

VAC Value Added Courses

List of Value Added / Certificate Courses for 2018-19:

S. No	Title of the Value added course / Certificate Course
1	Machine Learning
2	Reasoning Ability
3	Introduction to Nano Chemistry
4	Digital marketing
5	Managerial Economics
6	Competitive English
7	Mushroom Cultivation
8	Organic Farming
9	Introduction to Media Management
10	Basic Segments of Environmental Chemistry
11	Particle physics
12	Yoga

Dr. D. Bala Krishna
Principal

A.G. & S.G. Siddhartha Degree College of Arts & Science,
Vuyyuru - 521165, Krishna District



Adusumilli Gopalakrishnaiah & Sugarcane Growers
Siddhartha Degree College of Arts & Science

Vuyyuru-521165, Krishna District, Andhra Pradesh

An Autonomous Institution in the jurisdiction of Krishna University

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



Value Added Courses-2018-19

ABOUT THE INSTITUTION:

Adusumilli GopalaKrishnaiah & SugarCane Growers' Siddhartha Degree College of Arts & Science, Vuyyuru (Autonomous) is committed to the cause of providing higher education facilities within the door steps of the Sugarcane producing families of Vuyyuru and neighbouring villages. The College empowers students through holistic education that would enrich their personality and groom them into academically proficient, self-reliant, motivated, creative, analytical, culturally rich, self-sustained, humane, responsible and confident individuals. In a quest for academic excellence and holistic development the institution offers highly competent faculties, efficient administration team, excellent infra structure and creates an atmosphere of academic culture for its students.

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- Nurtured as a leader with social consciousness

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RESOURCE PERSON:

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**ADUSUMILLI GOPALAKRISHNAIAH & SUGAR CANE GROWERS
SIDDHARTHA DEGREE COLLEGE OF ARTS & SCIENCE
VUYYURU(AUTONOMOUS)**

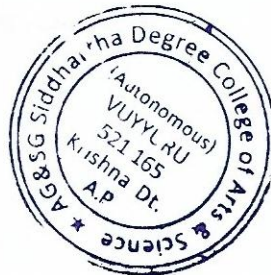
2018-19

CIRCULAR

Date: 12.06.2018

The Departments of Computer Science, Mathematics, Chemistry, Commerce and Economics are going to conduct the following Certificate / Value Added Courses to the benefit of students as per scheduled for 30-45 days. Interested Students are required to register their names in the concerned Departments. All Registered Students must attend the classes without fail. Students who successfully complete the course with good score will get the course completed certificates from the respective Departments.

S. No	Department	Name of the Course	Month of conducting the course
1.	Computer Science	Machine Learning	July
2.	Mathematics	Reasoning Ability	August
3.	Chemistry	Introduction Nano - Chemistry	August
4.	Commerce	Digital marketing	October
5.	Economics	Managerial Economics	November
6.	Telugu	Journalism	November



D. Balakrishna

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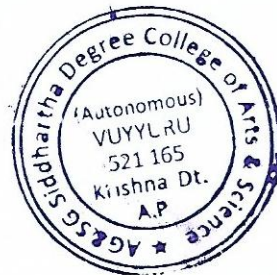
2018-19

CIRCULAR

Date: 15.11.2018

The Departments of English, Telugu, Physics, Chemistry, Botany and are going to conduct the following Certificate / Value Added Courses to the benefit of students as per scheduled for 30- 45 days. Interested Students are required to register their names in the concerned Departments. All Registered Students must attend the classes without fail. Students who successfully complete the course with good score will get the course completed certificates from the respective Departments.

S. No	Department	Name of the Course	Month of conducting the course
1.	English	Competitive English	December
2.	Botany	Mushroom Cultivation	December
3.	Zoology	Organic Farming	December
4.	Telugu	Introduction to Media Management	December
5.	Chemistry	Basic Segments of Environmental Chemistry	January
6.	Physics	Particle physics	January
7.	Telugu	Yoga	February



D. Balakrishna
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VAC Value Added Courses

List of Value Added / Certificate Courses for 2019-20:

S. No	Title of the Value Added Course / Certificate Course
1	History and archaeology
2	Lab symbols and Safety
3	Online Business
4	Quantitative Aptitude
5	Rural Development
6	Mushroom Cultivation
7	Organic farming
8	Yoga Meditation
9	Hard ware and Net Working
10	Certificate Course in Competitive English
11	Basic Computer Applications
12	Air Pollution
13	Fundamentals of Public Relations
14	AWS-- Amazon Web Services

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Value Added Courses-2019-20

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VUYYURU(AUTONOMOUS)**

2019-20

CIRCULAR

Date: 21.06.2019

The Departments of History, Chemistry, Commerce, Mathematics, Economics, Botany and Zoology are going to conduct the following Certificate / Value Added Courses to the benefit of students as per scheduled for 30- 45 days. Interested students are required to register their names in the concerned Departments. All Registered Students must attend the classes without fail. Students who successfully complete the course with good score will get the course completed certificates from the respective Departments.

S. No	Department	Name of the Course	Month of conducting the course
1.	History	History & Archaeology	July
2.	Chemistry	Lab Symbols and Safety	August
3.	Commerce	Online Business	September
4.	Telugu	Journalism	September
5.	Mathematics	Quantitative Aptitude	October
6.	Economics	Rural Development	November
7.	Botany	Mushroom Cultivation	November
8.	Zoology	Organic farming	November



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2019-20

CIRCULAR

Date: 27.11.19

The Departments of English, Telugu and Computer Sciences are going to conduct the following Certificate / Value Added Courses to the benefit of students as per scheduled for 30- 45 days. Interested Students are required to register their names in the concerned Departments. All Registered Students must attend the classes without fail. Students who successfully complete the course with good score will get the course completed certificates from the respective Departments.

S. No	Department	Name of the Course	Month of conducting the course
1.	Telugu	Yoga & Meditation	December
2.	Computer Sciences	Hardware and Net Working	December
3.	English	Certificate course in Competitive English	December
4.	Computer Sciences	Basic Computer Applications and Ms Office	December
5.	Computer Sciences	Amazon Web Services	December
6	Telugu	Fundamentals of Public Relations	January



D. Balakrishna
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VAC Value Added Courses

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S. No	Title of the Value Added Course / Certificate Course
1	Organic Farming
2	Floriculture
3	Green Chemistry
4	Yoga
5	AWS – Amazon Web Services
6	Tally
7	Cloud Computing
8	Electrical Motor Winding
9	Competitive English

Dr. D. Bala Krishna
Principal

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Vuyyuru - 521165, Krishna District



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Vuyyuru-521165, Krishna District, Andhra Pradesh

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Value Added Courses-2020-21

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2020-21

CIRCULAR

Date: 04.09.2020

The Departments of English, Telugu, Computer Sciences, Chemistry, Physics, Botany and Zoology are going to conduct the following Certificate / Value Added Courses to the benefit of students as per scheduled for 30-45 days. Interested Students are required to register their names in the concerned Departments. All Registered Students must attend the classes without fail. Students who successfully complete the course with good score will get the course completed certificates from the respective Departments.

S. No	Department	Name of the Course	Month of conducting the course
1.	Computer Sciences	Amazon Web Services	September
2.	Telugu	Yoga	September
3.	English	Competitive English	November
4.	Commerce	Tally	November
5.	Computer Sciences	Cloud Computing	November
6.	Physics	Electrical Motor Winding	February
7.	Zoology	Organic farming	February
8.	Botany	Floriculture	February
9.	Chemistry	Green Chemistry	August



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VAC Value Added Courses

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S. No	Title of the Value added course / Certificate Course
1	Nano technology
2	Zoho Book
3	Business Computations
4	Agribusiness Environment In Andhra Pradesh
5	Artificial Intelligence
6	Human Rights and Values
7	Floriculture
8	Mock Parliament
9	Sericulture
10	Travel and Tourism
11	Water Analysis
12	Analysis of Time Series

Sri. K. Satyanarayana
Principal

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Value Added Courses-2021-22

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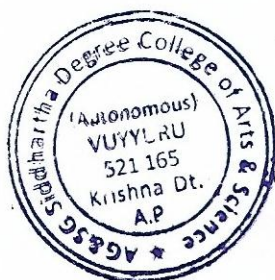
2021-22

CIRCULAR

Date: 04.09.2021

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1.	Physics	Nano Technology	October
2.	Commerce	Zoho book	November
3.	Mathematics	Business Computations	November
4.	Economics	Agri Business Environment in Andhra Pradesh	November
5.	Computer Science	Artificial Intelligence	November
6	Politics	Human Rights and Values	November



D. Balakrishna

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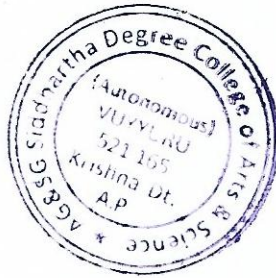
2021-22

CIRCULAR

Date: 25.11.2021

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S. No	Department	Name of the Course	Month of conducting the course
1.	Botany	Floriculture	December 21
2.	Politics	Mock parliament	March 22
3.	Zoology	Sericulture	March 22
4.	History	Travel and Tourism	June 22
5.	Chemistry	Water Analysis	August 22




Principal

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VAC Value Added Courses



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S. No	Title of the Value Added Course / Certificate Course
1	Soft Skill Development for Physics Students
2	Tally Prime
3	Ornamental Fish Breeding
4	Cloud Computing
5	Deep learning
6	Mock Parliament
7	Analysis of Time series
8	Arithmetic Ability
9	History Of Revolutions
10	Statistical Computing
11	Vermicomposting

Dr. V. Sreeram
Principal

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VALUE ADDED COURSE - 2022-23

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2022-23

CIRCULAR

Date: 02.09.22

The Departments of Physics, Computer Science, Politics, Commerce, Statistics and Zoology are going to conduct the following Certificate / Value Added Courses to the benefit of students as per scheduled for 30- 45 days. Interested Students are required to register their names in the concerned Departments. All Registered Students must attend the classes without fail. Students who successfully complete the course with good score will get the course completed certificates from the respective Departments.

S. No	Department	Name of the Course	Month of conducting the course
1.	Statistics	Analysis of Time Series	September22
2.	Mathematics	Athematic Ability	September22
3.	Physics	Soft Skill development for Physics students	September22
4.	commerce	Tally	November22
5.	Zoology	Ornamental Fish Breeding	November22
6.	Computer Science	Cloud Computing	November22
7.	History	History of Revolutions	December22
8.	Computer Science	Deep Learning	March 23
9.	Politics	Mock parliament	March 23
10.	Zoology	Vermicomposting	December22
11.	Computer Science	Statistical Computing	April 23


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Value Added/ Certificate Courses

Course Modules and Outcomes

2018-19

Value Added/ Certificate Courses

Course Modules and Outcomes

2018-19

1. MACHINE LEARNING

Module	Content	Course outcomes
I	Introduction to Machine Learning: ML terminologies – Linear Regression: Training and Loss – Loss Reduction techniques – Working with Tensor flow Playground.	Students have basic Knowledge on machine learning algorithms.
II	Classification and Clustering Logistic regression – Generalization – Regularization - Classification – Clustering: Centroid-based Clustering - Density-based Clustering - Distribution-based Clustering - Hierarchical Clustering	Gain Knowledge on Logistic regression, Centroid-based Clustering and Hierarchical Clustering. Understand how to evaluate models generated from data.
III	Deep Networks Introduction to Neural networks – Terminology – Working with tensors – Pandas, numpy, matplotlib library – Feed forward networks – Convolution Neural network – Recurrent neural networks and its variants	Analyse different types of neural networks and understand how to evaluate models generated from data.
IV	Deep Generative Models Restricted Boltzmann Machines – Deep Belief networks – Deep Boltzmann machine – Convolution Boltzmann machine – Working with Tensor flow Playground	Gain knowledge on different types of networks and apply the algorithms to a real problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models

2. REASONING ABILITY

Module	Content	Course outcomes
I	Analytical Thinking: Developing the ability to analyze information, data, or situations and identify patterns, relationships, and connections. This includes identifying trends, making observations, and drawing logical conclusions based on evidence	Students are able to think analytically and analyse information regarding different types of data.
II	Logical Reasoning: Understanding the principles of logical reasoning, including identifying and evaluating arguments, identifying logical fallacies, and distinguishing between valid and invalid reasoning.	Students can distinguish between valid and invalid reasoning and understand the principles of logical reasoning.
III	Problem-Solving Strategies: Learning and applying different problem-solving strategies, such as breaking down complex problems into smaller, manageable parts, identifying relevant information, generating alternative solutions, and evaluating the best course of action.	Students learn and apply different problem-solving strategies and can identify relevant information and generate alternative solutions
IV	Deductive Reasoning: Understanding deductive reasoning, which involves drawing specific conclusions from general principles or rules. This includes understanding syllogisms, conditional statements, and using deductive reasoning to solve problems.	Students can understand and draw specific conclusions from general principles or rules.

3. INTRODUCTION TO NANOCHEMISTRY

Module	Content	Course outcomes
I	Introduction to Nano Chemistry	Students gain basic knowledge on Nano chemistry.
II	Physical methods: (a) mechanical: Ball milling, melt mixing (b) Vapour: physical: vapour deposition, laser ablation, sputter deposition, electric arc deposition, Ion implantation.	Have a basic knowledge on Physical methods of Nano chemistry.
III	Chemical methods: colloids, sol-gel, L-B films, inverse micelles	Understand the Chemical methods of Nano- chemistry.
IV	Biological methods: Bio-membranes, DNA, enzymes, microorganisms.	Understand the biological methods of Nano chemistry.

4. DIGITAL MARKETING

Module	Content	Course outcomes
I	Introduction, Meaning, Traditional online marketing vs digital marketing. On line market place analysis, Online Micro environment, trends in digital marketing, Competitive analysis	Students can analyse between Traditional and Digital marketing
II	Website planning and Creation, website meaning, Objectives, Components of website, Website creation, incorporation of design and adding contents, installing and activating plugging	Gain knowledge on Website planning, Creation and incorporation of design and adding contents.
III	E-mail marketing, Meaning, evolution of E-mail, Importance of e-mail marketing, development and advancements in e-mail marketing platforms	Students can understand about evolution of e-mail marketing, and advancements in e-mail marketing platforms.

5. MANAGERIAL ECONOMICS

Module	Content	Course outcomes
I	Introduction to Managerial Economics: Definition, Nature and Scope of managerial economics. Role and importance of managerial economics in decision-making. Basic economic concepts and principles	Understand nature, scope, role and importance of managerial economics in decision-making.
II	Demand Analysis and Forecasting: Demand theory and determinates of demand, Demand elasticity and its applications, Demand forecasting techniques and methods. Factors influencing demand forecasting	Learn about Demand Forecasting Techniques and factors influencing them.
III	Production and cost Analysis: Production theory and production functions; Short-run and long-run production decision; Cost concepts, types, and cost-output relationships Economics of scale and scope	Acquire Knowledge in production theory, and types of cost concepts.
IV	Market Structure and pricing: Market structures: perfect competition, monopoly, monopolistic competition, oligopoly; Pricing under different market structures; Price discrimination and pricing in practice	Students be aware of monopolistic competition and price discrimination and pricing in practice

6. JOURNALISM

Module	Content	Course outcomes
I	Journalism: Meaning, Definition, Nature, Scope	Students understand how Journalism plays a crucial role in society by providing accurate and timely information, holding governments, institutions, and individuals accountable.
II	Principles and Significance, Functions of Journalism, kinds of journalism	Students understand how journalism promotes transparency in government and other institutions, fostering a healthy democratic process.
III	History of Indian Journalism: JA Hickey, Raja Ram Mohan Roy ,M.K. Gandhi	Students gain knowledge on Pre-Independence and Post-Independence journalism.
IV	Magazine Journalism, Scope, trends and challenges	Students gain knowledge on Magazine journalism which is a form of media that involves the creation, editing, and publication of content in magazines.

7. MUSHROOM CULTIVATION

Module	Content	Course outcomes
I	Mushroom Cultivation- Introduction, Uses, Types of mushrooms Preparation of Mother Spawn in Saline bottle, sterilization. Cultivation of milky mushrooms.	Gain knowledge on types of Mushrooms and develop skills in the preparation of Mother spawn
II	Soil PH, Water, Soil sterilization, dark room, light room. Control room temperature, culture caring. Diseases and their controlling methods.	Understand the management practices of mushroom cultivation
III	Storage and nutritional value. Industrial edible mushrooms, poisonous mushrooms. Importance and Medicinal value of mushrooms.	Gain knowledge on nutritional value of mushrooms and apply it industrially
IV	Types of food prepared from mushrooms Marketing in India. Export value	Able to use knowledge in the preparation of different types of food. Gain expertise in marketing.

8. COMPETITIVE ENGLISH

Module	Content	Course outcomes
I	Vocabulary Usage Synonyms Antonyms Cloze Test One Word Substitution Verbal Analogies	Acquaint the learner with some widely used words which appeal to be similar but are semantically different and also help them to realize the importance of meanings, and understand the grammatical structures in writing.
II	Comprehension Ability Comprehension – I Comprehension – II Theme Detection Deriving Conclusions From Passages .	Analyze, interpret, appreciate and comprehend the specified text and the contexts in terms of their content, purpose, and form
III	Selecting Words/Phrases Sentence Completion ; Passage Completion Choosing The Appropriate Filler	Think critically; convey their own interpretations in sentence and passage completion
IV	Error Detection Common Errors – How To avoid Them Spotting Errors ; Sentence Improvement Passage Correction Choosing The Correct/Incorrect Sentence	Spot and avoid errors and improve sentence and passage correction.
V	Rearrangement Reconstruction of Sentences Rearrangement of Sentences in a paragraph Reconstruction of Paragraph; Rearrangement of Jumbled Parts; Word Formation	Write effectively with reconstruction and rearrangement of sentences in a paragraph.
VI	General Usage Idioms and Phrases Active and Passive Voice Direct and Indirect Speech	Know about using of Idioms, Phrases, Active and Passive Voice Direct and Indirect Speech.

9. INTRODUCTION TO MEDIA MANAGEMENT

Module	Content	Course outcomes
I	Introduction, Importance of media management, personal management, media training	Awareness on of media management and media training
II	Skilled labour problems, trade unions, external focus in management, co-ordination between various branches of media.	Acquire knowledge on labour problems, trade unions and co-ordination between various branches of media.
III	Inter relations between various media security arrangements in media centers, problems of quality control, influence of government on production and broadcasting.	Recognise media security arrangements and influence of government on production and broadcasting.
IV	Review by public and service organizations, internal arrangements in broadcasting radio and television.	Analysis of reviews and know about internal arrangements in broadcasting.

10. BASIC SEGMENTS OF ENVIRONMENTAL CHEMISTRY

Module	Content	Course outcomes
I	Environmental Chemistry – Significance of basic segments of environment – Nomenclature in the study of environmental chemistry.	Know the significance of basic segments of environment
II	Lithosphere –I: Principles of weathering – effect of temperature, water, air, plants and animals on weathering.	Grasp the effect of temperature, water, air, plants and animals on weathering.
I	Lithosphere-II Soil formation/ Factors affecting soil- development, Soil functions, soil colloids- Ion exchange properties	Gain knowledge on factors affecting soil development and soil functions.
IV	Analysis of soil: Sampling, determination of moisture, total nitrogen, phosphorous, silicon, lime, humus, nitrogen, alkali salts	Acquire skills in determination of moisture, total nitrogen, phosphorous, silicon and lime of the soil.

11. ORGANIC FARMING

Module	Content	Course outcomes
I	Concept of Organic farming- Introduction to Farming, Principles Principals of organic types of organic farming. Benefits of organic farming Need for organic farming. Requirements for organic farming	Gain knowledge on types, benefits and requirements of organic farming.
II	Organic crop production practices-I Organic crop production methods- vegetables lanum melongena, Avelmoschus esculentus, capsicum (chilies) Lycopersicum, Amaranthus, Cucurbitaceae. Organic crop production methods –Fruits- Banana, Papaya. Livestock component in organic farming.	Acquire skills in organic crop production of vegetables and fruits
III	Organic crop production practices-II Organic crop production methods- Spices- pepper, ginger Organic crop production methods- Medicinal and aromatics. Organic crop production methods- Ornamental crops	Awareness is created on organic crop production methods of spices, medicinal plants and ornamental plants.
IV	Organic plant protection and nutrient management. Soil tillage, land preparation and mulching. Green manuring, composting-principles, composting methods, vermin- composting. Organic manures, organic preparations. Bio-fertilizers-types. Weed management.	Acquire skills in Organic plant protection, nutrient and weed management

12. YOGA

Module	Content	Course outcomes
I	Introduction to yoga, yogic concepts of mind and body, streams of yoga and difference between yoga and Exercise	Expertise on yogic concepts and differences between yoga and Exercise
II	Standing asanas: Tadasana Padhmasana Ardha chakrasana Trikonasana	Gain knowledge on health benefits of Standing Asanas.
III	Sitting asanas: Vajrasana Shashnkasana Suptavajrasana, ustrasana	Acquire skills in sitting asana and their health benefits
IV	Pranayama: Anuloma-viloma Ujjayi, Shaitali, sitkari	Aware of breathing benefits and increase lung capacity by doing pranayama.

13. PARTICLE PHYSICS

Module	Content	Course Outcome
I	Fundamental Particles and their searches, accelerators and colliders	Know the basics of accelerators and colliders
II	Basic interactions, Relativity, antiparticles, Rotation, Iso spin, addition of Angular Momentum	Acquire Knowledge on fundamentals of Rotation and Angular Momentum
III	Strong Interactions, Electro-magnetic Interactions, Weak Interactions	Become competent on Strong, Weak and Electromagnetic Interactions.
IV	Einstein mass energy relation	Understand nuclear fission and fusion reactions and that a large amount of energy is liberated during fusion reactions and nuclear fission.


Principal
Adusumilli Gopalakrishnaiah & Sugarcane Growers
Siddhartha Degree College of Arts & Science,
Vijayuru-521 165, Krishna District.

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Value Added/ Certificate Courses

Course Modules and Outcomes

2019-20

Value Added/ Certificate Courses

Course Modules and Outcomes

2019-20

1. HISTORY AND ARCHEOLOGY

Module	Content	Course Outcome
I	Political history: This focuses on the study of political systems, leaders, and institutions, including the rise and fall of governments, wars, revolutions, and diplomatic relations	Students will be aware of Political systems, governments, revolutions, and diplomatic relations.
II	Social history: Social history examines the everyday lives of people in the past, including their social structure, class relation, gender roles, family life and culture practices.	Know about everyday lives of people in the past especially of culture practices.
III	Economics history: This area explores the economic systems, trade networks, labour relations, and economic developments over time, analyzing factors such as industrialization, globalization, and economic inequality	Gain Knowledge on economic systems, trade networks, labour relations, and economic developments over time.
IV	Cultural history: Cultural history investigates the beliefs, values, art, literature, music, and intellectual movements of different societies, examining how culture shapes and is shaped by historical events.	Know about the values, art, literature, music of different societies

2. LAB SYMBOLS AND SAFETY

Module	Content	Course Outcome
I	Introduction to Basic Safety rules	Know the correct procedures that are used in various situations when handling hazardous or biological materials, when preparing, executing or cleaning up an experiment
II	Handling and Identifying symbols	Students can identify different symbols that are useful for safety in laboratory.
III	Identifying by observing Symbols in laboratory store and their handling by using procedures.	Identify different symbols and their handling procedures.

3. ONLINE BUSINESS

Module	Content	Course Outcome
I	Introduction to online business: Introduction to online business-definition-characteristics-advantages of online business-challenges-difference between off-line business, e-commerce and online business	Students gain knowledge on advantages and challenges of online business and differences between off-line, online e-commerce businesses.
II	Online-business strategies: online-business strategies-strategic planning process-procurement-logistics & supply chain management-customer relationship management	Become competent of strategic planning process, logistics & supply chain management.
III	Design online business website: Design online business website-policies-security & legal issues-online advertisements-payment gateways-case study	Gain knowledge on website-policies, online advertisements and payment gateways

4. JOURNALISM

Module	Content	Course outcomes
I	Journalism: Meaning, Definition, Nature, Scope	Students understand how Journalism plays a crucial role in society by providing accurate and timely information, holding governments, institutions, and individuals accountable.
II	Principles and Significance, Functions of Journalism, kinds of journalism	Students understand how journalism promotes transparency in government and other institutions, fostering a healthy democratic process.
III	History of Indian Journalism: JA Hickey, Raja Rammohan Roy ,M.K. Gandhi	Students gain knowledge on Pre- Independence and Post-Independence journalism.
IV	Magazine Journalism, Scope, trends and challenges	Students gain knowledge on Magazine journalism which is a form of media that involves the creation, editing, and publication of content in magazines.

5. QUANTITATIVE APTITUDE

Module	Content	Course outcomes
I	Averages	Apply the knowledge of Average in data like age, money, runs, etc.
II	Profits and Loss	Every product has a cost price and a selling price. The Knowledge is used to determine the price of a commodity in the market and understand whether a business is profitable or not.
III	Partnership	Sums related to partnerships are significant for any aptitude exam. These sums carry high weightage in the aptitude exams
IV	Simple, Compound interest	The magic of compound interest is advantageous when it comes to our investments and can be a potent factor in wealth creation.

6. RURAL DEVELOPMENT

Module	Content	Course outcomes
I	Agriculture and rural economy: Agriculture is a vital sector in rural areas, and rural development often focuses on improving agricultural productivity, diversification, and sustainable farming practices	Students know that agriculture is the backbone of many rural communities, providing income and employment opportunities for local people. It is also a crucial source of food, with rural farmers producing much of the food consumed in their local communities.
II	Infrastructure development: Building and improving infrastructure in rural areas is essential for their development	Students be aware of building and improving of infrastructure in rural areas
III	Education and skill Development: Enhancing education and skill development opportunities in rural areas is crucial for empowering individuals and improving their socio-economic conditions.	Vocational education and skill development in rural areas prepare students for specific skilled trades and technical careers, equipping them with practical skills and hands-on experience, thus making them career-ready and highly employable.
IV	Health and social services: Access to quality healthcare and social services is vital for rural communities	Students become aware of special attention needs to be given to the health care in rural areas to control the spread of diseases and reduce the growing rates of mortality due to lack of adequate health facilities.

7. MUSHROOM CULTIVATION

Module	Content	Course outcomes
I	Mushroom Cultivation- Introduction, Uses, Types of mushrooms. Preparation of Mother Spawn in Saline bottle, sterilization. Cultivation of milky mushrooms.	Gain knowledge on types of Mushrooms and develop skills in the preparation of Mother spawn
II	Soil PH, Water, Soil sterilization, dark room, light room. Controlled room temperature, culture caring. Diseases and their controlling methods.	Understand the management practices of mushroom cultivation
III	Storage and nutritional value. Industrial edible mushrooms, poisonous mushrooms. Importance and Medicinal value of mushrooms.	Gain knowledge on nutritional value of mushrooms and apply it industrially
IV	Types of food prepared from mushrooms. Marketing in India. Export value	Able to use knowledge in the preparation of different types of food. Gain knowledge on marketing.

8. ORGANIC FARMING

Module	Content	Course outcomes
I	Concept of Organic farming- Introduction to Farming, Principles Principles of organic types of organic farming. Benefits of Organic farming Need for organic farming. Requirements for organic farming	Gain knowledge on types, benefits and requirements of organic farming.
II	Organic crop production practices-I Organic crop production methods- vegetables lanum melongena, Avelmoschus esculentus, capsicum (chilies) Lycopersicum, Amaranthus, Cucurbitaceae. Organic crop production methods –Fruits- Banana, Papaya. Livestock component in organic farming.	Acquire skills in organic crop production of vegetables and fruits
III	Organic crop production practices-II Organic crop production methods- Spices- pepper, ginger Organic crop production methods- Medicinal and aromatics. Organic crop production methods- Ornamental crops	Awareness is created on organic crop production methods of spices, medicinal plants and ornamental plants.
IV	Organic plant protection and nutrient management. Soil tillage, land preparation and mulching. Green manuring, composting-principles, composting methods, vermin- composting. Organic manures, organic preparations. Bio-fertilizers-types. Weed management	Acquire skills in Organic plant protection, nutrient and weed management

9. YOGA AND MEDITATION

Module	Content	Course outcomes
I	Introduction to yoga, yogic concepts of mind and body, streams of yoga and difference between yoga and Exercise	Expertise on yogic concepts and differences between yoga and Exercise
II	Standing asanas: Tadasana Padhmasana Ardha chakrasana Trikonasana	Gain knowledge on health benefits of Standing Asanas.
III	Sitting asanas: Vajrasana Shashnkasana Suptavajrasana, ustrasana	Acquire skills in sitting asana and their health benefits
IV	Pranayama: Anuloma-viloma Ujjayi, Shaitali, sitkari	Aware of breathing benefits and increase lung capacity by doing pranayama.

10. HARDWARE AND NETWORKING

Module	Content	Course outcomes
I	Components of computer- Input unit, Arithmetic and logic unit, Control unit, Storage /Memory unit, Output unit Computer Memory- What is computer memory, Types of memory, Difference between Primary memory & secondary memory	Gain Knowledge on various components of a computer and types of memory.
II	Introduction to E-mail, E-mail addressing, Creating new email account, Composing and sending email, Replying and forwarding, Sorting and searching email, Sending email to multiple users, Sending attachments, Mailbox: inbox and outbox	Acquire skills in creating, composing, sending, searching emails.
III	Smartphone & Smartphone operating systems (Google Android, Apple ios, Windows phone), Using Bluetooth for connecting devices from mobile phones to headphones, and computer mouse to computers, Connecting to Internet using Mobile Hotspot, WiFi, USB Cable etc, Google account, Adding Contacts.	Skill development in Smartphone operating systems, use of blue tooth, Connecting to Internet using Mobile Hot spot etc.
IV	2 Digital Number Systems and its conversions, BCD Numbers, ASCII Code, Logic Gates & Truth Tables, Half Adder & Half Subtractor, Multiplexer and DE multiplexer, Encoder & Decoder, Flip Flops and Types of Flip Flops, Latches, Registers & Counters, Trouble shooting	Skill development in 2 Digital Number Systems and its conversions, Multiplexer and DE multiplexer, Encoder & Decoder.

11. COMPETITIVE ENGLISH

Module	Content	Course outcomes
I	Vocabulary Usage Synonyms Antonyms Cloze Test , One Word Substitution Verbal Analogies	Acquaint the learner with some widely used words which appear to be similar but are semantically different and understand the grammatical structures in writing.
II	Comprehension Ability Comprehension – I, Comprehension – II Theme Detection Deriving Conclusions From Passages.	Analyze, interpret, appreciate and comprehend the specified text and the contexts in terms of their content, purpose, and form
III	Selecting Words/Phrases Sentence Completion, Passage Completion, Choosing The Appropriate Filler	Think critically; convey their own interpretations in sentence and passage completion
IV	Error Detection Common Errors – How To avoid Them Spotting Errors, Sentence Improvement Passage Correction, Choosing The Correct/Incorrect Sentence	Spot and avoid errors and improve sentence and passage correction.
V	Rearrangement Reconstruction of Sentences Rearrangement of Sentences in a paragraph, Reconstruction of Paragraph Rearrangement of Jumbled Parts Word Formation	Write effectively with reconstruction and rearrangement of sentences in a paragraph.
VI	General Usage Idioms and Phrases, Active and Passive Voice, Direct and Indirect Speech	Know about using of Idioms, Phrases, Active and Passive Voice Direct and Indirect Speech.

12. BASIC COMPUTER APPLICATIONS & MS OFFICE

Module	Content	Course outcomes
I	Introduction to computer fundamentals, windows OS, internet and email computer, classification of computers, parts of a computer, operating system, internet, modem, web browsers, e-mail, establishing your e-mail account.	Gain knowledge on internet, computer, operating system, internet modem, and web browsers,
II	Introduction to Microsoft word basic components of a word widow, preparing a word document, editing a prepared document, adjusting the margin settings, additional formatting options, header and footer options border and shading of page, drawing options, inserting images, mail merge options, saving a document, creating a new document, inserting audio and video files.	Skill development in MS-office that includes preparing and editing a word document, inserting images audio and video files etc.
III	Introduction to Microsoft Excel enter data in excel workbook, formating toolbar, shortcut to fill a series, mathematical functions, editing a data sheet ,format cell, rename a sheet, save, open a work book, arrange data in ascending or descending order, insert new cell column or row, insert picture or clipart in excel sheet	Skill development in MS-Excel, enter data in excel workbook, open a work book, arrange data in ascending or descending order.
IV	Introduction to Microsoft power point how to create a new slide, how to apply animations to slides, fill background with effects, how to apply sound to slides, how to save a presentation, opening an existing presentation ,insert new slides with different layout, editing a slide, inserting picture to a slide, inserting media files to power point slides	Skill development in Microsoft power point, how to create a new slide, insert a new slides with different layout and inserting media files to power point slides.

13. AIR POLLUTION

Module	Content	Course outcomes
I	Atmospheric sources and emission of air pollutants	Students gain knowledge on different types of pollutant gases emitted into the atmosphere.
II	Organic pollutants and photo chemical smog-particulates	Become aware of Photochemical smog that will be formed when nitrogen oxides and volatile organic compounds (VOCs) react to sunlight, creating a brown haze above cities. They learn the reducing methods and lessen pollution.
III	Analysis of carbon mono oxide – carbon dioxide – Sulphur dioxide – hydrogen sulfide	Students be aware of the sources of these air pollutants and the ill-effects caused by them to living organisms.
IV	Oxides of nitrogen, ammonia, ozone, hydrocarbons, aromatic hydrocarbons.	Gain knowledge on sources of pollutants and disadvantages caused by them to the society.

14. AMAZON WEB SERVICES (AWS)

Module	Content	Course outcomes
I	AWS over-view Describe the features of AWS, the features of AWS marketplace, describe the features of Amazon computer services	An overview on AWS is known by students and have knowledge on the features of Amazon computer services
II	Various services in AWS Compute, storage database, analytics , Mobile ,developer tools ,management tools, IoT , security and enterprise applications	For students AWS services are easy to use as they are cost effective providers and know about security and enterprise applications.
III	Features of AWS 1. Flexibility 2.cost-effective 3. Experienced 4. Secure 5. Scalability and elastic 6. Easy to use 7 User friendly	Attain skills on features of AWS
IV	Identify access management in AWS Protect your AWS by different authentication system , password policies sent for users , AWS user account and groups in detail ,creating custom policies in AWS	Acquire skills on how to protect the AWS by different authentication systems

15. FUNDAMENTALS OF PUBLIC RELATIONS

Module	Content	Course outcomes
I	Definitions of public relations, origin of public relations, need for public relation, functions of public relations	Become conscious on origin, need and functions of public relation.
II	Elements of public relations, the components and tools of public relations, some possibilities that would call for public relations, public relations in government	Students learn about Press Releases, Press Kits, Video News Releases, Employee/Member Relation Programme, Community and financial Relations Programme.
III	Component, public relations objective, public relations strategy, public relations process.	Become aware of public relations objectives, strategies and processes.
IV	Introduction, image building exercises, effectiveness surveys, communication programme	Know about image building exercises and role of public relations.

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Value Added/ Certificate Courses

Course Modules and Outcomes

2020-21

Value Added/ Certificate Courses

Course Modules and Outcomes

2020-21

1. Amazon web services (AWS)

Module	Content	Course outcomes
I	AWS over-view Describe the features of AWS, the features of AWS marketplace, describe the features of Amazon computer services	An overview on AWS is known by students and have knowledge on the features of Amazon computer services
II	Various services in AWS Compute, storage database, analytics , Mobile ,developer tools ,management tools, IoT , security and enterprise applications	For students AWS services are easy to use as they are cost effective providers and know about security and enterprise applications.
III	Features of AWS 1. Flexibility 2.cost-effective 3. Experienced 4. Secure 5. Scalability and elastic 6. Easy to use 7 User friendly	Attain skills on features of AWS
IV	Identify access management in AWS Protect your AWS by different authentication system , password policies sent for users , AWS user account and groups in detail ,creating custom policies in AWS	Acquire skills on how to protect the AWS by different authentication systems

2. YOGA

Module	Content	Course outcomes
I	Introduction to yoga, yogic concepts of mind and body, streams of yoga and difference between yoga and Exercise	Expertise on yogic concepts and differences between yoga and Exercise
II	Standing asanas: Tadasana Padhmasana Ardha chakrasana Trikonasana	Gain knowledge on health benefits of Standing Asanas.
III	Sitting asanas: Vajrasana Shashnkasana Suptavajrasana, ustrasana	Acquire skills in sitting asana and their health benefits
IV	Pranayama: Anuloma-viloma Ujjayi, Shaitali, sitkari	Aware of breathing benefits and increase lung capacity by doing pranayama.

3. COMPETITIVE ENGLISH

Module	Content	Course outcomes
I	Vocabulary Usage Synonyms Antonyms Cloze Test One Word Substitution Verbal Analogies	Acquaint the learner with some widely used words which appear to be similar but are semantically different and also help them to realize the importance of meanings, and understand the grammatical structures in writing.
II	Comprehension Ability Comprehension – I Comprehension – II Theme Detection Deriving Conclusions From Passages .	Analyze, interpret, appreciate and comprehend the specified text and the contexts in terms of their content, purpose, and form
III	Selecting Words/Phrases Sentence Completion Passage Completion Choosing The Appropriate Filler	Think critically; convey their own interpretations in sentence and passage completion
IV	Error Detection Common Errors – How To avoid Them Spotting Errors Sentence Improvement Passage Correction Choosing The Correct/Incorrect Sentence	Spot and avoid errors and improve sentence and passage correction.
V	Rearrangement Reconstruction of Sentences Rearrangement of Sentences in a paragraph Reconstruction of Paragraph Rearrangement of Jumbled Parts Word Formation	Write effectively with reconstruction and rearrangement of sentences in a paragraph.
VI	General Usage Idioms and Phrases Active and Passive Voice Direct and Indirect Speech	Know about using of Idioms, Phrases, Active and Passive Voice Direct and Indirect Speech.

4. TALLY ERP-9

Module	Content	Course outcomes
I	Fundamentals of tally erp-9: Features-start tally erp-9, create and alter a company-creating single group/multiple groups, display, deleting groups-ledger: creating single ledger/multiple ledgers.	Students can track and manage the accounts, sales, debts, and everything else related to the running of business.
II	Create accounting masters in tally erp-9 chart of accounts-creating single and multiple charts, displaying and altering charts-walkthrough for creating chart of accounts	TallyERP 9 gives the student great flexibility in setting up chart of accounts. It allows to group ledger accounts right at the time of creating accounts chart.
III	Back-up of data and resorting-tally erp9 audit features creating stock unit of measure	Students develop skills to take the backup of company data any time and restore it when needed.
IV	Creating inventory master: Creating stock groups, displaying, deleting, altering-displaying and deleting unit measures-creating altering, and displaying, deleting stock items-generating reports.	Develop skills to maintain the stock details of an organization, to realize the availability of stock in hand which is part of the Balance sheet.

5. CLOUD COMPUTING

Module	Content	Course outcomes
I	Introduction to virtualization: Virtual Machines and Virtualization Middleware - Data center Virtualization for Cloud Computing	Develop skills in Virtualization technique and know how to separate a service from the underlying physical delivery of that service.
II	implementation Levels of Virtualization Structures/Tools and Mechanisms of Virtualization of CPU-memory-i/o devices.	Students gain knowledge on virtualization layers that include the instruction set architecture level, hardware level, operating system level, library support level, and application level.
III	Introduction to cloud computing System Models for Distributed and Cloud Computing -Software	Learn models of Distributed and Cloud Computing -Software like Client-Server Model and Peer-to-Peer model.
IV	Clouds - Cloud Computing and Service Models –public-private-hybrid clouds	Students develop skills on Public cloud, Private cloud and Hybrid cloud

6. ELECTRICAL MOTOR WINDING

Module	Content	Course outcomes
I	DC motors-toy motors, fan motor, other types of motors	Acquire skills on working of DC motors, toy motors, fan motor, series, shunt and compound motors.
II	AC motors, design and working	Gain expertise in design and working of Induction motors. Synchronous motors. Single-phase motors..
III	AC and DC dynamos, Types	Gain knowledge on AC and DC dynamos, and their types
IV	Different circuits of house hold applications	Acquire skills in 15 Amperes current rating circuit and 5 Amperes current rating circuit that are used for house hold purpose.

7. ORGANIC FARMING

Module	Content	Course outcomes
I	Concept of Organic farming-Introduction to Farming, Pr of organic types of organic farming. Benefits of Organic farming Need for organic farming.	Gain knowledge on types, benefits and requirements of organic farming.
II	Organic crop production practices-I Organic crop production methods- vegetables lanum melongena, Avelmoschus esculentus, capsicum (chilies) Lycopersicum, Amaranthus, Cucurbitaceae.	Acquire skills in organic crop production of vegetables and fruits.
III	Organic crop production practices-II Organic crop production methods- Spices- pepper, ginger, Organic crop production methods- Medicinal and aromatics. Organic crop production methods- Ornamental crops	Awareness is created on organic crop production methods of spices, medicinal plants and ornamental plants.
IV	Organic plant protection and nutrient management. Soil tillage, land preparation and mulching. Green manuring, composting-principles, composting methods, vermin- composting. Organic manures, Bio-fertilizers-types. Weed management	Acquire skills in Organic plant protection, nutrient and weed management

8. FLORI CULTURE

Module	Content	Course outcomes
I	Ornamental Plants: Flowering annuals; herbaceous, perennials: Shade and ornamental trees. Ornamental bulbous and foliage plants; Cacti and succulents. Cultivation of plants in pots; Indoor gardening: Bonsai.	Students gain knowledge on Floriculture which is considered as a greenhouse industry, but many flowers can be cultivated outdoors in nurseries or crop fields.
II	Factors affecting flower production; Production and packaging of cut flowers; Cultivation of Important cut flowers (Aster, Dahlia, Gerbera, Anthuriums, Marigold, Rose, Liliun)	Skill development in flower production, packaging of cut flowers and their cultivation.
III	Flower arrangements; Methods to prolong vase life of flowers. Management of pests, diseases and harvesting. Methods of harvesting.	Students learn the methods to prolong vase life of flowers and harvesting. Know about management of pests and diseases.

9. GREEN CHEMISTRY

Module	Content	Course outcomes
I	Introduction and Basic principles of Green chemistry	Students learn the aims to design and produce cost-competitive chemical products and processes that attain the highest level of the pollution-prevention hierarchy by reducing pollution at its source.
II	Atom economy and atom efficiency	Learn about Atom economy (atom efficiency/percentage) which is the conversion efficiency of a chemical process in terms of all atoms involved and the desired products produced.
III	Sono chemical reactions (Heck, Hund's dicker, and Wittig reactions).	Gain knowledge on Mechanism, variations and products formed from these reactions.
IV	Sonication method & Sono chemistry Equipment	Awareness on Direct sanitation and Indirect sanitation method. Ultrasound irradiation constitutes an important tool in organic synthesis due to its several advantages such as reduced reaction times, higher yields, lower costs, and mild conditions.

10. Business Computer Applications and MS Office

Module	Content	Course outcomes
I	Module I: Introduction to Computer Fundamentals, Windows OS, Internet and Email Computer, Classification of computers, Parts of a computer, Operating System, Internet, Modem, Web browsers, E-mail, Establishing your e-mail account	Learn the basics of Windows, Parts of a computer, Operating System, Internet and Modem.
II	Module II: Introduction to Microsoft Word Basic components of a Word window, Preparing a word document, Editing a prepared document, Adjusting the margin settings, Additional formatting options, Header and Footer options, Border and Shading of page, Drawing options, Inserting images, Mail merge options, Saving a document, Creating a new document, Inserting audio and video file	Develop skills in preparing and editing a word document, Header and Footer options, Border and Shading of page and creating a new document.
III	Module III: Introduction to Microsoft Excel Enter data in excel workbook, Formatting toolbar, Shortcut to fill a series, Mathematical functions, Editing a data sheet, Format cell, Rename a sheet, Save, Open a workbook, Arrange data in ascending or descending order, Insert new cell column or row, Insert picture or clipart in excel sheet	Develop skills in Microsoft Excel, Formatting a toolbar, arrange data in ascending or descending order and insert picture or clipart in excel sheet
IV	Module IV: Introduction to Microsoft PowerPoint How to create a new slide, How to apply animation to slides, Fill background with effects, How to apply sound to slides, How to save a presentation, Opening an existing presentation, Insert new slides with different layout, Editing a slide, Inserting picture to a slide, Inserting media files to PowerPoint slides	Develop skills in Microsoft PowerPoint, how to create slides, save a presentation and inserting media files to PowerPoint slides.

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Value Added/ Certificate Courses

Course Modules and Outcomes

2021-22

Value Added/ Certificate Courses

Course Modules and Outcomes

2021-22

1. NANO TECHNOLOGY

Module	Content	Course outcomes
I	Introduction to Nan science, Role of particle size, Basic concept of quantum well, quantum wire and quantum dot.	Students learn that Quantum wells are usually implemented by burying the confining material within a barrier material. Quantum wires confine electrons in two dimensions and In a quantum dot; an electron is confined in three dimensions.
II	Types of Nano- materials – Nano- clusters, Solid solutions, Thin film, Nano- composites (Metal Oxide and Polymer based), Core Shell	Learn that nano-clusters are used for sensing and detection applications. Nano clusters along with fluorophores are widely used for staining cells for study both in vitro and in vivo.
III	Types of Nano-materials	Gain knowledge on four types of nanomaterials: carbon-based, metal-based, dendrimers, and nano composites.
IV	Applications of Nano-materials	Learn about the applications of Nano materials in solar panels that double the amount of sunlight converted into electricity, in Biomedicine, food, environment and textile

2. ZOHO BOOKS

Module	Content	Course outcomes
I	Invoicing: zoho books allow business to create professional invoice and send them to customers. It supports customization of invoice templates automatic payment reminders and online payment integration, making it easier for business to get paid faster.	Zoho Books makes invoicing and managing receivables effortless. Students can create an invoice in Zoho Books from the sales module or directly from the dashboard.
II	Expense Tracking: With Zoho books, businesses can track and categorize their expenses accurately. It provides features for recording expenses, attaching receipts, and even allows for mileage tracking. This helps in better expense management and facilitates in tax deduction	Students have a clear and detailed understanding of budget. They can track business expenses and manage accounts payable with online accounting software.
III	Inventory management: Business can track their inventory level and manage stock movements with zoho books. It enables businesses to create item records, monitor stock levels, and generate reports to analyze inventory performance	Learn about advanced inventory and order management software that helps to centralize inventory system and automate business entire order-to-cash process.

3. BUSINESS COMPUTATIONS

Module	Content	Course outcomes
I	Percentages	Students are able to calculate the percentage and the formula used to calculate the percentage is: $(\text{value}/\text{total value}) \times 100\%$.
II	Profit and loss	Students know to track the financial performance of a company and make informed decisions about their operations.
III	Partnerships	Gain knowledge on business partnership when two or more individuals form a business together, agreeing to share the profits, losses, and management of the company..
IV	Simple, compound interest	Students know how to calculate Simple and Compound interest that is calculated on the principal amount and the accumulated interest of previous periods, and thus can be regarded as “interest on interest.”

4. AGRIBUSINESS ENVIRONMENT IN ANDHRA PRADESH

Module	Content	Course outcomes
I	Overview of Agribusiness: Introduction to Agribusiness, its components, and the role of agribusiness in the economy.	Gain Knowledge on components and role of agribusiness in the economy.
II	Agriculture in Andhra Pradesh: An overview of the agricultural sector in Andhra Pradesh, including key crops, livestock, and fisheries. Understanding the contribution of agriculture to the state's economy and employment.	Become aware of key crops, livestock, and fisheries of Andhra Pradesh. Understand agricultural contribution to the state's economy and employment.
III	Examination of government policies and programs that influence the agribusiness environment in Andhra Pradesh. This includes analysis of subsidies, agricultural credit, insurance schemes, and market regulations.	Know and analyse the policies of government like subsidies, insurance schemes, and market regulations.
IV	Agri-input and Output Markets: Study of agri-input markets, such as seeds, fertilizers, and pesticides and output markets for agricultural produce. Understanding the marketing channels, supply chain dynamics, pricing mechanisms, and challenges in these markets.	Get expertise on agri-input markets, such as seeds, fertilizers, and pesticides and output markets like marketing channels and pricing mechanisms.

5. ARTIFICIAL INTELLIGENCE

Module	Content	Course outcomes
I	Introduction to AI and production systems Introduction to AI-Problem formulation, Control strategies, Search strategies, Problem characteristics.	Have basic knowledge on AI-Problem formulation, characteristics and control strategies.
II	Representation of Knowledge Game playing knowledge representation, Knowledge representation using predicate logic, introduction to predicate calculus, use of predicate calculus	Learn to use Predicate calculus, also called Logic Of Quantifiers that forms a part of modern symbolic logic which systematically exhibits the logical relations between sentences that hold purely in virtue of the manner in which predicates.
III	Knowledge Inference Knowledge representation -Production based system, Frame based system. Inference - Backward chaining, Forward chaining.	Know to use Production based system and Frame based system.
IV	Planning and Machine Learning Basic plan generation systems, Advanced plan generation systems, K strips, Strategic explanations.	Gain knowledge on Basic plan generation systems and Advanced plan generation systems,

6. HUMAN RIGHTS AND VALUES

Module	Content	Course outcomes
I	Respect: Treating others with dignity, acknowledging their rights, and valuing their perspectives and identities Equality: Ensuring that all individuals have equal opportunities and are not discriminated, against based on their characteristics or circumstances.	Students learn to respect others and value their perspectives and identities and become aware that all are equal.
II	Justice: Upholding fairness and impartiality in the treatment of individuals and addressing injustices when they occur. Freedom: Respecting the autonomy and rights of individuals to express themselves, make choices, and participate in society without undue restrictions.	Learn to treat individuals impartially and respect the rights of individuals.
III	Tolerance: Embracing diversity and accepting differences of opinion, beliefs, and practices. Compassion: Showing empathy and understanding towards the suffering and challenges faced by others.	Become aware of accepting differences of opinion and beliefs and show empathy towards the suffering
IV	Human rights and values often go hand in hand. Human rights provide a legal and moral framework for upholding values such as respect, equality, and justice. When societies prioritize and protect human rights, they create an environment that fosters the development and flourishing of these shared values.	Know how to uphold values such as respect, equality and justice to create a healthy environment.

7. FLORI CULTURE

Module	Content	Course outcomes
I	Ornamental Plants: Flowering annuals; herbaceous, perennials: Shade and ornamental trees. Ornamental bulbous and foliage plants; Cacti and succulents. Cultivation of plants in pots; Indoor gardening: Bonsai.	Students gain knowledge on Floriculture which is considered as a greenhouse industry, but many flowers can be cultivated outdoors in nurseries or crop fields.
II	Factors affecting flower production; Production and packaging of cut flowers; Cultivation of Important cut flowers (Aster, Dahlia, Gerbera, Anthuriums, Marigold, Rose, Liliium)	Skill development in flower production, packaging of cut flowers and their cultivation.
III	Flower arrangements; Methods to prolong vase life of flowers. Management of pests, diseases and harvesting. Methods of harvesting.	Skill development in methods to prolong Vase Life of Flowers and management of pests.

8. MOCK PARLIMENT

Module	Content	Course outcomes
I	Role assignment: Participants are assigned roles as members of the parliament or legislative body. These roles can include Prime Minister, speaker of the house, Leader of the opposition, Cabinet Ministers, Members of Parliament and representatives from different political parties.	To develop in students an insight into the working parliament, which is made up of all representatives together, controls and guides the government.
II	Legislative agenda: A legislative agenda is developed, which includes a list of proposed bills or motions that will be debated and voted upon during the simulation these bills can cover a wide range of topics such as education, healthcare, environment, economy, social issues or any other relevant areas of interest.	To make students consider public issues and form their opinion on them. They can develop a legislative agenda that will be debated and voted upon
III	Bill proposals: Participants are given the opportunity to propose bills or motions these proposals should be well-researched and contain clear objectives, justifications, and potential impacts. Participants can work individually or in groups to draft and present their bills.	To train students in the technique of group discussion. They have the opportunity to propose bills or motions.
VI	Voting and decision-making: Following the debates, participants engage in voting on the proposed bills. Voting can be done electronically or through a show of hands. The results determine the fate of the bills whether they pass or fail. This helps participants understand the importance of majority support and the democratic decision-making process.	To train students on Voting process that can be done electronically or through a show of hands.

9. SERI CULTURE

Module	Content	Course outcomes
I	Definition, history and present status of Sericulture. Types of silk worms and their food plants; Prospects of Sericulture in India – Sericulture industry in different states, employment, potential in mulberry and non-mulberry Sericulture	Students are aware of present status of Sericulture, its prospects and employment.
II	Morphology of mulberry plant Common varieties of mulberry used in India Characters of root, stem and leaf, Anatomy of root, stem and leaf, male and female reproductive organs, pollination, fertilization, development of seed.	Gain knowledge on varieties of mulberry, their anatomy, and development of seed.
III	Requirements for mulberry cultivation Physical and chemical properties of soil and its nature; Soil moisture and water requirements Climatic conditions - Temperature, photoperiod, humidity and rain fall	Gain knowledge on soil properties, water requirements and climatic conditions for mulberry cultivation.
IV	Mulberry management Land preparation - leveling and ploughing Irrigation - drip, sprinkler or flood irrigation, weeding, Manuring - organic, inorganic and bio-fertilizers, Harvesting - leaf picking, shoot-leaf harvesting, branch cutting, leaf storage	Develop skills in management practices of mulberry culture like irrigation, manuring and harvesting.
V	Diseases and pests of mulberry Fungal and bacterial diseases - Powdery mildew, red rust and leaf spot caused by fungi. Symptoms; mechanical and chemical control. Nematode and Mycoplasma diseases- Mulberry root knot and mulberry root rot Nematode diseases and viral diseases, Symptoms; Mechanical and chemical control Caterpillars - Bihar hairy caterpillar, Leaf hoppers and scale insects Beetles - Girdle beetle , powder pest beetle..	Gain knowledge and identification skills of various diseases affecting Mulberry plant and control measures.

10. TRAVEL & TOURISM

Module	Content	Course outcomes
I	Concepts of Tourism and Travel Development of Tourism through ages: Early and Medieval Period of Travel- Modes of Transport and accommodation, Renaissance and its effects on tourism	Awareness on Early and Medieval Period of Travel and modes of transport.
II	Tourism and its Theories Tourism and its Theories: Meaning and Definitions, Characteristics of Tourism, Need for Measurement of Tourism, interdisciplinary approaches	Gain knowledge on Tourism and its Theories and characteristics of tourism.
III	Travel Behaviour & Motivations Travel Behaviour & Motivations: Origin of Travel Motivation, Meaning of Motivation & Behaviour, Theory of Travel Motivations, Typology of Tourists	Acquire knowledge on Origin and theory of Travel Motivation and typology of tourists.
VI	Tourism Organizations Tourism Organizations: Roles and Functions of United Nations World Tourism Organization (WTO), Pacific Asia Travel Association (PATA)	Learn about World Tourism Organization and Pacific Asia Travel Association (PATA)

11. WATER ANALYSIS

Module	Content	Course outcomes
I	Introduction	Water quality analysis also called as hydro chemical analysis is used by students to determine the content of various chemical components in water.
II	Water quality parameters	Gain knowledge on water quality parameters that convey the health of an ecosystems, safety of human contact, extent of water pollution and condition of drinking water.
III	Physical Parameters & Chemical parameters	Students know about physical parameters which include colour, taste, odour, temperature, turbidity, solids, and electrical conductivity and chemical parameters like pH, acidity, alkalinity, chlorine, hardness, dissolved oxygen, and biological oxygen demand.
VI	Instrumentation	Develop skills in usage of Colorimeters and Photometers which are used to analyze samples of water, suspended sediment, and bottom material for their content of inorganic and organic constituents.


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Vyyuru-521 165, Krishna District.

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Value Added/ Certificate Courses

Course Modules and Outcomes

2022-23

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Course Modules and Outcomes

2022-23

1. ANALYSIS OF TIME SERIES

Module	Content	Course outcomes
I	Introduction, Components of time series- Trend, Periodic changes, Irregular component; Analysis of Time series- Mathematical models for Time series, Uses of Time series.	Basic Knowledge on components of time series, analysis and mathematical models of time series.
II	Measurement of Trend- Graphic method, Method of semi-averages, Method of Curve, Fitting by Principle of Least squares, Growth curves and their fitting, Moving Average method, Approximation to Moving Averages	Know about measurement of Trend- Graphic method, Growth curves and their fitting.
III	Measurement of Seasonal Variations- Method of Simple Averages, Ratio to Trend method, Ratio to Moving Averages method, LinkRelatives method, Depersonalisation of data	Gain knowledge on Method of Simple Averages, Ratio to Trend method, and Moving Averages method,
VI	Measurement of Cyclic variations	Students learn about Cyclical variation, a non-seasonal component that varies in a recognizable cycle.

2. SOFT SKILLS DEVELOPMENT FOR PHYSICS STUDENTS

Module	Content	Course outcomes
I	Emotional intelligence in anger management	Students learn to become calm, constructive, than losing their temper. of understanding when they are frustrated or annoyed or upset
II	Human excellence, intellectual property right	Gain Knowledge on intellectual property rights (IPR) that refer to the legal rights given to the inventor or creator to protect his invention or creation for a certain period of time
III	Science and spirituality	Learn that the road to science& spirituality are opposite, but one should trend both. Spirituality helps to find meaning in life, provides a foundation of our values to guide us in the way we behave with self, others and the world around us. .
VI	All round success through a balanced life	Setting clear goals is the first step towards success and one should develop in a harmonious way.

3. TALLY PRIME

Module	Content	Course outcomes
I	Fundamentals of tally prime: Features-start tally Erp-9 create and alter a company-creating single group/multiple groups, display, deleting groups-ledger: creating single ledger /multiple ledgers	Student can create and alter a company, Learn about single and multiple groups and Ledger.
II	Create accounting masters in tally prime-chart of accounts-creating single and multiple charts,displaying and altering charts-walkthrough for creating chart of accounts	Student can create, display and alter single and multiple charts.
III	Creating inventory master: Creating stock groups, displaying, deleting, altering-displaying and deleting unit measure-creating altering displaying, deleting stock items-generating reports.	Student can create stock groups and can alter, display and delete stock items.

4. ORNAMENTAL FISH BREEDING

Module	Content	Course outcomes
I	Introduction to Aquaculture and Ornamental Fishes and Trading Basics of aquaculture definition and scope. History of aquaculture: Present global and national scenario. World trade of ornamental fish and export potential; Different varieties of exotic and indigenous fishes; Ornamental fisheries- new dimensions in aquaculture entrepreneurship	Gain knowledge on Present Global and National scenario of ornamental fish culture; different varieties of exotic and indigenous ornamental fishes;
II	Introduction to Ornamental fishes Introduction to aquarium and aquarium accessories; Basic knowledge on profile of ornamental fishes in world Fish Breeding and rearing in Live Bearers Breeding of ornamental fish with reference to live bearer species. Breeding of Guppies, Mollies, Sword tail fish and Platy fish Introduction hatchery management system for live bearers Nursery management of live bearers Rearing of live bearers	Develop skills to identify Aquarium accessories. Learn to breed live bearers like Guppies, Mollies, Sword tail fish and Platy fish
III	Fish Breeding and rearing in Egg layers Ornamental fish farming-Management Aspects Ornamental Fish-diseases and their management Live Food culture for tropical ornamental fish Feeding for breeding and maintenance of ornamental fish	Develop skills in fish breeding, rearing of Egg layers, live food culture and maintenance of ornamental fish
VI	Engineering Aspect and construction of aquarium Design and construction of public fresh Construction, settings and maintenance of aquarium Construction of ornamental fish unit Engineering aspect in Ornamental Fish Farming	Skill development in Design and Construction of aquarium and maintenance.

5. CLOUD COMPUTING

Module	Content	Course outcomes
I	Introduction to virtualization: Virtual Machines and Virtualization Middleware - Data center Virtualization for Cloud Computing	Develop skills in Virtualization technique and know how to separate a service from the underlying physical delivery of that service.
II	implementation Levels of Virtualization Structures/Tools and Mechanisms of Virtualization of CPU-memory-i/o devices	Students gain knowledge on virtualization layers that include the instruction set architecture level, hardware level, operating system level, library support level, and application level.
III	Introduction to cloud computing System Models for Distributed and Cloud Computing -Software	Learn models of Distributed and Cloud Computing -Software like Client-Server Model and Peer-to-Peer model.
VI	Clouds - Cloud Computing and Service Models –public-private-hybrid clouds	Students develop skills on Public cloud, Private cloud and Hybrid cloud

6. DEEP LEARNING

Module	Content	Course outcomes
I	Deep learning environment Over view of deep learning , deep learning environment setup locally – installing tensor flow, installing keras, run tensor flow program on AWScloud platform	Gain knowledge on deep learning environment and installing keras, run tensor flow program on AWS cloud platform
II	Introduction to neural network What is neural network, how neural networks work, gradient descent, perception, multilayer perception, back propagation.	Know about neural network, gradient descent and perception.
III	Tensor flow basics Placeholders in tensor flow-defining placeholders , feeding placeholders with data, variables , constants , computation graph	Get expertise on feeding placeholders with data, variables, constants, computation graph.
VI	Activation functions What are the activation functions, sigmoid functions, hyperbolic tangent function, Relu- rectified linear units, softmax function	Learn about activation functions, sigmoid functions and hyperbolic tangent functions.

7. MOCK PARLIMENT

Module	Content	Course outcomes
I	Role assignment: Participants are assigned roles as members of the parliament or legislative body. These roles can include Prime Minister, speaker of the house, Leader of the opposition, Cabinet Ministers, Members of Parliament and representatives from different political parties.	To develop in students an insight into the working parliament, which is made up of all representatives together, controls and guides the government.
II	Legislative agenda: A legislative agenda is developed, which includes a list of proposed bills or motions that will be debated and voted upon during the simulation these bills can cover a wide range of topics such as education, healthcare, environment, economy, social issues or any other relevant areas of interest.	To make students consider public issues and form their opinion on them. They can develop a legislative agenda that will be debated and voted upon
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8. ARTHIMETIC ABILITY

Module	Content	Course outcomes
I	Addition: Understanding the addition operation, adding single digit and multidigit numbers, carrying over digits and adding Decimals or Fractions.	To understand addition operation, single digit and Multidigit numbers.
II	Subtraction: Understanding the subtraction operation, subtracting single digit and multidigit numbers, Borrowing or regrouping numbers, subtracting Decimals and fractions	Students gain knowledge on subtraction operations.
III	Multiplication: Operations, including multiplication single digit and multidigit numbers, using multiplication tables, applying standard algorithm or Lattice	Students can analyse Multiplication single digit and Multidigit Numbers.
VI	Division: Operations, including dividing single digit and multi digit numbers, using division tables, applying long division and short division.	Gain basic knowledge on applying long division and short division

9. HISTORY OF REVOLUTION

Module	Content	Course outcomes
I	Introduction to Revolution: Defining Revolution; Theoretical approach to revolution; The role of revolutions in shaping History; Notable Historiographical Debates	Basic Knowledge on Revolutions and their role in shaping History.
II	The Pre- Modern world: Pre- modern Revolutions Eg: the English Civil War, Glorious Revolution and American revolution.	Gain Knowledge on Pre- Modern world Revolutions.
III	The Age of Revolution, the late 18 th to early 19 th century The American revolution; The French revolution and its impact; Revolution in Latin America; Analysis of enlightenment ideas and their roles	Know about American, French revolutions and Latin America
VI	Revolution of 19 th Centaury The European Revolution of 1848; The role of Nationalism; Socialism and Revolutionary Movements; Analysis of industrialisation impact on Revolutions.	Gain Knowledge on the role of Nationalism, Socialism and Revolutionary Movements.

10. STATISTICAL COMPUTING

Module	Content	Course outcomes
I	Introduction to R Programming, Data types of R, Expressions, Variables, Functions	Students will be aware of R programming which is free to use, distribute, and modify. It enables users to perform a wide range of statistical analyses, data visualization, and machine learning tasks.
II	Conditional Statements, Looping statements, Control flow functions	Skill development in the usage of Conditional statements that allow executing a result of a logical test. Loops in R allow executing the same block of code multiple times.
III	Arrays, Matrix, Vectors, Factors, Packages	Skill development in using Arrays, Matrix, Vectors, Factors and Packages
VI	Data frames, Data frame access, ordering data frames, functions of data frame.	Gain Knowledge on usage of Data frame access, ordering data frames and functions of data frame.

11. VERMICOMPOSTING

Module	Content	Course outcomes
I	<p>1.General Vermiculture/ Vermicompost</p> <p>1.1 Introduction to vermiculture. definition, meaning, history, economic importance, their value in maintenance of soil structure, role as four r's of recycling reduce, reuse, recycle, restore.</p> <p>1.2The role in bio transformation of the residues generated by human activity and production of organic fertilizers.</p> <p>1.3 The matter and humus cycle</p>	<p>Understand the importance of vermicompost application to the soil.</p> <p>Study the need of vermin-composting in Organic Farming in India.</p>
II	<p>2.1Useful species of earthworms. Local species of earthworms.Exotic species of earthworms.</p> <p>2.2 Key to identify the species of earthwormsb)Vital cycle of Eisenia foetida</p>	<p>Gain Knowledge on different species of earthworms used in Vermiculture</p>
III	<p>3.Vermicompost Technology: Methods and Products</p> <p>3.1Vermicompost Technology:</p> <p>3.2Conventional commercial composting Earthworm</p> <p>3.3Composting conventionalcommercial composting - Earthworm Composting larger scale.</p>	<p>Understand the methods for vermicompost production and its products.</p>
IV	<p>4.Applied vermiculture</p> <p>4.1Nutritional Composition of Vermicompost for plants, comparison with other fertilizers</p> <p>Vermi-wash collection, composition &use</p> <p>4.2 Considerations about economic aspects of this activity.</p>	<p>Gain knowledge on economic importance of Vermicompost.</p>


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