3.Early Nationalism

1)Dadabai Naoroji-Drain Theory and Poverty
2)Ranad,M.G-The Role of the State and Religious Reform

Unit-IV (20hours)

4. Religious Nationalism

1)Savaskar V.D-Hindutva or Hindu Culture Nationalism
2)Mohammed Iqbal-Islamic Communitarian Nationalism

Unit-V(20hours)

5.Democratic Egalitarianism

1)Gandhi-Swaraj and Satyagraha
2)Jawahalal Nehru-Democratic Socialism
3)D.R B.R Ambedkar-Annhhilation of Caste System
4)M.N Roy-Radical Humanism

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III B.A– V Semester

(2019 –2020)

Paper-V-Western Political Thought

Course Code : POL 502C **Work Load : 90 hrs per sem**
5 hrs/week

Unit – I (20 hours)
1.Classical Western Political Thought
1)Plato-Theories of Forms,Critique of Democracy,Justice
2)Aristotle-Citizenship,Satte,Justice,Virtue

UNIT – II (15 hours)
2. Early Medieval to the Beginning of Modern Thought
1)Saint Augustine-Earthly City and Heavenly City,Evil,Free Will,Moral Action
2)Machiavelli-Statecraft,Virtue,Fortuna

UNIT – III (20 hours)
3.Liberal Thought
1)Thomas Hobbs-Human Nature,Social Contract,Liberty,State
2)Jhon Lock-Natural Rights,Consent,Social Contract,State
3)Rousseau-Social Instituions and Moral Man Equality,liberty and General will

UNIT – IV (20 **hrs)**
4. Liberal Democratic Thought
1)Jeremy Bendham-Utilitarianism
2)J.S Mill-Individual Liberty,Representative Government

UNIT – V (15 hours)
5.Philosophical Idealism and it's Critique
1)Hegel-Individual Freedom,Civil Society,State
2)Karl Marx-Alienation,Surplus Value,Materialistic Conception of History,State

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III B.A– VI Semester – Paper –VI

(2019 – 2020)

General Elective **Course Code: POL – 601GE**

SEMISTER-VI **5 hrs/week**

GENERAL ELECTIVE PAPER –LOCAL SELF –GOVERNMENT IN ANDHRA PRADESH

UNIT- I (20 hours) **Total Lectures: 90 hours**

1.Evolution of Local Self Government in India

1)Constitution of Provisions on Local Self Government

2)Recommendations of Balwanth Roy Mehta and Ashok Mehta Committees on Local Self Government

UNIT- II (15hours)

2.Importance of Constitutional Amendments

1)73rd Amendment-Rural Local Bodies;Basic feautures

2)74th Amendment-Urban Local Bodies;Basic Feautures

UNIT-III

3.Structure and Functions of Panchayat Raj in Andhra Pradesh

1)Gram Panchayati

2)Mandal Parishad

3)Zilla Parishad

UNIT- IV (20hours)

4. Structure and Functions of Urban Local Bodies in Andhra Pradesh

1)Nagarapanchayats

2)Municipalities

3)Municipal Corporations

UNIT- V (15hours)

1.Role of the Leadership and Emerging Challenges

1)Emerging Pattrens of Leadership

2)Problems of Autonomy:Financial and Administrative Spheres

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III B.A – VI Semester – Paper –VI

(2019–2020)

SEMISTER-VI Course Code: POL -602CE Total Lectures:90 hrs
5 hrs/week

CLUSTER ELECTIVES
INTERNATIONAL RELATIONS
PAPER UNIT- I (15 hours)

UNIT-I (15 hours)

1.Basic Concepts of International Relations

1)Meaning,Nature and Scope of International Relations

2) (a).Balance of Power (b).National Interest (c).Collective Security (d).Diplomacy

UNIT-II: (20hours)

2.Approaches to the Study of International Relations

1)Idealism-Woodrow Wilson

2)Classical Realism-Hans Morgenthau

3)Neo-Realism-Kenneth Waltz

UNIT-III (20hours)

3.Phases of International Relations (1914-1945)

1)Causes for the first World War

2)Causes for he Second World War

UNIT-IV: (20hours)

4.Phases of International Relations (1945 Onwards)

1)Origins of First Cold War

2)Rise and Fall of Detente

3)Origins and the End of Second Cold War

UNIT-V: (15hours)

5.International Organizations

1)The Role of U.N.O in the Protection of International Peace

2)Problems of the 3rd World:Struggle for New International Economic Order

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III B.A 6th Semester
(2019-2020)

(COURSE CODE : POL-603 CE **Paper VIII**

(Cluster)

Cluster Elective Paper – VIII- C-2 : Indian Foreign Policy

No. of Hours per week : 06 **Total Lectures : 90**

UNIT – I (25 hours)

1.Evolution of Indian Foreign Policy

1)Determinants of Indian Foreign of Policy

2)Continuity and Change in Indian Foreign Policy

UNIT –II (20 hours)

2. Non Alignment and U.N.O

1)The Role of India in Non-Alignment Movement

2)Relevance of Non-Alignment Movement in the Contemporary World

UNIT – III (25 hours)

1. India's Relations With USA and China

1)Indo-U.S Relations:Pre-Cold War Era,Post-Cold War Era

2)India-China Relations:Pre-Cold War Era,Post-Cold War Era

UNIT – IV (20 hours)

1. India and It's Neighbours

1)Indo-Pakistan Relations

2)India's Rule in South Asian Association of Regions Cooperations (SAARC)

Adusumilli Gopalakrishnaiah & Sugar Cane Growers Siddhartha Degree College of Arts & Science, Vuyyuru– 521165, Krishna District, Andhra Pradesh

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DEPARTMENT OF PHYSICS

2019-2020

HIGHLIGHTED SYLLABUS OF PHYSICS

Courses on Employability, Entrepreneurship and Skill-Development in the curriculum of all programs are highlighted as mentioned: Employability in yellow Color, Skill-Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

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II B.Sc. 2 nd Semester

(2019-2020)

Title of the Paper: **Waves &Oscillations** **SEMESTER-II**

Course Code: **PHY-201C**

UNIT- I

1. **Simple Harmonic oscillations** : 12 hrs

Simple harmonic oscillator and solution of the differential equation-Physical characteristics of SHM, torsion pendulum-measurements of rigidity modulus,compound pendulum-measurement of 'g', combination of twomutually perpendicular simple harmonic vibrations of same frequency and different frequencies. Lissajous figures.

UNIT- II

2. **Damped and forced oscillations** :12 hrs

Damped harmonic oscillator, solution of the differential equation of dampedoscillator. Energy considerations, comparison with un-damped harmonicoscillator, logarithmic decrement, relaxation time, quality factor, differentialequation of forced oscillator and its solution, amplitude resonance and velocity resonance.

UNIT- III

3. **Complex vibrations** : 10 hrs

Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functions-square wave, triangular wave, saw tooth wave

UNIT -IV

4. Vibrating strings :8 hrs

Transverse wave propagation along a stretched string, general solution ofwave equation and its significance, modes of vibration of stretched stringclamped at ends, overtones, energy transport and transverse impedance.

5. Vibrations of bars :9 hrs

Longitudinal vibrations in bars-wave equation and its general solution. Special cases i) bar fixed at both ends ii) bar fixed at the mid point iii) bar free at both ends iv) bar fixed at one end. Tuning fork.

UNIT- V

6. **Ultrasonics** :9 hrs

Ultrasonics, properties of ultrasonic waves, production of ultrasonics by piezoelectric and magnetostriction methods, detection of ultrasonics, determination of wavelength of ultrasonic waves. Applications of ultrasonics

Practical Paper 2: Waves & Oscillations

Exam duration : 3Hours credits - 2 Maximum marks : 50 m

Work load: 30 hrs per semester 2 Hours per week

Minimum of 6 experiments to be done and recorded.

1. Determination of 'g' by compound/bar pendulum
2. Simple pendulum normal distribution of errors-estimation of time periodand the error of the mean by statistical analysis
3. Determination of the force constant by static and dynamic method andevaluation of 'g'.
4. Determination of the elastic constants of the material of a flat spiral spring.
5. Determination of moment of inertia of a cylindrical rod -bifilar suspension
6. Coupled oscillators
7. Verification of laws of vibrations of stretched string –sonometer
8. Determination of velocity of transverse wave along a stretched string-sonometer
9. Determination of frequency of a bar –Melde's experiment.
10. Study of a damped oscillation using the torsional pendulum immersed inliquid-decay constant and damping correction of the amplitude.
11. Searls viscometer
12. Lissajous figures-CRO

II B.Sc. 4 th Semester

(2019-2020)

Paper IV: Thermodynamics & Radiation Physics IV SEMESTER

UNIT- I .. (11 hrs)

1.**Kinetic theory of gases**

Introduction –Deduction of Maxwell's law of distribution of molecular speeds, Transport phenomena-Viscosity of gases-thermal conductivity-diffusion of gases.

UNIT- II ..(14 hrs)

2. **Thermodynamics**

Introduction- Isothermal and adiabatic process- Reversible and irreversible processes-Carnot's engine and its efficiency-Carnot's theorem-Second law of thermodynamics.Kelvin's and Claussius statements-Entropy, physical significance – Change in entropy inreversible and irreversible processes-Entropy and disorder-Entropy of Universe-Temperature-Entropy (T-S) diagram-Change of entropy of a perfect gas- change ofentropy when ice changes into steam.

UNIT- III ..(11 hrs)

3. **Thermodynamic potentials and Maxwell's equations**

Thermodynamic potentials-Derivation of Maxwell's thermodynamic relations-Clausius-Clayperon's equation-Derivation for ratio of specific heats-Derivation for difference oftwo specific heats for perfect gas. Joule Kelvin effect-expression for Joule Kelvincoefficient for perfect.

UNIT- IV ..(10 hrs)

4. **Low temperature Physics**

Introduction-Joule Kelvin effect-liquefaction of gas using porous plug experiment Jouleexpansion-Distinction between adiabatic and Joule Thomson expansion-Expression forJoule Thomson cooling-Liquefaction of helium, Kapitza's method-Adiabaticdemagnetization, Production of low temperatures -applications of substances at low-temperature-effects of chloro and fluoro carbons on ozone layer.

UNIT- V ..(14 hrs)

5. Quantum theory of radiation

Blackbody-Ferry's black body-distribution of energy in the spectrum of black body-Wein's displacement law, Wein's law, Rayleigh-Jean's law-Quantum theory ofradiation-Planck's law-Measurement of radiation-Types of pyrometers – Angstrompyroheliometer-determination of solar constant, Temperature of Sun.

Practical Paper IV: Thermodynamics

1. Specific heat of a liquid –Joule's calorimeter –Barton's radiationcorrection
2. Thermal conductivity of bad conductor-Lee's method
3. Thermal conductivity of rubber.
4. Measurement of Stefan's constant.
5. Specific heat of a liquid by applying Newton's law of cooling correction.
6. Heating efficiency of electrical kettle with varying voltages.
7. Mechanical equivalent of heat
8. Thermo emf - thermo couple potentiometer
9. Coefficient of thermal conductivity of copper- Searle's apparatus.
10. Thermal behavior of an electric bulb (filament/torch light bulb)
11. Measurement of Stefan's constant- emissive method
12. Temperature variation of resistance- thermistor.

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III B.Sc. Physics – VI Semester – Paper –VII

(2019 – 20)

Elective VII (A):(Electronics) Course Code: PHY – 601G

SEMISTER-VI credits - 3 4 hrs/week

ELECTIVE PAPER –VII-A: ANALOG AND DIGITAL ELECTRONICS

UNIT- I (14 hours)

1. FET Construction ,Working ,Characteristics and uses; MOSEFT-enhancementMOSEFT,Depletion MOSEFT, Construction and Working, drain Characteristics ofMOSEFT, applications of MOSEFT.

2. Photo electric devices: structure and operation, Characteristics and applications of LED and LCD

UNIT- II (10hours)

3. Operational amplifier: Characteristics of ideal and practical OP-amp (IC-741),Basicdifferential OP-amp supply voltage, IC identification, internal blocks of OP-amp, itsparameter off set voltages and currents, CMRR, slew rate, Concept of Virtual ground.

UNIT- III (10hours)

4. Applications of OP-amp: OP-amp as voltage amplifier, inverting amplifier, Non-invertingamplifier, Voltage follower, summing amplifier, difference amplifier, comparator, Integrator,Differentiator.

UNIT- IV (14hours)

5. Data processing circuits: Multiplexers, De –Multiplexers, encoders, decoders,Characteristics

6.For Digital IC’s –RTL, DTL,TTL, ECL CMOS (NAND&NOR Gates).

UNIT- V (12hours)

7. Sequential digital circuits: Flip-flops, RS, clocked SR, JK, D, T, Master-Slave Flip-flops .Counters: Asynchronous counters-modulo 4counter-modulo 16 ripple counter, Decadecounter, Synchronous counter.

ELECTIVE PAPER –VII PRACTICAL: ANALOG AND DIGITALELECTRONICS

credits – 2 2 Hours per week

Minimum of 6 experiments to be done and recorded

1. Characteristics of FET
2. Characteristics of MOSEFT
3. Characteristics of LDR
4. Characteristics of OP-amp.(IC-741)
5. OP-amp as amplifier/inverting amplifier
6. OP-amp as integrator/differentiator
7. OP-amp as summing amplifier /difference amplifier
8. Master-Slave Flip-flop
9. JK Flip-flop

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(AUTONOMOUS) , VUYYURU – 521 165

III B.Sc. Physics – VI Semester – Paper –VIII

(2019 – 20)

SEMISTER-VI **Course Code: PHY -602 CE** **credits - 3**

CLUSTER ELECTIVES - VIII-A **4 hrs/week**

INTRODUCTION TO MICROPROCESSOR AND MICROCONTROLLER

UNIT- I (10hours)

MICROPROCESSOR:

General architecture of microprocessor, architecture of 8085 microprocessor,

8085 pin diagram, Concept of data bus, address bus, and control bus, 8085

programming instruction classification.

UNIT-II: (10hours)

8085 Assembly ProgrammingAssembler-types, assembler directives, structure of assembly program,assembly language development tools.Programs - addition, subtraction, multiplication and division.

UNIT-III (15hours)

8051 Architecture:Types of microcontrollers- microcontroller architecture, CISC, RISC, operationof microcontroller, basic building blocks of microcontroller, comparison ofmicrocontroller and microprocessor- block diagram of 8051-I/o pins and ports.

UNIT-IV: (13hours)

Application of Microcontroller:Square wave generation, rectangular wave generator, sine wave generator,frequency counter, temperature control, stepper motor control.

UNIT-V: (12hours)

Interfacing:Interfacing of keyboard, 7-Segment display, stepper motor and ADC (0844)Interfacing & DAC(0808/MC 1408) Interfacing.

PAPER-VIII-A-1: Practical:

INTRODUCTION TO MICROPROCESSOR AND MICROCONTROLLER

credits – 2 2 Hours per week

Minimum of 6 experiments to be done and recorded

1. To find that the given number is prime or not.
2. To find the factorial of a number.
3. Write a program to make the two numbers equal by increasing the smallest number and decreasing the largest number.
4. Use one of the four parts of 8051 for O/P interfaced to eight LED's simulate binary counter (8 bit) on LED's.
5. Program to glow first four LED then next four using TIMER application.
6. Program to rotate the contents of the accumulator first right and then left.
7. Program to run a count down from 9-0 in the 7 segment LED display.
8. To interface 7 segment LED display with 8051 Microcontroller and display 'HELP' in the 7 segment LED display.
9. To toggle '1234' as '1324' in the 7 segment LED.
10. Interface stepper motor with 8051 and write a Program to move the motor through a given angle in clock wise or counter clock wise direction.
11. Application of Embedded system: Temperature measurement, some information on LCD display, interfacing a key board.

COURSE CODE : PHY-603 CE (2019 – 20) credits - 3

Cluster Elective Paper – VIII- A-2 : Computational Methods and Programming

4 hrs/week **SEMISTER-VI** **credits – 3**

UNIT – I (12 hrs)

1. Fundamentals of C language : C character set – Identifiers and keywords – structureof c program. constants- variables- Data types- Declarations of variables –Declaration of storage class – Defining symbolic constants – Assignment statement.

2. Operators : Arithmetic operators- Relational operators – Logic operators –Assignment operators – Increment and decrement operators – Conditional operators**.**

UNIT –II (12 hrs)

3. Expressions and I/O statements : Arithmetic expressions – precedence of arithmeticoperators – Type converters in expressions – Mathematical (Library) functions –Data input and output – The getchar and putchar functions – Scanf – Printf simpleprograms.

4. Control statements : IF – ELSE statements – Switch statements – The operators – GO TO- while, DO-While, FOR statements – BREAK and CONTINUE statements.

UNIT – III (12 hrs)

5. Arrays : One dimensional and two dimensional arrays – Initialization –Type declaration – Inputing and outputting of data for arrays – Programs of matrices addition, subtraction and multiplication.

6. **User defined functions** : The form of C functions – Return values and their types –Calling a function – Category of functions. Nesting of functios. Recursion. ANSI Cfunctions – Function declaration . scope and life of variables in functions**.**

UNIT – IV (12 hrs) (Algarithms and flow charts only)

7. Linear and Non-Linear equations : Solution of Algebra and transcendental equations –Bisection, Falsi position and Newton – Rhapson methods – Basic principles –Formulae – algorithms.

8. Simultaneous equations : Solutions of simultaneous linear equations – Guasselimination and Gauss seidel iterative methods – Basic principles – Formulae-Algorithms.

UNIT – V (12 hrs) (Algarithms and flow charts only)
9. Interpolations : Concept pf linear interpolation – Finite differences –
Newton's and Lagrange's interpolation formulae – principles and Algorithms.
10. Numerical differentiation and integration : Numerical differentiation – algorithm for evaluation of first order derivatives using formulae based on Taylor's
series – Numerical integration – Trapezodal and Simpson's 1/3 rule – Algorithms.

Cluster Elective Paper – VIII-A-2 : Practical

Computational Methods and Programming

2 hrs/ week credits - 2

Minimum of 6 experiments to be done and recorded

1) Write a program that reads an alphabet from keyboard and display in the reverse order.
2) Write a program to read and display multiplication of tablets.
3) Write a program for converting centigrade to Fahrenhit temperature and Fahrenheit temperature centigrade.
4) Write a program to find the largest element in an array.
5) Write a program based on percentage calculation , the grade by entering the subject marks . (If percentage > 60, I class, if percentage between 50 &60 II class, if percentage between 35 & 50 III class, if percentage below 35 fail)
6) Write a program for generation of even and odd numbers up to 100 using while, do – while and for loop.
7) Write a program to solve the quadratic equation using Bisection method.
8) Write a program for integration of function using Trapezoidal rule.
9) Write a program for solving the differential equation using Simpson's 1/3 rule.

III B.Sc. 6th Semester
(2019-20)

COURSE CODE : PHY-604 CE

Cluster Elective Paper – **VIII-A-3**: **Electronic Instrumentation**

No.of Hours per week: 04 Total Lectures: 60

UNIT -1 (12 Hours)

1. Basic of measurements: Instruments accuracy, precision, sensitivity- errors in measurements- Basic meter movement-PMMC (Permanent Magnetic Moving Coil).
2 . Measurement of dc current: DC ammeter- multi range ammeters-the ARYTON Shunt or universal Shunt.
3. Measurement of dc voltage: DC Voltmeter – Multi Range Voltmeter- Voltmeter sensitivity.

UNIT – II (10 HOURS)

4 .Analog Multimeter**:** Multimeter - as dc ammeter-as dc voltmeter-as ac voltmeter- as ohm meter-Multimeter operating instructions.

5.Digital instruments: Principle and working of digital instruments, characteristics of a digital meter, working principle of digital voltmeter.

UNIT –III (14 HOURS)

6. CRO: Block diagram of basic CRO, construction of CRT, electron gun, electrostatic focusing and acceleration (only explanation), time base operation, synchronization, front panel controls, specifications of CRO and their significance.
7. Applications CRO: Measurement of voltage- dc and ac, frequency, time period. Special features of dual trace CRO. Digital storage oscilloscope: block diagram and principle of working.

UNIT – IV (12 HOURS)

8. Diode as Rectifier – Half wave rectifier, Full wave rectifier – construction, working and efficiency, ripple factor, Filter circuits.
9. Feedback in Electronic circuits – Positive and Negative feedback, expressions for gains, advantages of negative feedback, Oscillators, Barkhausen criteria, RC phase shift oscillator (no derivation)

UNIT – V (12 HOURS).

10.Signal Generators: Block diagram, working and specifications of low frequency signal generators, pulse generator, function generator – wave analysis: Definition of wave analyzer- Types of Wave Analyzers- Basic Wave analyzer.
11. Bridges: Measurement of resistance by Wheat stone's Bridge- Sensitivity of Wheat stone's Bridge- Applications of Wheat stone's Bridge-Limitations of Wheat stone's Bridge.

Cluster Elective Paper – VIII-A-3-Practical :

Electronic Instrumentation 2hrs/Week.

Minimum of 6 experiments to be done and recorded.

1. Construction of Half wave rectifier and calculation of ripple factor with C filter.
2. Construction of Full wave rectifier and calculation of ripple factor with C and pi filters.
3. Study the limitations of a multimeter for measuring high frequency voltage and currents.
4. Measurement of voltage , frequency, time period and phase angle using CRO.
5. Calculate Power factor of an inductive circuit.
6. Measurement of rise, fall and delay times using a CRO.
7. Measurement of distortion of a RF signal generator using distortion factor meter. Measurement of R with Wheat stone bridge

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I B.Sc. 1st Semester

(2019-2020)

Physics Paper I: Mechanics & Properties of Matter

Work load: 60Hrs per semester **4 hrs/week**

UNIT I (14 hrs)

1. **Vector Analysis :** Scalar and vector fields, gradient of a scalar field and its physical significance. Divergence and curl of a vector field with derivations and physical interpretation. Vector integration (line, surface and volume), State and proof of Gauss Divergence and Stokes theorem.

UNIT II : (10hrs)

2. Mechanics of particles:

Laws of motion, motion of variable mass system, motion of a rocket. Conservation of energy and momentum. Collisions in two dimensions and three dimensions. Concept of impact parameter, scattering cross-section.

UNIT III (16 hrs)

3. Mechanics of Rigid bodies : 10 hrs

Definition of rigid body, rotational kinematic relations, equation of motion for a rotating body, angular momentum. Euler equation,applications, precession of a top.Gyroscope, precession of the equinoxes.

4. Mechanics of continuous media : 6hrs

Elastic constants of isotropic solids and their relation, Poisson's ratio and expression for Poisson's ratio in terms of y, n, k. Classification of beams, types of bending, point load, distributed load, shearing force and bending moment, sign conventions.

UNIT IV (10Hrs)

5. Central forces :

Central forces, definition and examples, conservative nature of central forces, conservative force as a negative gradient of potential energy, equation of motion under a central force.Statement and Derivation of Kepler's laws. Motion of satellites.

UNIT V (10 hrs)

6. Special theory of relativity :

Galilean relativity, absolute frames. Michelson-Morley experiment, negative result. Postulates of special theory of relativity. Lorentz transformation, time dilation, length contraction, addition of velocities, mass-energy relation.

Practical paper 1: Mechanics

Exam duration : 3Hours Maximum marks : 50 marks

Work load: 30 hrs per semester

Minimum of 6 experiments to be done and recorded

1. Volume resonator
2. Viscosity of liquid by the flow method (Poiseuille's method)
3. Young's modulus material a rod by uniform bending
4. Young's modulus material a rod by non- uniform bending
5. Surface tension of a liquid by the method of drops
6. Surface tension of a liquid by capillary rise method
7. Determination of radius of capillary tube by Hg thread method **8.**Viscosity of liquid by logarithmic decrement method

8 . Bifilar suspension –moment of inertia.

9. Rigidity modulus of material of a wire-dynamic method (torsional pendulum)

10.Fly-wheel

11.Determination of Y of bar –cantilever.

Paper III: Wave Optics

Semester-III
Course Code:

UNIT- I .. (7 hrs)

1. Aberrations:

Introduction – monochromatic aberrations, spherical aberration, methods of minimizing spherical aberration, coma, astigmatism and curvature of field, distortion. Chromatic aberration-the achromatic doublet. Achromatism for two lenses (i)in contact and (ii) separated by a distance.

UNIT –II .. (9 hrs)

2. Interference : Division of wavefront:

Principle of superposition-coherence-conditions for interference of light..Fresnel's biprism-determination of wavelength of light. Determination of thickness of a transparent material using biprism –Determination of the thickness of a thin sheet of transparent material. Change of phase on reflection – Stoke's Law.

UNIT –III .. (10 hrs)

3. Division of Amplitude:

Oblique incidence of a plane wave on a thin film due to reflected and transmitted light (cosine law) – colors of thin films-Non reflecting films-interference by a plane parallel film illuminated by a point source- Interference by a film with two non-parallel reflecting surfaces (Wedge shaped film). Determination of diameter of wire- Newton's rings in reflected light- Determination of wavelength of monochromatic light. Michelson interferometer- Determination of wavelength of monochromatic light.

UNIT- IV .. (12 hrs)

4. Diffraction:

Introduction,distinction between Fresnel and Fraunhoffer diffraction, Fraunhoffer diffraction – Diffraction due to single slit and circular aperture-Limit of resolution-Fraunhoffer diffraction due to double slit-Fraunhoffer diffraction pattern with N slits (diffraction grating).Resolving power of grating-Determination of wavelength of light in normal and oblique incidence methods using diffraction grating.

Fresnel's half period zones-area of the half period zones-zone plate-comparison of zone plate with convex lens-difference between interference and diffraction.

UNIT- V

5.Polarisation (12 hrs) : Polarized light: methods of polarization polarization by reflection, refraction, double refraction, scattering of light-Brewster's law-Mauls law-Nicol prism polarizer and analyzer-Quarter wave plate, Half wave plate-optical activity, analysis of light by Laurent's half shade polarimeter-Babinet's compensator.

6. Lasers and Holography: (10 hrs)

Lasers: introduction,spontaneous emission, stimulated emission. Population Inversion, Laser principle-Einstein coefficients-Types of lasers-He-Ne laser, Ruby laser- Applications of lasers. Holography: Basic principle of holography-Gabor hologram and its limitations, Applications of holography.

Practical Paper III: Wave Optics

Exam duration : 3Hours Maximum marks : 50 marks

Work load:30 hrs

Minimum of 6 experiments to be done and recorded

1. Determination of radius of curvature of a given convex lens-Newton's rings.
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. Wavelength of light using diffraction grating-normal incidence method.
7. Resolving power of a telescope.
8. Refractive index of a liquid-hallow prism
9. Determination of thickness of a thin fiber by wedge method
10. Spectrometer- i-d curve.
11. Determination of refractive index of liquid-Boy's method.
12. Determination of wavelength-Hartmann formula (prism)

Paper V: Electricity, Magnetism and Electronics

V SEMESTER **Course Code : PHY 501C**

Unit – I(12hrs)

1.Electrostatics
Gauss's law Statement and its proof-Electric field intensity due to (1) Uniformly charged sphere and (2) an infinite conducting sheet of charge. Electric potential- Equipotential surface –potential due to i) a point charge ii)charged spherical shell .
2.Dielectrics
Electric dipolement and molecular polarizability- Electric displacement D, electric polarization P – relation between D, E, and P- Dielectric constant, susceptibility .

Unit – II(12hrs)

3. Electric and magnetic field Biot – Savart's law and calculation of B due to long straight wire, a circular current loop and solenoid. Hall effect-determination of Hall coefficient and applications.
4.Electromagnetic induction
Faraday's law – Lenz's law self and mutual inductance, coefficient of coupling, calculation of self inductance of a long solenoid, energy stored in magnetic field. Tansformer- energy losses and efficiency.

Unit-III(12hrs)

5.Alternating current and electro magnetic waves
Alternating current –Relation between current and voltage in LR and CR circuits, vector diagrams, LCR series and parallel resonant circuit , Q- factor, power in AC circuits.
6.Maxwell's equations
Idea of displacement current- Maxwell's equations (integral and differential forms) (no derivation) Maxwell's wave equation(with derivation), Transverse nature of electromagnetic wave. Pointing Vector (statement and proof) production of electromagnetic wave Hertz experiment.

Unit-IV(12hrs)

7.Basic electronics:
PN junction diode Zener diode ,I-V characteristics, PNP and NPN Transistors, CB,CE and CC configuration Relation between α β and Γ transistors (CE) characteristics,Transistor as an amplifier.

Unit-V(12hrs)

Digital electronics:
Number systems-conversion of binary to decimal system and vice versa. Binary addition and subtraction (1's and 2's complement methods) laws of Boolean algebra-De Morgan's laws- statement and proof basic logic gates, NAND and NOR as universal gates Half adder and FULL adder.

Practical paper V: Electricity, Magnetism and Electronics

Exam duration : 3Hours Maximum marks : 50 marks

Work load: 30hrs

Minimum of 6 experiments to be done and recorded

1. Figure of merit of a moving coil galvanometer.
2. LCR circuit series/parallel 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.
6. PN Junction diode Characteristics
7. characteristics of Zener diode
8. Transistor CE Characteristics.
9. Logic Gates –OR ,AND, NOT,and NAND gates verification of truth tables.
10. Verification of De Morgan's theorems.

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III B.Sc. Physics – V Semester – Paper –VI

(2019 – 2020)

Modern Physics

Course Code : PHY 502C Work Load : 60 hrs per semester 4 hrs/week

Unit – I (12 hrs) 1. Atomic and molecular physics

Introduction – Drawbacks of Bohr's atomic model – Sommerfeld's elliptical orbits- relativistic correction (no derivation). Vector atom model and Stern & Gerlach experiment - quantum numbers associated with it. L-S and j-j coupling schemes. Zeeman Effect and its experimental study. Raman effect, stokes and Anti stokes lines . Quamtum theory of Raman effect. Experimental arrangement – Applications of Raman effect.

UNIT – II (12 hrs)

2. Matter waves & Uncertainty Principle

Matter waves, de Broglie's hypothesis – wavelength of matter waves, Properties of matter waves – Davisson and Germer experiment–Heisenberg's uncertainty principle for position and momentum (x and p) & energy and time (E and t). Experiment verification.

UNIT – III (12 hrs)

3.Quantum (wave) mechanics

Basic postulates of quantum mechanics – Schrodinger time independent and time dependent wave equation – derivations. Physical interpretation of wave function. Applications of Schrodinger wave equation to particle in one dimensional infinite box. Harmonic oscillator.

UNIT – IV (12 hrs)

4.General properties of Nuclei

Basic ideas of nucleus – size,mass,charge density(matter energy), binding energy,angular momemtum, parity, magnetic moment, electric quadrupole moments.Liquid drop model and shell model (qualitative aspects only)- Magic numbers.

5. Radioactivity decay

Alpha decay : basis of α – decay processes. Range of α-particles , Geiger"s Law,Geiger- Nuttal law. β – decay, β ray continuous and discrete spectrum, neutrino hypothesis.

UNIT – V (12 hrs)

6.Crystal structure

Amorphous and crystalline materials, unit cell, Miller indices, reciprocal lattice, types of lattices, diffraction of X- rays by crystals, Bragg's law, experimental techniques, Laue's method and powder diffraction method.

7. Superconductivity:

Introduction – experimental facts, critical temperature – critical field – Meissner effect – isotope effect – Type I and Type II superconductors – BCS theory (elementary ideas only) – applications of superconductors.

Practical Paper :

Modern Physics

Exam duration : 3Hours Maximum marks : 50 marks

Work load : 30 hrs

Minimum of 6 experiments to be done and recorded

1. e/m of an electron by Thomson method.
2. Determination of Planck's Constant (photocell)
3. Verification of inverse square law of light using photovoltaic cell.
4. Study of absorption of α – rays.
5. Study of absorption of . β – rays.
6. Determination of range of β – particles.
7. Determination of M & H.
8. Analysis of powder X- ray diffraction pattern to determine properties of crystals.
9. Energy gap of semiconductor using junction diode.
10. Energy gap of a semiconductor using Thermistor.

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DEPARTMENT OF TELUGU

HIGHLIGHTED SYLLABUS OF TELUGU

2019-20

Syllabus in Relevance to Employability, Skill Development and Entrepreneurship **is** highlighted as mentioned: Employability in yellow Color, Skill Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

A.G & S.G.Siddartha Degree College of Arts & Science, (AUTONOMOUS) VUYYURU – 521 165, Krishna District.

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TELUGU TEL-101C 2019 -2020 I B.A.,B.COM., B.SC

I SEMESTER – SYLLABUS

ప్రాచీన కవిత్వం, ఆధునిక కవిత్వం, కథానికలు, వ్యాకరణం

I. ప్రాచీన కవిత్వం

1. గంగా శంతనుల కథ – నన్నయ

(ఆంధ్ర మహాభారతం – ఆదిపర్వం – నాల్గవ ఆశ్వాసం, 121 – 165)

ప్రతి పదార్థాలకు ఇవ్వదగిన పద్యాలు:

1. గంగ నిజాంగ దీప్తు లెసగం---------- గరుబు లీలతోన్.
2. కని వనకన్యయో ---------- చూచె ప్రీతితోన్.
3. అతుల తపంబునన్ వరుణు ---------- మహీధరకందరంబునన్.
4. తన కాజ్ఞావశవర్తులై ---------- రాజద్రాజధర్మస్థితిన్.

2. ద్రౌపది పరిదేవనం – తిక్కన

(ఆంధ్ర మహాభారతం – ఉద్యోగపర్వం- తృతీయ ఆశ్వాసం, (100 -125)

ప్రతి పదార్థాలకు ఇవ్వదగిన పద్యాలు:

1. ఓట యొకింత యేనియు ----------నుండ సమ్యతా.
2. ఆఁబడి బోకయున్ ----------వివేకము కల్గనేర్చునే.
3. వరమున బుట్టితిన్ ---------- నెక్కినదాన నెంతయున్.
4. ద్రోవది బంధురంబయిన ---------- యార్తయై.

II. ఆధునిక కవిత్వం:

1. కన్యక - గురజాడ వేంకట అప్పారావు
2. దేశ చరిత్రలు – శ్రీశ్రీ

III. కథానికలు :

1. చింతలతోపు -- పాపినేని శివశంకర్
2. సాపు కూడు – బండి నారాయణస్వామి

IV. వ్యాకరణం:

1. సంధులు

తెలుగు సంధులు (అకార, ఇకార, త్రిక, గసడదవాదేశ, రుగాగమ, టుగాగమ, ఆమ్రేడిత సంధులు)

సంస్కృత సంధులు (సవర్ణదీర్ఘ, గుణ, యణా, వృద్ధి సంధులు)

2. సమాసాలు

(తత్పురుష, కర్మధారయ, బహువ్రీహి, ద్వంద్వ, ద్విగు సమాసాలు)

3. అక్షర దోషాలు.

సంప్రదించవలసిన పుస్తకం - సాహితి నందనం

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TELUGU 301C 2019 - 2020 II DEGREE B.A., B.COM., B.SC.,

No.of.Hrs 4

III SEMESTER – SYLLABUS

Credits 4

I. ప్రాచీన కవిత్వం

1. **వామనావతారం – పోతన** - ఆంధ్రమహాభారతం – అష్టమస్కంధం (582-621) "కులమున్ రాజ్యము" నుండి "రవిబింబంబుపమింప"వరకు

(ప్రతి పదార్థాలకు ఇవ్వదగిన పద్యాలు)

1. కారే రాజులు రాజ్యముల్ ---------- యిక్కాలమున్ భార్గవా !
2. నిరయంబైన నిబంధమైన ----------ధీవర్య! వే యేటికిన్.
3. అమరారాతి కరాక్షతోజ్జిత ----------విన్యస్తమున్ హస్తమున్.
4. రవిబింబం బుపమింప ----------బ్రహ్మాండమున్ నిండుచోన్.

2. **శాలివాహన విజయం – కొఅవి గోపరాజు** సింహాసన ద్వాత్రింశిక – ప్రథమాశ్వాసం (115 -165) "సజ్జిత దాన ధర్మ " నుండి "ఇట్లు విక్రమార్కుడీల్గిన " వరకు.

(ప్రతి పదార్థాలకు ఇవ్వదగిన పద్యాలు)

1. సజ్జిత దానధర్మ ----------రాజ్యము సేయుచుండగన్.
2. అర్కుని మూర్తి ----------బంపునావుడన్.
3. సత్పాత్ర ప్రతి పాదితార్థు---------నుల్కాదిలక్ష్యంబులై.
4. వరపుత్రుం డమరేంద్రవైరి-------- బేటు వాటిల్లదే.

II. ఆధునిక కవిత్వం

1. కుసుమ ధర్మన్న - హరిజన శతకం (1 -20) "శ్రీహరి సుత నీదు" నుండి "నీ కులంబు వారు"వరకు
2. డా II అందెశ్రీ – మనిషి – మాయమైపోతున్నడమ్మా నుండి – ఇనుపరెక్కల డేగ వరకు.

III. గద్యభాగం (వ్యాస సంపుటి)

1. ఆచార్య గుజ్జర్లమూడి కృపాచారి - తెలుగు భాష
2. ఆచార్య రాచపాళెం చంద్రశేఖర రెడ్డి - వ్యక్తిత్వ వికాసం

IV. ఛందస్సు

ఉత్పలమాల, చంపకమాల, శార్దూలం, మత్తేభం, కందం, తేటగీతి ఆటవెలది.

V. అలంకారాలు

అర్థాలంకారాలు:- ఉపమ, ఉత్ప్రేక్ష, రూపక, స్వభావోక్తి, అతిశయోక్తి, అర్థంతరన్యాస, శ్లేష.

శబ్దాలంకారాలు:- వృత్యానుప్రాస, అంత్యానుప్రాస, యమకం.

సంప్రదించవలసిన పుస్తకం: సాహితీ స్రవంతి (బి.ఎ., బి.కాం., బి.యస్.సి. రెండవ సంవత్సరం తెలుగు వాచకం)

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TELUGU	TEL- 201C	2019 -2020	IB.A.,B.COM., B.SC

II SEMESTER – SYLLABUS

ప్రాచీన కవిత్వం, ఆధునిక కవిత్వం, కథానికలు, ఉపవాచకం (నవల), నీతి పద్యాలు.

I. ప్రాచీన కవిత్వం:

1. **సాయుజ్యము – ధూర్జటి** - శ్రీకాళహస్తి మహత్మ్యము 2వ ఆశ్వాసం (109 – 139)

   త్రేతాంతంబుననొక్క.....నుండి పన్నగంబు వరకు.

   ప్రతిపదార్థాలకు ఇవ్వదగిన పద్యాలు:

   1. త్రేతాంతంబున ..... మచ్చోటికిన్.
   2. డగ్గటి, "ఎవ్వడో..... విషణ్ణ చిత్తుడై.
   3. అంతటఁ గొంతసేపునకు..... టెట్టఁ జూతురే?".
   4. "ఎక్కడి దుర్మదుండొ?..... గూడె దైవమున్.

2. **సుభద్రా పరిణయం** - చేమకూర వేంకట కవి - విజయవిలాసం -3వ ఆశ్వాసం(పద్యాలు 93-139)

   "తనయుని పెండ్లికేగ వలె ధాత్రికి" నుండి "దేరెక్కి దంపతులరుగ" వరకు.

   ప్రతి పదార్థాలకు ఇవ్వదగిన పద్యాలు:

   1. కలరొకొ యెవ్వరైన .....మురారి చెంగటన్.
   2. పొలయలు కందు వేడుకొను..... మంగళసూత్రమయ్యెడన్
   3. ప్రణయంబొప్పగ గృష్ణుని గని ..... బల్కగన్.
   4. చెల్లెల లెస్సలా పెరటి చెట్టుగ ..... నీకు నెంతయున్

II. ఆధునిక కవిత్వం:

1. ముసాఫరులు -- జాషువా
2. మేఘదూతం -- పుట్టపర్తి నారాయణాచార్యులు

III. కథానికలు :

1. ఆకలి - కొలకలూరి ఇనాక్
2. నమ్ముకున్న నేల - కేతు విశ్వనాధ రెడ్డి

IV. ఉపవాచకం (నవల):

డా॥ వి. ఆర్. రాసాని - బతుకాట

సంప్రదించవలసిన పుస్తకాలు :

1 డిగ్రీ ప్రధమ సంవత్సరం రెండవ సెమిస్టర్ పాఠ్య పుస్తకం - సాహితీ కౌముది.

2 డిగ్రీ ప్రధమ సంవత్సరం – సాహితీ లత (పాతది)

3 బతుకాట – డా11వి.ఆర్.రాసాని.

1.

2.

3. T. Govindaraju

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DEPARTMENT OF ZOOLOGY

B.Sc. AQUACULTURE (NEW COURSE INTRODUCED)

HIGHLIGHTED SYLLABUS OF B.Sc. AQUACULTURE

2019-2020

Syllabus in Relevance to Employability, Skill Development and Entrepreneurship **is** highlighted as mentioned: Employability in yellow Color, SkillDevelopment in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

2019-2020

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

Aquaculture(Industrial Fishers) Semester – I

Class: I B.Sc .(ABC) PAPER-I w.e.f. 2019-2020

Credits : 3 (Code: Aqu-101C)

Title of the paper: Basic principles of aquaculture.

60 hrs.(4hrs/week) Max.Marks : 70

Objective of the course: To introduce the basic principles of Aquaculture (Industrial fishers). Understand the nature and basic concept of aquaculture.

Course outcomes:

1.Leam about the concept of Blue Revolution, Types of Aquaculture systems and scope of Aquaculture at global ,India and Andhra level.

2. Understand the concepts of Ecology, and Nutrient cycles in culture ponds.

3. Acquire knowledge of different types of ponds and their functional classification.

4. Understand the important factors involved in construction of ideal fish pond.

5. Acquire knowledge of pond management factors, eradication of predators and weed control, physico-chemical Conditions to be maintained.

UNIT- I: Introduction ***10hrs.***

1.1: Concept of Blue Revolution - History and definition of Aquaculture.

1.2: Scope of Aquaculture at global Level, India and Andhra Pradesh.

1.3: Fresh water aquaculture, brackish water aquaculture and mariculture

1.4: Different Aquaculture systems – Pond, Cage, Pen, Running water, Extensive, Intensive and & Semi-Intensive Systems and their significance. Monoculture, Poly culture and Mono sex culture systems

1.5: Aquaculture versus Agriculture; Present day needs with special reference to Andhra Pradesh

UNIT-II : Pond Ecosystem ***15hrs.***

2.1 General Concepts of Ecology, Carrying Capacity and Food Chains

2.2: Lotic and lentic systems, streams and springs

2.3: Nutrient Cycles in Culture Ponds – Phosphorus, Carbon and Nitrogen

2.4. Importance of Plankton and Benthos in culture ponds, nutrient dynamics and algalblooms

2.5 Concepts of Productivity, estimation and improvement of productivity

UNIT-III: Types of fish ponds ***10hrs.***

3.1 Classification of ponds based on water resources – spring, rain water, flood water, well water and water course ponds

3.2: Functional classification of ponds– head pond, hatchery, nursery, rearing, production, stocking and quarantine ponds

3.3: Hatcherydesign

UNIT-IV : pond preparation ***15hrs.***

4.1 Important factors in the construction of an ideal fish pond – site selection, topography, nature of the soil, water resource

4.2. Lay out and arrangements of ponds in a fishfarm

4.3 . Construction of an ideal fish pond – space allocation, structure and components of barragepond

UNIT- V :Pond management factor ***10hrs***

5.1: Need of fertilizer and manure application in culture ponds; Role of nutrients; NPKcontents of different fertilizers and manures used in aquaculture; and precautions in theirapplication.

5.2. Physico-chemical conditions of soil and water optimum for culture–temperature, depth, turbidity, light, water and shore currents, PH, DOD, CO2 and nutrients; measures to increase oxygen and reduce ammonia & hydrogen **sulphide** in culture ponds; correction ofPH.

5.3 Eradication of predators and weed control – advantages and disadvantages of weed, weed plants in culture ponds, aquatic weeds, weed fish, toxins used for weed control and control ofpredators

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Aquaculture *Semester – II*

Class: I B.Sc .(ABC) *PAPER-II* *w.e.f. 2019-2020*

Credits : 3 *(Code: Aqu-201C)*

Title of the paper*:* **Biology of fin fish & shell fish**

60 hrs.(4hrs/week) Max.Marks : 70

Objective of the course: To introduce the Biology of fin fish & shell fish. General characters, Classification, growth and Development crustacean shellfishCourse outcomes:

1. Understand the characters and classification of cultivable Fin and Shell fish and commercial importance of crustaceans and Fish .
2. Gain Knowledge of feeding habits, gut content analysis and growth factors in fishes.
3. Understand and learn breeding in fishes, breeding habits, method of induced breeding in fishes.
4. To create awareness on parental care of Fishes and embryonic and larval development and environmental factors affecting development of major aquaculture organisms.
5. Acquire knowledge about Endocrine system in fishes.

UNIT- I: **General character & Classification of Cultivable finShellfish**

1.1 General Characters and classification of fishes & crustaceans up to the level of Class

1.2 Fish and Crustaceans of commercial importance

1-3 Sense organs of fishes and crustaceans .
1.4 Specialized organs in fishes – electric organ, venom and toxins
1.5 Buoyancy in fishes- swim bladder and mechanism of gas secretion

UNIT- II: **Food, Feeding and Growth**

2.1 Natural fish food, feeding habits, feeding intensity, stimuli for feeding, utilization of food, gut content analysis, forage ratio

2.2 Principles of Age and growth determination ;growth regulation ,Growth rate measurement– scale method, otolith method, skeletal parts as age indicators

2.3 Length-frequency method, age composition, age-length keys, absolute and specific growth, back calculation of length and growth, annual survival rate,

2.4 Length-weight relationship.

UNIT- III: **Reproductive Biology**

3.1 Breeding in fishes, breeding places, breeding habits & places, breeding in natural environment and in artificial ponds, courtship and reproductive cycles
3.2.Induced breeding in fishes
3-3 Breeding in shrimp, oysters, mussels, clams, pearl oyster, pila, and cephalopods.

UNIT- IV:**Development**

4.1.Parental care in fishes, ovo-viviparity, oviparity, viviparity, nest building and brooding
4.2 Embryonic and larval development of fishes
4.3 Embryonic and larval development of shrimp, crabs and molluscs of commercial importance
4.4 Environmental factors affecting reproduction and development of cultivable aquatic fin & shell fish

UNIT- V:**Hormones&Growth.**

1.1 Endocrine system in fishes.
1.2 Neurosecretary cells, and rogenic gland, ovary, chromatophores,
1.3 Molting, molting stages, metamorphosis in crustacean shellfish

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DEPARTMENT OF ZOOLOGY

2019-2020

ODD SEMESTER

HIGHLIGHTED SYLLABUS OF B.Sc. BZC

Courses on Employability, Entrepreneurship and Skill-Development in the curriculum of all programs are highlighted as mentioned: Employability in yellow Color, Skill-Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

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ZOOLOGY
Class: I B.Sc . **PAPER-I** **w.e.f. 2017-2018**
Credits : 3 **Code: Zoo-101C*)***
Title of the paper: Biology of Non – Chordates. Max.Marks : 70
60 hrs.(4hrs/week)

UNIT- I **10hrs.**

1.1: Significance of Diversity of Invertebrates.
1.2: **Phylum - Protozoa:**Type study: Elphidium
1.3: **Phylum - Porifera :**Type study: Sycon - Morphology, histology, spicules
1.4: Canal system in Sponges.

UNIT-II **16hrs.**

2.1 **Phylum - Coelenterate: Type**study :Obelia - Morphology, Structure of Polyp & Medusa.
2.2: Polymorphism in Coelenterates.
2.3: Coral& Coral reef formation.
2.4. **Phylum- Platy helminthes:**Type study: Fasciola hepatica – Morphology, Excretory system, Reproductive system, Life history &Pathogen city
.2.5**Phylum - Nemathelminthes:**Type study: Ancylostomaduodenale - Morphology & Life history

.**UNIT-III** **10hrs.**

3.1 **Phylum - Annelida:**Typestudy:Hirudinaria granulose – Morphology, Digestive system, excretory
system & Reproductive system.
3.2: Coelomoducts.
3.3:Vermiculture: Scope, Significance of Vermiculture, Earthworms Sps, Processing of Vermiculture,
Vermicompost, and Economic Importance of Vermicompost.

UNIT-IV15hrs.

4.1**Phylum - Arthropoda :**: Type study: Prawn – External characters [Except appendages], Respiratory
system &Circulatory system.
4..2Peripatus : Structure & affinities.
4.3**Phylum – Mollusca**: Pearl Formation in Pelecypoda.
4.4. Torsion in Gastropoda.

UNIT- V9hrs.

5.1: **Phylum - Echinodermata :**
5.1.1Water vascular system of Star Fish.
5.2 **Hemichordata :**Balanoglossus: Structure , Affinities.
5.3.**Invertebrates Larval forms :**Amphiblastula, Ephyra, Trochophore, Nauplius, Glochidium, Bipinnaria, Tornaria.

SEMESTER - III (CBCS)

Class: II B.Sc (B.Z.C)

Paper Code: ZOO -301C

Title of the Paper:Cytology, Genetics and Evolution.

Unit – I

1.1Cytology - I :-Electron microscopic structure of cell .

1.2 Plasma membrane - Fluid mosaic model, Transport functions of plasma membrane (Active &Passive)

Unit – II

2.1 Cell Organelles:- Stricture and functions of Endoplasmic reticulum, Golgi body, Ribosome's,Lysosomes,Mitochondria.

2.2 DNA: Watson & Crick model , Semi Conservative Replication.

2.3 RNA - Structure, types & functions of RNA.

2.4 Chromosomes - Structure, types & functions, Giant Chromosomes (lamp brush &Polytene)

Unit – III

3.1 Genetics-I:-Mendel's Laws of Inheritance, Incomplete dominance and co-dominance

3.2 Lethal alleles, Epistasis , Linkage and crossing over.

Unit – IV 15 Hrs

1.1 **Genetics – II** :- Sex determination - Genic balance theory / Bridges theory, Barr bodies.

1.2 Sex linked inheritance.

1.3 Extra chromosomal inheritance (Kappa particles in Paramecium)

1.4 Blood group inheritance.

Unit – V

5.1.Evolution:- Origin of life,. Hardy -Weinberg Equilibrium, Lamarckism ,Darwinism, Neo Darwinism

5.2 Isolation, Speciation (Allopatric and Sympatric).

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SEMESTER - V (CBCS)

(Zoology paper-V)

Class: III B.Sc (B.Z.C) **w.e.f.- 2019-2020.**

60 Hrs. (4hrs/week) **paper code:Zoo-501C**

Credits :3 **External :**75

Title of the Course : Animal Biotechnology

Unit 1:Tools of Recombinant DNA technology - Enzymes and Vectors 15 Hrs.

1.1.Restriction modification systems : Types I, II and III- Nomenclature, Applications of Type II restriction enzymes in genetic engineering ,DNA polymerases, transferase, kinases and phosphatases,and DNA ligases

1.2 Cloning Vectors:: Properties of Cloning Vectors Plasmid vectors:pBR and pUC 18, Bacteriophage and, Cosmids.Artificial Chromosome Vectors: BACs, YACs,

Unit 2: Techniques of Recombinant DNA technology 15 Hrs

2.1 Cloning: Procedure of gene cloning, Use of linkers and adaptors.Microinjection, electroporation,

biolistic method (gene gun). PCR:- Basics of PCR,Principle and Procedure of PCR.

2.2 DNA Sequencing: Sanger's method of DNA sequencing- traditional and automated sequencing.

2.3 Southern, Northern and Western blotting. DNA finger printing,

UNIT 3 Animal Cell Technology 10 Hrs.

3.1 Cell culture media: Natural and Synthetic, Types Cell cultures-: primary culture, secondary culture. Continuous cell lines , Established Cell lines (common examples such as MRC, HeLa,CHO, BHK,

3.2 Cryopreservation of cultures, Hybridoma Technology:- Cell fusion, Production of Monoclonal antibodies (mAb), Applications of mAb

3.3.Stem cells: Types of stem cells- Embryonic and Adult Stem Cells, Diabetes and Parkinson's diseases.

Unit 4: Reproductive Technologies & Transgenic Animals 10 Hrs

4.1 Manipulation of reproduction in animals, Artificial Insemination, *In vitro* fertilization.

4.2 Super ovulation, Embryo transfer, Embryo cloning.

4.3 Transgenic Animals- Production of Transgenic Animals- sheep, fish.

Unit 5: Applied Biotechnology 10 Hrs.

5.1Industry: Fermentation- Different types of Fermentation. Submerged & Solid state, batch, Fed batch & Continuous (Short notes only)

5.2 Downstream processing - Filtration, centrifugation, chromatography, spray drying ,

5.3 Fisheries :Polyploidy in fishes

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(AUTONOMOUS)
SEMESTER - V (CBCS)
(Zoology paper-VI)

Class: III B.Sc (B.Z.C) w.e.f.-2017 -18
60 Hrs(6hrs/ week)
Title of the Paper : Animal Husbandry.
paper code:Zoo-502C

UNIT – I : 10 Hours

1.1 General introduction to poultry farming, Principles of poultry housing. Poultry houses.
1.2 Systems of poultry farming.
1.3 Management of chicks, growers, layers, and Broilers.

UNIT – II: 10 Hours

2.1. Poultry feed management – Principles of feeding. Nutrient requirements for different stages of layers and broilers.
2.2. Methods of feeding- Whole grain feeding system, Grain and mash method, All mash method, Pellet feeding.
2.3. Poultry diseases – viral, bacterial, fungal and parasitic (two each); symptoms, control and management.

UNIT – III: 10 Hours

3.1 Selection, care and handling of hatching eggs, Egg testing.
3.2 Methods of hatching.
3.3 Brooding and rearing, Sexing of chicks.

UNIT- IV: 20 Hours

4.1 Breeds of Dairy Cattle and Buffaloes – Definition of breed; Classification of Indian Cattle breeds, exotic breeds and Indian buffalo breeds.
4.2 Systems of inbreeding and crossbreeding.
4.3 Housing of dairy animals – Selection of site for dairy farm; systems of housing – loose, housing system. Conventional dairy barn

UNIT - V: 10 Hours

5.1 Care and management of dairy animals - Care and management of calf, heifer, milk animal, dry and pregnant animal, bulls and bullocks.
5.2 Cleaning and sanitation of programme. Records to be maintained in a dairy farm.

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DEPARTMENT OF ZOOLOGY

2019-2020

(EVENSEMESTER)

HIGHLIGHTED SYLLABUS OF B.Sc. BZC

Courses on Employability, Entrepreneurship and Skill-Development in the curriculum of all programs are highlighted as mentioned: Employability in yellow Color, Skill-Development in Sky blue colour and Entrepreneurship in Green colour

Employability

Skill-Development

Entrepreneurship

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ZOOLOGY

SEMESTER - II w.e.f. - 2018 - 19

Class : I B.Sc (Code : ZOO -201 C)

No. of Hours per week : 4 Max.Marks: 70

Credits : 3

Title of the Paper : Biology of Chordates

UNIT – I

15hrs.

1.1. Prochordata.

1.1.1. Structure of *Branchiostoma.*

1.1.2. Affinities of Cephalochordata.

1.1.3. Structure and Life History of *Herdmania.*

1.1.4. Significance of Retrogressive metamorphosis.

UNIT – II 15hrs.

2.1.Cyclostomata

2.1. Differences between Petromyzonand *Myxine.*

2.2. Pisces.

2.2.1.*Scoliodon*- External features, Digestive System, Respiratory System, Heart, Brain.

2.2.2. Migration in Fishes.

2.2.3. Dipnoi.

UNIT - III 10hrs.

3.1.Amphibia

3.1.1. *Rana hexadactyla* - External features, Digestive System, Respiratory System, Heart, Brain.

3.1.2.Parental care in Amphibians

3.2.Reptilia

3.2.1. Calotes - External features, Digestive System, Respiratory System, Heart, Brain.

UNIT – IV12hrs

4.1.Aves

4.1.1. *Columba livia* - Exoskeleton, Digestive System, Respiratory System, Heart, Brain.

4.1.2.Migration in Birds

4.1.3.Flight adaptations in Birds

UNIT – V 8hrs.

5.1.Mammalia

5.1.1. Differences between Prototheria & Metatheria.

5.1.2. Dentition in Mammals.

SEMESTER - IV(CBCS)w.e.f. - 2018- 19

Class: II B.Sc (B.Z.C)**Paper Code :** ZOO -401C

Credits: 4

Max.Marks: 70

60 hrs. (4 hrs / week)

Title of the Paper: Embryology, Physiology and Ecology.

Unit – I (Embryology)

1.1 Developmental Biology and Embryology

1.1.1 Gametogenesis (Spermatogenesis, Oogenesis in mammals)

1.1.2 Fertilization

1.1.3 Types of eggs

1.1.4 Types of cleavages

1.2 Foetal membranes in Chick

1.3 Development - types and functions of Placenta in mammals.

Unit – II (Physiology - I)

2.1 Physiology - I

2.1.1 Elementary study of digestive process.

2.1.2 Absorption of digested food.

2.1.3 **Respiration** – Structure of mammalian Lung & Mechanism of respiration, transport of oxygen and carbon dioxide

2.1.4 **Circulation** - Structure and functioning of mammalian heart, Cardiac cycle.

2.1.5 **Excretion**- Structure of nephron, urine formation, counter current mechanism.

Unit – III (Physiology - II)

3.1 Physiology - II

3.1.1 Structure & functional properties of Nerve Cell; Production & propagation of nerve Impulse. Synaptic transmission.

3.1.2 Muscle contraction - Ultra structure of muscle fibre, molecular and chemical basis of muscle Contraction.

3.1.3 Endocrine glands - Structure, secretions and the functions (of hormones) of Pituitary, Thyroid, parathyroid, adrenal glands and pancreas.

3.1.4 Hormonal control of reproduction in Mammals.

Unit – IV(Ecology – I)

4.1Ecology-I

4.1.1Abiotic factors of Ecosystem – Temperature & Light.

4.1.2 Nutrient cycles - Nitrogen, Carbon and Phosphorus.

4.1.3 Energy flow in ecosystem.

Unit – V (Ecology – II & Zoogeography)

5.1 Ecology - II.

5.1.1. Community interactions - Mutualism, commensalism, parasitism.

5.1.2. Ecological succession.

5.2 Zoogeography

5.2.1.Study of physical and faunal peculiarities of Oriental, Australian and Ethiopian regions.

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SEMESTER - VI

ZOOLOGY –ELECTIVE PAPER: VII-(A)

Paper code: Zoo-601GE

Title of the paper: Immunology.and Molecular Biology

Unit I:

1.1 Overview of Immune system

1.1.1 Introduction to basic concepts in Immunology.

1.1.2 Innate and adaptive immunity

1.2 Cells and organs of Immune system

1.2.1 Cells of immune system

1.2.2 Organs of immune system

Unit II:

2.1 Antigens

2.1.1 Basic properties of antigens

2.1.2 B and T cell epitopes, haptens and adjuvants

2.1.3 Factors influencing immunogenicity

Unit - III :

3.1 Antibodies

3.1.1 Struture of an antibody

3.1.2 Classes and functions of antibodies

3.1.3 Antigen and antibody interactions.

3.1.4 Monoclonal antibodies and their production.

Unit - IV

4.1 Working of an Immune system

4.1.1 Structure and functions of major histocompatibility complexes

4.1.2 Exogenous and Endogenous pathways of antigen presentation and processing

4.1.3 Basic properties and functions of mediator molecules. (cytokines, interferonsand complement proteins).

4.1.4 Mechanisms of humoral and cell mediated immunities

Unit - IV

5.1 Immune system in health and disease

5.1.1 Classification and brief description of various types of hyper sensitivities

5.1.2 Introduction to concepts of autoimmunity and immunodeficiency

5.2 Vaccines

5.2.1 General introduction to vaccines

5.2.2 Types of vaccines

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SEMESTER - VI (CBCS)

Class: III B.Sc (B.Z.C) (Cluster Elective Paper: VIII-B-1) **w.e.f. –**2017-18
60 Hrs(4hrs/ week) Paper Code : ZOO-602CE
Credits : 3 External : 75
Title of the Paper: : Principles of Aquaculture. Internal: 25

UNIT –I

1.1 Introduction / Basics of Aquaculture: - Definition, Significance and History of Aquaculture
1.2 Present status of Aquaculture – Global and National scenario
1.3 Major cultivable species for aquaculture: freshwater, brackish water and marine.
1.4 Criteria for the selection of species for culture

Unit – II

2.1 Types of Aquaculture:- Freshwater, Brackishwater and Marine
2.2 Concept of Monoculture, Polyculture, Composite culture, Monosex culture and Integrated fish farming
2.2Culture systems :- Ponds, Raceways, Cages, Pens, Rafts and water recirculating systems
2.3Culture practices :-Traditional, extensive, modified extensive, semi-intensive and intensive cultures of Fish and shrimp.

Unit – III

3.1 Design and construction of aqua farms :-Criteria for the selection of site for freshwater and brackish ater pond farms**,** Design and construction of fish and shrimp farms
3.2 Seed resources :-Natural seed resources and Procurement of seed for stocking: Carp and shrimp
3.3 Nutrition and feeds :- Nutritional requirements of a cultivable fish and shellfish
3.4 Natural food and Artificial feeds and their importance in fish and shrimp culture

Unit – IV

4.1 Management of carp culture ponds:-Culture of Indian major carps: Pre-stocking management – Dewatering, drying, Predators, weeds and algal blooms and their control, Liming andFertilization; Stocking management – Stocking density and stocking; Post-stocking Management – Feeding, waterquality, growth and health care; and harvesting of ponds
4.2 Culture of giant freshwater prawn, *Macrobrachiumrosenbergii*

Unit – V

5.1Culture of shrimp (*Penaeus monodon* or *Litopenaeus vannamei*)
5.2 Culture of pearl oysters
5.3 Culture of seaweeds-species cultured, culture techniques, important by-products, prospects
5.4 Culture of ornamental fishes – Setting up and maintenance of aquarium; and breeding

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SEMESTER - VI (CBCS) **w.e.f. -** 2017 - 18
Class: III B.Sc (B.Z.C) (Cluster Elective Paper: VIII-B-2)
60 Hrs. (4hrs/Week) Paper Code : ZOO-603CE
Credits : 3 External : 75
Title of the Paper: Aquaculture Management.

Unit – I

1.1Breeding and Hatchery Management:- Bundh Breeding and Induced breeding of carp by Hypophysation; and Use of synthetic hormones.

1.2Types of fish hatcheries; Hatchery management of Indian major carps

1.3 Breeding and Hatchery management of *Penaeus monodon/ Litopenaeus vannamei*

1.4 Breeding and Hatchery management of giant freshwater prawn.

Unit – II

2.1 Water quality Management: Water quality and soil characteristics suitable for fish and shrimp culture

2..2 Identification of oxygen depletion problems and control mechanisms in culture ponds

2..3 Liming materials, Organic manures and Inorganic fertilizers commonly used and Their implications in fish ponds

Unit – III

3.1 Feed Management :- Live Foods and their role in shrimp larval nutrition.

3.2 Supplementary feeds: Principal foods in artificial diets; Types of feeds; Feed additives and Preservatives; role of probiotics. Feed formulation and manufacturing; Feed storage

3.3 Feeding strategies: Feeding devices, feeding schedules and ration size; Feed evaluation- feed conversion efficiencies and ratios

Unit – IV

4.1 Disease Management :- Principles of disease diagnosis and health management;

4.2 Prophylaxis, Hygiene and Therapy of fish diseases

4.3 Specific and non-specific defense systems in fish; Fish immunization and Vaccination

4.4Etiology, Symptoms, prophylaxis and therapy of common fish diseases in fish ponds

4.5Etiology, Symptoms, prophylaxis and therapy of common shrimp diseases in shrimp ponds

Unit – V

5.1 Economics and Marketing :-Principles of aquaculture economics – variable costs, cost-benefit analysis **,**Fish marketing methods in India; Basic concepts in demand and price analysis.

5.2 Fisheries Extension :Fisheries Training and Education in India; Role of extension in community development.

5.3 Fish Genetics Genetic improvement of fish stocks – Hybridization of fish. Gynogenesis,Androgenesis, Polyploidy,Transgenic fish, Cryopreservation of gametes,

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SEMESTER - VI (CBCS)

Class: III B.Sc (B.Z.C) (Cluster Elective Paper: VIII-B-3) **w.e.f.** - 2017 - 1860
Hrs (4hrs/Week) Paper Code: ZOO-604CE
Credits: 3 External: 75
Internal:25

Title of the Paper: Postharvest Technology.

Unit – I

1.1 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.

1.2 Principles of preservation– cleaning, lowering of temperature, rising of temperature, use of salt, use of fish preservatives, exposure to low radiation.

Unit – II

2.1 Methods of fish Preservation :-Traditional methods - sun drying, salt curing, pickling and smoking.

2.1.2 Advanced methods – chilling or icing, refrigerated sea water, freezing, canning, Irradiation and Accelerated Freeze drying (AFD).

Unit – III

3.1 Processing and preservation of fish and fish by-products :-Fish products – fish minced meat, fish meal, fish oil, fish liquid (ensilage), fishprotein concentrate, fish chowder, fish cake, fish sauce, fish salads, fish powder, petfood from trash fish, fish manure.

3.2 Fish by-products – fish glue, ising glass, chitosan, pearl essence, shark fins, fishleather and fish maws.

3.3 Seaweed Products :- Preparation of agar, algin and carrageen. Use of seaweeds as food for human consumption.

Unit – IV

4.1**Sanitation and Quality control :-** Sanitation in processing plants - Environmental hygiene and Personal hygiene inprocessing plants.

4.2 Quality Control of fish and fishery products – pre-processing control, control duringprocessing and control after processing.

4.3 Regulatory affairs in industries

Unit – V

5.1 Quality Assurance, Management and Certification :-Seafood Quality Assurance and Systems: Good Manufacturing Practices (GMPs); GoodLaboratory Practices (GLPs); Standard Operating Procedures (SOPs); Concept ofHazard Analysis and Critical Control Points (HACCP) in seafood safety.

5.2 National and International standards – ISO 9000: 2000 Series of Quality Assurance System.