# GOVERNMENT DEGREE COLLEGE

## Ravulapalem

**(Accredited by NAAC with B Grade (2014-2019)**

# Criteria-2

# 2.6.2 (Additional Information)

**Attainment of programme outcomes and course outcomes evaluated by the institution**

**2017-2018 to 2021-2022**

# GOVERNMENT DEGREE COLLEGE RAVULAPALEM

## PROGRAM OUTCOMES

## B.Sc. (Bachelor of Science)

**On successful completion of Under Graduate programme in B.Sc., students** would have:

**PO1:** Acquired the knowledge with facts and figures related to various subjects in pure sciences such as Physics, Chemistry, Botany, Zoology, Mathematics, and Computer Science etc.

**PO2:** Acquired the skills in handling scientific and computer equipment, planning and performing in laboratory experiments.

**PO3:** Improved their employment potential by using the mechanism of language in competitive exams, presentation and public speaking skills through debates, group discussions, role plays and JAMs

**PO4:** Understood the issues of environmental contexts and sustainable development.
**PO5:** Demonstrated simple experiments related to plant sciences, analyze data, and interpret them with theoretical knowledge
**PO6:** Applied the knowledge of basic principles of biological sciences and fundamentals of chemical sciences specialization to the solution of scientific problems

**PO7:** Acquired ability to use Soft Skills in professional and daily life and developed various communication skills such as reading, listening, speaking, etc., in expressing ideas and views clearly and effectively.

**PO8:** Understood the theoretical concepts of physical and chemical properties of materials and the role of mathematics in dealing with them in a quantitative way.

**PO9:** Understood the definition and significance of the Internet of Things (IOT) and examine the potential business opportunities and Understood the scope and potential of horticulture products in India and Andhra Pradesh and Classify the horticulture plants based on soil and climate.

**PO10:** Imbibed ethical, moral and social values in personal and social life leading to highly cultured and civilized personality.

## PROGRAM OUTCOMES

# BA (Bachelor of Arts)

**On successful completion of Under Graduate programme in B.A , students will be able to:**

**PO1:** Develop knowledge of theories, concepts, and research methods in humanities and social sciences.

**PO2:** Understand the world, their country, their society, as well as themselves and have awareness of ethical problems, social rights, values and responsibility to the self and to others.

**PO3:** Obtain wider knowledge of facts and figures of the past and make the learner assimilate the essence of that through multidisciplinary approach. It takes them into the intellectual forum through the study of history.

**PO4:** Understand the basic principles of Politics, including governing institutions and branches, political wings and organizations, political behavior and the operation of government at both the national and state levels.

**PO5:** Familiar with introductory, canonical models of consumer and producer behaviour and of macro economy have a basic understanding of the operation of a modern economy be able to evaluate the effects of government interventions in individual markets and in the macro Economy. They can analyze operations of markets under varying competitive conditions. They can analyze causes and consequences of unemployment, inflation and economic growth.

**PO6:** Think critically, follow innovations and developments in science and technology, demonstrate personal and organizational entrepreneurship and engage in life-long learning in various subjects.

**PO7:** Take individual and team responsibility, function effectively and respectively as an individual and a member or a leader of a team; and have the skills to work effectively in multi-disciplinary teams.

**PO8:** Assess how global, national and regional developments affect society and develop the ability to make logical inferences about social and political issues on the basis of comparative and historical knowledge.

**PO9:** Acquaint with the historical events happened in India as well as in the world and with social transactions, social relations, social formations, social control, social values and culture.

**PO10:** Improve their employment potential by using the mechanism of language in competitive exams, presentation and public speaking skills through debates, group discussions, role plays and JAMs

## PROGRAM OUTCOMES

## B. Com (Bachelor of Commerce)

**On successful completion of Under Graduate programme in B.Com , students will be able to:**

**PO-1:** Thorough grounding in the fundamentals of Commerce and Finance.

PO-2: The commerce and finance focused curriculum offers a number of specializations and practical exposures which would equip the student to face the modern-day challenges in commerce and business.

PO3**:** Have basic knowledge of important business laws, financial accounting and basic principles of economics.

PO4**:** Assess how commerce helps in global, national and regional developments.

PO5: Predict problems, frame hypothesis, investigate and interpret the empirical data.

PO6**:** Learn group dynamics and deal individually as well as with teams and groups to perform effectively in diverse teams /groups.

PO7**:** Develop efficient Communication & Life Skills and present significant information clearly and concisely to interested groups

PO8 **:** Imbibe ethical, moral and social values in personal and social life leading to highly cultured and civilized personality.

PO 9**:** Develop management skills, Developed Entrepreneurial ability, numerical ability and Well familiar with business regulatory framework.

PO10**:** Think critically, follow innovations and developments in business and commerce, demonstrate personal and organizational entrepreneurship and engage in life-long learning in various subjects.

## PROGRAM SPECIFIC OUTCOMES

# Bachelor of Science (MPCs)

After completion of B. Sc (MPCs), the students are able to:

**PSO 1** : Exhibit communicative competence and apply skills in computers

**PSO-2:** Demonstrate understanding of the principles and concepts of physics, mathematics and working of the hardware and software aspects of computer systems.
**PSO-3:** Explore the fundamental ideas and create, put into practice, evaluate, and test numerous laboratory experiments in mathematics, physics, and computing.
**PSO-4:** Make aware and handle the sophisticated instruments/equipment in physics and computer science.

**PSO-5:** Develop applications in physics, mathematics and computer science.
**PSO-6:** Take real situations and develop mathematical models to solve problems.

**PSO-7:** Apply analytical techniques to solve problems and will be able to create, interpret and analyze graphical representations of data and equations.
**PSO-8:** Prove proficiency with the ability to engage in higher studies.

**PSO–9:** Acquire the skills like effective communication, decision making, problem solving in day to day life.
**PSO–10:** Involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.
**PSO-11**: Apply the theories learnt and the skills acquired to solve real time problems.

PSO-12: Gain knowledge on language and .other literary genres which inculcate moral values, divine values and social responsibilities in the students

## PROGRAM SPECIFIC OUTCOMES

# Bachelor of Science (IoT)

After completion of B. Sc (MPCs), the students are able to:

**PSO 1:** Exhibit communicative competence and apply skills in computers

**PSO-2:** Demonstrate understanding of the principles and concepts of physics, mathematics and working of the hardware and software aspects of computer systems.
**PSO-3:** Design, implements, test and evaluate various mathematics, physics and Computer laboratory experiments.

**PSO-4:** Develop applications in physics, mathematics and computer science.
**PSO-5:** Apply analytical techniques to solve problems and will be able to create, interpret and analyze graphical representations of data and equations.

**PSO–6:** Acquire the skills like effective communication, decision making, problem solving in day to day life.
**PSO–7:** Involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.
**PSO–8:** Understand the various concepts, terminologies and architecture of IoT systems by the application of various protocols for design
PSO 9: Use sensors and actuators for design of IoT for data storage and analytics

PSO 10: Gain knowledge on language and .other literary genres which inculcate moral values, divine values and social responsibilities in the students

## PROGRAM SPECIFIC OUTCOMES

# Bachelor of Science (MPC)

After completion of B. Sc (MPC), The students are able to:

**PSO-1:** Demonstrate understanding of the principles and concepts of physics, chemistry and working of the hardware and software aspects of computer systems.

**PSO 2** : Understand theoretical concepts of physical and chemical properties of materials and the role of mathematics in dealing with them in a quantitative way

**PSO 3** : Analyse the concepts of Mathematics, Physics and Chemistry to understand the relation among them like physical chemistry, mathematical modeling of physics and chemistry problems in addition to the skills needed to handle instruments and adopt lab procedures to study physical and chemical properties of materials.

**PSO-4:** Design, implements, test and evaluate various chemistry, physics and Mathematics experiments.
**PSO-5**: Apply techniques in solving problems, results, sample analysis andproduction.

**PSO-6**: Discuss the latest trends and applications pertinent to higher studiesand employability.

**PSO-7:** Students will take real situations and develop mathematical models to solve problems.

**PSO-8:** Students will be able to apply analytical techniques to solve problems and will be able to create, interpret and analyze graphical representations of data and equations.
**PSO-9:** Will be able to prove proficiency with the ability to engage in higher studies.
**PSO–10:** Students will acquire the skills like effective communication, decision making, problem solving in day to day life.

**PSO–11:** Students will involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.

**PSO-**12: transmit knowledge on different topics of Chemistry viz., inorganic, organic, physical, environmental, green chemistry and nanotechnology

## PROGRAM SPECIFIC OUTCOMES

# Bachelor of Science (BZC)

After completion of B. Sc (BZC), the students are able to:

**PSO-1:** Understand the diversity of microorganisms such as viruses, mycoplasma, bacteria, algae, fungi, lichens, importance of microorganisms to man, events in life cycle of flowering plants, economic importance of plants as crop in agriculture, the cytological events and concepts, the structure and function of nucleic acids.

**PSO-2:** Understand the role of plants in sustaining life on earth and interrelationships between human beings and nature, create awareness on natural resources and their importance in sustainable development, analyze the importance of biodiversity conservation, estimate biodiversity loss and develop conservation strategies

**PSO-3**: Should be able to understand the concepts at advanced level of Botany, Zoology and Chemistry and their applications in the field of scientific research and other relevant areas.

**PSO-4:** Understand the basic concept of micro fauna, macrofauna and evolution of animals.

**PSO-5:** Know detail knowledge of biodiversity, understand basic concept of nature and know the various environmental hazards.

**PSO-6:** Prove proficiency with the ability to engage in higher studies.

**PSO–7:** Acquire the skills like effective communication, decision making, problem solving in day to day life.

**PSO–8:** Involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.

PSO-9: Gain knowledge on language and .other literary genres which inculcate moral values, divine values and social responsibilities in the students

PSO-10: Know about biodiversity and the various environmental hazards and create awareness on theoretical chemistry by its practical applications in which traditional and recent approaches are used.

## PROGRAM SPECIFIC OUTCOMES

# Bachelor of Science (HBC)

After completion of B. Sc (HBC), the students are able to:

**PSO-1:** Understand the diversity of microorganisms such as viruses, mycoplasma, bacteria, algae, fungi, lichens, importance of microorganisms to man, events in life cycle of flowering plants, economic importance of plants as crop in agriculture, the cytological events and concepts, the structure and function of nucleic acids.

**PSO-2:** Understand the role of plants in sustaining life on earth and interrelationships between human beings and nature, create awareness on natural resources and their importance in sustainable development, analyze the importance of biodiversity conservation, estimate biodiversity loss and develop conservation strategies

**PSO-3**: Understand the concepts at advanced level of Botany, Zoology and Chemistry and their applications in the field of scientific research and other relevant areas.

PSO-4: Perform skills to remove dormancy in seeds and other propagules of horticulture plants and perform various tests for seed germination, viability and vigour.

**PSO-5:** Understand the basic concept of microfauna, macrofauna and evolution of animals.

**PSO-6:** Know detail knowledge of biodiversity, understand basic concept of nature and know the various environmental hazards.

**PSO-7:** Prove proficiency with the ability to engage in higher studies.

**PSO–8:** Acquire the skills like effective communication, decision making, problem solving in day to day life.

**PSO–9:** Involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.

PSO 10: Gain knowledge on language and .other literary genres which inculcate moral values, divine values and social responsibilities in the students

## PROGRAM SPECIFIC OUTCOMES

# Bachelor of Arts (HEP)

After completion of B.A(HEP), the students are able to:

**PSO-1:** Develop and straighter national integrity and develop the habit of cultivation and preservation of national and international heritage.

**PSO-2:** Create citizens having impartial vision towards life, using past to shape present and develop reasonable ability.
**PSO-3:** Explain Political Science methodically so as to understand on national and International political matters.
**PSO-4:** Talk on the issues like 'Human Rights', 'Functioning of Civil Rights', 'Equal Opportunity' and 'Freedom of Thoughts' etc.
**PSO 5**: Comprehend the basic theories of political Science, structures and processes of government systems
**PSO 6**: Discuss the major theories and concepts of political science and its subfields; and deliver thoughtful and well-articulated presentations of research findings

**PSO-7:** Comprehensive study of Economic Thoughts, Economic Policies in India, and the Concept of Welfare State.

**PSO-8:** Explain various Macro Economic Policies in India and Analyze Indian Economy and determine different Economic circumstances like inflation, unemployment and poverty etc.
**PSO-9:** Define the concept of National Income, impact of 'Globalization' and 'Free Marketing' on International Economic Policies.

**PSO–10:** Involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.

**PS0-11:** Acquaint with the basics of history and course of historical development at regional and national level.

PSO 12: Students will gain knowledge on language and .other literary genres which inculcate moral values, divine values and social responsibilities in the students

## PROGRAM SPECIFIC OUTCOMES

# Bachelor of Commerce (GENERAL)

After completion of B. Com (GEN), the students are able to:

**PSO 1:** Understand the systematic and subject skills within various disciplines of commerce, business, accounting, economics, finance, auditing and marketing, with soft skills in Tally and ERP, E-Commerce etc.

**PSO 2:** Recognise features and roles of businessmen, entrepreneurs, managers, consultants, which will help learners to possess knowledge and other soft skills and to react aptly when confronted with critical decision making.

**PSO 3:** Understand the application of Corporate Accounting Principles and Practices in real time business situations.

**PSO 4:** Understand the legal environment and its effect on business, industry, commerce and management.

**PSO 5:** Acquire practical skills to work as tax consultant, audit assistant and other financial supporting services.

**PSO–6:** Demonstrate progressive learning of various tax issues and tax forms related to individuals and the role of accounting in society and business.
**PSO–7:** Learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
**PSO–8:** Learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
**PSO–9:** Prove proficiency with the ability to engage in competitive exams like CA, CS, ICWA and other courses.
**PSO–10:** Acquire the skills like effective communication, decision making, problem solving in day to day business affaires

**PSO–11:** Involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.

PSO 12: Gain knowledge on language and .other literary genres which inculcate moral values, divine values and social responsibilities in the students

## PROGRAM SPECIFIC OUTCOMES

# Bachelor of Commerce (Computer pplications)

After completion of B. Com (CA), the students are able to:

PSO 1: Understand the systematic and subject skills within various disciplines of commerce, business, accounting, economics, finance, auditing and marketing, with soft skills in Tally and ERP, E-Commerce etc.

PSO 2: Equip the students with business analytics, e-commerce and computer language skills. Business oriented applications like Ms-Office, Tally, DBMS, Web Technology will enable the students to start their own Small-Scale software business

PSO 3: Learn the latest technologies and their application in modern business operations and make the students become efficient in office automation with computers and computer software applications.

PSO-4: Demonstrate knowledge in setting up a computerized set of accounting books.

PSO–5: Learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO–6: Learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO–7: Recognize features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and to react aptly when confronted with critical decision making.

PSO–8: Prove proficiency with the ability to engage in competitive exams like CA, CS, ICWA and other courses.

PSO–9: Acquire the skills like effective communication, decision making, problem solving in day to day business affairs.

PSO–10: Involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.

PSO-11: Expertise communicate in both oral and written forms, demonstrating the practice of professional ethics and the concerns for social welfare.

PSO-12: Enhance and develop techniques for independent and lifelong learning in computer application.

PSO-13: Gain knowledge on language and .other literary genres which inculcate moral values, divine values and social responsibilities in the students

# GOVERNEMENT DEGREE COLLEGE, RAVULAPALEM

## COURSE OBJECTIVES

## ALL COURSES WITH EFFECT FROM THE ACADEMIC YEARS 2016-2017 to 2019-2020

| SI. No | Semester | Name of the Course | Course Outcomes |
|---|---|---|---|
| **TELUGU** | | | |
| 1 | I | Semester-I Telugu-poetry, Prose(short stories) and grammar | After Completion of this course the student would be able to:<br>CO1: Study of Ancient Telugu Literature releases the impact of Values, Culture and Heritage on life.<br>CO2: Understand the distinction between the ancient and modern Grammar.<br>CO3: Understand the difference between the different Classical poets, their Works and their impact on the society.<br>CO4: Know the basic rules of the grammar of the classics and locate the Same in Poetry selections.<br>CO5: Know the beauty of the nature.<br>CO6: Know the common mistakes in writing Telugu Words. |
| 2 | II | Semester-II Telugu-Poetry, Prose (short stories) and Novel. | CO1: Understand the Distinction between the classical and modern poetry.<br>CO2: Modern Literature deals the downtrodden and oppressed classes lives.<br>CO3: Analyze and Interpret the socio cultural aspects based on the Prescribed Prose text.<br>CO4: Aware the Social Evils such as suppression of women, child Marriages, Castes in dowry system.<br>CO5: Aware the changes that taken place in villages-Impact of modernity Entered in villages, ill effect of globalization on village crafts and Artisans life. |

| | | | |
|---|---|---|---|
| 3 | III | Semester-III<br>Telugu-Poetry,<br>Drama and grammar | After Completion of this course the student would be able to:<br>CO1: Understand the importance of Noble thoughts and actions like Truth through the prescribed text.<br>CO2: Know the true meaning of attractions towards Opposite sex and the true meaning love towards fellow mankind.<br>CO3: Understand the structure of plot and various other Elements of Drama.<br>CO4: Develop the reading, writing, spoken and listening skills through Grammar part. |

| ENGLISH | | | |
|---|---|---|---|
| 1. | I | GENERAL ENGLISH-I | After completing the course, students will be able to:<br>CO1: Read and comprehend the prescribed pieces of prose, poetry, short story and one act play<br>CO2: Use the learned grammatical concepts to speak and write good English<br>CO3: Write paragraphs and essays on the prescribed topics<br>CO4: Explore supplementary reading sources<br>CO5: Practice phonetics and refer dictionary for finding out the correct pronunciation of a given word |
| 2. | II | GENERAL ENGLISH-II | After completing the course, students will be able to:<br>CO1: Learn language through the prescribed texts<br>CO2: Write paragraphs and essays<br>CO3: Construct a dialogue<br>CO4: Comprehend the given text<br>CO5: Transform sentences as directed |
| 3. | III | GENERAL ENGLISH-III | On completing the course, the students will be able to:<br>CO1: Comprehend the information given in the text<br>CO2: Think critically and analyze the given information<br>CO3: Produce a coherent paragraph<br>CO4: Understand the use of grammatical structures<br>CO5: Understand the social milieus of different cultures<br>CO6: Attempt to translate the given English material into mother tongue<br>CO7: Understand the importance of translations in the present scenario<br>CO8: Write reports |

| | | | |
|---|---|---|---|
| 4. | II | Communication and Soft Skills-CSS-I (Introduced as Foundation Course in Semester-II) | After completing the course, students will be able to:<br>CO1: Enrich their vocabulary<br>CO2: Write paragraphs and essays on given topics<br>CO3: Employ effective learning strategies and become good listeners<br>CO4: Employ speed reading techniques like skimming and scanning effectively |
| 5. | III | Communication and Soft Skills-CSS-II (Introduced as Foundation Course in Semester-III) | After completing the course, students will be able to:<br>CO1: Identify the various sounds of English Language<br>CO2: Know the importance of stress, accent and rhythm and intonation in SpokenEnglish<br>CO3: Know the functions of the language<br>CO4: Hone their interview, presentation and public speaking skills<br>CO5: Participate in role plays, debates and group discussions |
| 6. | IV | Communication and Soft Skills -CSS-III (Introduced as Foundation Course in Semester-IV) | On completing the course, the students will be able to:<br>CO1: Know the importance of soft skills<br>CO2: Write paragraphs<br>CO3: Paraphrase and summarize<br>CO4: Write letters and e-mails<br>CO5: Prepare Resume and CV |
| ECONOMICS | | | |
| 01 | I | Micro Economics ( Consumer Behavior) | After Completion of this course the student would be able to:<br>CO1: Identify the importance of Economics in daily life<br>CO2: Understand various Methodologies of studying. Economics<br>CO3: Understand functions of Economy, behavior of individuals in the market.<br>CO4: Understand how demand and supply affects market prices.<br>CO5: Understand about the consumer behavior. |

| | | | |
|---|---|---|---|
| 02 | II | Micro-Economics - Production & Price Theories | After Completion of this course the student would be able to:<br>CO1: Acquire knowledge about production and its different functions.<br>CO2: Learn about different types of cost and revenue.<br>CO3: Understand and working of different types of market structures in the world.<br>CO4: Understand how the factor prices determined and theories of factor pricing.<br>CO5: Acquire knowledge regarding about the interest and profits. |
| 03 | III | Macro Economics – (National Income, Employment and Money) | After Completion of this course the student would be able to:<br>CO1: Understand different concepts of National income and methods to measure national income.<br>CO2: Acquire the knowledge about the classical and Keynes theories of employment.<br>CO3: Understand Keynes theory of consumption function and working of multiplier and accelerate principle.<br>CO4: Understand the functions of money, different theories of money. |

| | | | |
|---|---|---|---|
| 04 | IV | Macro Economics (Banking and International Trade) | After Completion of this course the student would be able to:<br>CO1: Learn about macroeconomic concepts of Inflation, Deflations and its effects and controlling methods.<br>CO2: Understand the meaning and definitions of trade cycle its phases, consequences and controlling measures.<br>CO2: Acquire knowledge regarding functions and performance of banking sector.<br>CO3: Gain knowledge about the classical and Keynes theories of employment.<br>CO4: Know the solutions to the economic functions like Monetary and Fiscal policies.<br>CO5: Understand how international trade happens among nations and the problems and importance of international trade.<br>CO6: Understand how the foreign exchange rate affects imports. |
| 05 | V | Economic Development And Indian Economy | After Completion of this course the student would be able to:<br>CO1: Understand the concepts of Economic Growth and Development<br>CO2: Describe the role of Planning Commission<br>CO3: Understand Demography and its recent trends including latest population policy.<br>CO4: Understand the importance of Human Capital Formation<br>CO5: Analyze new economic policies (privatization, liberalization, and globalization) in India Understand the role of the Indian economy in the global context. |
| 06 | VI | Indian And Andhra Pradesh Economy | After Completion of this course the student would be able to: CO1: Acquire knowledge regarding agriculture sector in India, its trends and productivity. Understand about the rural issues like credit, Marketing, and food security in India.<br>CO2: Understand industrial sector and its changing role in Economic development.<br>CO3: Analyze the role of service sector in Indian Economy.<br>CO4: Understand planning, need and importance of planning Indian economy.<br>CO5: Understand about Andhra Pradesh Economy and its progress. |

| | | | |
|---|---|---|---|
| 07 | VII | Agricultural Economics | After Completion of this course the student would be able to:<br>CO1: Understand agriculture as the foundation of economic growth and development, analyze the changing nature of agricultural sector and its Contribution to the Indian economy.<br>CO2: Understand the concept of production function and input output analysis.<br>CO3: Understand the role of agrarian reforms and the role in economic development.<br>CO4: Understand systems of farming, new agriculture strategy, green revolution and its impact<br>CO5: Understanding emerging trends in production, processing, marketing, and exports of Agri business enterprises. |
| 8 | VIII(A) | Agribusiness Environment in Andhra Pradesh | After Completion of this course the student would be able to:<br>CO1: understand structure of agri-marketing organizations with functions<br>CO2: Understand marketing costs and margins marketing finance.<br>CO3: Understand challenges in agriculture marketing, role of market yards and support prices.<br>CO4: understand the role of state in agriculture marketing.<br>CO5: understanding inter regional and international trade in agriculture |
| 9 | VIII (B) | Agricultural output marketing | After Completion of this course the student would be able to:<br>CO1: Understand Inter-regional and international trade in agriculture.<br>CO2: Asses the performance of the marketing systems of agricultural commodities and products<br>CO3: Understand problems and challenges in agricultural marketing.<br>CO4: Understand the impact of WTO on Indian agriculture with special reference to Andhra Pradesh.<br>CO5: Understand APMC act, market legislations and role of farmer groups in marketing of agricultural produce |

| COMMERCE | | | |
|---|---|---|---|
| 1 | I<br><br>DSC -1A | ACCOUNTNG- I | After Completion of this course the student would be able to:<br><br>CO1: Identify events that need to be recorded in the accounting<br><br>CO2: Summarize the concepts and basics of accounting<br><br>CO3: Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.<br><br>CO4:. Analyze the difference between Indian Accounting system and International Accounting System in terms of Accounting Standards.<br><br>CO5: Critically examine the balance sheets of a sole trader for different accounting periods.<br><br>CO6: Design new accounting formulas & principles for business organizations |
| 2 | I<br><br>DSC-1B | BUSINESS ORGANISATION AND MANAGEMENT | After Completion of this course the student would be able to:<br><br>CO1: Identify different forms of business organizations<br><br>CO2:. Understand the scope of Business, and its importance<br><br>CO3:. Understand the nature of Joint Stock Company and formalities to promote a Company<br><br>CO4: Design and plan to register a business firm. Prepare different documents to register a company at his own<br><br>CO5: Invent new models of business organizations |

| | | | |
|---|---|---|---|
| 3 | I | BUSINESS ECONOMICS-1 | After Completion of this course the student would be able to:<br><br>CO1:Understand basic economic principles.<br><br>CO2:Describe the nature of economics in dealing with the issues of scarcity<br><br>CO3: Analyze supply and demand analysis and its impact on economic events in Markets<br><br>CO4: Evaluate the factors affecting firm behaviour, such as production and costs<br><br>CO5: Recognize market failure and the role of government in dealing with those failures<br><br>CO6: Learn to use economic models to isolate the relevant elements of a managerial problem, identify their relationships, and formulate them into a managerial model. |
| 4 | II | ACCOUNTING -II | After Completion of this course the student would be able to:<br><br>CO1:Understand the concept of Consignment and learn the accounting treatment of the various aspects of consignment<br><br>CO2:Analyze the accounting process and preparation of accounts in consignment and joint venture<br><br>CO3:Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture<br><br>CO4:Determine the useful life and value of the depreciable asset and maintenance of Reserves in business entities.<br><br>CO5:Design an accounting system for different models of businesses at his own using the principles of existing accounting system. |

| | | | |
|---|---|---|---|
| 5 | II | BUSINESS ENVIRONMENT | After Completion of this course the student would be able to:<br><br>CO1:Understand the concept of business environment.<br><br>CO2:Define Internal and External elements affecting business environment.<br><br>CO3:Define the terms like inflation, GDP, etc.<br><br>CO4:Explain the economic trends like LPG and its effect on Government policies<br><br>CO5:Critically examine the recent developments in economic and business policies of the Government.<br><br>CO6:Evaluate and judge the best business policies in Indian business environment.<br><br>CO7:Develop the new ideas for creating good business environment. |
| 6 | II | BUSINESS ECONOMICS | After Completion of this course the student would be able to:<br><br>CO1:Understand cost techniques and production functions.<br><br>CO2:Analyze supply and demand analysis and its impact on economic events in Markets<br><br>CO3:Analyze the behaviour of consumers in various markets in short run and long run<br><br>CO4:Evaluate the factors influence the national incomes<br><br>CO5:Recognize various components in National income & its compositions<br><br>CO6:Evaluate Structural reforms in India and also in the world.<br><br>. |

| | | | |
|---|---|---|---|
| 7 | III | CORPORATE ACCOUNTING | After Completion of this course the student would be able to:<br><br>CO1:Understand the regulatory environment in which the companies are formed and operate<br><br>CO2:Understand the treatment regarding issue of bonus shares and treatment of prior period profits<br><br>CO3:Have the ability to prepare consolidated accounts for a corporate group.<br><br>CO4: Discuss the strategic, legal, and assurance issues associated with establishing inter- entity relationships, and generate recommendations.<br><br>CO5:Evaluate the different situations of capital issue like issue at premium, issue at discount, forfeiture of shares etc. |
| 8 | III | BUSINESS STATISTICS | After Completion of this course the student would be able to:<br><br>CO1:Understand basic statistical concepts such as statistical collection, statistical series, tabular and graphical representation of data<br><br>CO2:Formulate complete, concise, and correct mathematical proofs.<br><br>CO3:Frame problems using multiple mathematical and statistical representations of relevant structures, relationships and solve using standard techniques.<br><br>CO4:Communicate quantitative ideas both orally and in writing to a range of audiences.<br><br>CO5:Learn and apply the tools of formal inference.<br><br>CO6:Create quantitative models to solve real world problems in appropriate contexts. |

| | | | |
|---|---|---|---|
| 9 | III | BANKING THEORY AND PRACTICE | After Completion of this course the student would be able to :<br><br>CO1:Demonstrate a comprehension of the principles of banking law and its relationship to banks and customers.<br><br>CO2:Demonstrate an awareness of law and practice in a banking context.<br><br>CO3:Engage in critical analysis of the practice of banking law from a range of perspectives.<br><br>CO4:Organize information as it relates to the regulation of banking products and services.<br><br>CO5:Critically examine the current scenario of Indian Banking system<br><br>CO6:Formulate the procedure for better service to the customers from various banking innovations. |
| 10 | IV | Accounting for service organizations | After Completion of this course the student would be able to :<br><br>CO1:Understand the role of Insurance in economic development of society and social security.<br><br>CO2:Understand various terminology used in insurance, Banking and other service organisations.<br><br>CO3:Apply the Customer importance & behaviour in various situations.<br><br>CO4:Able to understand the various policies of Banking Insurance.<br><br>CO5:Describe the role of private sectors & regulatory bodies of Insurance sectors.<br><br>CO6Compare the accounting system with Trading organisations and Service Organisations |

| | | | |
|---|---|---|---|
| 11 | IV | BUSINESS LAW | After Completion of this course the student would be able to :<br><br>CO1:Understand the basic concepts and laws of business and legal environment of business<br><br>CO2:Understand the legality and Statute of Frauds in contracts<br><br>CO3:Apply basic legal knowledge to business transactions.<br><br>CO4:Understand the various provisions of Company Law<br><br>CO5:Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to business associations and legal issues.<br><br>CO6:Apply the global business laws to current business environment<br><br>CO7:Integrate concept of business law with foreign trade |
| 12 | IV | INCOME TAX | After Completion of this course the student would be able to :<br><br>CO1:Acquire the complete knowledge of basic concepts of income tax<br><br>CO2:Understand the concept of exempted incomes, provisions of agricultural income<br><br>CO3:Identify and comply with the relevant provisions of the Income Tax Act as it relates to the income tax of individuals<br><br>CO4:Compute the income under the head" Income from Salary" and other sources<br><br>CO5:Compute total income and define tax complicacies and structure.<br><br>CO6:Prepare File IT returns of individual at his own. |

| | | | |
|---|---|---|---|
| 13 | V | COST ACCOUNTING | After Completion of this course the student would be able to know the:<br><br>CO1:Understand various costing methods and management techniques<br><br>CO2:Apply cost accounting methods for both manufacturing and service industry.<br><br>CO3:Analyse and provide recommendations to improve the operations of organisations through the application of Cost and Management accounting techniques<br><br>CO4:Evaluate the costs and benefits of different conventional and contemporary costing systems<br><br>CO5:Apply cost accounting methods to evaluate and project business performance<br><br>CO6:Prepare cost sheet, quotation and tenders to organisation for different works. |
| 14 | V | GOODS AND SERVICES TAX FUNDAMENTALS | After Completion of this course the student would be able to know the<br><br>CO1: Understand the basic principles underlying the Indirect Taxation Statutes<br><br>CO2:Understand Tax liability and taxable entities.<br><br>CO3:Examine the method of tax credit. Input GST and Output GST and Cross Utilisation of Input Tax Credit<br><br>CO4:Understand Inflows and outflows related to GST. Imposition of tax and tax base. Delivery of goods and services. Tax rates . Periodic tax returns. Place of delivery of goods and services and its impact on GST.<br><br>CO5:Identify and analyze the procedural aspects under different applicable statutes related to GST.<br><br>CO6:Compute the assessable value of transactions related to goods and services for levy and determination of duty liability. |

| | | | |
|---|---|---|---|
| 15 | V | Commercial Geography | After Completion of this course the student would be able to<br>1. CO1: Understand the bases of commercial and marketing activities related to the earth..<br>CO2:Describe the scope of commercial geography<br>CO3:Discuss the commercial activities related to geographical phenomenon<br>CO4:Explain the importance of the study of commercial geography<br>CO5:Familiarize with sustainable De5elopment.<br>CO6:Introduce the concept of Renuewable energy sources and its importance<br>CO7:Formulate new approaches for development of country using geographical sources |
| 16. | V | Central Banking | After Completion of this course the student would be able to know the:<br>CO1:Demonstrate a comprehension of the policies of RBI<br>CO2:Engage in critical analysis of the practice of RBI in Supervision and Regulatory perspectives.<br>CO3:Organize information as it relates to the regulation of Monitory and Credit Policies of RBI.<br>CO4:Critically examine the current scenario of Central Banking in India Vs Indian Banking system<br>CO5:Invent the new approaches to regulate the banking system by RBI |

| | | | |
|---|---|---|---|
| 17 | V | Rural and Farm Credit | After Completion of this course the student would be able to know the<br><br>CO1:Demonstrate a comprehension of the policies with regard to Rural Credit in India<br><br>CO2:Engage in critical analysis of the practice of Indian Banking System for provide credit for Rural development.<br><br>CO3:Analyze information pertaining to sources of farm credit by various banking agencies<br><br>CO4:Critically examine the current scenario of Farm Credit Analysis<br><br>CO5:Invent the new Source of Credit for Rural Agriculture and development |
| 18 | VI | Marketing | After Completion of this course the student would be able to know the<br><br>CO1:Develop an idea about marketing and its functions<br><br>CO2:Identify how consumer behaves differently.<br><br>CO3:Describe the market segmentation, target marketing and positioning.<br><br>CO4:Understand different methods of sale promotion.<br><br>CO5:Familiarize about product and its classifications<br><br>CO6:Introduce the concept of sales forecast<br><br>CO7:Formulate new marketing strategies for a specific new product<br><br>CO8:Develop new product line and sales promotion techniques for a given product<br><br>CO9:Design and develop new advertisements to given products |

| | | | |
|---|---|---|---|
| 19 | VI | AUDITING | After Completion of this course the student would be able to know the<br><br>CO1:Understand the audit process<br><br>CO2:Identify the steps needed to prepare for an audit<br><br>CO3:Know the steps for performing an audit<br><br>CO4:Know how to prepare and use working papers, such as checklists<br><br>CO5:Describe the quality control procedures necessary to ensure that a competent assurance engagement is performed, and apply professional ethics including Code of Conduct to specific scenarios<br><br>CO6:Know how to report results of audit<br><br>CO7:Plan an audit taking into account concepts of evidence, risk and materiality |

| | | | |
|---|---|---|---|
| 20 | VI | MANAGEMENT ACCOUNTING | After Completion of this course the student would be able to know the:<br><br>CO1:Understand various management techniques .<br><br>CO2:Apply and analyze different types of activity-based management tools through the preparation of estimates.<br><br>CO3:Analyze cost-volume-profit techniques to determine optimal managerial decisions.<br><br>CO4:Perform cost variance analysis and demonstrate the use of standard costs in flexible budgeting.<br><br>CO5:Prepare analyses of various special decisions, using relevant management techniques.<br><br>CO6:Calculate various accounting ratios, reports and relevant data.<br><br>CO7:Prepare Cash Flow and Funds Flow statements for helps in planning for intermediate and long-term finances. |

| | | | |
|---|---|---|---|
| 21 | VI | FINANCIAL SERVICES | After Completion of this course the student would be able to :<br>CO1:Describe fundamentals of financial services and<br>CO2:players in financial sectors<br>CO3:Provide knowledge about leasing and hire purchase concepts<br>CO4:Understand about different types of insurance and IRDA Act.<br>CO5:Justify the operations of Financial services organisations in India<br>CO6:Invent new types of financial services to fil the gap<br>CO7:Create an awareness about merchant banking, issue management, capital markets and role of SEBI |

| | | | |
|---|---|---|---|
| 22 | VI | Marketing of Financial Services | After Completion of this course the student would be able to :<br><br>CO1:Describe fundamentals of financial services and players in financial sectors<br><br>CO2:Provide knowledge about pricing and promotions strategies of financial services<br><br>CO3:Understand about different types channels for service provision.<br><br>CO4:Justify the operations of marketing of Financial services in India<br><br>CO5:Design new strategies of marketing of financial services. |
| 23 | VI | Tally with GST Applications | After the successful completion of the course, the student will get<br><br>CO1:Understand basics of Tally ERP-9<br><br>CO2:Develop the competence of voucher entry and working with tally<br><br>CO3:Differentiate the tally ERP -9 with Tally with GST Applications<br><br>CO4:Determine the computer applications in accounting is more appropriate and easy to find solutions and decision making in business firms.<br><br>CO5:Develop GST Returns and reports for business transactions in Tally.<br><br>CO6:Compose advanced entries in GST and Migration from tally ERP to Tally with GST |

| POLITICAL SCIENCE | | | |
|---|---|---|---|
| 1 | I | Basic Concepts of Political Science | After Completion of this course the student would be able to:<br><br>CO1: Analyze what is Politics and explaining the approaches to the Study of Political Science – Normative, Behavioral, Post Behavioral, and Feminist.<br><br>CO2: Assessing the theories of State (Origin, Nature, Functions): Contract, Idealist, Liberal and Neo- Liberal Theories.<br><br>CO3: Distinguish nationality, nation and understand the Varieties of nationalism.<br><br>CO4: Understand the civil and social rights and distinguish universal and differential citizenship.<br><br>CO5: Understanding basic concepts of Liberty, Equality, Rights, Law, and Justice. |
| 2 | II | Political Institutions(<br><br>Concepts, Theories | After Completion of this course the student would be<br><br>able to: CO1: Gain knowledge on Constitutional law, theory of separation of powers.<br><br>CO2: Understand the structural form of modern state, parliament, and presidential forms.<br><br>CO3: Understand the features of federal and unitary forms of government.<br><br>CO4: Gain knowledge on democracy, models of democracy.<br><br>CO5: Know the nature, role and functions of judiciary and understand judicial review. |

| | | | |
|---|---|---|---|
| 3 | III | Indian Constitution | After Completion of this course the student would be able to:<br>CO1: Understand the ideological legacy of the Indian national movement on the constituent assembly.<br>CO2: Understand the emergence, evolution, structure, and composition of Indian Constitution.<br>CO3: Know and understand the fundamental rights and directive principles and analyze the differences between them.<br>CO4: Gain knowledge on unitary and federal features in the Indian constitution.<br>CO5: Know the values of the Indian constitution and understand the nature and role of higher judiciary in India. |
| 4. | IV | Indian Political Process | After Completion of this course the student would be able to:<br>CO1: Understand the Indian Political Process and evaluation of party system in India.<br>CO2: Analyze the electoral process and voting behavior in India.<br>CO3: Gain knowledge on powers, functions, and role of election commission in Indian political system.<br>CO4: Describe various challenges to Indian democracy.<br>CO5: Understand the need for electoral reforms and women representation in parliament. |
| 5 | V | Indian Political Thought | After Completion of this course the student would be able to:<br>CO1: Understand the traditions of ancient Indian political thought revealed by great thinkers MANU and KAUTILYA<br>CO2: Know the great works of RAMMOHAN ROY on religious and social reform.<br>CO3: Analyze the drain theory and poverty theory of Dadabai Naoroji.<br>CO4: Understand and compare the Hindu culture nationalism and Islamic Communitarian Nationalism |

| | | | |
|---|---|---|---|
| | | | CO5: Understand the democratic Egalitarianism of<br>Gandhi, Jawaharlal Nehru, Dr.B.R .Ambedkar and M.N.Roy. |
| 6. | V | Western Political Thought | After Completion of this course the student would be able to:<br>CO1: Understand and acquire the knowledge about classical western political thoughts of Plato and Aristotle.<br>CO2: Know the early medieval to the beginning of modern thought revealed ST. Augustine and Machiavelli.<br>CO3: Know the liberal thoughts of Thomas Hobbes, John Locke, and Rousseau.<br>CO4: Know the liberal democratic thought of Jeremy Bentham and john Stuart mill.<br>CO5: Understand the philosophical idealism and its critique revealed by Hegel and Karl Marx. |

| | | | |
|---|---|---|---|
| 7. | VI | Principles of Public Administration | After Completion of this course the student would be able to:<br>CO1: Understand the nature and scope of public administration.<br>CO2: Differentiate administration theories like- Classical theory, Human relations theory, and rational decision-making theory.<br>CO3: Analyze the importance of co-ordination and leadership in an organization.<br>CO4: Understand the principles of organization, structure and its hierarchy.<br>CO5: Gain knowledge on theories of motivation. |
| 8. | VI<br>CLUSTER-1 | International Relations | After Completion of this course the student would be able to:<br>CO1: Gain Knowledge on basic concepts of international relations.<br>CO2: Understand Approaches-Idealism, classical realism and modern realism of international relations.<br>CO3: Analyze the Causes and effects of first and second world war.<br>CO4: Gain knowledge on Origins of First Cold war, new cold war and the end of cold war.<br>CO5: Understand the structure, functions, and role of UNO in the protection of international peace. |
| 9. | VI<br>CLUSTER-II | Indian Foreign Policy | After Completion of this course the student would be able to:<br>CO1: Understand determinants, Continuity and change in Indian foreign policy.<br>CO2: Gain knowledge on Evolutionary growth of Non-Aligned movement.<br>CO3: Understand the India's relations with USA and Russia.<br>CO4: Analyze India's' role in south Asian Association of regional co-operation.<br>CO5: Gain knowledge of trends in India's Foreign Policy. |

| | | | |
|---|---|---|---|
| 10. | VI<br><br>CLUSTER-III | Contemporary Global Issues | After Completion of this course the student would be able to:<br><br>CO1: Understand meaning, nature, scope, and types of globalization.<br><br>CO2: analyze the role of anchors of global political economy.<br><br>CO3: Understand the Nation state in context of Globalization and its consequences.<br><br>CO4: Analyze the Contemporary g l o b a l issues- Ecological and terrorism issues.<br><br>CO5: Gain knowledge on world trade organization and Functionality of BRICS. |
| | | HISTORY | |
| 1 | I | Ancient Indian History & Culture (From Earliest Times To 600 A.D) | After Completion of this course the student would be able to:<br>CO1: Understand the Literary & Archaeological Sources; Influence of Geography on History, Unity in Diversity and also Harrappen Civilization was urban Civilization in Indian Continental.<br>CO2: Understand the Vedic Civilization was a Rural Civilization in Indian Continental. ; Jainism and Buddhism: Causes, Doctrines, Spread, Importance and Impact.<br>CO3: Understand how Transition from Territorial States to Emergence of Empires Rise of Mahajanapadas Persian and Macedonian Invasions, Mauryan Empire: Ashoka's Dhamma, Art & Architecture,<br>CO4: Understand Conditions during 200 B. C to 300<br>A. D.: Central Asian Contacts – Kushanas. The Age of Satavahanas, Sangam Age: The Three Early Kingdoms (Chola, Chera& Pandya).<br>CO5: Understand in Gupat's Empire not only political condition consolidated besides cultural growth also occurred. |

| | | | |
|---|---|---|---|
| 2 | II | Early medieval indian history & culture (600 a.d to 1526 a.<br>D.) | After Completion of this course the student would be able to:<br>**CO1**: Understand Harsha & His Times: Administration, Religion – Hiuen Tsang -Polity, Society, Economy and Culture from 7th to 11th Century A. D. under Chalukyas of Badami& Eastern Chalukyas of Vengi.<br>**CO2**: Understand Age of later Pallavas during 7th& 8th Centuries A. D.: Contribution to Cultural Development & Art & Architecture; The Chola Empire from 9th to 12 Century A. D.: Rise of the Empire, Administration and Cultural Life.<br>**CO3:** Understand under Conditions in India on the eve of Turkish Invasions; Early Invasions: Traces of Arab Invasion, Ghazni&Ghori; Delhi Sultanate (1206to 1290 A.D.) under Slave Dyanasty.<br>**CO4:** Understand Delhi Sultanate (1290 to 1526 A.D.): Khaljis: Expansion & Consolidation, Administrative & Economic Reforms - The Tughlaqs - Decline & Disintegration of the Delhi Sultanate; Administration, Society, Economy, Technology, Religion, Art & Architecture under the Sultanate.<br>**CO5:** Understand that in Cultural Development in India between 13th& 15th Centuries A. D.: Impact of Islam on Indian Society and Culture – Bhakti and Sufi Movements – Emergence of Composite Culture |

| | | | |
|---|---|---|---|
| 3 | III | Late Medieval & Colonial History of India (1526 to 1857 a. D.) | After Completion of this course the student would be able to:<br>**CO1:** Understand Emergence of Mughal Empire - Sources, Conditions in India on the eve of Babur's invasion, Brief Summary of Mughal Polity – Sher Shah & Sur Interregnum – Expansion & Consolidation of Mughal Empire – Rise of Marathas &Peshwas.<br>**CO2:** Understand Administration, Economy, Society and Cultural Developments under the Mughals – Disintegration of Mughal Empire.<br>**CO3**: Understand India under Colonial Hegemony : Beginning of European Settlements – Anglo-French Struggle – Policies of Expansion - Subsidiary Alliance & Doctrine of Lapse - Consolidation of British Empire in India up to 1857 A. D.<br>**CO4**: Understand after the expansion Economic Policies of the British (1757-1857): Land Revenue Settlements – Commercialization of Agriculture – Impact of Industrial Revolution on Indian Industry; Administration of the Company – Regulating Charter Acts; Cultural & Social Policies: Humanitarian Measures & Spread of Modern Education.<br>**CO5:** Understand that Anti-Colonial Upsurge –<br>Peasant & Tribal Revolts - 1857 Revolt – Causes, Nature& Consequences. |
| 4 | IV | Social Reform Movement & Freedom Struggle | After Completion of this course the student would be able to:<br>CO1: Understand that Social, Religious & Self- Respect Movements: Social & Cultural Awakening – Brahma Samaj, Arya Samaj, Theosophical Society, Ramakrishna Mission, Aligarh Movement – Emancipation of Women – Struggle Against Caste: JyotibaPhule, Narayana Guru, Periyar, Dr. B. R. Ambedkar.<br>CO2: Understand that 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.<br>CO3: Understand that Freedom Struggle from 1885 to 1920: Moderate Phase — Partition of Bengal - Emergence of Militant Nationalism –Swadeshi & Boycott Movement – Home Rule Movement.<br>CO4: Understand that Freedom Struggle from 1920 to 1947: Gandhiji's Role in the National Movement – Revolutionary Movement –Subhas Chandra Bose.<br>CO5: Understand that Muslim League & the Growth of Communalism – Partition of India – Advent of Freedom - Integration of Princely States into Indian<br>Union – Sardar Vallabhai Patel. |

| | | | |
|---|---|---|---|
| 5 | V | Age of Rationalism and Humanism<br>The world between 15th& 18th Centuries | After Completion of this course the student would be able to:<br>CO1: Understand that Feudalism -Geographical Discoveries: Causes – Compass & Maps – Portugal Leads and Western World Follows – Consequences;<br><br>CO2: Understand that 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.<br><br>CO3: Understand that 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.<br><br>CO4: Understand that Age of Revolutions: The American Revolution (1776) – Opening of New World – Causes – Course – Declaration of Independence, 1776 – Bill of Rights, 1791 – Significance.<br><br>CO5: Understand that Age of Revolutions: The French Revolution (1789) – Causes - Teachings of Philosophers - Course of the Revolution – Results. |
| 6 | V | History & Culture Of Andhra Desa (From 12th To 19th Century A.D.) | After Completion of this course the student would be able to:<br>CO1: Understand that Andhra during 12$^{th}$ & 13$^{th}$ 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 .<br>CO2: Understand that 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.<br><br>CO3: Understand that Andhra through 16th& 17th Centuries A.D Evolution of Composite Culture - The QutbShahis of Golkonda – Origin & Decline – |

| | | | |
|---|---|---|---|
| | | | Administration, Society & Economy – Literature & Architecture.<br><br>CO4: Understand that 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.<br>–<br>CO5: Understand that 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. |
| 7 | VI | History of Modern Europe (from 19th century to 1945 a. D.) | After Completion of this course the student would be able to:<br>CO1: Understand that Industrial Revolution: Origin, Nature and Impact.<br><br>CO2: Understand that Unification Movements in Italy & Germany and their Impact.<br><br>CO3: Understand that Communist Revolution in Russia – Causes, Course and Results – Impact on World Order.<br><br>CO4: Understand that World War I: Age of Rivalry in Europe Between 1870 and 1914 – Results of the War – Paris Peace Conference - League of Nations.<br><br>CO5: Understand that World War II: Causes, Fascism & Nazism – Results; The United Nations Organization: Structure, Functions and Challenges. |
| 8 | VI CLUSTER-I | CULTURAL TOURISM IN ANDHRA PRADESH | After Completion of this course the student would be able to:<br><br>CO1:Gain knowledge of tourism basic concepts<br><br>CO2: Compare the types of tourism<br><br>CO3 :Understand the history and tourism relationship and development of tourism in Andhra Pradesh<br><br>CO4: Exhibit practical knowledge on field trip about historical place tourist spot . |

| | | | |
|---|---|---|---|
| 9 | VI<br>CLUSTER-II | Popular Movements in Andhra desa (1848 to 1956 a.d.) | After Completion of this course the student would be able to:<br><br>CO1: Understand Social & Self Respect Movements: Social Conditions –Kandukuri Veeresalingam, Raghupathi Venkata Rathnam Naidu, Guruzada Apparao, Komarraju Venkata Laxmana Rao; New Literary Movements: Causes – RayaproluSubbarao, ViswanathaSathyanarayana, GurramJashua, Boyi Bheemanna, SriSri – Impact<br><br>CO2: Understand Freedom Movement in Andhra (1885-1920): Contributory Factors – Vandemataram Movement – Swadeshi & Boycott programs – Glorious Events at Rajahmundry, Kakinada, Kotappakonda & Tenali – Home Rule Movement in Andhra.<br><br>CO3: Understand Freedom Movement in Andhra (1920-1947): Non-Cooperation Movement – Chirala Perala, Palanadu & Pedanandipadu Activities – Alluri Seetarama Raju &Rampa Revolt (1922-24) – Anti- Simon Commission Movement – Civil Disobedience Movement – Quit India Movement.<br><br>CO4: Understand Movement for Separate Andhra State (1953): Causes – Andhra Maha Sabha – Andhra Provincial Congress Committee – Andhra University – Conflict between Coastal Andhra & Rayalaseema – Sri Bagh Pact – Constitution of Committees & their Contribution – Martyrdom of PottiSriramulu – Formation of separate Andhra State.<br><br>CO5: Understand Movement for formation of Andhra Pradesh (1956): Visalandhra Mahasabha – Role of Communists – States Reorganization Committee – Gentlemen's Agreement – Formation of Andhra Pradesh. |

| | | | |
|---|---|---|---|
| 10 | VI CLUSTER-III | Contemporary History Of Andhra Pradesh (1956-2014) | After Completion of this course the student would be able to:<br>CO1: Understand Socio-Economic Changes in Andhra Pradesh – River Projects & Infrastructural Development – Education & Scientific Progress – Regional Politics – Emergence of Telugu Desam Party.<br><br>CO2: Understand Growth of Leftist Ideology – Marxist & Radical Literature – Naxalbary Movement - Communist Activities - Electoral Politics – Present Status of Communist Movement<br><br>CO3: Understand Dalit Movement – Understanding Un-touchability - Education – Literature - Struggle for Identity – Demand for Political Space.<br><br>CO4: Understand Early trends towards Bifurcation: Jai Telengana Movement (1969) – Mulki Rules – Legal Battle - Jai Andhra Movement (1972) – Six Point Formula (1973).<br><br>CO5: Understand Bifurcation of Andhra Pradesh: Power Politics – Economic Discontentment – Riparian Disputes - Unemployment –Foundation of Telangana Rastra Samiti – Movements for separate Telangana & unified Andhra Pradesh – Formation of Telangana State (2014). |
| BOTANY | | | |
| 1 | I | Microbial diversity, Algae and Fungi | After Completion of this course the student would be able to:<br>CO1: Learn about the structure, pigmentation, food reserves and methods of reproduction of Algae<br>CO2: Learn about the structure, pigmentation, food reserves and methods of reproduction of Fungi<br>CO3: Know about the Economic importance of algae, Fungi and lichen<br>CO4: Studied some plant diseases with special reference to the causative agents, symptoms, etiologyand control measures. |
| 2 | II | Diversity of Archegoniate and plant Anatomy | After Completion of this course the student would be able to:<br>CO1: Learn about the general characters and classification by K.R. Sporne, stelar evolution in Pteridophytes, heterospory and origin of seed habit.<br>CO2: Know about the structure, life history and Economic importance of Gymnosperms.<br>CO3: Studied the methods of fossilization and fossil plants |

| | | | |
|---|---|---|---|
| 3 | III | Plant Taxonomy and Embryology | After Completion of this course the student would be able to:<br>CO1: Learn the types of classifications- artificial, Natural and phylogenetic.<br>CO2: Gain knowledge about Botanical Survey of India (BSI).<br>CO3: Briefly studied on herbarium techniques.<br>CO4: Learn the taxonomic evidences from molecular, numerical and chemicals.<br>CO5: Learn about double fertilization and their significance<br>CO6:Know about the Structure and development of dicot and monocot embryos |
| 4 | IV | Plant Physiology and Metabolism | After Completion of this course the student would be able to:<br>CO1: Know about the requirement of mineral nutrition for plant growth<br>CO2: Understand the process of Photosynthesis, Respiration and Nitrogen metabolism<br>CO3: Learn about Sensory photobiology<br>CO4: Know about the Plant Growth hormones . |
| 5 | IV | Cell Biology, genetics and plant breeding | After Completion of this course the student would be able to:<br>CO1: Learn the structure, chemistry and functions of cellular organelles Meristems<br>CO2: Gain knowledge on fixation, dehydration, embedding, hand sectioning, microtomesectioning<br>CO3: Learn about Mendelian principles<br>CO4: Know about gene mapping methods & Extra chromosomal inheritance<br>CO5:Familiarize about Evolution & Emergence of evolutionary thoughts<br>CO6:Gain knowledge on Plant breeding techniques |
| 6 | V | Plant Ecology and Phytogeography | After Completion of this course the student would be able to:<br>CO1:Learn the Approaches to the study of Ecology (Autecology, Synecology and Genecology)<br>CO2:Understand the population & Community Ecology - concept of metapopulation<br>CO3:Analysis the phytogeography or phytogeographical division of India<br>CO4:Evaluate energy sources of ecological system<br>CO5:Assess the adaptation of plants in relation to light, temperature, water, wind and fire. |

| | | | |
|---|---|---|---|
| 7 | VI | Nursery, Gardening and Floriculture. | CO1:Learn the importance of horticulture – career and occupational opportunities<br>CO2:Know about hydroponics and its importance<br>CO3:Learn the techniques of gardening - Types, Methods & Tools<br>CO4:Learn about Olericulture - Cultivation of commercial flower crops |

| | | | |
|---|---|---|---|
| 8 | VI | Plant diversity and human welfare | After Completion of this course the student would be able to:<br>CO1: Develop understanding of the concept and scope of plant biodiversity<br><br>CO2: Identify the causes and implications of loss of biodiversity<br>CO3: Apply skills to manage plant biodiversity<br>CO4: Utilize various strategies for the conservation of biodiversity<br>CO5: Conceptualize the role of plants in human welfare with special reference to India |
| 9 | VI | Ethno botany and medicinal botany | After Completion of this course the student would be able to:<br>CO1: Recognize the basic medicinal plants<br><br>CO2: Apply techniques of conservation and propagation of medicinal plants.<br><br>CO3: Setup process of harvesting, drying and storage of medicinal herbs<br><br>CO4: Propose new strategies to enhance growth of medicinal herbs considering the practicalissues pertinent to India<br><br>CO5: Conceptualize ethnobotany as an interdisciplinary science<br>CO6: Restate the established methodology of ethnobotany studies<br>CO7: Categories various indigenous ethnic groups and their environmental practices.<br>CO8: Understand the legalities associated with ethnobotany. |
| 10 | VI | Pharmacognosy and phyto chemistry | After Completion of this course the student would be able to:<br>CO1: Understand the fundamental concepts of phytochemistry<br>CO2: Develop the skills of cold and hot solvent extraction.<br><br>CO3: Examine the solvent fractionation.<br><br>CO4: Evaluate the process of screening each fraction for plant pathogens or human pathogens |

| MATHEMATICS | | | | |
|---|---|---|---|---|
| 1 | I | Differential Equations | CO1 | Student will be able to solve first order differential equations utilizing the standard techniques for separable, exact, linear, homogeneous and Bernoulli's scopes. |
| | | | CO2 | Student will be able to find the completesolution of a non-homogeneous differentialequations on as linear combination of the complementary function and particular solution. |
| | | | CO3 | Student will be able co-ordinates polar coordinates and equations solvable for $p, y, x$and clariot's equation solutions. |
| | | | CO4 | Student will be able to find the completesolution of a different equation with constant coefficients by variation of parameters. |
| | | | CO5 | Student will have a working knowledge ofbasic application problems described by second order linear diff. equation with constant co-efficient. |
| 2 | II | Solid Geometry | CO1 | Describe various forms of equation of plane,straight line, sphere, cone and cylinder. |
| | | | CO2 | Find the angle between planes, Bisector planes, perpendicular distance from a point |

| | | | | |
|---|---|---|---|---|
| | | | | to plane, Image of a line on plane, Intersection of lines. |
| | | | CO3 | Describe coplanar lines and interest lines. |
| | | | CO4 | Compute the angle between a line and a plane, length of perpendicular from a pointto line. |
| | | | CO5 | Define skew lines and calculate the shortest distance between skew lines. |
| | | | CO6 | Define plane section of sphere and to find limiting points. |
| | | | CO7 | Define right circular cone and right circular cylinder and solve problems. |
| | | | CO8 | To inculcate knowledge on solution problems in analytic geometry. |
| | | | CO9 | Help computer designers build virtual realities, geometry's application in real world include medicines, Architecture, Computer – aided manufacturing, biology and design for construction blue prints. |
| 3 | III | Group Theory | CO1 | Understand the algebraic structures, Binary operations, Mathematical representation involving in the concept |
| | | | CO2 | Understand the theorems and their proofs to improve their logical thinking. |
| | | | CO3 | Understand the lag ranges theorem know to learn their applications. |
| | | | CO4 | These mathematical ideas that serve as foundation for careers and further high study. |
| | | | CO5 | Conduct the make oral and writer presentations of their findings. |
| | | | CO6 | Conduct the make oral and writer presentations of their findings. |
| | | | CO7 | Using the mathematical knowledge for compute permutations. |
| | | | CO8 | Identify symmetry structures, models their applications involving in other subjects like chemistry, computer science. |
| 4 | IV | Real Analysis | CO1 | Define and recognize the basic properties of the field of real numbers. |
| | | | CO2 | Improve and outline the logical thinking. |
| | | | CO3 | Illustrate how to communicating with peers. Lecture and community |
| | | | CO4 | determine if an sequence is bounded, monotonic, convergent (or) divergent. |
| | | | CO5 | Define and recognize the series of real numbers and convergence. |

| | | | | |
|---|---|---|---|---|
| | | | CO6 | Shown the ability of working independently and withgroup. |
| | | | CO7 | Illustrate how take up responsibility. |
| | | | CO8 | Define and recognize Bolzano – Weirstrass theorem. |
| | | | CO9 | Ability to apply the theorem in a correct mathematicalway. |
| | | | CO10 | Define and recognize the real functions and its limits. |
| | | | CO11 | Define and recognize the continuity of real functions. |
| | | | CO12 | Define and recognize the different ability of real functionsand its related theorems. |
| | | | CO13 | Define and recognize the Riemann – Integration of realfunctions and its related theorems. |
| 5 | V(A) | Ring Theory | CO1 | Assess properties implied by the definitions of ring, field andintegral domain also Boolean ring. |
| | | | CO2 | Use various canonical types of rings. |
| | | | CO3 | Analyze and demonstrate examples of ideals and quotient rings. |
| | | | CO4 | Use the concept of isomorphism and homomorphism for rings. |
| | | | CO5 | Confidently apply algebraic concept. |
| 6 | V(B) | Linear Algebra | CO1 | Uses of Matrix system in Linear Algebra and applications ofMatrix in Linear Algebra. |
| | | | CO2 | Given set of vectors Correct their LI or LD |
| | | | CO3 | 3. dim (r/w) = dim r-d im w |
| | | | CO4 | Construction of linear transformation what is given function is<br>LT or not. |
| | | | CO5 | Vectors in Euclidian space and lot of applications |
| 7 | VI(A) | Numerical Analysis | CO1 | Derive numerical methods for approximating the solution ofproblems of continuous mathematics |
| | | | CO2 | Implement a variety of numerical algorithms using appropriatetechnology |
| | | | CO3 | Compare the viability of different approaches to the numericalsolution of problems arising in roots of solution of non-linear<br>equations, interpolation and approximation, numerical differentiation and integration, solution of linear systems |
| 8 | VII(B) | Advanced Numerical Analysis | CO1 | Obtain numerical solutions of algebraic and transcendentalequations. |
| | | | CO2 | Find numerical solutions of system of linear equations andcheck the accuracy of the solutions |
| | | | CO3 | Learn about various interpolating and extrapolating methods. |
| | | | CO4 | Solve initial and boundary value problems in differentialequations using numerical methods. |
| | | | CO5 | Apply various numerical methods in real life problems. |

| | | | | |
|---|---|---|---|---|
| 9 | VII(C) | Special Functions | CO1 | Define and recognize the important contribution to NumberTheory, Special functions, calculus of variations and elliptic integrals. |
| | | | CO2 | Bessel's equation is used in many physical problems involvingvibrations (or) heat conduction in cylinder regions. |
| | | | CO3 | Special functions have many applications in Engineering. |
| | | | CO4 | Laguerre's Equation is particularly in boundary values problemsfor spheres. |
| | | | CO5 | Define and recognize Hermite and Leaguerre's polynomials andapplications. |

| ZOOLOGY | | | |
|---|---|---|---|
| 1 | 10 | Animal diversity- Biology of non-chordates | After Completion of this course the student would be able to:<br>CO1: Explain the general characters of of each phylum and their classification and identify animals using different taxonomical strata.<br><br>CO2: Understand the phylogeny of life, connecting link between different phyla and appreciate the diversity of fauna.<br><br>CO3: Describe the essentials of each body part of animals and their functioning.<br><br>CO4: Able to appreciate the process of evolution (unicellular cells to complex, multicellular Organisms)<br><br>CO5: Understand the basis of life processes in the non-chordates. |
| 2 | 3-2-119 | Animal diversity- Biology of chordates | After Completion of this course the student would be able to:<br>CO1: Explain the general characters and classifications of chordates<br>CO2: Understand Mammals with specific structural adaptations<br><br>CO3: Understand the significance of dentition and evolutionary significance<br><br>CO4: Understand the origin and evolutionary relationship of different phyla from Prochordata to mammalian.<br><br>CO5: Understand the difference between various species and the evolution of complexity in each system.<br>CO6:Describe the diversity in form, structure and habits of vertebrates. |
| 3 | 3-3-118 | Cell Biology, Genetics, Molecular Biology and evolution | After Completion of this course the student would be able to:<br>CO1: To understand the origin of cell and distinguish between prokaryotic and eukaryotic cell. |

| | | | |
|---|---|---|---|
| | | | CO2: To understand the role of different cell organelles in maintenance of life activities.<br><br>CO3: To provide the history and basic concepts of heredity, variations and gene interaction.<br><br>CO4: To enable the students distinguish between polygenic, sex-linked, and multiple allelic modes of inheritance.<br><br>CO5: To acquaint student with basic concepts of molecular biology as to how characters are expressed with a coordinated functioning of replication, transcription and translation in all living beings. |
| 4 | 3-4-118 | Embryology, Physiology and Ecology | After Completion of this course the student would be able to:<br>CO1: Seeks to understand the mechanisms that work to keep the human body alive and functioning<br>CO2: To create awareness of the various physiological processes<br>CO3: Students are taught the detailed concepts of digestion<br>CO4: To appreciate the body's ability to maintain homeostasis<br>CO5: To enlighten students about the intricate relationship between the environment and all forms of life<br>CO6: To understand anticipate, analyse and evaluate natural resource issues and action a lifestyle that conserve nature |
| 5 | 3-5-131 | Animal biotechnology | After Completion of this course the student would be able to:<br>CO1: Understand the applications of Biotechnology. Familiar with the tools and techniques of Genetics and Biotechnology.<br><br>CO2: Understand the principle and applications of biotechnology techniques-DNA Finger printing etc.,<br><br>CO3: Aware of the technology involved in cloning.<br><br>CO4: Admire the improved quality of species with gene manipulations.<br><br>CO5: Explain the recent developments in biotechnology for better Environment, formation of different species-transgenic animals and production of resistant variety that yield better.<br><br>CO6: Describe production of monoclonal antibodies and vaccines and the use of hybridoma technology<br>.<br>CO7: Describe the utilization of stem cells, IVF, transgenic animals and precautions. |

| | | | |
|---|---|---|---|
| 6. | 3-5-132 | Animal Husbandry | After Completion of this course the student would be able to:<br>CO1: Familiar with introduction to poultry farming, Management of chicks<br>CO2: Gains knowledge in methods of hatching, brooding and sexing of chicks.<br>CO3: Be able to distinguish between breeds of cattle, gains knowledge in selection of site for dairy farm, weaning of calf.<br>CO4: Understand the principles of feeding, nutrition requirements and poultry diseases. |
| | | | CO1: Understand the techniques to handle fresh fish, storage, preservation and transport.<br>CO2: Learns to handle fish during transport. Understands the post-mortem changes<br>CO3: Understands the principle behind the preservation of fishes like icing, salting, freezing<br>CO4: Be familiar with various hygiene practices and precautions during processing of aquatic product and their marketing<br>CO5: Understand the importance of seaweed culture<br>CO6: Explain and extract maximum from fish and produce fish by products<br>CO7: Earn by selling products like fish pickles, cutlets and glues by applying right preparation techniques.<br>CO8: Aware of rules and regulations related to quality control.<br>CO9: Pick up entrepreneur skills for self- employment. |

| COMPUTER SCIENCE | | | |
|---|---|---|---|
| 1 | I | Computer Fundamentals and Photoshop | CO-1: The student is able to explore the basic knowledge ofcomputer hardware and software.<br>CO-2: The student is able to learn and work on adobe Photoshopapplications.<br>CO-3: The student is able to create and edit photo albums.<br>CO-4: The student is able to design and edit Banners and visitingcards etc.. |
| 2 | II | Programmingin C | CO-1. Appreciate and understand the working of a digital computer<br>CO-2. Analyse a given problem and develop an algorithm to solve the problem<br><br>CO-3. Use the 'C' language constructs in the right way<br><br>CO-4. Design, develop and test programs written in 'C' |

| | | | |
|---|---|---|---|
| 3 | III | Object Oriented Programming using JAVA | CO-1. Understand the concept and underlying principles of Object-Oriented Programming<br>CO-2. Understand how object-oriented concepts are incorporatedinto the Java programming language<br>CO-3. Develop problem-solving and programming skills usingOOP concept<br>CO-4. Become familiar with the fundamentals and acquireprogramming skills in the Java language |
| 4 | IV | Data Structures | CO-1.student knows how arrays, records, linked structures, stacks,queues, trees, and graphs are represented in memory and its applications<br>CO-2. Write programs that use arrays, records, linked structures,stacks, queues, trees, and graphs<br>CO-3. Compare and contrast the benefits of dynamic and static datastructures implementations<br>CO-4. Describe the concept of recursion, give examples of its use,describe how it can be implemented using a stack.<br>CO-5. Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing. |

| | | | |
|---|---|---|---|
| 5 | V | Database Management Systems | CO-1.Student knows database structure and its design<br>CO-2. Students are able to understand Different data models usedfor database design<br>CO-3. Students are able to understand database transactions anddata recovery<br>CO-4. Students canuse DML,DDL,DCL commands to manipulatedata in the database |
| 6 | VI | Software Engineering | CO-1.Ability to gather and specify requirements of the softwareprojects.<br>CO-2.Ability to analyse software requirements with existing tools<br>CO-3.Able to differentiate different testing methodologies and apply the basic project management practices in real life projects<br>CO-4.Ability to work in a team as well as independently on software projects |
| 7 | VI | Web Technologies | CO-1. To understand the web architecture and web services.<br>CO-2. To practice latest web technologies and tools by conductingexperiments.<br>CO-3. To design interactive web pages using HTML and Stylesheets.<br>CO-4. To study the framework and building blocks of .NETIntegrated Development Environment.<br>CO-5. To provide solutions by identifying and formulating ITrelated problems. |

| | | | |
|---|---|---|---|
| 8 | VI | PHP and MYSQL | CO-1: Students can develop static and dynamic web pages CO-2: Students can manage a database by using PHP scripts.CO-3: Students can learn PHP- procedural as well as object- oriented concepts CO-4:Students can perform frontend and backend data validation |
| 9 | VI | Project Work | CO-1: Students can apply theoretical and practical knowledge tosolve real world problems<br>Co-2: Students can do planning, analysing, designing, coding anddeployment of project |

| COMPUTER APPLICATIONS | | | |
|---|---|---|---|
| 1 | I | Computer Fundamentals and Photoshop | CO-1: The student is able to explore the basic knowledge of computer hardware and software.<br>CO-2: The student is able to learn and work on adobe Photoshop applications.<br>CO-3: The student is able to create and edit photo albums.<br>CO-4: The student is able to design and edit Banners and visiting cards etc.. |
| 2 | II | Programmingin C | CO-1. Appreciate and understand the working of a digital computer<br>CO-2. Analyse a given problem and develop an algorithm to solve the problem<br>CO-3. Use the 'C' language constructs in the right way<br>CO-4. Design, develop and test programs written in 'C' |
| 3 | III | Office Automation Tools | CO-1: Students can create, edit and format a document<br>CO-2: The student able to send bulk mails by using mail merge concept<br>CO-3: The student able to prepare budgets by using worksheets<br>CO-4: Students can perform different database operationsusing MS-Access |
| 4 | IV | Programmingin C | CO-1. Appreciate and understand the working of a digital computer<br>CO-2. Analyse a given problem and develop an algorithm to solve the problem<br>CO-3. Use the 'C' language constructs in the right way<br>CO-4. Design, develop and test programs written in 'C' |

| | | | |
|---|---|---|---|
| 5 | V | Database Management Systems | CO-1.Student knows database structure and its design<br>CO-2. Students are able to understand Different data modelsused for database design<br>CO-3. Students are able to understand database transactionsand data recovery<br>CO-4. Students can use DML,DDL,DCL commands to manipulate data in the database |
| 7 | VI | e-Commerce | CO-1. Evaluate e-commerce markets and transactions, including supply chains<br>CO-2.Assess the effect of changing technology on traditional business models and strategy<br>CO-3.Analyze e-commerce business needs and resources and match to technology considering human factors and budget constraints<br>CO-4.Create, modify, enhance and publish a simple e- commerce web site. |
| 8 | VI | Web Technology | CO-1. To understand the web architecture and web services.CO-2. To practice latest web technologies and tools by conducting experiments.<br>CO-3. To design interactive web pages using HTML andStyle sheets.<br>CO-4. To study the framework and building blocks of .NETIntegrated Development Environment. |

| INTERNET OF THINGS | | | |
|---|---|---|---|
| 1 | I | Fundamentals of Computer and C-Programming | CO 1. Appreciate and understand the working of a digital computer<br>CO 2. Analyze a given problem and develop an algorithm to solve the problem<br>CO 3. Improve upon a solution to a problem<br>CO 4. Use the 'C' language constructs in the right way<br>CO 5. Design, develop and test programs written in 'C' |
| 2 | II | Fundamentals of IoT and Applications | CO 1: Understand the various concepts, terminologies and architecture of IoT systems.<br>CO 2. Use sensors and actuators for design of IoT.<br>CO 3. Understand and apply various protocols for design of IoT systems<br>CO 4. Use various techniques of data storage and analytics in IoT<br>CO 5. Understand various applications of IoT<br>CO 6. Understand APIs to connect IoT related technologies |

| | | | |
|---|---|---|---|
| 3 | III | Data Communications & Computer Networks | CO 1. Describe the basis and structure of an abstract layered protocol model<br>CO 2. Independently understand basic computer network technology.<br>CO 3. Identify the different types of network topologies and protocols.<br>CO 4. Enumerate the layers of the OSI model and TCP/IP.<br>CO 5. Identify the different types of network devices and their functions within a network<br>CO 6. Understand and building the skills of routing mechanisms.<br>CO 7. Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation<br>CO 8. Understand how the Internet works today.<br>CO 9. Conversant with primitives of network application programming. |
| 4 | IV | RFID and Wireless Sensor Networks | CO 1. Students will be familiar with RFID technology, various components involved.<br>CO 2. Getting familiar with various RFID standards, Students learn various Security issues involved in RFID.<br>CO 3. Students learn about Wireless Sensor Networks<br>CO 4. Familiar with WSN protocols routing algorithms.<br>CO 5. Various Security issues involved in Wireless Sensor Networks. |
| 5 | IV | Implementing IoT with Raspberry Pi | CO 1. Appreciate the development technology for IoT<br>CO 2. Familiar with Basic Concepts of Linux<br>CO 3. Design real time IoT Devices.<br>CO 4. Familiar with basic foundations of Python Programming and libraries<br>CO 5. Comprehend the basic concepts of Mobile Cloud Computing<br>CO 6. Develop a Mobile App for IoT applications. |
| 6 | V<br>(Skill Enhancement Course –<br>Elective) | Distributed IoT Systems | CO 1. Discover key IoT concepts including identification, sensors, localization, wireless protocols, data storage and security<br>CO 2. Explore IoT technologies, architectures, standards, and regulation<br>CO 3. Realize the value created by collecting, communicating, coordinating, and leveraging the data from connected devices<br>CO 4. Examine technological developments that will likely shape the industriallandscape in the future<br>CO 5. Understand how to develop and implement own IoT technologies, solutions, and applications<br>CO 6. At the end of the program, students will be able to understand how |
| 7 | V<br>(Skill Enhancement Course - | Object Oriented Programming Using Java | CO 1.Understand the benefits of a well-structured program<br>CO 2. Understand different computer programming paradigms |

| | | | |
|---|---|---|---|
| | Elective) | | CO 3. Understand underlying principles of Object-Oriented Programming in Java<br>CO 4. Develop problem-solving and programming skills using OOP concepts<br>CO 5. Develop the ability to solve real-world problems through software developmentin high-levelprogramming language like Java |

| *PHYSICS* | | | |
|---|---|---|---|
| 1. | I | Mechanics & Properties of Matter | After Completion of this course the student would be able to:<br>*CO1:*To gain the knowledge about the physical significance of gradient of scalar field, divergence and curl of vector field and understand the line, surface and volume integrals.<br><br>*CO2:* To gain knowledge on motion of variable mass system, Collisions in two and three dimensions, Rutherford scattering problem<br><br>*CO3:* To understand the concepts of rotational kinematics of rigid body, Moment of inertia tensor, Euler equations, Precision of top, equinoxes and Gyroscope<br><br>*CO4:* To gain understanding on conservative forces, equation of motion under central forces, Keppler's laws. To know about GPS (global positioning system)<br><br>*CO5:* To learn about Galilean-Lorentz frames of references, Lorentz transformations, Michelson-Morley experiment, Postulates of special theory of relativity, length contraction, time dilation, addition of masses, mass energy relation and 4 vector notation. |
| 2 | II Sem | Waves & Oscillations | *CO1:* To learn about physical properties of Simple Harmonic Motion (SHM), Torsional pendulum, Compound pendulum and their applications, Lissajous figures<br><br>*CO2:* . To be able to solve the differential equations for forced harmonic oscillator and damped harmonic oscillator and compare the results with simple harmonic oscillator<br><br>*CO3:*To gain the knowledge about Fourier theorem and analysis of periodic wave functions-square wave ,triangular wave,saw tooth wave.<br><br>*CO4:* Figure out the formation of harmonics and overtones in a stretched string<br>*CO5:* To learn about basics of Ultrasonics, production detection of ultrasonics, measurement of frequency and velocity of ultrasonics and the applications of ultrasonics |

| | | | |
|---|---|---|---|
| 3 | III Sem | Wave Optics | *CO1:*To know the types of aberrations and their minimizing methods<br>*CO2:* To understand the principle of superposition, coherence, Interference by division of wave front and amplitude, Fresnel's bi-prism, thin film interference, wedge shaped film interference, Newton's rings, Michelson's interferometer and their applications to sodium D lines and thickness of thin film.<br><br>*CO3:* To learn about Fresnel and Fraunhoffer diffraction, Fraunhoffer diffraction due to single slit, double slit, N-slit, grating. They would also learn about Fresnel's half period zones, zone plate, phase reversal zone plates, comparison of zone plate & convex lens, interference & diffraction.<br><br>*CO4:* To learn about methods of polarization, Brewster's law, Malus law, Nicol prism, Quarter wave plate, half wave plate, Babinet's compensator and optical activity analysis by Laurent's half shade polarimeter.<br><br>*CO5:* To understand the principles of optical fiber communication, classification of optical fibers, applications of optical fibers. To learn about principles of LASER, Einstein coefficients, He-Ne laser, Ruby laser, applications of laser, principles of holography, limitations of Gabor's hologram and applications of holography. |
| 4 | IV Sem | Thermodynamics & Radiation Physics | *CO1:* To Understand the basic aspects of kinetic theory of gases, Maxwell- Boltzman distribution law, equip partition of energies, mean free path of molecular collisions and the transport phenomenon in ideal gases<br><br>*CO2*: To Gain knowledge on the basic concepts of thermodynamics, the first and the second law of thermodynamics, the basic principles of refrigeration ,the concept of entropy, the thermodynamic potentials and their physical interpretations<br><br>*CO3:* To develop critical understanding of concept of Thermodynamic potentials, the formulation of Maxwell’s equations and its applications.<br><br>*CO4:* To gain the knowledge about the low temperature physics and production of low temperature by various methods.<br><br>*CO5:* To examine the nature of black body radiations and the basic theories and working of pyrometer and pyrheliometre |

| | | | |
|---|---|---|---|
| 5 | V Sem | Electricity, Magnetism and Electronics | *CO1:* To understand the concepts of electric field and electric potential due to point charge.<br><br>*CO2:* To understand Biot and Savart's law and Ampere's circuital law to describe and explain the generation of magnetic fields by electrical currents.<br><br>*CO3:*To gain the knowledge about alternating currents.<br><br>*CO4:* To describe the operation of p-n junction diodes, Zener diodes, light emitting diodes and transistors<br><br>*CO5:* To understand the operation of basic logic gates and universal gates and their truth tables |
| 6 | V Sem | Modern Physics | *CO1:* To understan the concepts of Atomic and Modern Physics, basic elementary Quantum Mechanics and Nuclear Physics<br>*CO2:* To Develop critical understanding of concept of Matter Waves and Uncertainty Principle<br><br>*CO3:* To learn the Schrodinger wave equations, particle in one dimension potential<br><br>*CO4:* : To understand the basic properties of nuclei, characteristics of Nuclear forces, salient features of Nuclear models and different nuclear radiation detectors<br><br>*CO5:* To learn about 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 | VI Sem | Analog and digital electronics | *CO1:*To understand the construction and working of FET ,MOSFET<br><br>*CO2:*To learn about the operational amplifier.<br><br>*CO3:*To study the applications of Op-Amp<br><br>*CO4:*To understand the data processing circuits and IC 555 Timer<br>*CO5:*To learn about the sequential digital circuits. |
| 8 | VI Sem | Material science | *CO1:* To learn about Materials and Crystal Bonding: Materials, Classification, Crystalline, Amorphous, Glasses; Metals, Alloys, Semiconductors, Polymers, Ceramics, Plastics, Bio-materials, Composites.<br><br>*CO2:* To learn about Defects and Diffusion in Materials: Introduction – Types of defects - Point defects- Line defects- Surface defects- Volume defects |

| | | | |
|---|---|---|---|
| | | | *CO3:* To learn about Mechanical Behavior of Materials: Different mechanical properties of engineering materials – Creep – Fracture – Technological Properties<br><br>*CO4:* To learn about Magnetic Materials: Dia – Para – Ferro and Ferromagnetic materials, Classical Langevin theory of dia magnetism, Quantum mechanical treatment of Para magnetism. Curie's law, Weiss's theory of ferromagnetism, Ferromagnetic domains. Discussion of B-H Curve. Hysteresis and energy Loss.<br><br>*CO5:* To learn about Dielectric Materials: Dielectric constant, dielectric strength and dielectric loss, polarizability, types of dielectric materials, applications; ferroelectric, piezoelectric and pyroelectric materials. |
| 9 | VI Sem | Renewable energy | *CO1*: To understand the energy resources and environmental degradation due to energy production and utilization.<br><br>*CO2*: to gain the knowledge about the energy consumption.<br><br>*CO3*: To gain the knowledge of solar energy and its applications.<br><br>*CO4*: To gain the knowledge about the ocean energy and hydrogen energy.<br><br>*CO5:* To gain the knowledge about the bio energy resources. |

| CHEMISTRY | | | |
|---|---|---|---|
| 1 | 1 | Inorganic And Organic Chemistry | At the end of the course, the student will be able to;<br><br>1.Understand about preparation, structure and applications of compounds formed by the p-block elements.<br><br>2.explain preparation, properties, and applications of Organo metallic compounds of Li and Mg.<br><br>3.explain basic organic chemistry definitions and types of reactions.<br><br>4.understand about classification and preparation of Alkenes, Alkynes and Cycloalkanes.<br><br>5.learn about preparation, structure, reactivity of benzene and Aromaticity of Benzene. |

| | | | |
|---|---|---|---|
| 2 | 2 | (Physical & General Chemistry) | At the end of the course, the student will be able to;<br><br>1.Explain the difference between solid, liquid and gases in terms of intermolecular interactions.<br><br>2.Gain knowledge about Basic definitions and azeotropic mixtures, CST systems<br><br>3.Learn about Colloidal solutions, Emulsions and Adsorptions.<br><br>4.Gain knowledge about formation of bonds and Bonding theories.<br><br>5.Understand about Isomerism of Carbon compounds and stereo Chemistry of carbon compounds. |

| | | | |
|---|---|---|---|
| 3 | 3 | (Inorganic and Organic Chemistry) | At the end of the Course, the student will be able to;<br><br>1:Understand the basic concepts of d-block and f-block elements.<br><br>2: Understand the Theories of bonding in metals and Structures of Metal Carbonyls.<br><br>3:Understand preparation, properties and reactions of halo alkanes, halo arenes and oxygen containing functional groups.<br><br>4:Use the Synthetic chemistry learnt in this course to do functional transformations.<br><br>5: To propose possible mechanism for any relevant reactions |
| 4 | 4 | (SPECTROSCOPY &Physical Chemistry) | At the end of the Course, the student will be able to<br><br>1:Understand the basic concepts of Absorption spectroscopy, electronic spectroscopy, IR Spectroscopy, H-NMR spectroscopy.<br><br>2: Understand the basic concepts of Dilute solutions and Electro chemistry. |

| | | | |
|---|---|---|---|
| 5 | 5 | V&VI (INORGANIC, PHYSICAL& ORGANIC CHEMISTRY) | At the end of the Course, the student will be able to;<br><br>1:Understand the basic concepts Coordination Compounds, Spectral and Magnetic properties and Stability of Complexes.<br><br>2: Understand the preparation and properties of Amino acids and basic knowledge on Proteins.<br><br>3:Understand preparation, Structure and Conversions of Glucose and Fructose.<br><br>4:Understand the Laws and properties of Thermodynamics. |
| 6 | 6 | ELECTIVE PAPER –VII-(B): ENVIRONMENTAL CHEMISTRY | At the end of the course, the students will be able to;<br><br>1: Understand the basic concepts of environmental chemistry, scope and importance of environment in nowadays.<br><br>2: Learn about the basic concepts of air pollution-sources of air pollution - controlling methods of air pollution.<br><br>3:Understand the basic concepts of water quality and criteria for finding of water quality-methods to convert temporary hard water into soft water, methods to convert permanent hard water into soft water.<br><br>4:Gain knowledge about the basic concepts of toxic chemicals in the environment –effects of toxic chemicals.<br><br>5:Understand the basic concepts of Eco system functions and types of Eco system |

# GOVERNMENT DEGREE COLLEGE, RAVULAPALEM

## COURSE OBJECTIVES

**ALL COURSES WITH EFFECT FROMTHE ACADEMIC YEAR 2020-2021**

| S.No | Semester | Name of the Course | Course Outcomes |
|---|---|---|---|
| TELUGU | | | |
| 1 | I | Telugu-poetry, Prose(short stories) and grammar | After Completion of this course the student would be able to:<br>CO1: The antiquity of ancient Telugu literature is recognized as unique. In Telugu literature, Adikavi Nannaya's language culture of the period and the knowledge of politics of the epic period.<br><br>CO2 They will understand the speech situations and linguistic peculiarities of the time of Shiva poets. Know Telugu proverbs, folktales.<br><br>CO3: Tikkana poet understands the speech, religion and conditions of India, Tikkana poet Kavia sculpture, drama.<br><br>CO4: A red poet can acquire sukti vaichitri and a taste for different modes of epic poetry. One can identify the poetic features of Srinath's time and the poetic uniqueness of the poetess Molla<br>CO5: Understand the nature of Telugu poetry and develop literary taste Study the grammar of the ancient poetic language Through language ability and writing skills can be grasped. |

| | | | |
|---|---|---|---|
| 2 | II | Telugu-Poetry, Prose (short stories) and Novel. | After Completion of this course the student would be able to:<br><br>CO1: Due to the influence of the English language, the modern literature in Telugu is known for its uniqueness.<br><br>CO2: Contemporary Modern Literary Processes like "Fiction, Story, Novel, Drama, Criticism"<br><br>Get an understanding of<br><br>CO3: They will get knowledge about the aims of emotional poetry and progressive poetry. They will get knowledge about the aims of emotional poetry and progressive poetry. They recognize the birth and necessity of existentialist movements.<br><br>CO4: Social consciousness is gained through literature. A theory can be reviewed by knowing the actual conditions rather than by theories.<br><br>CO5: Social, cultural and political consciousness through modern Telugu fictionwill get . |
| 3 | III | Telugu-Poetry, Drama and grammar | After Completion of this course the student would be able to:<br>CO1: Skills learned through the study of Telugu literature as creative skills Can change.<br><br>CO2: Students recognize linguistics, the need for language, and the importance of language. It is known that language is important for the personal life of man and the strength of social system. Recognizing the importance of "Varnam Padam Vayakam" as the key elements of Telugu language, Vagrupa can improve language skills through written expression.<br><br>CO3: Learn to practice and use language skills. Able to express writing and language skills in creative form.<br><br>CO4: . Along with ancient poetry, modern poetry, story, essay, etc, literary processes Along with teaching the theoretical subjects related to structures, they can develop their writing skills. |

| | | | |
|---|---|---|---|
| | | | CO5: They can provide employment opportunities in the creative sector and media sector.<br>CO6: Can acquire expertise in the field of translation |

| ENGLISH | | | |
|---|---|---|---|
| 1. | I | A Course in Communication and Soft Skills<br>ENGLISH PRAXIS-I | By the end of the course the learner will be able to:<br>CO1: Use grammar effectively in writing and speaking.<br>CO2: Demonstrate the use of good vocabulary<br>CO3: Demonstrate an understating of writing skills<br>CO4: Acquire ability to use Soft Skills in professional and daily life.<br>CO5: Confidently use the tools of communication skills |
| 2. | II | A Course in Reading &Writing Skills<br>ENGLISH PRAXIS-II | By the end of the course the learner will be able to:<br>CO1: Use reading skills effectively<br>CO2: Comprehend and Interpret different types of texts<br>CO3: Analyse what is being read<br>CO4: Build up a repository of active vocabulary<br>CO5: Use good writing strategies and improve writing skills independently for future needs |
| 3. | III | A Course in Conversational Skills<br>ENGLISH PRAXIS-III | By the end of the course the learner will be able to:<br>CO1: Speak fluently in English<br>CO2: Participate confidently in any social interaction<br>CO3: Face any professional discourse<br>CO4: Demonstrate critical thinking<br>CO5: Enhance conversational skills by observing the professional interviews |
| **ECONOMICS** | | | |
| 4 | I | Microeconomic Analysis | After Completion of this course the student would be able to:<br>CO1:Understand the differences between microeconomic analysis and macro-economic analysis<br>CO2: Understand various laws and principles of microeconomic theory under consumption,<br>CO3: Understand various terms and concepts relating to microeconomic analysis with the help of examples of real life.<br>CO4: Understand the application of the concept of demand elasticity and its relationship with Average and Marginal Revenue. |

| | | | |
|---|---|---|---|
| | | | CO5: Draws critical diagrams and graphs to explain and examine the application of various laws and principles of micro economic analysis. |
| 5 | II | Macro Economic Analysis | After Completion of this course the student would be able to:<br><br>CO1: Understand various concepts, definitions, laws and principles of macroeconomic theory with reference to income, employment, money, banking and finance.<br><br>CO2: Understand various terms, concepts, laws and principles, theories relating to income, employment, consumption, investment, money, price-level and phases of trade cycles.<br><br>CO3: Understand the difference between various concepts and components of national income with illustrations and methods of measuring national income.<br><br>CO4: Understand the theories of macroeconomics with reference to their assumptions, implications and applicability.<br><br>CO5: Understand consumption and investment functions; concepts of multiplier and accelerator, price indices, inflation and trade cycles |
| 6 | III | Development Economics | After Completion of this course the student would be able to:<br><br>CO1: Understand various concepts and definitions and indicators relating to economic growth and Development including recent developments<br><br>CO2: Understand characteristics of developing and developing economies and distinction between the two.<br><br>CO3: Understand the factors contributing to development, Choice of Techniques and a few important models and strategies of growth principle.<br><br>CO4: Understand the role and importance of various financial and other institutions in the context of India's economic development |

| | | | |
|---|---|---|---|
| 7 | IV (A) | Economic Development-India And Andhra Pradesh | After Completion of this course the student would be able to:<br><br>CO1: Learn about leading issues of Indian economic development with reference to potential for growth, obstacles, and policy responses.<br><br>CO2:Understand the Objectives, outlays and achievements of economic plans and growth strategies.<br><br>CO3:Explains about available Resources, demographic issues, general problems of poverty and unemployment and relevant policies.<br><br>CO4:Understand about sector specific problems, remedial policies and their effectiveness relating to Agriculture and Industrial Sectors of Indian and AP economy and infrastructure issues of AP economy<br><br>CO5: Understand Leading issues of current importance relating to India and AP economy, major policies and programmes, Covid– 19 and its impact on Indian economy |
| 8 | IV(B) | Statistical Methods for Economics | After Completion of this course the student would be able to:<br><br>CO1: Understanding the definitions, terms and their meaning relating to statistical methods.<br><br>CO2: various formulae used to measure central tendency, correlation regression and Indices.<br><br>CO3: Importance of statistics and its applications<br><br>CO4: Analyses and solves using given data and information.<br><br>CO5: Draws critical diagrams and graphs |
| 9 | V (A) | Urban Entrepreneurship and MSMEs | After Completion of this course the student would be able to:<br><br>CO1: Explain the basic theories and essentials of entrepreneurship Identify and analyze the entrepreneurship opportunities available in local urban area.<br><br>CO2: Apply the theories of entrepreneurship to the conditions of local urban area and formulate appropriate business ideas.<br><br>CO3: Demonstrate practical skills that will enable them to start urban entrepreneurship |

| | | | |
|---|---|---|---|
| 10 | V (B) | Retail and Digital Marketing | After Completion of this course the student would be able to:<br>CO1: Explain the concepts and principles about the retail and digital marketing.<br>CO2: Identify and analyze the opportunities related to retail and digital marketing available in the local area;<br>CO3: Apply the concept to formulate the new strategies related to retail and digital marketing.<br>CO4: Demonstrate the practical skills required to get employment in retail and digital marketing or to start own digital marketing. |
| COMMERCE | | | |
| 1 | 1 | FUNDAMENTALS OF ACCOUNTING | After the successful completion of the course, the student will get<br>CO1:Identify transactions and events that need to be recorded in the books of accounts.<br>CO2:Equip with the knowledge of accounting process and preparation of final accounts of sole trader.<br>CO3:Develop the skill of recording financial transactions and preparation of reports in accordance withGAAP.<br>CO4:Analyze the difference between cash book and pass book in terms of balance and makereconciliation.<br>CO5:Critically examine the balance sheets of a sole trader for different accounting periods.<br>CO6:Design new accounting formulas & principles for business organizations. |
| 2 | 1 | BUSINESS ORGANIZATION AND MANAGEMENT | After the successful completion of the course, the student will get<br>CO1:Understand different forms of business organizations.<br>CO2:Comprehend the nature of Joint Stock CO3:Company and formalities to promote a Company.<br>CO4:Describe the Social Responsibility of Business towards the society.<br>CO5:Critically examine the various organizations of the business firms and judge the best among them.<br>CO6:Design and plan to register a business firm. Prepare different documents to register a company athis own.<br>CO7:Articulate new models of business organizations |

| | | | |
|---|---|---|---|
| 3 | 1 | BUSINESS ENVIRONMENT | After the successful completion of the course, the student will get<br><br>CO1:Understand the concept of business environment.<br>CO2:Define Internal and External elements affecting business environment.<br>CO3:Explain the economic trends and its effect on Government policies.<br>CO4:Critically examine the recent developments in economic and business policies of the Government.<br>CO5:Evaluate and judge the best business policies in Indian business environment.<br>CO6:Develop the new ideas for creating good business environment. |
| 4 | 2 | FINANCIAL ACCOUNTING | After the successful completion of the course, the student will get<br><br>CO3:Understand the concept of consignment and learn the accounting treatment of the various aspects ofconsignment.<br>CO3:Analyze the accounting process and preparation of accounts in consignment and joint venture.<br>CO3:Distinguish Joint Venture and Partnership and to learn the methods of maintaining records underJoint Venture.<br>CO3:Determine the useful life and value of the depreciable assets and maintenance of Reserves inbusiness entities.<br>CO3:Design an accounting system for different models of businesses at his own using the principles ofexisting accounting system. |
| 5 | 2 | BUSINESS ECONOMICS | After the successful completion of the course, the student will get<br><br>CO1: Describe the nature of economics in dealing with the issues of scarcity of resources.<br>CO2:Analyze supply and demand analysis and its impact on consumer behaviour.<br>CO3:Evaluate the factors, such as production and costs affecting firms behaviour.<br>CO4:Recognize market failure and the role of government in dealing with those failures.<br>CO5:Use economic analysis to evaluate controversial issues and policies.<br>CO6:Apply economic models for managerial problems, identify their relationships, and formulate thedecision making tools to be applied for business. |

| | | | |
|---|---|---|---|
| 6 | 2 | BANKING THEORY AND PRACTICE | After the successful completion of the course, the student will get:<br>CO1:Understand the basic concepts of banks and functions of commercial banks.<br>CO2:Demonstrate an awareness of law and practice in a banking context.<br>CO3:Engage in critical analysis of the practice of banking law.<br>CO4:Organize information as it relates to the regulation of banking products and services.<br>CO5:Critically examine the current scenario of Indian Banking system.<br>CO6:Formulate the procedure for better service to the customers from various banking innovations. |
| 7 | 3 | ADVANCED ACCOUNTING | After the successful completion of the course, the student will get:<br><br>CO1: Understand the concept of Non-profit organisations and its accounting process.<br>CO2:Comprehend the concept of single-entry system and preparation of statement of affairs.<br>CO3:Familiarize with the legal formalities at the time of dissolution of the firm .<br>CO4:Prepare financial statements for partnership firm on dissolution of the firm.<br>CO5:Employ critical thinking skills to understand the difference between the dissolution of the firmand dissolution of partnership |
| 8 | 3 | BUSINESS STATISTICS | After the successful completion of the course, the student will get:<br>CO1:Understand the importance of Statistics in real life.<br>CO2:Formulate complete, concise, and correct mathematical proofs.<br>CO3:Frame problems using multiple mathematical and statistical tools, CO4:measuring relationships by using standard techniques.<br>CO5:Build and assess data-based models.<br>CO6:Learn and apply the statistical tools in day life.<br>CO7:Create quantitative models to solve real world problems in appropriate contexts |
| 9 | 3 | MARKETING | After the successful completion of the course, the student will get:<br><br>CO1: Develop an idea about marketing and marketing environment.<br>CO2: Understand the consumer behaviour and market segmentation process.<br>CO3: Comprehend the product life cycle and product line decisions.<br>CO4: Know the process of packaging and labeling to attract the customers.<br>CO5: Formulate new marketing strategies for a specific new product.<br>CO6: Develop new product line and sales promotion techniques for a given product.<br>CO7: Design and develop new advertisements to given products. |

| | | | |
|---|---|---|---|
| 10 | 4 | CORPORATE ACCOUNTING | After the successful completion of the course, the student will get:<br><br>CO1:Understand the Accounting treatment of Share Capital and aware of process of book building.<br>CO2:Demonstrate the procedure for issue of bonus shares and buyback of shares.<br>CO3:Comprehend the important provisions of Companies Act, 2013 and prepare final accounts of acompany with Adjustments.<br>CO4:Participate in the preparation of consolidated accounts for a corporate group.<br>CO5:Understand analysis of complex issues, formulation of well-reasoned arguments and reaching betterconclusions.<br>CO6:Communicate accounting policy choices with reference to relevant laws and accounting standards. |
| 11 | 4 | COST AND MANAGEMENT ACCOUNTING | After the successful completion of the course, the student will get:<br><br>CO1:Understand various costing methods and management techniques.<br>CO2:Apply Cost and Management accounting methods for both manufacturing and service industry.<br>CO3: Prepare cost sheet, quotations, and tenders to organization for different works.<br>CO4:Analyze cost-volume-profit techniques to determine optimal managerial decisions.<br>CO5:Compare and contrast the financial statements of firms and interpret the results.<br>CO6:Prepare analysis of various special decisions, using relevant management techniques. |
| 12 | 4 | INCOME TAX | At the end of the course, the student will able to:<br>CO1:Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning.<br>CO2:Understand the provisions and compute income tax for various sources.<br>CO3:Grasp amendments made from time to time in Finance Act.<br>CO4:Compute total income and define tax complicacies and structure.<br>CO5:Prepare and File IT returns of individual at his own |

| | | | |
|---|---|---|---|
| 13 | 4 | BUSINESS LAW | At the end of the course, the student will able to:<br>CO1:Understand the legal environment of business and laws of business.<br>CO2:Highlight the security aspects in the present cyber-crime scenario.<br>CO3:Apply basic legal knowledge to business transactions.<br>CO4:Understand the various provisions of Company Law.<br>CO5:Engage critical thinking to predict outcomes and recommend appropriate action on issues relatingto business associations and legal issues.<br>CO6:Integrate concept of business law with foreign trade. |
| 14 | 4 | AUDITING | At the end of the course, the student will able to:<br>CO1:Understanding the meaning and necessity of audit in modern era.<br>CO2:Comprehend the role of auditor in avoiding the corporate frauds.<br>CO3:Identify the steps involved in performing audit process.<br>CO4:Determine the appropriate audit report for a given audit situation.<br>CO5:Apply auditing practices to different types of business entities.<br>CO6:Plan an audit by considering concepts of evidence, risk and materiality |
| 15 | 4 | GOODS AND SERVICES TAX | At the end of the course, the student will able to:<br><br>CO1:Understand the basic principles underlying the Indirect Taxation Statutes.<br>CO2:Examine the method of tax credit. Input and Output Tax credit and Cross Utilisation of InputTax Credit.<br>CO3:Identify and analyze the procedural aspects under different applicable statutes related to GST.<br>CO4:Compute the assessable value of transactions related to goods and services for levy anddetermination of duty liability.<br>CO5:Develop various GST Returns and reports for business transactions in Tally. |
| 16 | 5 | ADVANCED CORPORATE ACCOUNTING | At the end of the course, the student will able to:<br><br>CO1:Understand Corporate Accounting environment<br>CO2: Record Transactions related to Purchase of Business ,Amalgamation and Reconstruction<br>CO3:Analyze the situations of Purchase of Business and Liquidation<br>CO4:Create formulas and calculations relating to Amalgamation, Internal Reconstruction and Holding company accounts<br>CO5: Acquire skills of Accounting Procedure of Advanced Corporate Accounting Environment |

| | | | |
|---|---|---|---|
| 17 | 5 | Software Solutions to Accounting | At the end of the course,the student will able to;<br>CO1:. Understand the technical environment of accounting software.<br>CO2: Highlight the major accounting softwares in India.<br>CO3: Apply basics of accounting softwares into business firms for accounting transactions.<br>CO4:. Understand the various versions of Tally and other softwares.<br>CO5:. Integrate the concept of different Accounting softwares for accounting purpose |
| 18 | 5 | Life Insurance with Practice | After completing the course, the student shall be able to:<br>CO1:. Underst and the Features of Life Insurance, schemes and policies and insurance companies in India<br>CO2:. Analyze various schemes and policies related to Life Insurance sector<br>CO3:. Choose suitable insurance policy forgiven situation and respective persons<br>CO4: Acquire Insurance Agency skills and other administrative skills<br>CO5:. Acquire skill of settlement of claims under various circumstances |
| 19 | 5 | General Insurance Procedure and Practice | After completing the course, the student shall be able to:<br>CO1:. Understand the Features of General Insurance and Insurance Companies in India<br>CO2:. Analyze various schemes and policies related to General Insurance sector<br>CO3:. Choose suitable insurance policy under Health, Fire, Motor, and Marine Insurances<br>CO4: Acquire General Insurance Agency skills and administrative skills<br>CO5: Apply skill for settlement of claim sunder various circumstances |
| 20 | 6 | Income Tax Assessment Procedures and Practice | After successfully completing the course, the student shall beable to:<br>C`O1:. Understand the basic concepts in computation of tax liability under all heads of income of the individuals.<br>CO2:. Analyze the clubbing provisions, aggregate income after set-off and carry forward of losses under the Income Tax Act.<br>CO3:. Compute taxable income and tax liability of individuals and firms.<br>CO4:. Acquire the ability to file online returns of income.<br>CO5:. Acquire skills of TDS/TCS and online filing of Tax returns. |

| | | | |
|---|---|---|---|
| 21 | 6 | Goods and Services Tax With Tally | After completing the course ,the student shall be able to:<br>CO1: Understand the concept of Liability and Payment of GST<br>CO2: Create a new company in Tally with GST components and establish environment for GST Voucher entry.<br>CO3: Comprehensive the utilization of input tax credit,and the reverse charge mechanism in GST<br>CO4: Acquire Skills of preparation of GST Returns in accordance with GST Law and Tally<br>CO5: Acquire skill of online payment of GST through GST Portal. |
| POLITICAL SCIENCE | | | |
| 1 | I | INTRODUCTION TO POLITICAL SCIENCE | On successful completion of the course the students will be able to:<br>CO1: Recall the previous knowledge about Political Science and understand the nature and scope, traditional and modern approaches of Political Science.<br>CO2: Understand concepts intrinsic to the study of Political Science.<br>CO3: Have solid theoretical understanding of Rights and its theories along with the basic aspects of certain political ideologies.<br>CO4: Apply the knowledge to observe the field level phenomena |
| 2 | II | BASIC ORGANS OF THE GOVERNMENT | On successful completion of the course the students will be able to:<br>CO1: • Understand the Origin and Evolution of the concept of Constitutionalism and classification of Constitutions.<br>CO2: Acquaint themselves with different theories of origin of State.<br>CO3: Understand and analyses organs and forms of Governments along with a deep insight into the various agents involved in the political process.<br>CO4: Apply the knowledge to analyze and evaluate the existing systems |
| 3 | III | INDIAN GOVERNMENT AND POLITICS | On successful completion of the course the students will be able to:<br>CO1: Acquire knowledge about the historical background of Constitutional development in India, appreciate philosophical foundations and salient features of the Indian Constitution<br>CO2: Analyze the relationship between State and individual in terms of Fundamental Rights and Directive Principles of State Policy<br>CO3: Understand the composition of and functioning of Union Government as well as State Government and finally.<br>CO4: Acquaint themselves with the judicial system of the country and its emerging trends such as judicial reforms. |

| | | | |
|---|---|---|---|
| 4 | IV | INDIAN POLITICAL PROCESS | On successful completion of the course the students will be able to:<br><br>CO1: Know and understand the federal system of the country and some of the vital contemporary emerging issues.<br>CO2: Evaluate the electoral system of the country and to identify the areas of electoral reforms.<br>CO3: Know the constitutional base and functioning of local governments with special emphasis on 73rd& 74th Constitutional Amendment Acts.<br>CO4: Understand the dynamics of Indian politics, challenges faced and gain a sensitive comprehension to the contributing factors.<br>CO5: Apply the knowledge and critically comprehend the functioning of some of the regulatory and governance institutions. Propose theoretical outline alternate models. |
| 5 | IV | WESTERN POLITICAL THOUGHT | On successful completion of the course the students will be able to:<br><br>CO1: Understand the fundamental contours classical, western political philosophy, basic features of medieval political thought and shift from medieval to modern era.<br>CO2: Understand the Social Contract Theory and appreciate its implications on the perception of State in terms of its purposes and role<br>CO3: Acquaint with the Liberal and Marxist philosophy and analyze some trends in Western Political Thought.<br>CO4: Critically analyses the evolution of western political thought |
| 6 | V | ELECTORAL POLITICS AND VOTING BEHAVIOUR | Students at the successful completion of the course will be able to;<br>CO1: Acquaint student with the structure and manner of functioning of Election Commission of India.<br>CO2: Understand the political issues in Electoral Politics.<br>CO3: Provide an overview on voter turnout, voting behavior in India.<br>CO4: Aware of the role of new media and technology in election campaign.<br>CO5: Develop an understanding of the required skills for data collection, research in election management. |
| 7 | V | LEGISLATIVE PROCEDURES AND PRACTICES | Students at the successful completion of the course will be able to;<br>CO1: Make familiar with legislative procedures and practices.<br>CO2: Equip the students with the adequate skills of participation in deliberative processes and democratic decision making.<br>CO3: Understand complex policy issues, draft new legislation, analyze ongoing bills, make speeches and floor statements.<br>CO4: Provide skills to be part of a legislative support team and expose them to real life legislative work.<br>CO5: Enhance understanding of procedures, practices, different committees and motions in the House. |

| HISTORY | | | |
|---|---|---|---|
| 1 | I | Ancient Indian History and culture (From Indus valley civilization to 13th century A.D ) | CO1: Understand the Literary & Archaeological Sources; Influence of Geography on History, Unity in Diversity and also Harrappen Civilization was urban Civilization in Indian Continental.<br><br>CO2: Understand the Vedic Civilization was a Rural Civilization in Indian Continental. ; Jainism and Buddhism: Causes, Doctrines, Spread, Importance and Impact.<br><br>CO3: Understand how Transition from Territorial States to Emergence of Empires Rise of Mahajanapadas Persian and Macedonian Invasions, Mauryan Empire: Ashoka's Dhamma, Art & Architecture,<br><br>CO4: Understand Conditions during 200 B. C to 300<br>A. D.: Central Asian Contacts – Kushanas. The Age of Satavahanas, Sangam Age: The Three Early Kingdoms (Chola, Chera& Pandya).<br>CO5: Understand in Gupat's Empire not only political condition consolidated besides cultural growth also occurred.<br><br>CO6: Understand The key facets of local self government of cholas ,socio- cultural economic conditions of kakatiyas |
| 2 | II | Medieval Indian History and Culture (1206 A.D TO 1764 A.D) | CO1: Understand under Conditions in India on the eve of Turkish Invasions; Early Invasions: Traces of Arab Invasion, Ghazni&Ghori; Delhi Sultanate (1206to 1290 A.D.) under Slave Dyanasty.<br><br>CO2: : Understand Delhi Sultanate (1290 to 1526 A.D.): Khaljis: Expansion & Consolidation, Administrative & Economic Reforms - The Tughlaqs - Decline & Disintegration of the Delhi Sultanate; Administration, Society, Economy, Technology, Religion, Art & Architecture under the Sultanate<br><br>CO3: Understand that in Cultural Development in India between 13th& 15th Centuries A. D.: Impact of Islam on Indian Society and Culture – Bhakti and Sufi Movements – Emergence of Composite Culture<br><br>CO4.Understand the early medieval and later medieval muslim rule and impact on Indian polity<br>CO5: Understand the cultural development under Delhi Sultanate and Mughal period and advent of Europeans |

| | | | |
|---|---|---|---|
| 3 | III | Modern Indian History and Culture (1764 A.D TO 1947 A.D ) | CO1: Understand India under Colonial Hegemony : Beginning of European Settlements – Anglo-French Struggle – Policies of Expansion - Subsidiary Alliance & Doctrine of Lapse - Consolidation of British Empire in India up to 1857 A. D.<br><br>CO2:. Understand after the expansion Economic Policies of the British (1757-1857): Land Revenue Settlements – Commercialization of Agriculture – Impact of Industrial Revolution on Indian Industry; Administration of the Company – Regulating Charter Acts; Cultural & Social Policies: Humanitarian Measures & Spread of Modern Education<br><br>CO3: Understand that Anti-Colonial Upsurge –<br>Peasant & Tribal Revolts - 1857 Revolt – Causes, Nature& Consequences<br><br>CO4:. Understand that Social, Religious & Self- Respect Movements: Social & Cultural Awakening – Brahma Samaj, Arya Samaj, Theosophical Society, Ramakrishna Mission, Aligarh Movement – Emancipation of Women – Struggle Against Caste: JyotibaPhule, Narayana Guru, Periyar, Dr. B. R. Ambedkar.<br><br>CO5: : Understand that 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 Freedom Struggle from 1885 to 1920: Moderate Phase — Partition of Bengal Emergence of Militant Nationalism – Swadeshi & Boycott Movement – Home Rule Movement<br><br>CO6: Understand that Freedom Struggle from 1920 to 1947: Gandhiji's Role in the National Movement – Revolutionary Movement –Subhas Chandra Bose. Muslim League & the Growth of Communalism – Partition of India – Advent of Freedom - Integration of Princely States into Indian<br>Union – Sardar Vallabhai Patel |

| | | | |
|---|---|---|---|
| 4 | IV | History and culture of Andhra (From 1512 TO 1956 A.D ) | CO1: Understand that 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 .<br>CO2: Understand that 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.<br><br>CO3: Understand that Andhra through 16th& 17th Centuries A.D Evolution of Composite Culture - The QutbShahis of Golkonda – Origin & Decline Administration, Society & Economy – Literature & Architecture.<br><br>CO4: Understand that 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.<br>–<br>CO5: Understand that 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. |

| | | | |
|---|---|---|---|
| 5 | IV | History of modern world ( From 15th Century to 1945 A.D ) | CO1: Understand that Feudalism -Geographical Discoveries: Causes – Compass & Maps – Portugal Leads and Western World Follows – Consequences;<br><br>CO2: Understand that 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.<br><br>CO3: Understand that 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.<br><br>CO4: Understand that Age of Revolutions: The American Revolution (1776) – Opening of New World – Causes – Course – Declaration of Independence, 1776 – Bill of Rights, 1791 – Significance.<br><br>CO5: Understand that Age of Revolutions: The French Revolution (1789) – Causes - Teachings of Philosophers - Course of the Revolution – Results |

| | | | |
|---|---|---|---|
| 6 | V | Tourism and Hospitality services | Students After Successful completion of the course will be able to<br><br>CO1:Understand the tourism concept causes of rapid growth types of tourism relationship between history and tourism and important tourist spot in India and A.P<br><br>C02:Understand the characteristics of hospitality industry and tourism types of hotels in India Atithi devo Bhavah concept<br><br>CO3: Understand the spirit of team work skills and duities and responsibilities of house keeping staff<br><br>CO4: Understand the importance of guest services and satisfaction<br><br>CO5: Understand the types of hotels managerial issues |
| 7 | V | Tourism Guidance and operating Skills | Students After Successful completion of the course will be able to<br><br>CO1:Understand about the tour Guide types of guides and skills of guides<br><br>CO2 : Understand about the guiding techniques personality skills code of conduct<br><br>CO3: Understand about the guest relationship management VISA Passport handling emergency situations<br><br>CO4: Understand about tour planning and transportation and security Hospitality<br><br>CO5:Undestand about tour operators agencies types APTDC ITDC Southern Agencies |

| BOTANY | | | |
|---|---|---|---|
| 1 | I | Fundamentals of Microbes and Non-vascular Plants | After Completion of this course the student would be able to:<br>CO1: On successful completion of this course, the students will be able to:<br>Explain origin of life on the earth<br>CO2: Illustrate diversity among the viruses and prokaryotic organisms and can categorize them<br>CO3: Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles.<br><br>CO4: Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.<br>CO5: Recall and explain the evolutionary trends among amphibians of plant kingdom for their shift to land habitat.<br>CO6: Evaluate the ecological and economic value of microbes, thallophytes and bryophytes |
| 1 | II | Basics of Vascular plants and Phytogeography | After Completion of this course the student would be able to:<br>CO1: Classify and compare Pteridophytes and Gymnosperms based on their morphology, anatomy, reproduction and life cycles.<br><br>CO2: Justify evolutionary trends in tracheophytes to adapt for land habitat.<br><br>CO3: Explain the process of fossilization and compare the characteristics of extinct and extant plants.<br>CO4: Critically understand various taxonomical aids for identification of Angiosperms.<br>CO5: Analyze the morphology of the most common Angiosperm plants of their localities and recognize their families<br>CO6: Evaluate the ecological, ethnic and economic value of different tracheophytes and summarize their goods and services for human welfare |
| 3 | III | Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity | After Completion of this course the student would be able to:<br>CO1: Understand on the organization of tissues and tissue systems in plants.<br>CO2: Illustrate and interpret various aspects of embryology<br><br>CO3: Discuss the basic concepts of plant ecology, and evaluate the effects of environmental and biotic factors on plant communities.<br>CO4: Appraise various qualitative and quantitative parameters to study the population and community ecology.<br>CO5: Correlate the importance of biodiversity and consequences due to its loss.<br>CO6: Enlist the endemic/endangered flora and fauna from two biodiversity hot spots in India and assess strategies for their conservation |

| | | | |
|---|---|---|---|
| 4 | IV | Plant Physiology and Metabolism | After Completion of this course the student would be able to:<br>CO1: Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants.<br><br>CO2: Evaluate the role of minerals in plant nutrition and their deficiency symptoms.<br><br>CO3: Interpret the role of enzymes in plant metabolism.<br><br>CO4: Critically understand the light reactions and carbon assimilation processes responsible for synthesis of foodin plants.<br><br>CO5: Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms.<br>CO6: Evaluate the physiological factors that regulategrowth and development in plants.<br>CO7: Examine the role of light on flowering and explain physiology of plants under stress conditions. |
| 5 | IV | Cell Biology, Genetics and Plant Breeding | After Completion of this course the student would be able to:<br>CO1: Distinguish prokaryotic and eukaryotic cells and design the model of a cell.<br><br>CO2: Explain the organization of a eukaryotic chromosomeand the structure of genetic material.<br><br>CO3: Demonstrate techniques to observe the cell and its componentsunder a microscope.<br><br>CO4: Discuss the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings.<br><br>CO5: Elucidate the role of extra-chromosomal genetic material for inheritance of characters.<br>CO6: Evaluate the structure, function and regulation of genetic material<br>CO7: Understand the application of principles and modern techniques inplant breeding<br>CO8: Explain the procedures of selection and hybridization for improvement of crops. |
| 6 | V | Plant Tissue Culture | After Completion of this course the student would be able to:<br>CO1: Comprehend the basic knowledgeand applications of plant tissue culture.<br>CO2: Identify various facilities required to set up a plant tissue culture laboratory<br>CO3: Acquire a critical knowledge on sterilization techniques related to plant tissue culture.<br>CO4: Demonstrate skills of callus culture through hands on experience. |

| | | | |
|---|---|---|---|
| 7 | V | Mushroom Cultivation | After Completion of this course the student would be able to:<br><br>CO1: Understand the structure and life of a mushroom and discriminate edible and poisonous mushrooms.<br>CO2:Identify the basic infrastructure to establish a mushroom culture unit.<br>CO3: Demonstrate skills preparation of compost and spawn.<br>CO4:Acquire a critical knowledge on cultivation of some edible mushrooms. |

| HORTICULTURE | | | |
|---|---|---|---|
| 01 | I | Fundamentals of horticulture plants and soil science | After Completion of this course the student would be able to:<br><br>CO1:Understand the scope and potential of horticulture products in India and Andhra Pradesh.<br><br>CO2:Classify the horticulture plants based on soil and climate.<br><br>CO3: Illustrate different systems of planting in an orchard and predict the number of plants in a<br><br>given land.<br><br>CO4: Demonstrate the methods and types of training and pruning.<br><br>CO5; Explain the basics of soil science and justify the role of soil as a medium for plant growth<br><br>CO6:Explain about integrated nutrient management and demonstrate the skills of soil testing. |
| 02 | II | Plant propagation and nursery management | After Completion of this course the student would be able to:<br><br>CO1:Explain sexual and asexual propagation methods of plants.<br><br>CO2: Demonstrate skills on vegetative propagation of plants.<br><br>CO3:Demonstrate the techniques on raising of different types of nursery beds<br><br>CO4: Justify the role of various propagation structures used to raise horticulture plants. |

| | | | |
|---|---|---|---|
| | | | CO5: Understand the regulation to establish a plant nursery andquality parameters to be maintained.<br><br>CO6:Implement different routine/regular activities in a nursery.<br><br>CO7:Understand the economics of a plant nursery and can maintain necessary record |
| 03 | III | Olericulture | After Completion of this course the student would be able to:<br><br>CO1: Distinguish the growing of vegetables according to season and climate<br><br>CO2:Get detailed knowledge on cultivation aspects of different vegetables<br><br>CO3:Understand and explain the special intercultural operations done in vegetable crops<br><br>CO4: Study of morphology and taxonomy of different vegetable crops<br><br>CO5:Study of different varieties of vegetable crops<br><br>CO6:Identify the diseases and pests of vegetable crops and their management |

| | | | |
|---|---|---|---|
| 04 | IV (A) | Pomology | After Completion of this course the student would be able to:<br>CO1: Realize the value of fruits in terms of human nutrition and economy of nation.<br>CO2: Explain the potential fruit zones in various states of our country.<br>CO3: Classify the fruiting plants based on temperature requirements.<br>CO4:Acquire knowledge related to various cultivation practices for different fruit crops<br>CO5: Demonstrate the special intercultural operations done in fruit crops<br>CO6: Comprehend the knowledge on varieties of different fruit crops.<br>CO7: Examine the pests and diseases of fruit crops and develop skills to manage the same,<br>CO8:Explain about Integrated Orchard Management<br>CO9:Develop knowledge on various entrepreneurial skills related to fruit science. |
| 05 | IV(B) | Pests and diseases of horticulture plants and their management | After Completion of this course the student would be able to:<br>CO1: Develop a critical understanding of insect pests and plant disease symptoms<br>CO2:Examine and identify the pests and diseases of vegetable crops and their management<br>CO3: Examine and identify the pests and diseases of ornamental crops and their management<br>CO4:Examine and identify the pests and diseases of fruit crops and their management<br>CO5:Identify and classify various insect pests on horticulture plants.<br>CO6: Justify the significance of Integrated Plant Disease Management for horticultural crops.<br>CO7: Classify the pesticides based on use, chemical nature, formulation, toxicity and action. |

| | | | |
|---|---|---|---|
| 06 | V (A) | PRINCIPLES OF SEED TECHNOLOGY | After Completion of this course the student would be able to:<br>CO1: understand the concepts of quality seed production of different field and vegetable crops<br>CO2. study about different classes of seed and maintenance of genetic purity during seed<br>production<br>CO3. Learn about seed certification procedure, seed drying, processing, cleaning, testing,<br>packaging,storage, marketing etc. |

| | | | |
|---|---|---|---|
| 07 | V (B) | POST HARVEST TECHNOLOGY OF HORTICULTURAL CROPS | After Completion of this course the student would be able to:<br>CO1: Understand the basic concepts in post-harvest handling of horticulture produce.<br>CO2. Explain maturity and harvesting indices of horticulture products.<br>CO3. Acquire skills on identifying factors for post-harvest losses in horticulture.<br>CO4. Perform managerial skills related to storage of horticulture products.<br>CO5. Demonstrate skills on packaging and forwarding horticulture products to market. |

| MATHEMATICS | | | | |
|---|---|---|---|---|
| 1 | I | Differential Equations | CO1 | Student will be able to solve first order differential equations utilizing the standard techniques for separable, exact, linear,<br>homogeneous and Bernoulli's scopes. |
| | | | CO2 | Student will be able to find the completesolution of a non-homogeneous differentialequations on as linear combination of the complementary function and particular solution. |

| | | | | |
|---|---|---|---|---|
| | | | CO3 | Student will be able co-ordinates polar coordinates and equations solvable for $p, y, x$and clariot's equation solutions. |
| | | | CO4 | Student will be able to find the completesolution of a different equation with constant coefficients by variation of parameters. |
| | | | CO5 | Student will have a working knowledge ofbasic application problems described by second order linear diff. equation with constant co-efficient. |
| 2 | II | Solid Geometry | CO1 | Describe various forms of equation of plane,straight line, sphere, cone and cylinder. |
| | | | CO2 | Find the angle between planes, Bisector planes, perpendicular distance from a point |
| | | | | to plane, Image of a line on plane, Intersection of lines. |
| | | | CO3 | Describe coplanar lines and interest lines. |
| | | | CO4 | Compute the angle between a line and a plane, length of perpendicular from a pointto line. |
| | | | CO5 | Define skew lines and calculate the shortest distance between skew lines. |
| | | | CO6 | Define plane section of sphere and to find limiting points. |
| | | | CO7 | Define right circular cone and right circular cylinder and solve problems. |
| | | | CO8 | To inculcate knowledge on solution problems in analytic geometry. |
| | | | CO9 | Help computer designers build virtual realities, geometry's application in real world include medicines, Architecture, Computer – aided manufacturing, biology and design for construction blue prints. |
| 3 | III | Group Theory | CO1 | Understand the algebraic structures, Binary operations, Mathematical representation involving in the concept |
| | | | CO2 | Understand the theorems and their proofs to improve their logical thinking. |
| | | | CO3 | Understand the lag ranges theorem know to learn their applications. |
| | | | CO4 | These mathematical ideas that serve as foundation for careers and further high study. |
| | | | CO5 | Conduct the make oral and writer presentationsof their findings. |

| | | | | |
|---|---|---|---|---|
| | | | CO6 | Conduct the make oral and writer presentationsof their findings. |
| | | | CO7 | Using the mathematical knowledge for compute permutations. |
| | | | CO8 | Identify symmetry structures, models their applications involving in other subjects like chemistry, computer science. |
| 4 | IV | Real Analysis | CO1 | Define and recognize the basic properties of the field of real numbers. |
| | | | CO2 | Improve and outline the logical thinking. |
| | | | CO3 | Illustrate how to communicating with peers. Lecture and community |
| | | | CO4 | determine if an sequence is bounded, monotonic, convergent (or) divergent. |
| | | | CO5 | Define and recognize the series of real numbers and convergence. |
| | | | CO6 | Shown the ability of working independently and withgroup. |
| | | | CO7 | Illustrate how take up responsibility. |
| | | | CO8 | Define and recognize Bolzano – Weirstrass theorem. |
| | | | CO9 | Ability to apply the theorem in a correct mathematicalway. |
| | | | CO10 | Define and recognize the real functions and its limits. |
| | | | CO11 | Define and recognize the continuity of real functions. |
| | | | CO12 | Define and recognize the different ability of real functionsand its related theorems. |
| | | | CO13 | Define and recognize the Riemann – Integration of realfunctions and its related theorems. |

| | | | | |
|---|---|---|---|---|
| 5 | V(A) | Ring Theory | CO1 | Assess properties implied by the definitions of ring, field andintegral domain also Boolean ring. |
| | | | CO2 | Use various canonical types of rings. |
| | | | CO3 | Analyze and demonstrate examples of ideals and quotient rings. |
| | | | CO4 | Use the concept of isomorphism and homomorphism for rings. |
| | | | CO5 | Confidently apply algebraic concept. |
| 6 | V(B) | Linear Algebra | CO1 | Uses of Matrix system in Linear Algebra and applications ofMatrix in Linear Algebra. |
| | | | CO2 | Given set of vectors Correct their LI or LD |
| | | | CO3 | 3. dim (r/w) = dim r-d im w |
| | | | CO4 | Construction of linear transformation what is given function is LT or not. |
| | | | CO5 | Vectors in Euclidian space and lot of applications |
| 7 | VI(A) | Numerical Analysis | CO1 | Derive numerical methods for approximating the solution ofproblems of continuous mathematics |
| | | | CO2 | Implement a variety of numerical algorithms using appropriatetechnology |
| | | | CO3 | Compare the viability of different approaches to the numericalsolution of problems arising in roots of solution of non-linear equations, interpolation and approximation, numerical differentiation and integration, solution of linear systems |
| 8 | VII(B) | Advanced Numerical Analysis | CO1 | Obtain numerical solutions of algebraic and transcendentalequations. |
| | | | CO2 | Find numerical solutions of system of linear equations andcheck the accuracy of the solutions |
| | | | CO3 | Learn about various interpolating and extrapolating methods. |
| | | | CO4 | Solve initial and boundary value problems in differentialequations using numerical methods. |
| | | | CO5 | Apply various numerical methods in real life problems. |
| 9 | VII(C) | Special Functions | CO1 | Define and recognize the important contribution to NumberTheory, Special functions, calculus of variations and elliptic integrals. |
| | | | CO2 | Bessel's equation is used in many physical problems involvingvibrations (or) heat conduction in cylinder regions. |
| | | | CO3 | Special functions have many applications in Engineering. |
| | | | CO4 | Laguerre's Equation is particularly in boundary values problemsfor spheres. |
| | | | CO5 | Define and recognize Hermite and Leaguerre's polynomials andapplications. |

# ZOOLOGY

| | | | |
|---|---|---|---|
| 1 | I | Animal diversity- Biology of non-chordates | After Completion of this course the student would be able to:<br>CO1: Explain the general characters of of each phylum and their classification and identify animals using different taxonomical strata.<br>CO2: Understand the phylogeny of life, connecting link between different phyla and appreciate the diversity of fauna.<br>CO3: Describe the essentials of each body part of animals and their functioning.<br>CO4: Able to appreciate the process of evolution (unicellular cells to complex, multicellular Organisms)<br>CO5: Understand the basis of life processes in the non-chordates. |
| 2 | II | Animal diversity- Biology of chordates | After Completion of this course the student would be able to:<br>CO1: Explain the general characters and classifications of chordates<br>CO2: Understand Mammals with specific structural adaptations<br>CO3: Understand the significance of dentition and evolutionary significance<br>CO4: Understand the origin and evolutionary relationship of different phyla from Prochordata to mammalian.<br>CO5: Understand the difference between various species and the evolution of complexity in each system.<br>CO6: Describe the diversity in form, structure and habits of vertebrates. |
| 3 | III | Cell Biology, Genetics and Evolution | After Completion of this course the student would be able to:<br>CO1: Develop deeper understanding of what life is and how it functions at cellular level.<br>CO2: Describe the fine structure and function of cell organelles and composition of prokaryotic and eukaryotic cells<br>CO3: Understand the role of genes in transmission of parental characters and the disease caused due to its defects.<br>CO4: Understood the theories of evolution and highlighted the role of evidences in support of evolution and origin of life<br>CO5: Identify different Geographical Regions with its flora, fauna, and Wallace's line that separates them and appreciate their richness. |

| | | | |
|---|---|---|---|
| 4 | | Physiology,cellular metabolism and Embryology | After Completion of this course the student would be able to:<br>CO1: Understand the functions of important animal physiological systems including digestion, cardiorespiratory and renal systems.<br>CO2: Understand the muscular system and the neuro-endocrine regulation of animal growth, development and metabolism with a special knowledge of hormonal control of human reproduction.<br>CO3: Describe the structure, classification and chemistry of Biomolecules and enzymes responsible for sustenance of life in living organisms<br>CO4: Describe the key events in early embryonic development starting from the formation of gametes upto gastrula ion and formation of primary germ layers. |
| 5 | | Immunology and animal biotechnology | After Completion of this course the student would be able to:<br>CO1: To get knowledge of the organs of Immune system, types of immunity, cells and organs of immunity<br>CO2: To describe immunological response as to how it is triggered (antigens) and regulated(antibodies)<br>CO3: Understand the applications of Biotechnology in the fields of industry and agriculture including animal cell/tissue culture, stem cell technology and genetic engineering .<br>CO4: To appreciate the body's ability to maintain homeostasis<br>CO5: To enlighten students about the intricate relationship between the environment and all forms of life<br>CO6: To understand anticipate, analyse and evaluate natural resource issues and action a lifestyle that conserve nature |
| 6 | | sustainable aquaculture management | After Completion of this course the student would be able to:<br>CO1: Evaluate the present status of aquaculture at the Global level and National level<br>CO5: Classify different types of ponds used in aquaculture<br>CO5: Demonstrate induced breeding of carps<br>CO5: Acquire critical knowledge on commercial importance of shrimps<br>CO5: Identify fin and shell fish diseases |
| 7 | | postharvest technology of fish and fisheries | After Completion of this course the student would be able to:<br>CO1: Identify the types of preservation methods employed in aquaculture<br>CO2: Choose the suitable Processing methods in aquaculture |

| | | | |
|---|---|---|---|
| | | | CO3: Maintain the standard quality control protocols laid down in aqua industry<br><br>CO4: Identify the best Seafood quality assurance system. |
| COMPUTER SCIENCE | | | |
| 1 | I | Computer Fundamentals and Photoshop | CO-1: The student is able to explore the basic knowledge ofcomputer hardware and software.<br>CO-2: The student is able to learn and work on adobe Photoshopapplications.<br>CO-3: The student is able to create and edit photo albums.<br>CO-4: The student is able to design and edit Banners and visitingcards etc.. |
| 2 | II | Programming in C | CO-1. Appreciate and understand the working of a digital computerCO-2. Analyse a given problem and develop an algorithm to solve the problem<br>CO-3. Use the 'C' language constructs in the right way<br>CO-4. Design, develop and test programs written in 'C' |
| 3 | III | Object Oriented Programming usingJAVA | CO-1. Understand the concept and underlying principles of Object-Oriented Programming<br>CO-2. Understand how object-oriented concepts are incorporatedinto the Java programming language<br>CO-3. Develop problem-solving and programming skills using OOP concept<br>CO-4. Become familiar with the fundamentals and acquire programming skills in the Java language |
| 4 | IV | Data Structures | CO-1.student knows how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and its applications<br>CO-2. Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs<br>CO-3. Compare and contrast the benefits of dynamic and static datastructures implementations<br>CO-4. Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack.<br>CO-5. Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing. |

| | | | |
|---|---|---|---|
| 5 | V | Database Management Systems | CO-1.Student knows database structure and its design<br>CO-2. Students are able to understand Different data models usedfor database design<br>CO-3. Students are able to understand database transactions anddata recovery<br>CO-4. Students canuse DML,DDL,DCL commands to manipulate data in the database |
| 6 | VI | Software Engineering | CO-1.Ability to gather and specify requirements of the softwareprojects.<br>CO-2.Ability to analyse software requirements with existing toolsCO-3.Able to differentiate different testing methodologies and apply the basic project management practices in real life projects CO-4.Ability to work in a team as well as independently on software projects |
| 7 | VI | Web Technologies | CO-1. To understand the web architecture and web services.<br>CO-2. To practice latest web technologies and tools by conductingexperiments.<br>CO-3. To design interactive web pages using HTML and Style sheets.<br>CO-4. To study the framework and building blocks of .NETIntegrated Development Environment.<br>CO-5. To provide solutions by identifying and formulating ITrelated problems. |

| | | | |
|---|---|---|---|
| 8 | VI | PHP and MYSQL | CO-1: Students can develop static and dynamic web pages CO-2: Students can manage a database by using PHP scripts.CO-3: Students can learn PHP- procedural as well as object- oriented concepts<br>CO-4: Students can perform frontend and backend data validation |
| 9 | VI | Project Work | CO-1: Students can apply theoretical and practical knowledge tosolve real world problems<br>Co-2: Students can do planning, analysing, designing, coding anddeployment of project |

| COMPUTER APPLICATIONS | | | |
|---|---|---|---|
| 1 | I | Computer Fundamentals and Photoshop | CO-1: The student is able to explore the basic knowledge of computer hardware and software.<br>CO-2: The student is able to learn and work on adobe Photoshop applications.<br>CO-3: The student is able to create and edit photo albums.<br>CO-4: The student is able to design and edit Banners and visiting cards etc.. |
| 2 | II | Programmingin C | CO-1. Appreciate and understand the working of a digital computer<br>CO-2. Analyse a given problem and develop an algorithm to solve the problem<br>CO-3. Use the 'C' language constructs in the right way<br>CO-4. Design, develop and test programs written in 'C' |
| 3 | III | Office Automation Tools | CO-1: Students can create, edit and format a document<br>CO-2: The student able to send bulk mails by using mail merge concept<br>CO-3: The student able to prepare budgets by using worksheets<br>CO-4: Students can perform different database operationsusing MS-Access |
| 4 | IV | Programmingin C | CO-1. Appreciate and understand the working of a digital computer<br>CO-2. Analyse a given problem and develop an algorithm to solve the problem<br>CO-3. Use the 'C' language constructs in the right way<br>CO-4. Design, develop and test programs written in 'C' |

| | | | |
|---|---|---|---|
| 5 | V | Database Management tSystems | CO-1.Student knows database structure and its design<br>CO-2. Students are able to understand Different data modelsused for database design<br>CO-3. Students are able to understand database transactionsand data recovery<br>CO-4. Students can use DML,DDL,DCL commands tomanipulate data in the database |
| 7 | VI | e-Commerce | CO-1. Evaluate e-commerce markets and transactions, including supply chains<br>CO-2.Assess the effect of changing technology on traditional business models and strategy<br>CO-3.Analyze e-commerce business needs and resources and match to technology considering human factors and budget constraints<br>CO-4.Create, modify, enhance and publish a simple e-commerce web site. |
| 8 | VI | Web Technology | CO-1. To understand the web architecture and web services.CO-2. To practice latest web technologies and tools by conducting experiments.<br>CO-3. To design interactive web pages using HTML andStyle sheets.<br>CO-4. To study the framework and building blocks of .NETIntegrated Development Environment. |

| INTERNET OF THINGS | | | |
|---|---|---|---|
| 1 | I | Fundamentals of Computer and C-Programming | 1. Appreciate and understand the working of a digital computer<br>2. Analyze a given problem and develop an algorithm to solve the problem<br>3. Improve upon a solution to a problem<br>4. Use the 'C' language constructs in the right way<br>5. Design, develop and test programs written in 'C' |
| 2 | II | Fundamentals of IoT and Applications | 1. Understand the various concepts, terminologies and architecture of IoT systems. 2. Use sensors and actuators for design of IoT. 3. Understand and apply various protocols for design of IoT systems<br>4. Use various techniques of data storage and analytics in IoT<br>5. Understand various applications of IoT<br>6. Understand APIs to connect IoT related technologies |
| 3 | III | Data Communications & Computer Networks | 1. Describe the basis and structure of an abstract layered protocol model<br>2. Independently understand basic computer network technology.<br>3. Identify the different types of network topologies and protocols.<br>4. Enumerate the layers of the OSI model and TCP/IP.<br>5. Identify the different types of network devices and their functions within a network<br>6. Understand and building the skills of routing mechanisms.<br>7. Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation<br>8. Understand how the Internet works today. 9. Conversant with primitives of network application programming. |

| | | | |
|---|---|---|---|
| 4 | IV | RFID and Wireless Sensor Networks | 1. Students will be familiar with RFID technology, various components involved.<br>2. Getting familiar with various RFID standards, Students learn various Security issues involved in RFID.<br>3. Students learn about Wireless Sensor Networks<br>4. Familiar with WSN protocols routing algorithms.<br>5. Various Security issues involved in Wireless Sensor Networks. |
| 5 | IV | Implementing IoT with Raspberry Pi | 1. Appreciate the development technology for IoT<br>2. Familiar with Basic Concepts of Linux<br>3. Design real time IoT Devices.<br>4. Familiar with basic foundations of Python Programming and libraries<br>5. Comprehend the basic concepts of Mobile Cloud Computing<br>6. Develop a Mobile App for IoT applications. |
| 6 | V<br>(Skill Enhancement Course – Elective) | Distributed IoT Systems | 1. Discover key IoT concepts including identification, sensors, localization, wireless protocols, data storage and security<br>2. Explore IoT technologies, architectures, standards, and regulation<br>3. Realize the value created by collecting, communicating, coordinating, and leveraging the data from connected devices<br>4. Examine technological developments that will likely shape the industriallandscape in the future<br>5. Understand how to develop and implement own IoT technologies, solutions, and applications<br>6. At the end of the program, students will be able to understand how |
| 7 | V<br>(Skill Enhancement Course - Elective) | Object Oriented Programming Using Java | 1.Understand the benefits of a well-structured program<br>2. Understand different computer programming paradigms<br>3. Understand underlying principles of Object-Oriented Programming in Java<br>4. Develop problem-solving and programming skills using OOP concepts<br>5. Develop the ability to solve real-world problems through software developmentin high-levelprogramming language like Java |

| PHYSICS | | | |
|---|---|---|---|
| 1 | I Sem | Mechanics, waves & Oscillations | After Completion of this course the student would be able to:<br>*CO1:* Recognize the motion of the charged Prticle in electromagnetic field<br><br>*CO2:* Describe the conservation of energy,work,force,linear momentum and angular momentum.<br><br>*CO3:* Learn the fundamentals of harmonic oscillator model ,including damped and forced oscillators<br>*CO4:* Describe the production , deduction of ultrasonic waves and applications<br><br>*CO5:* Explain the obsorption and reflection of sound by various materials and describe the requirements for good architecture acoustics.<br><br>*CO6:* Understand the effect of gravitation on objects and understand the principle of rocket |

| | | | |
|---|---|---|---|
| 2 | II Sem | Wave Optics | *CO1:* Students would learn about principle of superposition, coherence, Interference by division of wavefront and amplitude, Fresnel's bi-prism, Lloyd's mirror, thin film interference, wedge shaped film interference, Newton's rings, Michelson's interferometer and their applications to sodium D lines and thickness of thin film.<br>CO2: Students would learn about Fresnel and Fraunhoffer diffraction, Fraunhoffer diffraction due to circular aperture, single slit, and double slit, N-slit, grating. They would also learn about Fresnel's half period zones, zone plate, phase reversal zone plates, comparison of zone plate & convex lens, interference & diffraction.<br><br>CO3: Students would learn about methods of polarization, Brewster's law, Malus law, Nicol prism, Quarter wave plate, half wave plate, babinet's compensator and optical activity analysis by Laurent's half shade polarimeter.<br><br>CO4: Students would learn about various monochromatic and chromatic aberrations and their removal techniques. They would also learn about fiber optics types and applications<br><br>CO5: Students would learn about principles of LASER, He-Ne laser, Ruby laser, applications of laser, Principles of optical fiber communication, classification of optical fibers, applications of optical fiers, principles of holography, limitations of Gabor's hologram and applications of holography |
| 3 | III Sem | Heat & Thermodynamics | *CO1:* To understand differentiate the terms heat and temperature<br>*CO2:* understand specific heat capacity of gas and different theories on specific heat capacity<br>*CO3:* To understand differentiate between princi[les and methods to produce low temperature, liquefy air, helium and hydrogen<br>*CO4:* to understand postulates of kinetic theory of gases and arrive the theorem of equipartition of energy<br>*C05:* To understand different thermal processes and understand laws of thermodynamics and identify its outcomes |
| 4 | IV Sem | Electricity, Magnetism and Electronics | *CO1:* To understand the concepts of electric field and electric potential due to point charge.<br>*CO2:* To understand Biot and Savart's law and Ampere's circuital law to describe and explain the generation of magnetic fields by electrical currents.<br>*CO3:* To gain the knowledge about alternating currents. |

| | | | |
|---|---|---|---|
| | | | *CO4:* To describe the operation of p-n junction diodes, Zener diodes, light emitting diodes and transistors<br>*CO5:* To understand the operation of basic logic gates and universal gates and their truth tables |
| 5 | IV Sem | Modern Physics | *CO1:* To understan the concepts of Atomic and Modern Physics, basic elementary Quantum Mechanics and Nuclear Physics<br>*CO2:* To Develop critical understanding of concept of Matter Waves and Uncertainty Principle<br>*CO3:* To learn the Schrodinger wave equations, particle in one dimension potential<br>*CO4:* : To understand the basic properties of nuclei, characteristics of Nuclear forces, salient features of Nuclear models and different nuclear radiation detectors<br>*CO5:* To learn about 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 |
| 6 | V Sem | Low temperature physics & refrigeration | *CO1* Identify various methods and techniques used to produce low temperatures in the Laboratory.<br>*CO2* Acquire a critical knowledge on refrigeration and air conditioning<br>*CO3* Demonstrate skills of Refrigerators through hands on experience and learns about refrigeration components and their accessories<br>*CO4* Understand the classification, properties of refrigerants and their effects on environment<br>*CO5* Comprehend the applications of Low Temperature Physics and refrigeration |
| 7 | V Sem | Solar energy and applications | *CO1* Understand Sun structure, forms of energy coming from the Sun and its measurement.<br>*CO2* Acquire a critical knowledge on the working of thermal and photovoltaic collectors<br>*CO3* Demonstrate skills related to callus culture through hands on experience<br>*CO4* Understand testing procedures and fault analysis of thermal collectors and PV modules<br>*CO5* Comprehend applications of thermal collectors and PV modules. |

| ELECTRONICS | | | |
|---|---|---|---|
| 1 | I Sem | Circuit Theory and Electronic Devices | After Completion of this course the student would be able to:<br>*CO1:* Students would learn about various rectifier configurations using diodes and their parameters like ripple factor,efficiency etc. They would also learn about regulation and hormonic components in the rectified output.<br>*CO2:* Students would learn about various filters using inductors and capacitors, series, shunt regulators and 78xx, 79xx IC regulators. They would also learn about Switch mode powersupply.<br>*CO3:* Students would learn about RC coupled CE amplifier, the concepts of negative and positive feedback. They would also learn about the effect of negative feedback on various amplifier circuit parameters.<br>*CO4:* Students would learn about the basic components of operational amplifier, the working of differential amplifier in various configurations. |
| 2 | II Sem | Digital Electronics | *CO1:* To understand the number systems, Binary codes andComplements.<br>*CO2:* To understand the Boolean algebra and simplification of Boolean expressions.<br>*CO3:* To analyze logic processes and implement logical operations using combinational logiccircuits.<br>*CO4:* To understand the concepts of sequential circuits and to analyze sequential systems in terms of statemachines.<br>*CO5:* To understands characteristics of memory and theirclassification. To implement combinational and sequential circuits usingVHDL. |
| 3 | III Sem | Analog circuits and Communication Electronics | *CO1:* To understand the concepts, working principles and key applications of linear integrated circuits.<br>*CO2:* To perform analysis of circuits based on linear integrated circuits.<br>*CO3:* To design circuits and systems for particular |

| | | | |
|---|---|---|---|
| | | | applications using linear integrated circuits.<br>*CO4:* To introduce students to various modulation and demodulation techniques of analog communication.<br>*CO5:* To analyse different parameters of analog communication techniques. It also focuses on Transmitters and Receivers. |
| 4 | III Sem | Microprocessor System | *CO1:* To understand basic architecture of 16 bit and 32 bit microprocessors.<br>*CO2:* To understand interfacing of 16 bit microprocessor with memory and peripheral chips involving system design.<br>*CO3:* To understand techniques for faster execution of instructions and improve speed of operation and performance of microprocessors<br>*CO4:* To understand RISC based microprocessors.<br>*CO5:* To understand concept of multi core processors. |
| 5 | IV Sem | Microcontroller | *CO1:* To understand the concepts of microcontroller based system.<br>*CO2:* To enable design and programming of microcontroller based system.<br>*CO3:* To know about the interfacing Circuits |
| 6 | V Sem | Embedded system design | *CO1:* To introduce the Building Blocks of Embedded System<br>*CO2:* To Educate in Various Embedded Development Strategies<br>*CO3:* To Introduce Bus Communication in processors, Input/output interfacing.<br>*CO4:* To impart knowledge in various processor scheduling algorithms.<br>*CO5:* To introduce Basics of Real time operating system and example tutorials to discuss on one real time operating system too |
| 7 | V Sem | Consumer electronics | *CO1:* To study Microwave ovens – block diagram - working - types – wiring and safety instructions. – care and cleaning<br>*CO2:* To study washing machines – block diagram - working - types – wiring and safety instructions. – care and cleaning<br>*CO3:* To study Air conditioners and refrigerators – block diagram - working - types – wiring and safety instructions. – care and cleaning |

| | | | |
|---|---|---|---|
| | | | *CO4:* To study Home/Office digital devices – block diagram - working - types – wiring and safety instructions. – care and cleaning<br>*CO5:* To study Digital access devices like – block diagram - working - types – wiring and safety instructions. – care and cleaning |

| CHEMISTRY | | | |
|---|---|---|---|
| 1 | 1 | (INORGANIC & PHYSICAL CHEMISTRY) | At the end of the Course, the student will be able to<br><br>1.Understand the basic concepts of p-block, d-block and f -block elements.<br><br>2.Explain the difference between solid, liquid and gaseous in terms of intermolecular interactions.<br><br>3.Apply the concepts of gas equation, PH and electrolytes while studying other chemistry courses<br><br>4. Understanding about Vander waal's equation, Andrew's isotherm of CO2 gas.<br><br>5.Understanding about ideal solutions, colligative properties; |

| | | | |
|---|---|---|---|
| 2 | 2 | (Organic &General Chemistry) | At the end of the course, the student will be able to;<br>**1.** Understand and explain the differential behaviour of organic compounds based on fundamental concepts learnt.<br>**2.** Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved.<br>**3.** Learn and identify many organic reaction mechanisms including Free Radical Substitution, Electrophilic Addition and Electrophilic Aromatic Substitution.<br>**4.** Correlate and describe the stereochemical properties of organic compounds and reactions.<br>**5.**Learn about Colloidal solutions, Emulsions and Adsorptions. 6.Gain knowledge about formation of bonds and Bonding theories.<br>7.Understand about Isomerism of Carbon compounds and stereo Chemistry of carbon compounds. |

| | | | |
|---|---|---|---|
| 3 | 3 | (ORGANIC CHEMISTRY&SPECTROSCOPY) | At the end of the Course, the student will be able to<br>1. Understand preparation, properties and reactions of haloalkanes, haloarenes and oxygen containing functional groups.<br>2. Use the synthetic chemistry learnt in this course to do functional group transformations<br>3. To propose possible mechanisms for any relevant reactions.<br>4. Understand the basic concepts of Molecular spectroscopy, NMR - spectroscopy& Application of Spectroscopy to Simple Organic Molecules |
| 4 | 4 | IV(A): (INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY) | At the end of the course, the student will be able to<br>1. To learn about the laws of absorption of light energy by molecules and the subsequent photo chemical reactions.<br>2. To understand the concept of quantum efficiency and mechanisms of photochemical reaction.<br>3. Understand the preparation and properties of Amino acids and basic knowledge on Proteins.<br>4. Understand preparation, Structure and Conversions of Glucose and Fructose.<br>5. Understand the Laws and properties of Thermodynamics |

| | | | |
|---|---|---|---|
| | | IV(B) (INORGANIC &PHYSICAL CHEMISTRY) | IV(B)-(INORGANIC &PHYSICAL CHEMISTRY)<br><br>At the end of the course, the student will be able to;<br><br>1.Understand the basic concepts of Coordination Compounds, Inorganic reaction mechanism and Stability of Complexes.<br><br>2. Understand the Biological significance of some elements<br><br>3. Understand the basic concepts of Phase<br><br>Rule & Electrochemistry.<br><br>4. Understand the Rate of reactions. |

| | | | |
|---|---|---|---|
| 5 | 5 | VID(ENVIRONMENTAL CHEMISTRY) | At the end of the course, the students will be able to;<br><br>1.Understand the basic concepts of environmental chemistry, scope and importance of environment in nowadays-Natural & Renewable and Non-Renewable resources-Reactions of Atmospheric Oxygen & Hydrological Cycle.<br><br>2.Learn about the basic concepts of air pollution-sources of air pollution - controlling methods of air pollution.<br><br>3.Understand the basic concepts of water quality and criteria for finding of water quality-methods to convert temporary hard water into soft water, methods to convert permanent hard water into soft water- Eutrophication & its effects-Industrial Waste Water Treatment.<br><br>4.Gain knowledge about the basic concepts of toxic chemicals in the environment –effects of toxic chemicals-Solid Waste Management.<br><br>5: Understand the basic concepts of Eco system functions and types of Eco system-Carbon, Nitrogen & Phosphorous Cycles-concept of Biodiversity. |

| | | | |
|---|---|---|---|
| | | VIID ( GREEN CHEMISTRY & NANOTECHNOLOGY) | At the end of the course, the students will be able to;<br>1.Understand the basic principles and goals of Green chemistry-Green synthesis.<br>2. To know about the selection of solvent – Green Energy and Sustainability.<br>3.Understand the apparatus required and examples of microwave and ultrasound assisted Green synthesis.<br>4.Understand Green catalysis and Green synthesis<br>5.Understand the concepts of Nanoscience & Nanotechnology |

# GOVERNMENT DEGREE COLLEGE, RAVULAPALEM

## LIFE SKILL COURSES AND SKILL DEVELOPMENT COURSES

WITH EFFECT FROM THE ACADEMIC YEAR 2020-2021

### LSC- HUMAN VALUES AND PROFESSIONAL ETHICS (HVPE) – TELUGU/ENGLISH/COMMERCE DEPARTMENTS

Learning Outcome: On completion of this course, the UG students will be able to

- Understand the significance of value inputs in a classroom and start applying them in their life and profession
- Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body, Intention and Competence of an individual, etc.
- Understand the value of harmonious relationship based on trust and respect in their life and profession
- Understand the role of a human being in ensuring harmony in society and nature.
- Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.

### LSC- ENTREPRENEURSHIP DEVELOPMENT (ED)- COMMERCE DEPARTMENT

Course Objective: A Generic Course that is intended to inculcate an integrated personal Life Skill to the student.

Learning Outcomes:

- After successful completion of the course the student will be able to;
- Understand the concept of Entrepreneurship, its applications and scope.
- Know various types of financial institutions that help the business at Central, State and Local Level
- Understand Central and State Government policies, Aware of various tax incentives, concessions
- Applies the knowledge for generating a broad idea for a starting an enterprise/start up
- Understand the content for preparing a Project Report for a start up and differentiate between financial, technical analysis and business feasibility.

## LSC- BASIC COMPUTER APPLICATIONS- COMPUTER APPLICATIONS DEPARTMENT

Objectives:
This course aims at providing exposure to students in skill development towards basic office applications.
Course Learning Outcomes:
After successful completion of the course, student will be able to:

- Demonstrate basic understanding of computer hardware and software.
- Apply skills and concepts for basic use of a computer.
- Identify appropriate tool of MS office to prepare basic documents, charts, spreadsheets and presentations.
- Create personal, academic and business documents using MS office.
- Create spreadsheets, charts and presentations.
- Analyze data using charts and spread sheets.

## LSC- INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)- COMPUTER SCIENCE/APPLICATIONS DEPARTMENT

Objectives: This course aims at acquainting the students with basic ICT tools which help them in their day to day and life as well as in office and research.
Course outcomes: After completion of the course, student will be able to;

- Understand the literature of social networks and their properties.
- Explain which network is suitable for whom.
- Develop skills to use various social networking sites like twitter, flickr, etc.
- Learn few GOI digital initiatives in higher education.
- Apply skills to use online forums, docs, spreadsheets, etc for communication, collaboration and research.
- Get acquainted with internet threats and security mechanisms

## LSC- ENVIRONMENTAL EDUCATION (EE)- ZOOLOGY/CHEMISTRY/ BOTABY/POLITICAL SCIENCE DEPARTMENTS

Course objective: A Generic Course intended to create awareness that the life of human beings is an integral part of environment and to inculcate the skills required to protect environment from all sides.

Learning outcomes: On completion of this course the students will be able to:

- Understand the nature, components of an ecosystem and that humans are an integral part of nature.
- Realize the importance of environment, the goods and services of a healthy biodiversity, dependence of humans on environment.

- Evaluate the ways and ill effects of destruction of environment, population explosion on ecosystems and global problems consequent to anthropogenic activities.
- Discuss the laws/ acts made by government to prevent pollution, to protect biodiversity and environment as a whole.
- Acquaint with international agreements and national movements, and realize citizen's role in protecting environment and nature.

## LSC- INDIAN CULTURE AND SCIENCE(ICS)- ENGLISH DEPARTMENT

Learning Outcomes: By successful completion of the course, students will be able to:

- Understand the evolution of India's culture
- Analyze the process of modernization of Indian society and culture from past to future
- Comprehend objective education and evaluate scientific development of India in various spheres
- Inculcate nationalist and moral fervor and scientific temper

## LSC- PERSONALITY ENHANCEMENT AND LEADERSHIP – ENGLISH DEPARTMENT

Learning Outcomes: By successful completion of the course, students will be able to:

- Develop comprehensive understanding of personality
- Know how to assess and enhance one's own personality
- Comprehend leadership qualities and their importance
- Understand how to develop leadership qualities

## LSC- ANALYTICAL SKILLS(AS) – MATHEMATICS DEPARTMENT

Course Objective: Intended to inculcate quantitative analytical skills and reasoning as an inherent ability in students.

Course Outcomes:

- After successful completion of this course, the student will be able to;
- Understand the basic concepts of arithmetic ability, quantitative ability, logical reasoning,
- business computations and data interpretation and obtain the associated skills.
- Acquire competency in the use of verbal reasoning.
- Apply the skills and competencies acquired in the related areas
- Solve problems pertaining to quantitative ability, logical reasoning and verbal ability
- inside and outside the campus.

## SDC- TOURISM GUIDANCE- HISTORY DEPARTMENT

Learning Outcomes:
By successful completion of the course, students will be able to:

- Understand the basic tourism aspects
- Comprehend the requirements, role and responsibilities of profession of a Tourist Guide
- Apply the knowledge acquired in managing different groups and guiding in a tour
- Explain basic values related to tourism and heritage

## SDC- PLANT NURSERY- BOTANY DEPARTMENT

Learning Outcomes: On successful completion of this course students will be able to:

- Understand the importance of a plant nursery and basic infrastructure to establish it.
- Explain the basic material, tools and techniques required for nursery.
- Demonstrate expertise related to various practices in a nursery.
- Comprehend knowledge and skills to get an employment or to become an entrepreneur in plant nursery sector.

## SDC- ELECTRICAL APPLIANCES- PHYSICS DEPARTMENT

Learning Outcomes: By successful completion of the course, students will be able to:

- Acquire necessary skills/hand on experience/ working knowledge on multimeters, galvanometers, ammeters, voltmeters, ac/dc generators, motors, transformers, single phase and three phase connections, basics of electrical wiring with electrical protection devices.
- Understand the working principles of different household domestic appliances.
- Check the electrical connections at house-hold but will also learn the skill to repair the electrical appliances for the general troubleshoots and wiring faults.

## SDC- INSURANCE PROMOTION- COMMERCE DEPARTMENT

Learning Outcomes:

- By successful completion of the course, students will be able to;
- Understand the field level structure and functioning of insurance sector and it's role in protecting
- the risks.
- Comprehend pertaining skills and their application for promoting insurance coverage
- Prepare better for the Insurance Agent examination conducted by IRDA
- Plan 'promoting insurance coverage practice' as one of the career options.

## SDC- SURVEY & REPORTING- ECONOMICS DEPARTMENT

Learning Outcomes:
After successful completion of this course, the student will be able to:

- Understand the basics of survey and reporting needs and methods
- Comprehend designing of a questionnaire
- Conduct a simple and valid survey and Collect data
- Organize and interpret data and Prepare and submit report.

## SDC - BUSINESS COMMUNICATION – COMMERCE/ ENGLISH DEPARTMENTS

Learning Outcomes: After successful completion of this course, students will be able to:

- Understand the types of business communication and correspondence
- Comprehend the processes like receiving, filing and replying
- Acquire knowledge in preparing good business communications
- Acquaint with organizational communication requirements and presentations.

## SDC- SOLAR ENERGY- PHYSICS DEPARTMENT

Learning Outcomes: After successful completion of the course, students will be able to:

- Acquire knowledge on solar radiation principles with respect to solar energy estimation.
- Get familiarized with various collecting techniques of solar energy and its storage
- Learn the solar photovoltaic technology principles and different types of solar cells for energy
- conversion and different photovoltaic applications.
- Understand the working principles of several solar appliances like Solar cookers, Solar hot water
- systems, Solar dryers, Solar Distillation, Solar greenhouses

## SDC- AGRICULTURAL MARKETING- COMMERCE DEPARTMENT

Learning Outcomes:

By the successful completion of this course, the student will be able to:

- Know the kinds of agricultural products and their movement
- Understand the types, structure and functioning of agricultural marketing system
- Comprehend related skills and apply them in sample situations
- Extend this knowledge and skills to their production/consumption environment

## SDC- SOCIAL WORK METHODS

Learning Outcomes: By successful completion of the course, students will be able to:

- Understand the basic concepts relating to social work practice, values, principles of social work
- and social problems in India
- List out different approaches of providing help to the people in need.
- Acquaint the process of primary methods of social work
- Get to know the skills of working with individuals, groups and communities.

## SDC- ADVERTISING- COMMERCE DEPARTMENT

Learning Outcomes:

After Successful completion of this course, the students are able to:

- Understand the field of Advertising
- Comprehend opportunities and challenges in Advertising sector
- Prepare a primary advertising model
- Understand applying of related skills
- Examine the scope for making advertising a future career

## SDC- DAIRY TECHNOLOGY-ZOOLOGY DEPARTMENT

Learning Outcomes:

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

- Understand the pre-requisites for starting a Dairy farm
- Recognize different breeds of Cows & buffaloes following safety precautions.
- Prepare and give recommended feed and water for livestock
- Maintain health of livestock along with productivity
- Vaccination of cattle, nutrients requirements
- Entrepreneurship i.e., Effectively market dairy products
- Ensure safe and clean dairy farm and Standard safety measures to be taken Efficiently start and manage to establish or develop a Dairy Industry

## SDC- PERFORMING ARTS- TELUGU DEPARTMENT

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Acquire the basic knowledge in performing arts
- Understand the modern stage and performance on the stage

- Comprehend and improve the skills related to performing arts on the stage
- Understand various Telugu folk arts and their significance
- Know the modes of presentation and skills pertaining to folk arts.

## SDC- DISASTER MANAGEMENT

Learning Outcomes:

After successful completion of the course, the students are able to:

- Understand the nature, cause and effects of disasters
- Comprehend the importance of Disaster Management and the need of awareness
- Acquire knowledge on disaster preparedness, recovery remedial measures and personal precautions
- Volunteer in pre and post disaster management service activities

## SDC- ONLINE BUSINESS- COMMERCE DEPARTMENT

Learning Outcomes:

After successful completion of the course, students will be able to;

- Understand the online business and its advantages and disadvantages
- Recognize new channels of marketing, their scope and steps involved
- Analyze the procurement, payment process, security and shipping in online business
- Create new marketing tools for online business
- Define search engine, payment gateways and SEO techniques.

## SDC- POULTRY FARMING- ZOOLOGY DEPARTMENT

Learning Outcomes: By successful completion of the course, students will be able to;

- Understand the field level structure and functioning of insurance sector and it's role in protecting the
- risks
- Comprehend pertaining skills and their application for promoting insurance coverage
- Prepare better for the Insurance Agent examination conducted by IRDA
- Plan 'promoting insurance coverage practice' as one of the career options.

## SDC- FINANCIAL MARKETS- COMMERCE DEPARTMENT

Learning Outcomes:

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

- Acquire knowledge of financial terms
- Know the concepts relating to and markets and different avenues of investment
- Understand the career skills related to Stock Exchanges
- Comprehend the personal financial planning and money market skills