



**SRI MAHAYOGI LAKSHAMMA GOVERNMENT DEGREE COLLEGE**

**YEMMIGANUR, KURNOOL DIST.**

**Affiliated to Rayalaseema University, Kurnool - 518360, A.P.**



**BA HEP, Programme Outcomes, Programme specific  
outcomes and Course outcomes**

**DEPARTMENT OF HISTORY**

BA HEP	
	<p>Pos: Student seeking admission for B.A. programme is expected to imbue with following quality which help them in their future life to achieve the expected goals.</p> <ul style="list-style-type: none"><li>➤ Develops into a political critique</li><li>➤ Develops historical outlook in all aspects</li><li>➤ Learns to participate in economical surveys</li><li>➤ Understands the value of Economics</li><li>➤ Develops insights about political conditions</li><li>➤ Develops cross disciplinary perspective of global issues</li><li>➤ Extended principles of economics in day today life</li><li>➤ Develops Historical knowledge by analyzing multiple cultures</li><li>➤ Understands Political process and critically examines the society.</li><li>➤ Develops historical outlook in all aspects</li><li>➤ Realization of human values.</li><li>➤ Develops Historical knowledge by analyzing multiple cultures</li><li>➤ Sense of social service.</li><li>➤ Responsible and dutiful citizen.</li><li>➤ Critical temper</li><li>➤ Creative ability for giving exams like Group I, II, IAS, APPSC, UPSC etc.</li></ul> <p>To make the students eligible for pursuing Postgraduate Courses. To make the students familiar with the existing trends in Research Methodology, To cater contemporary and up to date knowledge to the students.</p>

	<p><b>PSOs</b> The Programme specific outcomes of BA HEP are to gain the following qualities.</p> <ul style="list-style-type: none"> <li>➤ History makes the students to make the world a better one knowing all the mistakes done in the past and also not to repeat them in future, historically, politically and economically.</li> <li>➤ History collaborated with Economics and Computer Applications to give History a new spice which makes the dishes of subject delicious with new techniques with Computer Applications. Sound Knowledge of different Historical PeriodsmAcquire knowledge of the historical events of the Ancient, Medieval, Modern and European history in new aspects.</li> <li>➤ Knowledge on development of the Historical Perspectives: the dominant events of different ages.</li> <li>➤ Knowledge of the changing nature of politics or kingdoms of the changing times, conducts research and writes academic Papers in future.</li> <li>➤ Development of Interdisciplinary Perspective: students not only develop an interdisciplinary perspective, but also find avenues for new researches.</li> <li>➤ Development of Perspective regarding application of Historical skills: Inclusion of historical tours and report writing on tour make the study of History interesting and provides opportunity to take learning out of the confines of class-rooms. Study tours to museums and</li> <li>➤ archaeological sights can enhance the vision of the students and develop skills.</li> </ul>
<b>History</b>	<b>Course outcomes</b>
	<p><b>I YEAR B. A. –Semester – I</b> <b>Course1: ANCIENT INDIAN HISTORY &amp; CULTURE (from Indus Valley Civilization to 13<sup>th</sup> Cen A.D)</b></p> <p>Learning Outcomes: After successful completion of this course, the student will be able to:</p> <ul style="list-style-type: none"> <li>➤ Identify and define various kinds of sources and understand how history books are shaped</li> <li>➤ Compare and contrast various stages of progress from IVC to Vedic age and analyze the Jain, Buddhist and Vedic faiths</li> <li>➤ Increase the awareness and appreciation of Transition from Territorial States to Emergence of Empires</li> <li>➤ Analyze the emergence of the Mouryan and Gupta empires during the —classical agell in India</li> <li>➤ Evaluate the key facets of ancient society, polity and culture in South India—the feudalism, and the rise of technology and commerce.</li> <li>➤ Critically examine the nature of monarchic rule and develop an comprehensive understanding of cultural evolution during ancient period</li> <li>➤ Visualize where places are in relation to one another through map pointing</li> </ul>

**I Year B. A. – Semester – II**

**Course 2: MEDIEVAL INDIAN HISTORY & CULTURE (1206 A.D to 1764 A.D)**

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

- Understand the socio, economic and cultural conditions of medieval India
- Describe the advent of Islam in India and study the traces of political and cultural expansion of Turks & Afghans
- Explain the Administration and art and architecture of Vijayanagar Rulers, Mughals and also analyse the rise of the Marathas and the contribution of Shivaji
- Evaluate the establishment of the British rule in India and understand the dangerous consequences disunity at all levels
- Analyze the emergence of composite culture in Indian Visualize where places are in relation to one another through map pointing

**II Year B. A. – Semester – III**

**Course 3: MODERN INDIAN HISTORY & CULTURE (1764-1947 A. D)**

**Learning Outcomes:**

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

- Unearth the true nature of the British rule and its disastrous impact on Indian economy and society
- Gauge the disillusionment of people against the Company's rule even during the early 19th century
- Assess the causes and effects of Reformation movements and also inspire the public to overthrow inequalities of the present day society
- Rise above petty parochial issues after understanding the sacrificial saga of freedom Struggle
- Evaluate the undercurrent of communal politics that led to India's partition and identify the enemies of India's integrity and sovereignty
  - Visualize where places are in relation to one another through map pointing

**II Year B. A. – Semester – IV**

**Course 4: HISTORY & CULTURE OF ANDHRA (FROM 1512 TO 1956 AD)**

**Learning Outcomes:**

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

- Interpret social and political and cultural transformation from medieval to modern Andhra
- Relate key historical developments during medieval period occurring in coastal Andhra and Telangana regions and analyze socio - political and economic changes under QutbShahi rulers
- Understand gradual change, or change in certain aspects of society in Andhra, rather than rapid or fundamental changes

- Explain how the English East India Company became the most dominant power and outline the impact of colonial policies on different aspects in Andhra
- Outline the issues related to caste, women, widow remarriage, child marriage, social reforms and the laws and policies of colonial administration towards these issues
- Take pride in the non-violence struggle for Indian Independence and relate the importance of peace in everyday life
- Apply the knowledge of the regional history to understand the regional, linguistic and other cultural aspirations of the present day society
  - Visualize where places are in relation to one another through map pointing

#### **II Year B. A. – Semester 4**

#### **Course 5: HISTORY OF MODERN WORLD (From 15th Cent. AD to 1945 AD)**

##### Learning Outcomes:

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

- Demonstrate advanced factual knowledge of world histories, politics, and cultures
- Assess and appraise the developments in art, literature, and society during the Renaissance and utilize content knowledge of the Reformation and Counter Reformation to make predictions about the evolution of Christianity in Europe and Abroad
- Evaluate the causes for the Glorious Revolution and American Revolution and identify the background for the evolution of human rights movement
- Understand the main events of the French Revolution and its significance in the shift in European culture from Enlightenment to Romanticism
- Think how Russia's traditional monarchy was replaced with the world's first Communist state.
- Know how the world wars affected people all over the world and the destruction they caused
- Develop the intellectual curiosity and habits of thought that will lead to life-long learning and continued engagement with European history, literature, culture, languages, and current affairs and acquire advanced international and intercultural competency through coursework in international studies
- Visualize where places are in relation to one another through map pointing

#### **Four-Year B.A. (Hons) Domain Subject: HISTORY**

#### **IV Year B. A.(Hons) –Semester-V**

**Max Marks: 100**

#### **Course 6B: Tourism and Hospitality Services**

#### **(Skill Enhancement Course (Elective), 4 Credits)**

I. Learning Outcomes: Students after successful completion of the course will be able to:

1. Understand hospitality as a career
2. Inculcate interpersonal skills

3. Develop the ability for multitasking and crisis management
4. Understands the spirit of teamwork
5. Acknowledge the importance of guest service and satisfaction

**Four-Year B.A. (Hons)**

**Domain Subject: HISTORY**

**IV Year B. A.(Hons) - Semester – V**

**Max Marks: 100**

**Course 7B: Tourism Guidance and Operating Skills  
(Skill Enhancement Course (Elective), 4 Credits)**

II. Learning Outcomes:

Students after successful completion of the course will be able to:

1. Acquire tour guiding, operating and soft skills
2. Understand different situations under which one has to work
3. Cultivate cultural awareness and flexibility
4. Understand and apply team spirit
5. Plan and organize tour operations efficiently



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### DEPARTMENT OF ECONOMICS

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- archaeological sights can enhance the vision of the students and develop skills.



**SEMESTER – I :: COURSE - I  
MICROECONOMIC ANALYSIS  
NO. OF CREDITS: 4**

**LEARNING OUTCOMES FOR THE COURSE**

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way (Knowledge)
  - a. the differences between microeconomic analysis and macroeconomic analysis
  - b. various laws and principles of microeconomic theory under consumption,
2. Explains (understanding)
  - a. various terms and concepts relating to microeconomic analysis with the help of examples of real life
  - b. consumer's equilibrium and consumer's surplus using indifference curve analysis.
  - c. various laws and principles of consumption, production, and income distribution
  - d. determination of price and output discriminating different market conditions in short term and long term
3. Critically examines using data and figures (analysis and evaluation)
  - a. various laws and principles of microeconomic analysis and market conditions
  - b. application of the concept of demand elasticity and its relation with Average and Marginal Revenue
  - c. the relationship between average and marginal cost/revenue both in long term and
4. Draws critical diagrams and graphs to explain and examine the application of various laws and principles of microeconomic analysis Module

**SEMESTER – 2:: COURSE –2  
MACROECONOMIC ANALYSIS  
NO. OF CREDITS: 4**

**LEARNING OUTCOMES FOR THE COURSE**

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way (knowledge)  
Various concepts, definitions, laws and principles of macroeconomic theory with referenceto income, employment, money, banking and finance
2. Explains (understanding)
  - a. the difference between various concepts and components of national income with illustrations and methods of measuring national income
  - b. various terms, concepts, laws and principles, theories relating to income, employment, consumption, investment, money, price-level and phases of trade cycles
  - c. functions of commercial banks and central bank, creation and control of credit
3. Critically examines using data and figures (analysis and evaluation)
  - a. in order to understand the interrelationship between various components of

national  
income

b. the theories of macroeconomics with reference to their assumptions,  
implications

and applicability

c. Empirical evidences of Consumption and Investment Functions and factors  
influencing them

4. Draws critical formulae, diagrams and graphs.

a. consumption and investment functions; concepts of multiplier and accelerator

b. price indices, inflation and trade cycles

### **SEMESTER – 3:: COURSE – 3**

#### **DEVELOPMENT ECONOMICS**

**NO. OF CREDITS: 4**

#### **LEARNING OUTCOMES FOR THE COURSE**

At the end of the course, the student is expected to demonstrate the following  
cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way (Knowledge)

Various concepts and definitions and indicators relating to economic growth and  
Development including recent developments

2. Explains (understanding)

a. Distinction between growth and development with examples

c. Characteristics of developing and developing economies and distinction  
between

the two

d. factors contributing to development, Choice of Techniques and a few important  
models and strategies of growth

3. Critically examines using data and figures (analysis and evaluation)

a. the theoretical aspects of a few models and strategies of economic growth

b. role and importance of various financial and other institutions in the context of  
India's economic development

4. Draws critical diagrams and graphs.

a. to explain the models and strategies

b. to highlight empirical evidences to support the strategies

### **SEMESTER – 4 :: COURSE – 4**

#### **ECONOMIC DEVELOPMENT- INDIA AND ANDHRA PRADESH NO. OF CREDITS: 4**

#### **LEARNING OUTCOMES FOR THE COURSE**

At the end of the course, the student is expected to demonstrate the following  
cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way (Knowledge)

a. leading issues of Indian economic development with reference to potential for  
growth, obstacles and policy responses

b. Objectives, outlays and achievements of economic plans and growth strategies

2. Explains (understanding)

- a. Available Resources, demographic issues, general problems of poverty and unemployment and relevant policies
  - b. Sector specific problems, remedial policies and their effectiveness relating to Agriculture and Industrial Sectors of Indian and AP economy and infrastructure issues of AP economy
  - c. Indian Tax system, recent changes, issues of public expenditure and public debt, recent finance commissions and devolution of funds
  - d. Major issues of economic development of Andhra Pradesh after bifurcation and Central assistance
3. Critically examines using data and figures (analysis and evaluation)
- a. Leading issues of current importance relating to India and AP economy, major policies and programmes
  - b. Covid- 19 and its impact on Indian economy
4. Uses official statistical data and reports including tables and graphs
- a. To explain the achievements of Indian economy with reference to the objectives of planning and policy and make critical evaluation

**COURSE- 5(Semester - IV)**

**STATISTICAL METHODS FOR ECONOMICS**

**NO. OF CREDITS: 4**

**LEARNING OUTCOMES FOR THE COURSE**

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

- 1. Remembers and states in a systematic way (Knowledge)
  - a. the definitions, terms and their meaning relating to statistical methods
  - b. various formulae used to measure central tendency, correlation regression and Indices
- 2. Explains (understanding)
  - a. Importance of statistics and its applications
  - b. The method of classification of primary data
  - c. Uses of Correlation and Regression analysis, time series and index numbers in economic analysis
- 3. Analyses and solves using given data and information (analysis and evaluation)
  - a. different kinds of statistical problems using various principles and formulae relating to central tendency, correlation, regression, time series and indices
  - b. to interpret data and suggest solutions to economic problems
- 4. Draws critical diagrams and graphs.
  - a. Histogram, Frequency Polygon and Frequency Curve
  - b. More than cumulative and less than cumulative frequency curves (Ogive)
  - c. Different types of Bar diagrams
  - d. Pie Diagram and its uses in economic analysis

**Four-Year B.A. (Hons)**

**Domain Subject: ECONOMICS**

**IV Year B.A.(Hons)-Semester-V**

**Max Marks: 100**

**Course 6B: Urban Entrepreneurship and MSMEs**

**(Skill Enhancement Course (Elective), 4 Credits)**

**I. Learning Outcomes:**

Students at the successful completion of the course shall be able to:

1. Explain the basic theories and essentials of entrepreneurship
2. Identify and analyze the entrepreneurship opportunities available in local urban area.
3. Apply the theories of entrepreneurship to the conditions of local urban area and formulate appropriate business ideas.
4. Demonstrate practical skills that will enable them to start urban entrepreneurship

**Four-Year B.A. (Hons)**

**Domain Subject: ECONOMICS**

**IV Year B.A.(Hons)-Semester-V**

**Max Marks: 100**

**Course 7B: Retail and Digital Marketing**

**(Skill Enhancement Course (Elective), 4 Credits)**

**I. Learning Outcomes:**

Students at the successful completion of the course shall be able to:

1. Explain the concepts and principles about the retail and digital marketing;
2. Identify and analyse the opportunities related to retail and digital marketing available in the local area;
3. Apply the concept to formulate the new strategies related to retail and digital marketing;
4. Demonstrate the practical skills required to get employment in retail and digital marketing or to start own digital marketing.



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- archaeological sights can enhance the vision of the students and develop skills.

## **B.A. POLITICAL SCIENCE**

**FIRST YEAR :: FIRST SEMESTER (Under CBCS w.e.f. 2020-21)**

### **Course-1: INTRODUCTION TO POLITICAL SCIENCE**

#### **Learning Outcomes:**

On successful completion of the course the students will be able to;

- Recall the previous knowledge about Political Science and understand the nature and scope, traditional and modern approaches of Political Science.
- Understand concepts intrinsic to the study of Political Science.
- Have solid theoretical understanding of Rights and its theories along with the basic aspects of certain political ideologies.
- Apply the knowledge to observe the field level phenomena

**B.A. POLITICAL SCIENCE  
FIRST YEAR :: SECOND SEMESTER  
(Under CBCS w.e.f 2020-21)**

**Course-2: BASIC ORGANS OF THE GOVERNMENT**

**Learning Outcomes:**

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

- Understand the Origin and Evolution of the concept of Constitutionalism and classification of Constitutions.
- Acquaint themselves with different theories of origin of State.
- Understand and analyses organs and forms of Governments along with a deep insight into the various agents involved in the political process.
- Apply the knowledge to analyse and evaluate the existing systems

**B.A. POLITICAL SCIENCE SECOND YEAR  
THIRD SEMESTER**

**(Under CBCS w.e.f 2020-21)**

**Course-3: INDIAN GOVERNMENT AND POLITICS**

**Learning Outcomes:**

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

- Acquire knowledge about the historical background of Constitutional development in India, appreciate philosophical foundations and salient features of the Indian Constitution.
- Analyze the relationship between State and individual interms of Fundamental Rights and Directive Principles of State Policy.
- Understand the composition of and functioning of Union Government as well as State Government and finally
- Acquaint themselves with the judicial system of the country and its emerging trends such as judicial reforms.

**B.A. POLITICAL SCIENCE SECOND YEAR  
FOURTH SEMESTER (Under CBCS w.e.f 2020-21)**

**Course-4 : INDIAN POLITICAL PROCESS**

**Learning Outcomes:**

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

- Know and understand the federal system of the country and some of the vital contemporary emerging issues.
- Evaluate the electoral system of the country and to identify the areas of electoral reforms.
- Know the constitutional base and functioning of local governments with special emphasis on 73rd& 74th Constitutional Amendment Acts.
- Understand the dynamics of Indian politics, challenges faced and gain a sensitive comprehension to the contributing factors.
- Apply the knowledge and critically comprehend the functioning of some of

the regulatory and governance institutions.

- Propose theoretical outline alternate models

**B.A. POLITICAL SCIENCE SECOND YEAR  
FOURTH SEMESTER (Under CBCS w.e.f 2020-21)**

**Course 5: WESTERN POLITICAL THOUGHT**

Learning Outcomes:

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

- Understand the fundamental contours classical, western political philosophy, basic features of medieval political thought and shift from medieval to modern era.
- Understand the Social Contract Theory and appreciate its implications on the perception of State in terms of its purposes and role.
- Acquaint with the Liberal and Marxist philosophy and analyze some trends in Western Political Thought.
- Critically analyse the evolution of western political thought

**Four - Year B.A. (Hons)**

**Domain Subject: POLITICAL SCIENCE**

**IV Year B. A.(Hons) – Semester – V**

**Max Marks: 100**

**Course 6 D: ELECTORAL POLITICS AND VOTING BEHAVIOUR**

**(Skill Enhancement Course (Elective), 4 credits)**

I. Learning Outcomes:

Students at the successful completion of the course will be able to;

1. Acquaint student with the structure and manner of functioning of Election Commission of India.
2. Understand the political issues in Electoral Politics.
3. Provide an overview on voter turnout, voting behavior in India.
4. Aware of the role of new media and technology in election campaign.
5. Develop an understanding of the required skills for data collection, research in election management.

**Four - Year B.A. (Hons)**

**Domain Subject: POLITICAL SCIENCE**

**IV Year B. A.(Hons) – Semester – V**

**Max Marks: 100**

**Course 7 D: LEGISLATIVE PROCEDURES AND PRACTICES**

**(Skill Enhancement Course (Elective), 4 credits)**

I. Learning Outcomes:

Students at the successful completion of the course will be able to;

- |  |   |
|--|---|
|  | <ol style="list-style-type: none"><li>6. Make familiar with legislative procedures and practices.</li><li>7. Equip the students with the adequate skills of participation in deliberative processes and democratic decision making.</li><li>8. Understand complex policy issues, draft new legislation, analyze ongoing bills, make speeches and floor statements.</li><li>9. Provide skills to be part of a legislative support team and expose them to real life legislative work.</li><li>10. Enhance understanding of procedures, practices, different committees and motions in the House.</li></ol> |
|--|---|

# PROGRAMME OUTCOMES

## B.Com General & Computer Applications

1. The students can get the knowledge, skills and attitudes during the end of the B.com degree course.
2. By goodness of the preparation they can turn into a Manager, Accountant, Management Accountant, cost Accountant, Bank Manager, Auditor, Company Secretary, Teacher, Professor, Stock Agents, Government employment etc.
3. Students will prove themselves in different professional exams like C.A., CS, CMA and other courses.
4. The students will acquire the knowledge, skill in different areas of communication, decision making, innovations and problem solving in day to day business activities.
5. Students will gain thorough systematic and subject skills within various disciplines of finance, auditing and taxation, accounting, management, communication, computer.
6. Students can also get the practical skills to work as accountant, audit assistant, tax consultant, and computer operator. As well as other financial supporting services.
7. Students will learn relevant Advanced accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
8. Students will be able to do their higher education and can make research in the field of finance and commerce.

## **DEPARTMENT OF COMMERCE**

### **Programme Outcomes (POs)**

1. Acquire a comprehensive understanding of domain-specific knowledge and demonstrate their acquired skills effectively during practical transactions within the specific domain.
2. Demonstrate proficient analytical and problem-solving skills through the application of critical thinking strategies to address real-world situations effectively.
3. Master effective communication, collaborate skilfully with diverse stakeholders, nurture meaningful dialogues, build strong professional bonds in and beyond college.
4. Exhibit proficiency in ethically using information from diverse sources, analysing and synthesizing data effectively for real-world research.
5. Exemplify ethical standards in personal and professional contexts, appreciate diverse cultures, evaluate social responsibility's impact on well-being, and advocate for women students' betterment.
6. Actively promote social awareness through community service, contributing to a more inclusive and compassionate global community.
7. Embrace continuous learning, create professional growth chances, and prioritize personality development and physical well-being for a holistic approach.
8. Foster self-confidence, advocate women empowerment, demonstrate expertise for growth in studies, employment, and entrepreneurship, creating a brighter and equitable future.

### **Programme Specific Outcomes (PSOs)**

1. Understand the social impact of business and apply ethical considerations to technology-integrated business practices.
2. Acquire accounting knowledge and skills for effective financial management, utilizing computer applications for accurate record-keeping.
3. Develop entrepreneurial, managerial, and legal proficiencies, integrating computer application skills to enhance business operations.
4. Enhance communication abilities for successful interactions in business and personal contexts, guided by ethical principles
5. Develop competence in utilizing computer applications for data analysis and effective problem-solving within the context of Commerce and business applications.

Foster ethically aware and socially responsible business standards, while utilizing computer applications to streamline processes and make informed decisions.

# **Course1A: Fundamentals of Accounting**

## **COURSE OUTCOMES**

**CO1: Understand the fundamental principles and concepts of accounting, including Generally Accepted Accounting Principles (GAAP), and apply them to analyse financial transactions and maintain accurate records.**

- Comprehension: Understand the need and objectives of accounting.
- Comprehension: Explain the fundamental accounting concepts and conventions.
- Comprehension: Describe the significance of Generally Accepted Accounting Principles (GAAP) in financial reporting.
- Comprehension: Define the accounting cycle and its stages.

**CO2: Demonstrate proficiency in double-entry bookkeeping, subsidiary bookkeeping, and the preparation of financial statements, including the ability to identify and rectify errors and discrepancies in financial records.**

- Application: Apply the principles of double-entry bookkeeping to record transactions accurately.
- Comprehension: Differentiate between different types of subsidiary books.
- Application: Record transactions in a Cash Book, Three-column Cash Book, and Petty Cash Book.
- Application: Handle journalizing, ledger posting, and balancing of ledger accounts effectively.

**CO3 Apply critical thinking skills to prepare financial statements with adjustments, including bank reconciliation statements, and evaluate the financial health and accuracy of an organization's records.**

- Comprehension: Identify the importance of Trial Balance in financial reporting.
- Comprehension: Recognize different types of errors in accounting.
- Application: Apply methods for the rectification of errors and understand the concept of a Suspense Account.
- Application: Apply knowledge of preparing Trading Account, Profit and Loss Account, and Balance Sheet.

# **Course 1B: Business Organization and Management**

## **COURSE OUTCOMES**

### **CO1: Understand the concepts and functions of business:**

- Knowledge: Demonstrate knowledge of the meaning, features, and functions of business.
- Comprehension: Explain the classification of trade, aids to trade, and factors influencing the choice of suitable forms of organization.

### **CO2: Compare and evaluate different forms of business organizations:**

- Analysis: Analyse the features, merits, and demerits of sole proprietorship, partnership, and joint stock companies.
- Evaluation: Evaluate the differences between private limited and public limited companies, as well as public sector enterprises and multinational corporations.

### **CO3: Demonstrate knowledge of company incorporation procedures:**

- Application: Prepare the necessary documents for the incorporation of a company, such as the certificate of incorporation, certificate of commencement of business, and memorandum and articles of association.
- Knowledge: Understand the contents and legal requirements of prospectus for a company.

### **CO4: Understand the principles and functions of management:**

- Comprehension: Explain the meaning, characteristics, and differences between administration and management.
- Knowledge: Demonstrate knowledge of Fayol's 14 principles of management and the levels of management.

- Evaluation: Assess the merits and demerits of planning, and understand the principles of organization and the concept of line and staff organization.

## **Course 3A: Advanced Accounting**

### **COURSE OUTCOMES**

#### **CO1: Understanding of Accounting for Non-Profit Organizations**

- Knowledge and Understanding : Acquire a comprehensive understanding of non-profit entities, including their meaning, features, and provisions as per Sec 8.
- Comprehension: Explain the accounting process for non-profit organizations, including the preparation of accounting records, receipts and payments account, income and expenditure account, and balance sheet.

#### **CO2: Knowledge of Single Entry System and Statement of Affairs**

- Knowledge and Understanding: Understand the features of the single entry system and the differences between single entry and double entry systems.
- Comprehension: Identify the disadvantages of the single entry system and apply the principles for ascertaining profit and preparing a statement of affairs.

#### **CO3: Familiarity with Hire Purchase System**

- Knowledge and Understanding: Comprehend the features of the hire purchase system and the differences between hire purchase and installment purchase systems.
- Application: Apply the appropriate accounting treatment in the books of hire purchaser and hire vendor, including handling defaults and repossessions.

#### **CO4: Understanding of Partnership Accounts**

- Knowledge and Understanding: Understand the meaning of partnership, partnership deeds, and fixed and fluctuating capitals in partnership accounts.
- Comprehension: Explain the accounting treatment of goodwill, admission and retirement of partners, and dissolution of a partnership firm, including the application of Garner v/s Murray Rule and handling insolvency of partners.

## **Course 4A: Corporate Accounting**

### **COURSE OUTCOMES**

CO1: Understanding Share Capital and Debenture Accounting • Knowledge and Understanding: Differentiate between types of shares and preference shares. Explain the accounting treatment for the issue of shares at par, discount, and premium. Understand the accounting procedures for the forfeiture and reissue of shares. Describe the accounting treatment for the issue and redemption of debentures.

CO2: Applying Valuation Methods for Goodwill • Application and Analysis: Understand the need for valuing goodwill in accounting. Apply different valuation methods for goodwill, such as the average profit method, super profits method, capitalization method, and annuity method. Analyse and interpret the results of the valuation methods.

CO3: Valuing Shares using Various Methods • Application and Analysis : Recognize the importance of valuing shares. Apply different methods of share valuation, including the net assets method, yield basis method, and fair value method. Analyse and interpret the valuation results.

CO4: Preparation of Company Final Accounts • Application and Analysis: Understand the provisions of the Companies Act, 2013 related to the preparation of final accounts. Demonstrate the ability to prepare final accounts, including the profit and loss account and balance sheet. Apply adjustments relevant to the preparation of final accounts. Analyse and interpret the financial statements.

# **Course 4B: Cost and Management Accounting**

## **COURSE OUTCOMES**

CO1: Understanding Cost Accounting and Management Accounting • Knowledge and Understanding:

Define and distinguish between cost accounting and management accounting. Explain the features, objectives, functions, and scope of cost accounting and management accounting. Identify the advantages and limitations of cost accounting. Prepare a cost sheet.

CO2: Analysing Material and Labour Costs • Application and Analysis: Apply techniques of inventory

control, such as FIFO, LIFO, and weighted average methods. Evaluate and value material issues using different inventory valuation methods. Differentiate between direct and indirect labour costs. Analyse and calculate wages using various payment methods. Solve problems related to material and labour costs.

CO3: Applying Job Costing and Batch Costing • Application and Analysis: Define job costing and

batch costing and their features. Determine the economic batch quantity (EBQ). Prepare job cost sheets and solve problems related to job costing and batch costing.

CO4: Interpreting Financial Statements and Using Marginal Costing • Analysis and Evaluation:

Understand the features, limitations, and objectives of financial statement analysis. Apply comparative analysis, common-size analysis, and trend analysis to Analyse financial statements. Interpret the results and draw conclusions. Explain the concepts of marginal costing, contribution, profit-volume ratio, break-even point, and margin of safety. Estimate profit and sales using marginal costing techniques.

Solve problems related to financial statement analysis and marginal

## **Course 4C: Income Tax**

### **COURSE OUTCOMES**

CO1: Understanding the Basic Concepts of Income Tax • Knowledge and Understanding: Define and explain the basic concepts of income tax, including income, person, assessee, assessment year, previous year, rates of tax, agricultural income, residential status of individuals, and the incidence of tax.

Describe the incomes exempt from tax.

CO2: Analysing Income from Salaries • Application and Analysis: Understand the basis of charge for income from salaries. Analyse and apply tax treatment for different types of salaries, allowances, perquisites, and profits in lieu of salary. Calculate deductions from salary income and compute salary income. Solve problems related to the computation of salary income.

CO3: Evaluating Income from House Property and Profits and Gains from Business • Analysis and Evaluation: Understand the concept of income from house property, including annual value, let-out/self-occupied/deemed to be let-out houses, deductions from annual value, and computation of income from house property. Define business and profession and understand the procedure for computing income from business. Differentiate between revenue and capital nature of incomes and expenses. Identify allowable expenses and expenses expressly disallowed. Compute income from business. Solve problems related to the computation of income from house property and profits and gains from business.

CO4: Analysing Income from Capital Gains and Other Sources, and Computation of Total Income • Application and Analysis: Understand the meaning of capital asset, types of capital gains/losses, and the procedure for computation of long-term and short-term capital gains/losses. Understand the meaning of income from other sources, including general incomes and specific incomes. Compute

income from capital gains and income from other sources. Evaluate deductions under Section 80 and compute the total income of an individual. Solve problems related to the computation of income from capital gains, income from other sources, and total income.

## **Course 4D: Business Law**

### **COURSE OUTCOMES**

CO1: Understanding the Concept and Elements of Contract • Knowledge and Understanding: Define and explain the meaning and definition of a contract. Identify and describe the essential elements of a valid contract. Differentiate between valid, void, and voidable contracts. Understand the provisions of the Indian Contract Act, 1872.

CO2: Analysing Offer, Acceptance, and Consideration • Application and Analysis: Define and analyse the concepts of a valid offer, acceptance, and consideration. Identify and evaluate the essential elements of a valid offer, acceptance, and consideration in contract formation. Apply the principles of offer, acceptance, and consideration to specific scenarios.

CO3: Evaluating Capacity of Parties and Contingent Contracts • Evaluation and Synthesis: Understand the rules regarding contracts with minors and their capacity to enter into contracts. Analyse the rules relating to contingent contracts. Examine different modes of contract discharge. Evaluate the rules relating to remedies for breach of contract.

CO4: Analysing Sale of Goods Act and Consumer Protection Act • Application and Analysis: Understand the provisions of the Sale of Goods Act, 1930, including the contract of sale, sale and agreement to sell, and implied conditions and warranties. Analyse the rights of an unpaid vendor. Understand the definitions and concepts under the Consumer Protection Act, 2019, including consumer, goods, service, consumer dispute, consumer protection councils, and consumer dispute redressal mechanism.

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## DEPARTMENT OF COMPUTER APPLICATIONS

### PROGRAMME OUTCOMES & COURSE OUTCOMES:

#### I BCOM CA - I SEM

#### INFORMATION TECHNOLOGY - 20C1303

##### **Model Outcomes:**

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

- A. *Remembers and states in a systematic way (Knowledge)*
  1. Describe the fundamental hardware components that make up a computer's hardware and the role of each of these components
  2. understand the difference between an operating system and an application program, and what each is used for in a computer
  3. Use technology ethically, safely, securely, and legally
  4. Use systems development, word-processing, spreadsheet, and presentation software to solve basic information systems problems
  
- B. *Explains (Understanding)*
  5. Apply standard statistical inference procedures to draw conclusions from data
  6. Retrieve information and create reports from databases
  7. Interpret, produce, and present work-related documents and information effectively and accurately
  
- C. *Critically examines, using data and figures (Analysis and Evaluation\*\*)*
  8. Analyse compression techniques and file formats to determine effective ways of securing, managing, and transferring data

10. Analyse a complex computing problem and to apply principles of other relevant disciplines to identify solutions.
  11. Identify and analyse computer hardware, software
- D. Working in 'Outside Syllabus Area' under a Co-curricular Activity
- Design, implement, and evaluate a computing-based solution to meet computing requirements in the context of the program's discipline.

### **REFERENCE BOOK**

1. Fundamentals Of Computers " by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. Microsoft Office 2007 Fundamentals, 1st Edition By Laura Story, Dawn (UNIT III, UNIT IV)
3. PC SOFTWARE UNDER WINDOWS by Puneet Kumar And Sushil Bhardwaj Kalvani Publishers

**Common for B.Com(CA,Digital Marketing), B.Sc (CA), B.A(CA) Syllabus  
Rayalaseema University, Kurnool with effect from 2020-2021**

### **COMPUTER FUNDAMENTALS AND MS OFFICE LAB**

1. Prepare your class time table using different Text formatting's in a table.
2. Send a Call Letter for All Applicants to Inform Interview Details using Mail Merge
3. Type your mathematical problems in MS word using Mathematical Equation
4. Create Water Marking
5. Create Backup file
6. Create a short film with animation and sound effects
7. Create a payslip with details of employee salary
8. Calculate student grades using his internal and external marks details
9. Draw different types of charts for weather analysis of 5 successive years
10. Prepare an excel sheet for posting attendance of students in various subjects  
formula for promoting students having 75% minimum attendance
11. Prepare an excel sheet for conducting objective entrance test having multiple answers.
12. Prepare an excel sheet for student details and create formulas for accessing addresses, category, etc.

## RECOMMENDED CONTINUOUS ASSESSMENT METHODS

Some of the following suggested assessment methodologies could

1. The oral and written examinations (Scheduled and surprise tests)
2. Closed-book and open-book tests,
3. Coding exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports,
7. Efficient delivery using seminar presentations,
8. Video case interviews

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## I Year B Com (CA), Semester – II Discipline: COMPUTER APPLICATIONS

### Course 2C: E- Commerce & Web Designing

(Five units with each unit having 12 hours of class work)

#### **Learning Outcomes:**

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

#### *B. Remembers and states in a systematic way (Knowledge)*

1. Understand the foundations and importance of E-commerce
2. Define Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational
3. Describe the infrastructure for E-commerce
4. Discuss legal issues and privacy in E-Commerce
5. Understand the principles of creating an effective web page, including an in-depth consideration of information architecture

#### *B. Explains (Understanding)*

6. Recognize and discuss global E-commerce issues
7. Learn the language of the web: HTML and CSS.

#### *C. Critically examines, using data and figures (Analysis and Evaluation)*

8. Analyze the impact of E-commerce on business models and strategy
9. Assess electronic payment systems
10. Exploring a web development framework as an implementation example and create dynamically generated web site complete with user accounts, page level security, modular design using css

D. Working in 'Outside Syllabus Area' under a Co-curricular Activity

Use the Systems Design Approach to implement websites with the following

- Define purpose of the site and subsections
- Identify the audience
- Design and/or collect site content
- Design the website theme and navigational structure
- Design & develop web pages including: CSS Style Rules, Typography, Hyperlinks, Lists, Tables, Frames, Forms, Images, Behavioural

E. Build a site based on the design decisions and progressively improve

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II Year B Com (CA), Semester – III

CODE: 20C3303

**Discipline: COMPUTER APPLICATIONS**

**Course 3C: Programming with C & C++**

(Five units with each unit having 12 hours of class work)

## **Model Outcomes:**

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

### *C. Remembers and states in a systematic way (Knowledge)*

1. Develop programming skills
2. Declaration of variables and constants use of operators and expressions
3. learn the syntax and semantics of programming language
4. Be familiar with programming environment of C and C++
5. Ability to work with textual information (characters and strings) & arrays

### *D. Explains (Understanding)*

6. Understanding a functional hierarchical code organization
7. Understanding a concept of object thinking within the framework of functional model
8. Write program on a computer, edit, compile, debug, correct, recompile and run it

*E. Critically examines, using data and figures (Analysis and Evaluation)*

9. Choose the right data representation formats based on the required problem
10. Analyze how C++ improves C with object-oriented features
11. Evaluate comparisons and limitations of the various programming choose correct one for the task in hand.

*D. Working in 'Outside Syllabus Area' under a Co-curricular Activity(C*

Planning of structure and content, writing, updating and modifying co

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II BCOM CA - IV SEM

Course 4E: Object Oriented Programming with Java

Course code : 20C4311A

## Learning Outcomes:

At the end of the course, the student will be able to;

- Understanding the meaning and necessity of audit in modern era
- Comprehend the role of auditor in avoiding the corporate frauds
- Identify the steps involved in performing audit process
- Determine the appropriate audit report for a given audit situation
- Apply auditing practices to different types of business entities
- Plan an audit by considering concepts of evidence, risk and materiality

## Online Resources:

<https://stackify.com/java-tutorials/>

<https://www.w3schools.com/java/>

<https://www.javatpoint.com/java-tutorial>

<https://www.tutorialspoint.com/java/index.html>

## Practical Component: @ 2 hours/week/batch

1. Write a program to implement command line arguments.
2. Write a program to read Student Name, Reg.No, Marks and calculate Total, Percentage, and Result. Display all the details of students .
3. Write a program to perform String Operations.
4. Java program to implement Addition of two N X N matrices.
5. Java program to implement bubble sort.
6. Java program to demonstrate the use of Constructor.
7. Calculate area of the following shapes using method overloading.  
a. Rectangle b. Circle c. Square
8. Implement multilevel inheritance
9. Java program for to display Serial Number from 1 to 5 by creating two Threads
10. Java program to demonstrate the following exception handlings  
a. Divided by Zero b. Array Index Out of Bound c. Arithmetic Exception

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**II Year B Com (CA), Semester – IV**  
**Discipline: COMPUTER APPLICATIONS**  
**Course 3F: Database Management System**  
**Course code: C53035**

## **Model Outcomes for Database Management System**

At the end of the course, the students is expected to DEMONSTRATE the following Cognitive abilities (thinking skill) and psychomotor skills.

*F. Remembers and states in a systematic way (Knowledge)*

1. Understand the role of a database management system in an organization.
2. Understand basic database concepts, including the structure and operation of the Relational data model.
3. Understand and successfully apply logical database design principles, including E R diagrams and database normalization

4. Understand Functional Dependency and Functional Decomposition

*G. Explains (Understanding)*

5. To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

6. Perform PL/SQL programming using concept of Cursor Management, Error Handling, Packages.

*H. Critically examines, using data and figures (Analysis and Evaluation)*

7. Apply various Normalization techniques.

8. Model an application's data requirements using conceptual modeling tools like ER Diagrams and design database schemas based on the conceptual model.

*D. Working in 'Outside Syllabus Area' under a Co-curricular Activity (Creativity)*  
Design and implement a small database project.

*E. Construct simple and moderately advanced database queries using Structured Query Language (SQL) (Practical skills)*

## **RECOMMENDED CO-CURRICULAR ACTIVITIES:**

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

### **Measurable**

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity)
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)
5. Study projects (by very small groups of students on selected local real-time Problems pertaining to syllabus or related areas. The individual participation and Contribution of students shall be ensured (team activity).

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## III BCOM CA – SEM V & VI

PAPER: VI A – BIG DATA ANALYTICS USING R – 20C53036-A

### Learning Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand data and classification of digital data.
2. Understand Big Data Analytics.
3. Load data in to R.
4. Organize data in the form of R objects and manipulate them as needed.
5. Perform analytics using R programming

### BOOKS

1. Seema Acharya , Subhashini Chellappan --- Big Data And Analytics second edition, Wiley
2. Seema Acharya--Data Analytics using R, McGraw Hill education (India) Private Limited.
3. Big Data Analytics, Introduction to Hadoop, Spark, and Machine-Learning, Raj kamal, Preeti Saxena, McGraw Hill, 2018.
4. Big Data, Big Analytics: Emerging Business intelligence and Analytic trends for Today's Business, Michael Minelli, Michelle Chambers, and Ambiga Dhiraj, John Wiley & Sons, 2013

### Reference Books:

1. An Introduction to R, Notes on R: A Programming Environment for Data Analysis and Graphics. W. N. Venables, D.M. Smith and the R Development Core Team

### RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

#### A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups a steams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

## **B. General**

1. Group Discussion
2. Try to solve MCQ's available
3. Others

### **RECOMMENDED CONTINUOUS ASSESSMENT METHOD**

Some of the following suggested assessment methodologies could be used:

1. The oral and written examinations (Scheduled and surprise)
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports.
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor"
7. Efficient delivery using seminar presentations,
8. *Viva voce* interviews

### **Course-6A: Big Data Analytics Using R--- Lab (Practical) Syllabus**

*(Since, the proposed SECs are connected to Computer Programming/Software enhancement, the students need to get exposure on the syllabus content by computer even though there is no formal assignment of credits and lab practical sessions. So, as part of the Co-curricular activities and continuous assessment, students should be engaged in practicing on computer for at least 15 hours per week.)*

1. Create a vector in R and perform operations on it.
2. Create integer, complex, logical, character data type objects in R and their class using print and class functions.
3. Write code in R to demonstrate sum(), min(), max() and seq() functions.
4. Write code in R to manipulate text in R using grep(), toupper(), tolower() functions.
5. Create data frame in R and perform operations on it.
6. Import data into R from text and excel files using read.table() and read.csv() functions.
7. Write code in R to find out whether number is prime or not.
8. Print numbers from 1 to 100 using while loop and for loop in R.
9. Write a program to import data from csv file and print the data on the console.

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## III BCOM CA – SEM V & VI

PAPER: VII A - DATA SCIENCE USING PYTHON - 20C53037A

### Learning Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand basic concepts of data science.
2. Understand why python is a useful scripting language for developers.
3. Use standard programming constructs like selection and repetition.
4. Use aggregated data (list, tuple, and dictionary).
5. Implement functions and modules.

### **RECOMMENDED CO-CURRICULAR ACTIVITIES:**

(Co-curricular activities shall not promote copying from textbook or from work and shall encourage self/independent and group learning)

#### **C. Measurable**

1. Assignments (in writing and doing forms on the aspects of syllabus and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individuals or groups))
3. Quiz (on topics where the content can be compiled by smaller data (Individuals or groups))
4. Study projects (by very small groups of students on selected local problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

#### **D. General**

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

### **RECOMMENDED CONTINUOUS ASSESSMENT METHODS:**

Some of the following suggested assessment methodologies could be adopted

11. The oral and written examinations (Scheduled and surprise tests),
12. Closed-book and open-book tests,
13. Problem-solving exercises,
14. Practical assignments and laboratory reports.

#### **Course-7A: Data Science Using Python; Lab (Practical) Syllabus (15 Hrs.)**

(Since, the proposed SECs are connected to Computer Programming/Software Tools and Skill enhancement, the students need to get exposure on the syllabus content by practicing on the computer even though there is no formal assignment of credits and laboratory hours for Practical sessions. So, as part of the Co-curricular activities and continuous assessment, Students should be engaged in practicing on computer for at least 15 hours per semester.)

1. Python Program to Find the Square Root
2. Python Program to Swap Two Variables
3. Python Program to Generate a Random Number
4. Python Program to Check if a Number is Odd or Even
5. Python Program to Find the Largest Among Three Numbers
6. Python Program to Check Prime Number
7. Python Program to Display the multiplication Table
8. Python Program to Print the Fibonacci sequence
9. Python Program to Find the Sum of Natural Numbers
10. Python Program to Find Factorial of Number Using Recursion
11. Python Program to work with string methods.

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12. Python Program to create a dictionary and print its content.
13. Python Program to create class and objects.

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**Note:** The list of experiments need not be restricted to the above list. *Detailed list of Programming/software tool based exercises can be prepared by the concerned Faculty members.*

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## DEPARTMENT OF MATHEMATICS

### PROGRAMME OUTCOMES & COURSE OUTCOMES

#### PROGRAMME OUTCOMES :

- To Provide a strong foundation in computational, analytical, logical thinking skills.
- To make the students learn the basic mathematical tools, needed to understand different branches of Physics
- To know the Latest advancements in his/her area of study or Interest.
- . Enhancement of the student knowledge on the subjects of his/her programme.
- TO Enhance the cognitive Component and comprehensive component of the student
- To be able to Explain the basic scientific principles and methods
- To inculcate scientific thinking and awareness among the student.

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## COURSE OUTCOMES:

### COURSE-I

### DIFFERENTIAL EQUATIONS

### SEMSESTER -1

#### Course Outcomes:

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

1. Solve linear differential equations
2. Convert nonexact homogeneous equations to exact differential equations by using integrating factors.
3. Know the methods of finding solutions of differential equations of the first order but not of the first degree.
4. Solve higher-order linear differential equations, both homogeneous and non homogeneous, with constant coefficients.
5. Understand the concept and apply appropriate methods for solving differential equations.

**COURSE -II**  
**THREE DIMENSIONAL ANALYTICAL SOLID GEOMETRY**  
**SEMESTER -2**

**Course Outcomes:**

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

1. Get the knowledge of planes.
2. Basic idea of lines, sphere and cones.
3. Understand the properties of planes, lines, spheres and cones.
4. Express the problems geometrically and then to get the solution.

**COURSE-III**  
**ABSTRACT ALGEBRA**  
**SEMESTER -3**

**Course Outcomes:**

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

1. Acquire the basic knowledge and structure of groups, subgroups and cyclic groups.
2. Get the significance of the notation of a normal subgroups.
3. Get the behavior of permutations and operations on them.
4. Study the homomorphisms and isomorphisms with applications.
5. Understand the ring theory concepts with the help of knowledge in group theory and to prove the theorems.
6. Understand the applications of ring theory in various fields.

## **COURSE-IV**

### **REAL ANALYSIS**

#### **Course Outcomes:**

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

1. Get clear idea about the real numbers and real valued functions.
2. Obtain the skills of analyzing the concepts and applying appropriate methods for testing convergence of a sequence/ series.
3. Test the continuity and differentiability and Riemann integration of a function.
4. Know the geometrical interpretation of mean value theorems.

## **COURSE-V**

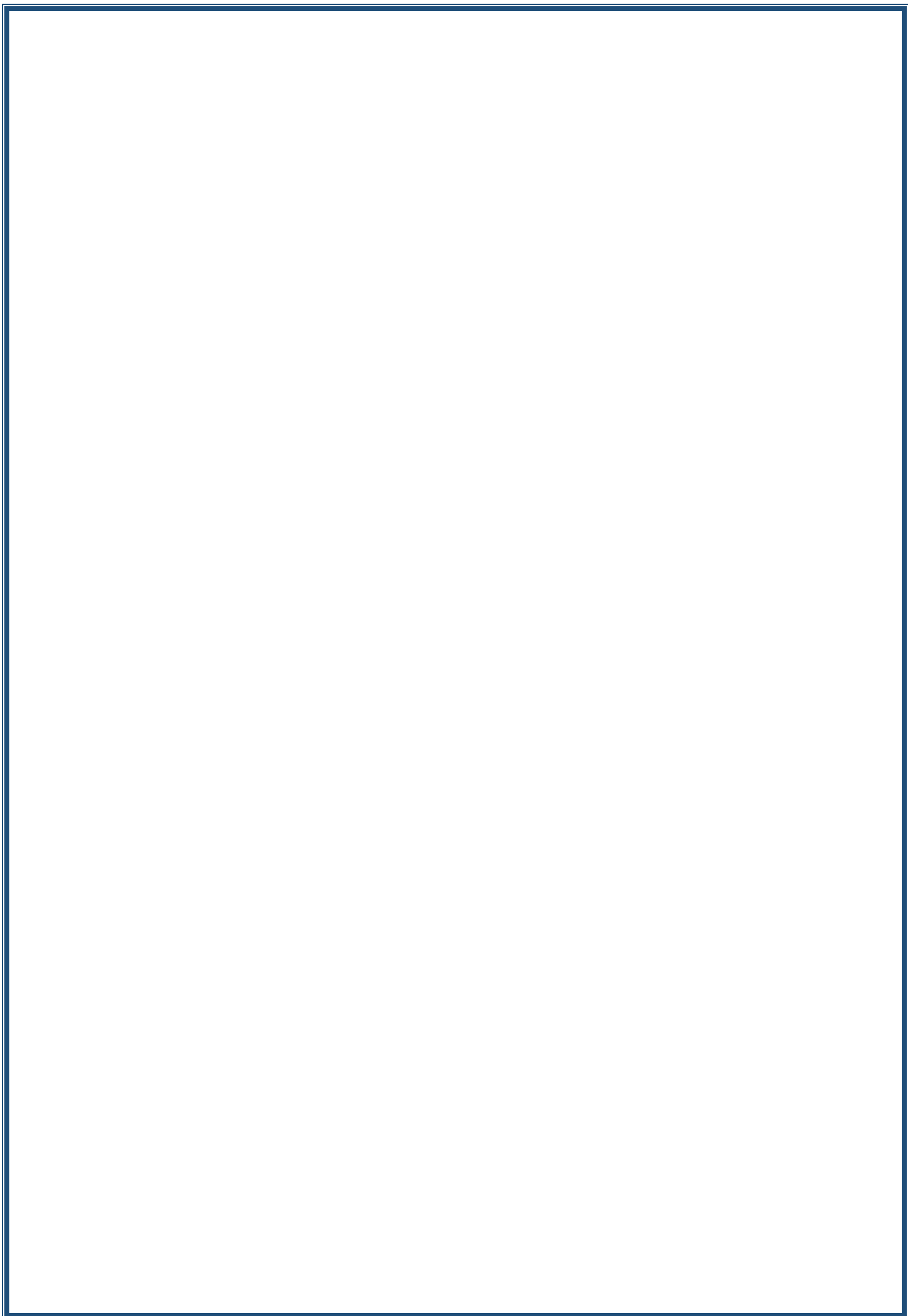
### **ALGEBRA**

#### **SYLLABUS**

#### **Course Outcomes:**

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

1. Understand the concepts of vector spaces, subspaces, bases, dimension and their properties
2. Understand the concepts of linear transformations and their properties
3. Apply Cayley- Hamilton theorem to problems for finding the inverse of a matrix and higher powers of matrices without using routine methods
4. Learn the properties of inner product spaces and determine orthogonality in inner product spaces.



## DEPARTMENT OF PHYSICS

### I Year B.Sc.-Physics: I Semester Course I: MECHANICS, WAVES AND OSCILLATIONS

#### Course outcomes:

1. Understand Newton's laws of motion and motion of variable mass system and its application to rocket motion and the concepts of impact parameter, scattering cross section.
2. Apply the rotational kinematic relations, the principle and working of gyroscope and its applications and the precessional motion of a freely rotating symmetric top.
3. Comprehend the general characteristics of central forces and the application of Kepler's laws to describe the motion of planets and satellite in circular orbit through the study of law of Gravitation.
4. Understand postulates of Special theory of relativity and its consequences such as length contraction, time dilation, relativistic mass and mass-energy equivalence.
5. Examine phenomena of simple harmonic motion and the distinction between undamped, damped and forced oscillations and the concepts of resonance and quality factor with reference to damped harmonic oscillator.
6. Appreciate the formulation of the problem of coupled oscillations and solve them to obtain normal modes of oscillation and their frequencies in simple mechanical systems.
7. Figure out the formation of harmonics and overtones in a stretched string and acquire the knowledge on Ultrasonic waves, their production and detection and their applications in different fields

### I Year B.Sc.-Physics: II Semester Course-II: WAVE OPTICS

#### Course outcomes:

1. Understand the phenomenon of interference of light and its formation in (i) Lloyd's single mirror due to division of wave front and (ii) Thin films, Newton's rings and Michelson interferometer due to division of amplitude.
2. Distinguish between Fresnel's diffraction and Fraunhofer diffraction and observe the diffraction patterns in the case of single slit and the diffraction grating.
3. Describe the construction and working of zone plate and make the comparison of zone plate with convex lens.
4. Explain the various methods of production of plane, circularly and polarized light and their detection and the concept of optical activity..
5. Comprehend the basic principle of laser, the working of He-Ne laser and Ruby lasers and their applications in different fields.

6. Explain about the different aberrations in lenses and discuss the methods of minimizing them.
7. Understand the basic principles of fibreoptic communication and explore the field of Holography and Nonlinear optics and their applications.

### **II Year B.Sc.-Physics: III Semester Course-III: HEAT AND THERMODYNAMICS**

#### **Course outcomes:**

1. Understand the basic aspects of kinetic theory of gases, Maxwell-Boltzmann distribution law, equipartition of energies, mean free path of molecular collisions and the transport phenomenon in ideal gases
2. 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.
3. Understand the working of Carnot's ideal heat engine, Carnot cycle and its efficiency
4. Develop critical understanding of concept of Thermodynamic potentials, the formulation of Maxwell's equations and its applications.
5. Differentiate between principles and methods to produce low temperature and liquefy air and also understand the practical applications of substances at low temperatures.
6. Examine the nature of black body radiations and the basic theories.

### **II Year B.Sc.-Physics: IV Semester Course-IV: ELECTRICITY, MAGNETISM AND ELECTRONICS**

#### **Course outcomes:**

1. Understand the Gauss law and its application to obtain electric field in different cases and formulate the relationship between electric displacement vector, electric polarization, Susceptibility, Permittivity and Dielectric constant.
2. Distinguish between the magnetic effect of electric current and electromagnetic induction and apply the related laws in appropriate circumstances.
3. Understand Biot and Savart's law and Ampere's circuital law to describe and explain the generation of magnetic fields by electrical currents.
4. Develop an understanding on the unification of electric and magnetic fields and Maxwell's equations governing electromagnetic waves.
5. Phenomenon of resonance in LCR AC-circuits, sharpness of resonance, Q-factor, Power factor and the comparative study of series and parallel resonant circuits.
6. Describe the operation of p-n junction diodes, zener diodes, light emitting diodes and transistors

7. Understand the operation of basic logic gates and universal gates and their truth tables

### **II Year B.Sc.-Physics: IV Semester Course V: MODERN PHYSICS**

#### **Course outcomes:**

1. Develop an understanding on the concepts of Atomic and Modern Physics, basic elementary quantum mechanics and nuclear physics.
2. Develop critical understanding of concept of Matter waves and Uncertainty principle.
3. Get familiarized with the principles of quantum mechanics and the formulation of Schrodinger wave equation and its applications.
4. Examine the basic properties of nuclei, characteristics of Nuclear forces, salient features of nuclear models and different nuclear radiation detectors.
5. Classify Elementary particles based on their mass, charge, spin, half-life and interaction.
6. Get familiarized with the Nano materials, their unique properties and applications.
7. Increase the awareness and appreciation of superconductors and their practical applications.

### **III Year B.Sc.-Physics: Semester – V: Course 6B: LOW TEMPERATURE PHYSICS & REFRIGERATION**

#### **Learning Outcomes:**

1. Identify various methods and techniques used to produce low temperatures in the Laboratory.
2. Acquire a critical knowledge on refrigeration and air conditioning.
3. Demonstrate skills of Refrigerators through hands on experience and learns about refrigeration components and their accessories.
4. Understand the classification, properties of refrigerants and their effects on environment.
5. Comprehend the applications of Low Temperature Physics and refrigeration.

### **III Year B.Sc.-Physics: Semester – V: Course 7B: Solar Energy and Applications**

#### **Learning Outcomes:**

1. Understand Sun structure, forms of energy coming from the Sun and its measurement.
2. Acquire a critical knowledge on the working of thermal and photovoltaic collectors.
3. Demonstrate skills related to callus culture through hands on experience

4. Understand testing procedures and fault analysis of thermal collectors and PV modules.
5. Comprehend applications of thermal collectors and PV modules.



## DEPARTMENT OF CHEMISTRY

### COURSE OUTCOMES

#### SEMESTER – I

#### Course I (Inorganic & Physical Chemistry)

**Paper Code: 20C1302A**

#### Course outcomes:

At the end of the course, the student will be able to;

1. Understand the basic concepts of p-block elements
2. Explain the difference between solid, liquid and gases interms of inter molecular interactions.
3. Apply the concepts of gas equations, pH and electrolytes while studying other chemistry courses.

#### LABORATORY COURSE -I

#### Practical-I Analysis of SALT MIXTURE

**Paper Code: 20C1302AP**

#### Course outcomes:

At the end of the course, the student will be able to;

1. Understand the basic concepts of qualitative analysis of inorganic mixture
2. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
3. Apply the concepts of common ion effect, solubility product and concepts related to qualitative analysis



**SEMESTER – II**

**Course II – (Organic & General Chemistry)**

**Paper Code: 20C2302A**

**Course outcomes:**

At the end of the course, the student will be able to;

1. Understand and explain the differential behavior of organic compounds based on fundamental concepts learnt.
2. Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved.
3. Learn and identify many organic reaction mechanisms including Free Radical Substitution, Electrophilic Addition and Electrophilic Aromatic Substitution.
4. Correlate and describe the stereo chemical properties of organic compounds and reactions.

**LABORATORY COURSE-II**

**Practical-II Volumetric Analysis**

**Paper Code: 20C2302AP**

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. Understand and explain the volumetric analysis based on fundamental concepts learnt in ionic equilibria
3. Learn and identify the concepts of a standard solutions, primary and secondary standards
4. Facilitate the learner to make solutions of various molar concentrations. This may include: The concept of the mole; Converting moles to grams; Converting grams to moles; Defining concentration; Dilution of Solutions; Making different molar concentrations.



**SEMESTER - III**

**Course III (ORGANIC CHEMISTRY & SPECTROSCOPY)**

**Paper Code: 20C3302A**

**Course outcomes:**

At the end of the course, the student will be able to;

1. Understand preparation, properties and reactions of halo alkanes, halo arenes and oxygen containing functional groups.
2. Use the synthetic chemistry learnt in this course to do functional group transformations.
3. To propose plausible mechanisms for any relevant reaction

**LABORATORY COURSE -III**

**Practical Course-III Organic preparations and IR Spectral Analysis**

**Paper Code: 20C3302A**

**Course outcomes:**

On the completion of the course, the student will be able to do the following:

1. how to use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. how to calculate limiting reagent, theoretical yield, and percent yield
3. how to engage in safe laboratory practices by handling laboratory glassware, equipment, and chemical reagents appropriately
4. how to dispose of chemicals in a safe and responsible manner
5. how to perform common laboratory techniques including reflux, distillation, re crystallization, vacuum filtration.
6. how to create and carry out work up and separation procedures
7. how to critically evaluate data collected to determine the identity, purity, and percent yield of products and to summarize findings in writing in a clear and concise manner



**SEMESTER - IV**

**Course IV (INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY)**

**Paper Code: 20C4302A**

**Course outcomes:**

At the end of the course, the student will be able to;

1. To learn about the laws of absorption of light energy by molecules and the subsequent photochemical reactions.
2. To understand the concept of quantum efficiency and mechanisms of photochemical reactions.

**LABORATORY COURSE -IV**

**Practical Course-IV Organic Qualitative analysis**

**Paper Code: 20C4302AP**

**Course outcomes:**

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. Determine melting and boiling points of organic compounds
3. Understand the application of concepts of different organic reactions studied in theory part of organic chemistry



**SEMESTER - IV**

**Course V (INORGANIC & PHYSICAL CHEMISTRY)**

**Paper Code: 20C4302B**

**Course outcomes:**

At the end of the course, the student will be able to;

1. Understand concepts Of boundary conditions and quantization, probability distribution, most probable values, uncertainty and expectation values
2. Application of quantization to spectroscopy.
3. Various types of spectra and the irusein structure determination.

**SEMESTER - IV**

**LABORATORY COURSE**

**Practical-Course –V Conductometric and Potentiometric Titrimetry**

**Paper Code: 20C4302B**

**Course outcomes:**

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. Apply concepts of electrochemistry in experiments
3. Be familiar with electro analytical methods and techniques in analytical chemistry which study an analyte by measuring the potential ( volts) and/or current ( amperes) in an electrochemical cell containing the analyte



## **Semester-V**

### **Course6-B: Analytical Methods in Chemistry-1**

**Paper Code: 20C53026B**

#### **I. Learning Outcomes:**

Students after successful completion of the course will be able to:

1. Identify the importance of solvent extraction and ion exchange method.
2. Acquire knowledge on the basic principles of volumetric analysis and gravimetric analysis.
3. Demonstrate the usage of common laboratory apparatus used in quantitative analysis.
4. Understand the theories of different types of titrations.
5. Gain knowledge on different types of errors and their minimization methods.

### **Course6-B: Analytical methods in chemistry-1-PRACTICALSYLLABUS**

**Paper Code: 20C53026BP**

#### **II. Learning Outcomes:**

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

1. Estimate Iron(II) using standard Potassium dichromate solution
2. Learn the procedure for the estimation of total hardness of water
3. Demonstrate the determination of chloride using Mohr's method
4. Acquire skills in the operation and calibration of pH meter
5. Perform the strong acid vs strong base titration using pH meter



## **Semester-V**

### **Course7-B: Analytical Methods in Chemistry-2**

**Paper Code: 20C53027B**

#### **I. Learning Outcomes:**

Students after successful completion of the course will be able to:

1. Identify the importance of chromatography in the separation and identification of compounds in a mixture
2. Acquire a critical knowledge on various chromatographic techniques.
3. Demonstrate skills related to analysis of water using different techniques.
4. Understand the principles of spectro chemistry in the determination of metal ions.
5. Comprehend the applications of atomic spectroscopy.

### **Course7-B: Analytical Methods in Chemistry-2- PRACTICAL SYLLABUS**

**Paper Code: 20C53027BP**

#### **V. Learning Outcomes:**

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

1. Perform the separation of a given dye mixture using TLC
2. Learn the preparation of TLC plates
3. Demonstrate the separation of mixture of amino acids using paper chromatography
4. Acquire skills in using column chromatography for the separation of dye mixture

# SRI MAHAYOGI LAKSHMAMMA GOVERNMENT DEGREE COLLEGE



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## DEPARTMENT OF COMPUTER SCIENCE

### ***COURSE OUTCOMES & PROGRAMME OUTCOMES***

Semester	Course Code	Course Title
I	C1	PRBLEM SOLVING IN C

#### **Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

1. Understand the evolution and functionality of a Digital Computer.
2. Apply logical skills to analyses a given problem
3. Develop an algorithm for solving a given problem.
4. Understand 'C' language constructs like Iterative statements, Array processing, Pointers, etc.
5. Apply 'C' language constructs to the algorithms to write a 'C' language program

Semester	Course Code	Course Title
II	C2	DATA STRUCTURES USING C

#### **Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

1. Understand available Data Structures for data storage and processing.
2. Comprehend Data Structure and their real-time applications - Stack, Queue, Linked List, Trees and Graph
3. Choose a suitable Data Structures for an application
4. Develop ability to implement different Sorting and Search methods
5. Have knowledge on Data Structures basic operations like insert, delete, search, update and traversal
6. Design and develop programs using various data structures
7. Implement the applications of algorithms for sorting, pattern matching etc

Semester	Course Code	Course Title
III	C3	DATABASE MANAGEMENT SYSTEMS

### Learning Outcomes:

On completing the subject, students will be able to:

1. Gain knowledge of Database and DBMS.
2. Understand the fundamental concepts of DBMS with special emphasis on relational data model.
3. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database
4. Model database using ER Diagrams and design database schemas based on the model.
5. Create a small database using SQL.
6. Store, Retrieve data in database.

Semester	Course Code	Course Title
IV	C4	OBJECT ORIENTATED PROGRAMMING THROUGH JAVA

### Learning Outcomes:

On completing the subject, students will be able to:

1. Understand the benefits of a well-structured program
2. Understand different computer programming paradigms
3. Understand underlying principles of Object-Oriented Programming in Java
4. Develop problem-solving and programming skills using OOP concepts
5. Develop the ability to solve real-world problems through software development in high-level programming language like Java

Semester	Course Code	Course Title
IV	C5	OPERATING SYSTEMS

### Learning Outcomes

On completing the subject, students will be able to:

1. Know Computer system resources and the role of operating system in resource management with algorithms
2. Understand Operating System Architectural design and its services.
3. Gain knowledge of various types of operating systems including Unix and Android.

4. Understand various process management concepts including scheduling, synchronization, and deadlocks.
5. Have a basic knowledge about multithreading.
6. Comprehend different approaches for memory management.
7. Understand and identify potential threats to operating systems and the security features design to guard against them.
8. Specify objectives of modern operating systems and describe how operating systems have evolved over time.
9. Describe the functions of a contemporary operating system

Semester	Course Code	Course Title
V	6A	Web Interface Designing Technologies

### Learning Outcomes

On completing the subject, students will be able to:

1. Understand and appreciate the web architecture and services.
2. Gain knowledge about various components of a website.
3. Demonstrate skills regarding creation of a static website and an interface to dynamic website.
4. Learn how to install word press and gain the knowledge of installing various plugins to use in their websites.

Semester	Course Code	Course Title
V	7A	Web Applications Development using PHP& MYSQL

### Learning Outcomes

On completing the subject, students will be able to:

1. Write simple programs in PHP.
2. Understand how to use regular expressions, handle exceptions, and validate data using PHP.
3. Apply In-Built functions and Create User defined functions in PHP programming.
4. Write PHP scripts to handle HTML forms.
5. Write programs to create dynamic and interactive web based applications using PHP and MYSQL.
6. Know how to use PHP with a MySQL database and can write database driven web pages.

## **PROGRAM OUTCOMES (POS)**

**The graduates of this degree program will:**

- PO 1: Understand the concepts of key areas in computer science.
- PO 2: Analyze and apply latest technologies to solve problems in the areas of computer applications.
- PO 3: Analyze and synthesis computing systems through quantitative and qualitative techniques
- PO 4: Apply technical and professional skills to excel in business.
- PO 5: Communicate effectively in both verbal and written form.
- PO 6: Develop practical skills to provide solutions to industry, society and business.
- PO 7: Enhances analytical, managerial and communication skill besides inculcating the virtues of self-study.
- PO 8: Develop skilled manpower in the various areas of software industry and Information Technology
- PO 9: Develop abilities for data analysis and interpretation Using ICT.
- PO 10: Develop the basic programming skills to enable students to build Utility programs.
- PO 11: Develop the foundation for higher studies in the field of Computer Application.
- PO 12: Impart comprehensive knowledge with equal emphasis on theory and practice.

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## DEPARTMENT OF BOTANY

### PROGRAMME OUTCOMES & COURSE OUTCOMES

#### Domain Subject Programme (B. Sc.) Outcomes:

1. Understand the basic concepts of Botany in relation to its allied core courses.
2. Perceive the significance of microbes and plants for human welfare, and structural and functional aspects of plants.
3. Demonstrate simple experiments related to plant sciences, analyze data, and interpret them with the theoretical knowledge.
4. Work in teams with enhanced inter-personal skills.
5. Develop the critical thinking with scientific temper.
6. Effectively communicate scientific ideas both orally and in writing

#### Domain Subject (Botany) Outcomes:

1. Students will be able to identify, compare and distinguish various groups of microbes and primitive plants based on their characteristics.
2. Students will be able to explain the evolution of tracheophytes and also distribution of plants on globe.
3. Students will be able to discuss on internal structure, embryology and ecological adaptations of plants, and want of conserving Biodiversity.
4. Students will be able to interpret life processes in plants in relation to physiology and metabolism.
5. Students will be able to describe ultra structure of plant cells, inheritance and crop improvement methods.
6. Students will independently design and conduct simple experiments based on the knowledge acquired in theory and practicals of the different sub-courses in Botany.

**RAYALASEEMA UNIVERSITY, KURNOOL**

**I Semester /Botany Core Course – 1**

**(Course Code: 20C1306)**

**Fundamentals of Microbes and Non-vascular Plants  
(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)**

**Course Outcomes for Theory:**

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

- Explain origin of life on the earth.
- Illustrate diversity among the viruses and prokaryotic organisms and can categorize them. Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles.
- Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.
- Recall and explain the evolutionary trends among amphibians of plant kingdom for their shift to land habitat.
- Evaluate the ecological and economic value of microbes, thallophytes and bryophytes.

**Course Outcomes for Practicals:**

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

- Demonstrate the techniques of use of lab equipment, preparing slides and identify the material and draw diagrams exactly as it appears.
- Observe and identify microbes and lower groups of plants on their own.
- Demonstrate the techniques of inoculation, preparation of media etc.
- Identify the material in the permanent slides etc.

## II Semester /Botany Core Course – 2

(Course Code: 20C2306)

### **Basics of Vascular plants and Phytogeography (Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and Phytogeography)**

#### **Course Outcomes for Theory:**

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

- Classify and compare Pteridophytes and Gymnosperms based on their morphology, anatomy, reproduction and life cycles.
- Justify evolutionary trends in tracheophytes to adapt for land habitat.
- Explain the process of fossilization and compare the characteristics of extinct and extant plants.
- Critically understand various taxonomical aids for identification of Angiosperms.
- Analyze the morphology of the most common Angiosperm plants of their localities and recognize their families.
- Evaluate the ecological, ethnic and economic value of different tracheophytes and summarize their goods and services for human welfare.
- Locate different phytogeographical regions of the world and India and can analyze their floristic wealth.

#### **Course Outcomes for Practicals:**

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

1. Demonstrate the techniques of section cutting, preparing slides, identifying of the material and drawing exact figures.
2. Compare and contrast the morphological, anatomical and reproductive features of vascular plants.
3. Identify the local angiosperms of the families prescribed to their genus and species level and prepare herbarium.
4. Exhibit skills of preparing slides, identifying the given twigs in the lab and drawing figures of plant twigs, flowers and floral diagrams as they are.
5. Prepare and preserve specimens of local wild plants using herbarium techniques.

### **III Semester /Botany Core Course – 3**

**(Course Code: 20C3306)**

#### **Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity**

##### **Course Outcomes for Theory:**

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

- Understand on the organization of tissues and tissue systems in plants.
- Illustrate and interpret various aspects of embryology.
- Discuss the basic concepts of plant ecology, and evaluate the effects of environmental and biotic factors on plant communities.
- Appraise various qualitative and quantitative parameters to study the population and community ecology.
- Correlate the importance of biodiversity and consequences due to its loss.
- Enlist the endemic/endangered flora and fauna from two biodiversity hot spots in India and assess strategies for their conservation.

##### **Course Outcomes for Practical:**

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

1. Get familiarized with techniques of section making, staining and microscopic study of vegetative, anatomical and reproductive structure of plants.
2. Observe externally and under microscope, identify and draw exact diagrams of the material in the lab.

Demonstrate application of methods in plant ecology and conservation of biodiversity and qualitative and quantitative aspects related to populations and communities of plants.

**IV Semester/ Botany Core Course –4**  
**(Course Code: 20C4306-A)**

**Plant Physiology and Metabolism**

**Course Outcomes for Theory:**

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

- Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants.
- Evaluate the role of minerals in plant nutrition and their deficiency symptoms.
- Interpret the role of enzymes in plant metabolism.
- Critically understand the light reactions and carbon assimilation processes responsible for synthesis of food in plants.
- Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms.
- Evaluate the physiological factors that regulate growth and development in plants. Examine the role of light on flowering and explain physiology of plants under stress conditions.

**Course outcomes for Practicals:**

- On successful completion of this practical course, students shall be able to:
  1. Conduct lab and field experiments pertaining to Plant Physiology, that is, biophysical and biochemical processes using related glassware, equipment, chemicals and plant material.
  2. Estimate the quantities and qualitative expressions using experimental results and calculations.
  3. Demonstrate the factors responsible for growth and development in plants.

## **IV Semester/ Botany Core Course – 5**

**(Course Code: 20C4306-B)**

### **Cell Biology, Genetics and Plant Breeding**

#### **Course Outcomes for Theory:**

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

- Distinguish prokaryotic and eukaryotic cells and design the model of a cell.
- Explain the organization of a eukaryotic chromosome and the structure of genetic material.
- Demonstrate techniques to observe the cell and its components under a microscope.
- Discuss the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings.
- Elucidate the role of extra-chromosomal genetic material for inheritance of characters.
- Evaluate the structure, function and regulation of genetic material.
- Understand the application of principles and modern techniques in plant breeding.
- Explain the procedures of selection and hybridization for improvement of crops.

#### **Course Outcomes for Practicals:**

After successful completion of this practical course the student shall be able to:

1. Show the understanding of techniques of demonstrating Mitosis and Meiosis in the laboratory and identify different stages of cell division.
2. Identify and explain with diagram the cellular parts of a cell from a model or picture and prepare models
3. Solve the problems related to crosses and gene interactions.
4. Demonstrate plant breeding techniques such as emasculation and bagging.

**V Semester/ Botany Core Course – 6C**

**(Course Code: 20C53066-C)**

**Course 6C: Plant Tissue Culture**

**Course Outcomes for Theory:**

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

1. Comprehend the basic knowledge and applications of plant tissue culture.
2. Identify various facilities required to set up a plant tissue culture laboratory.
3. Acquire a critical knowledge on sterilization techniques related to plant tissue culture.
4. Demonstrate skills of callus culture through hands on experience.
5. Understand the biotransformation technique for production of secondary metabolites.

**Course Outcomes for Practicals:**

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

1. List out, identify and handle various equipment in plant tissue culture lab.
2. Learn the procedures of preparation of media.
3. Demonstrate skills on inoculation, establishing callus culture and Micro propagation.
4. Acquire skills in observing and measuring callus growth.
5. Perform some techniques related to plant transformation for secondary Metabolite production.

**V Semester/ Botany Core Course – 7C**

**(Course Code: 20C53067-C)**

**Course 7C: Mushroom Cultivation**

**Course Outcomes for Theory:**

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

1. Understand the structure and life of a mushroom and discriminate edible and poisonous mushrooms.
2. Identify the basic infrastructure to establish a mushroom culture unit.
3. Demonstrate skills preparation of compost and spawn.
4. Acquire a critical knowledge on cultivation of some edible mushrooms.
5. Explain the methods of storage, preparation of value-added products and marketing.

**Course Outcomes for Practicals:**

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

1. Identify and discriminate different mushrooms based on morphology.
2. Understand facilities required for mushroom cultivation.
3. Demonstrate skills on preparation of spawn, compost and casing material.
4. Exhibit skills on various cultivation practices for an edible mushroom.

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**DEPARTMENT OF ZOOLOGY**

**PROGRAMME OUTCOMES & COURSE OUTCOME**

**Domain Subject Programme (B. Sc.,) Outcomes:**

“The domain subject “Zoology”, embracing the fields of Animal diversity, Cell biology, Genetics, evolution, Animal physiology, Biochemistry, Embryology, Immunology, Molecular biology and Ecology gives the student a broad understanding of faunal diversity, various life processes involved in the development of an animal, its functioning, its response to environmental stimuli, molecular basis of life, new technological approach towards life, an insight for the lecturer into research and responsibility of the student towards environment”.

**Program Outcomes (POs):**

The Learning Outcomes of the programme could be in consonance with the Bloom’s Taxonomy, which includes –

1. Remember (Lower order)
2. Understand (Lower Order)
3. Apply (Lower Order)
4. Analyze (Higher Order)

5. Evaluate & Problem Solving (Higher Order)
6. Create (Higher Order)

**PO1 Critical thinking:** Able to understand and utilize the principles of scientific enquiry, think analytically, clearly and evaluate critically while solving problems and making decisions during biological study.

**PO2 Effective communication:** Able to formally communicate Scientific ideas and investigations of the biology discipline to others using both oral and written communication skills.

**PO3 Social interaction:** Able to develop individual behaviour and influence society and social structure.

**PO4 Effective citizenship:** Able to work with a sense of responsibility towards social awareness and follow the ethical standards in the society.

**PO5 Ethics:** Ability to demonstrate and discuss ethical conduct in scientific activities. **PO6 Environment and Sustainability:** Able to understand the impact of biological science in societal and environmental contexts and demonstrate the knowledge for sustainable development.

**PO7 Self-directed and life-long learning:** Able to recognize the need of life-long learning and engage in research and self-education.

## Zoology Course Outcomes

	I	I		Animal Diversity – I Biology of Non-Chordates	CO1	To enable the students understand the knowledge of different areas of Invertebrates.
					CO2	To understand the life cycles and mode of reproduction in different invertebrates
					CO3	To understand the systemic and functional morphology of various groups of Invertebrates.
					CO4	To study the economic importance, affinities and adaptations of invertebrates
	II	II		Animal Diversity – II Biology of Chordates	CO1	To instill knowledge about various groups of chordates
					CO2	To acquire knowledge on the life cycles and mode of reproduction in different vertebrates
					CO3	To understand the systemic and functional morphology of various groups of chordates,
					CO4	To study their economic importance, affinities and adaptations
	III	III		Cytology, Genetics & Evolution	CO1	To learn the different types of cells
					CO2	To be able to identify the cell organelles and list out the cell organelles
					CO3	To know Mendel's laws and inter-relationship between organisms in population and communities
					CO4	To understand the concept of major evolutionary innovations in animal groups and functional significance of associated morphologies and behaviors.
	IV	IV		Animal physiology, Cellular metabolism and Embryology	CO1	To study the aspects of digestion, respiration and other physiological activities in mammals

					CO2	To learn the relationship among organisms in population and communities
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					CO 3	To study the population dynamics and population control and the importance of environment friendly practices.
					CO 4	To study the concepts of zoogeography and, zoogeographical importance of Indian subcontinent.
	V	V		Animal Biotechnology and Immunology	CO 1	To study the concepts of animal biotechnology including recombinant DNA technology, enzymes and vectors
					CO 2	To understand PCR, Cloning, Breeding, polyclones ,DNA sequencing, Hybridization techniques
					CO 3	To understand the recent techniques of line Stem cell culture, cell hybridoma and its applications
					CO 4	To understand the recent advances in animals and plants reproduction technology
					CO 5	To understand the recent advance in immunoglobulines
					CO 6	To get knowledge of the organs of Immune system, types of immunity, cells andorgans of immunity.
	V	VI		Livestock animals-I  VIB	CO 1	<ul style="list-style-type: none"> <li>• Select the suitable breeds of livestock for rearing</li> </ul>
					CO 2	<ul style="list-style-type: none"> <li>• Relate the anatomy of udder with let-down of milk</li> </ul>
					CO 3	<ul style="list-style-type: none"> <li>• Identify and manipulate the reproductive behaviour of cattle</li> </ul>

					CO 4	<ul style="list-style-type: none"> <li>• Inspect economics of dairy farming</li> </ul>
						<ul style="list-style-type: none"> <li>• Apprise the various breeding techniques employed in live stock</li> <li>•</li> </ul>
	VI	VII		Livestock animals -II VIIB	CO 1	<ul style="list-style-type: none"> <li>• Identify and suggest the suitable housing system for the dairy farming</li> </ul>
					CO 2	<ul style="list-style-type: none"> <li>• Understand management practices for the dairy farming</li> </ul>
					CO 3	<ul style="list-style-type: none"> <li>• Learn the process of milk pasteurization</li> </ul>
					CO 4	<ul style="list-style-type: none"> <li>• Prepare cream from milk</li> </ul>

