

**CO-PO MAPPING FOR**

**B.COM GENERAL &**

**(COMPUTER**

**APPLICATIONS)**

**(W. E. F2020-21)**

**DEPARTMENT OF COMMERCE**

**GOVT. DEGREE COLLEGE. PADERU**

## **GOVT.DEGREECOLLEGE PADERU**

### **Vision**

To become a centre of educational excellence for empowering in different fields of life by realizing their capabilities so that they can take their rightful place in the society.

### **Mission**

1. To inculcate the spirit of quality in higher education.
2. To trigger skills related to education and life.
3. To enhance physical well being.
4. To promote social awareness and community service.
5. To enlighten women empowerment.
6. To train the students for academic competition.

## **DEPARTMENT OF COMMERCE**

### **B.COM GENERAL & (COMPUTER APPLICATIONS)**

#### **VISION**

The department shall endeavour to promote entrepreneurial culture and develop accounting and managerial skills of the students to enable them to meet the challenges of contemporary business environment.

#### **MISSION**

- To impart professional education and training in the field of Commerce and Accounting.
- 7. To disseminate knowledge and information by organizing seminars/workshops/short term courses to enhance management and entrepreneurial skill.
- 8. To develop students for professional careers in accounting, finance, research and higher education.
- 9. To uphold the values of Personal Integrity and Social Responsibility.

## **DEPARTMENT OF COMMERCE**

### **B.COM GENERAL & (COMPUTER APPLICATIONS)**

#### **Programme Out comes (POs)**

10. Acquire a comprehensive understanding of domain-specific knowledge and demonstrate their acquired skills effectively during practical transactions within the specific domain.
11. Master effective communication, collaborate skillfully with diverse stakeholders, nurture meaningful dialogues, build strong professional bonds in and beyond college.
12. Exhibit proficiency in ethically using information from diverse sources, analyzing and synthesizing data effectively for real-world research.
13. Exemplify ethical standards in personal and professional contexts, appreciate diverse cultures, evaluate social responsibilities impact on well-being, and advocate for women students' betterment.
14. Actively promote social awareness through community service, contributing to a more inclusive and compassionate global community.
15. Embrace continuous learning, create professional growth chances, and prioritize personality development and physical well-being for a holistic approach.
16. 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)**

17. Understand the social impact of business and apply ethical considerations to technology-integrated business practices.
18. Acquire accounting knowledge and skills for effective financial management, utilizing computer applications for accurate record-keeping.
19. Develop entrepreneurial, managerial, and legal proficiencies, integrating computer application skills to enhance business operations.
20. Enhance communication abilities for successful interactions in business and personal contexts, guided by ethical principles
21. Develop competence in utilizing computer applications for data analysis and effective problem-solving within the context of Commerce and business applications.
22. Foster ethically aware and socially responsible business standards, while utilizing computer applications to streamline processes and make informed decisions.

**ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION**  
(A Statutory body of the Government of Andhra Pradesh)

**CBCS – UG SYLLABUS SUBJECT REVIEW COMMITTEE**  
(To be implemented from the Academic Year 2020-21)

**PROGRAMME: Three-Year BCom** (General and Computer Applications)

**Domain Subject: Commerce**

*(Syllabus with Outcomes, Co-curricular Activities, References for Fifteen Courses of 1, 2, 3 & 4 Semesters)*

**Structure of COMMERCE Syllabus under CBCS for 3-year B Com Programme (with domain subject covered during the first 4 Semesters with 15 Courses)**

Sl. No	Code	Sem	Courses	Name of Course (Each Course consists 5 Units with each Unit having 12 hours of class-work)	Hours/Week	Credits	Marks	
							Mid Sem	Sem End
1		I	1A	Fundamentals of Accounting (Gen & CA)	5	4	25	75
2		I	1B	Business Organization and Management (Gen & CA)	5	4	25	75
3		I	1C	Business Environment (Gen)/ Information Technology (CA)	5	4	25	75
4		II	2A	Financial Accounting (Gen & CA)	5	4	25	75
5		II	2B	Business Economics (Gen & CA)	5	4	25	75
6		II	2C	Banking Theory & Practice (Gen) / E-commerce and Web Designing (CA)	5	4	25	75
7		III	3A	Advanced Accounting (Gen & CA)	5	4	25	75
8		III	3B	Business Statistics (Gen & CA)	5	4	25	75
9		III	3C	Marketing (Gen)/ Programming with C & C++ (CA)	5	4	25	75
10		IV	4A	Corporate Accounting (Gen & CA)	5	4	25	75
11		IV	4B	Cost and Management Accounting (Gen & CA)	5	4	25	75
12		IV	4C	Income Tax (Gen & CA)	5	4	25	75
13		IV	4D	Business Laws (Gen & CA)	5	4	25	75
14		IV	4E	Auditing (Gen & CA)	5	4	25	75
15		IV	4F	Goods and Service Tax (Gen)/ Data Base Management System (CA)	5	4	25	75
<b>Total</b>					<b>75</b>	<b>60</b>	<b>375</b>	<b>1125</b>

(Gen & CA) B Com (General) and B Com (Computer Applications)

## **Course1A: Fundamentals of Accounting**

### **COURSEOUTCOMES**

**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.**

23. Comprehension: Understand the need and objectives of accounting.
24. Comprehension: Explain the fundamental accounting concepts and conventions.
25. Comprehension: Describe the significance of Generally Accepted Accounting Principles (GAAP) in financial reporting.
26. 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.**

27. Application: Apply the principles of double-entry book keeping to record transactions accurately.
28. Comprehension: Differentiate between different types of subsidiary books.
29. Application: Record transactions in a Cash Book, Three –column Cash Book, and Petty Cash Book.
30. 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.**

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

**CO-PO Mapping**

<b>CO. No.</b>	<b>Upon the successful completion of the course, students will be able to</b>	<b>POs mapped</b>	<b>Cognitive Level</b>
CO- 1	Understand the fundamental principle and concepts of accounting, including Generally Accepted Accounting Principles (GAAP), and apply them to analyze financial transactions and maintain accurate records.	PO1,PO2	L1,L2,L3, L4
CO- 2	Demonstrate proficiency in double-entry book keeping, subsidiary book keeping, and the Preparation of financial statements including the ability to identify and rectify errors and discrepancies in financial records.	PO1,PO2, PO5	L1,L2,L3, L4, L5, L6
CO- 3	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.	PO1,PO2, PO3, PO5	L1,L2,L3, L4, L5, L6

**Mapping Cos to Pos :Alignment on a Three-Point Scale from Weak to Strong**

<b>CO</b>	<b>PO</b>							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	3	2	2	1		1	1
CO2	3	3	2	2	3		1	1
CO3	3	3	3	2	3		1	1

## Course1B:Business Organization and Management

### COURSEOUTCOMES

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

35. Knowledge: Demonstrate knowledge of the meaning, features, and functions of business.
36. 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:

37. Analysis: Analyze the features, merits , and demerits of sole proprietorship, partnership, and joint stock companies.
38. 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:

39. 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.
40. Knowledge: Understand the contents and legal requirements of prospectus for a company.

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

41. Comprehension: Explain the meaning, characteristics, and differences between administration and management.
42. Knowledge: Demonstrate knowledge of Fayol's 14 principles of management and the levels of management.
43. Evaluation: Assess the merits and demerits of planning, and understand the principles of organization and the concept of line and staff organization.

#### CO- PO Mapping

CO. No.	Upon the successful completion of the course, students will be able to	Pos mapped	Cognitive Level
CO- 1	Understand the concepts and functions of business	PO1,PO2, PO3,PO6, PO8	L1,L2,L3, L4
CO- 2	Compare and evaluate different forms of business organizations	PO1,PO2, PO5, PO8	L3,L4,L5, L6

CO- 3	Demonstrate knowledge of company incorporation procedures	PO3,PO4, PO5	L3,L4,L5, L6
CO- 4	Understand the principles and functions of management	PO1,PO4, PO7, PO8	L3,L4,L5, L6

***Mapping Cos to POs: Alignment on a Three-Point Scale from Weak to Strong***

CO	PO							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	2		1	2	1	2
CO2	2	3	1		2	1	1	2
CO3	1	1	3	2	1	2		1
CO4	2		1	3	1		3	2

## Course3A: Advanced Accounting

### COURSE OUTCOMES

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

44. Knowledge and Understanding: Acquire a comprehensive understanding of non-profit entities, including their meaning, features, and provisions as per Sec 8.
45. Comprehension: Explain the accounting process of 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

46. Knowledge and Understanding: Understand the features of the single entry system and the differences between single entry and double entry systems.
47. 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

48. Knowledge and Understanding: Comprehend the features of the hire purchase system and the differences between hire purchase and installment purchase systems.
49. 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

50. Knowledge and Understanding: Understand the meaning of partnership, partnership deeds, and fixed and fluctuating capitals in partnership accounts.
51. 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.

#### CO-PO Mapping

CO. No.	Upon the successful completion of the course, students will be able to	Pos mapped	Cognitive Level
CO- 1	Understanding of Accounting for Non-Profit Organizations	PO1,PO2, PO5	L1,L2,L3, L4, L5, L6
CO- 2	Knowledge of Single Entry System and Statement of Affairs	PO1,PO2	L1,L2,L3, L4, L5, L6
CO- 3	Familiarity with Hire Purchase System	PO1,PO2	L1,L2,L3, L4
CO- 4	Understanding of Partnership Accounts	PO1,PO2, PO5	L1,L2,L3, L4, L5, L6

**Mapping Cos to POs: Alignment on a Three -Point Scale from Weak to Strong**

CO	PO							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	1	1	2	1	1	1
CO2	3	2	1				1	1
CO3	3	2	1	1			1	1
CO4	3	2	1	1	2	1	1	1

## Course3 B: Business Statistics

### COURSEOUTCOMES

#### CO1: Understanding of Basic Concepts in Statistics

52. Knowledge and Understanding: Define statistics and explain its importance, characteristics, and limitations. Understand the classification and tabulation of data and the construction of frequency distribution tables. Comprehend the use of diagrams and graphic presentation of data.

#### CO2: Proficiency in Measures of Central Tendency

53. Knowledge and Understanding: Identify the different types of averages and understand the qualities of a good average. Calculate and interpret measures of central tendency such as mean, median, mode, and median-based averages. Calculate geometric mean and harmonic mean.

#### CO3: Competency in Measures of Dispersion

54. Knowledge and Understanding: Define dispersion and its properties. Differentiate between absolute and relative measures of dispersion. Calculate and interpret measures of dispersion such as range, quartile deviation (semi-inter quartile range), mean deviation, standard deviation, and coefficient of variation.

#### CO4: Application of Correlation and Skewness Analysis

55. Application: Apply the concept of correlation to Analyze the relationship between variables. Calculate and interpret Karl Pearson's correlation coefficient .Understand and interpret measures of skewness including absolute measures and coefficients of skewness (Karl Pearson's, Bowley's, and Kelly's). Use these measures to analyze and describe the shape and distribution of data.

#### CO-PO Mapping

CO. No.	Upon the successful completion of the course, students will be able to	Pos mapped	Cognitive Level
CO- 1	Understanding of Basic Concepts in Statistics	PO1,PO2,	L1,L2,L3, L4
CO- 2	Proficiency in Measures of Central Tendency	PO1,PO2	L1,L2,L3, L4
CO- 3	Competency in Measures of Dispersion	PO1,PO2	L1,L2,L3, L4
CO- 4	Application of Correlation and Skewness Analysis	PO1,PO2, PO5, PO7	L1,L2,L3, L4, L5, L6

***Mapping COs to POs: Alignment on a Three –Point Scale from Weak to Strong***

CO	PO							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	1	1	1	1	1	1
CO2	3	2	1	1			1	1
CO3	3	2	1	1			1	1
CO4	2	2	1	1	2		2	1

## Course4 A: Corporate Accounting

### COURSEOUTCOMES

#### CO1: Understanding Share Capital and Debenture Accounting

56. 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 re issue of shares. Describe the accounting treatment for the issue and redemption of debentures.

#### CO2 : Applying Valuation Methods for Goodwill

57. 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. Analyze and interpret the results of the valuation methods.

#### CO3: Valuing Shares using Various Methods

58. 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. Analyze and interpret the valuation results.

#### CO4: Preparation of Company Final Accounts

59. 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. Analyze and interpret the financial statements.

#### CO-PO Mapping

CO. No.	Upon the successful completion of the course, students will be able to	Pos mapped	Cognitive Level
CO- 1	Understanding Share Capital and Debenture Accounting	PO1,PO2, PO3	L1,L2,L3, L4
CO- 2	Applying Valuation Methods for Goodwill	PO1,PO2, PO3	L1,L2,L3, L4,
CO- 3	Valuing Shares using Various Methods	PO1,PO2	L1,L2,L3, L4,
CO- 4	Preparation of Company Final Accounts	PO1,PO2, PO4	L1,L2,L3, L4, L5, L6

***Mapping COs to POs: Alignment on a Three-Point Scale from Weak to Strong***

CO	PO							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	2	1	1	1	1	1
CO2	3	2	2	1	1	1	1	1
CO3	3	2	1	1	1	1	1	1
CO4	3	2	1	2			1	1

## Course 4B : Cost and Management Accounting

### COURSE OUT COMES

#### CO1: Understanding Cost Accounting and Management Accounting

60. 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: Analyzing Material and Labour Costs

61. 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. Analyze and calculate wages using various payment methods. Solve problems related to material and labour costs.

#### CO3: Applying Job Costing and Batch Costing

62. 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

63. Analysis and Evaluation: Understand the features, limitations, and objectives of financial statement analysis. Apply comparative analysis, common-size analysis, and trend analysis to analyze 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 costing.

#### CO-PO Mapping

CO. No.	Upon the successful completion of the course, students will be able to	Pos mapped	Cognitive Level
CO- 1	Understanding Cost Accounting and Management Accounting	PO1,PO2	L1,L2,L3, L4
CO- 2	Analyzing Material and Labour Costs	PO1,PO2, PO3, PO4	L1,L2,L3, L4, L6
CO- 3	Applying Job Costing and Batch Costing	PO1,PO2, PO3, PO4	L1,L2,L3, L4, L6

CO- 4	Interpreting Financial Statements and Using Marginal Costing	PO1,PO2, PO4	L1,L2,L3, L4, L6
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***Mapping Cos to POs: Alignment on a Three-Point Scale from Weak to Strong***

CO	PO							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	1	1	1	1	1	1
CO2	3	3	2	2	1	1	1	1
CO3	3	3	2	2	1	1	1	1
CO4	3	2	1	3			1	1

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

### **CO1: Understanding the Basic Concepts of Income Tax**

64. 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: Analyzing Income from Salaries**

65. Application and Analysis: Understand the basis of charge for income from salaries. Analyze 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**

66. 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: Analyzing Income from Capital Gains and Other Sources, and Computation of Total Income**

67. 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.

### CO-PO Mapping

CO. No.	Upon the successful completion of the course, students will be able to	Pos mapped	Cognitive Level
CO- 1	Understanding the Basic Concepts of Income Tax	PO1,PO2	L1,L2,L3, L4
CO- 2	Analyzing Income from Salaries	PO1,PO2	L1,L2,L3, L4
CO- 3	Evaluating Income from House Property and Profits and Gains from Business	PO1,PO2	L1,L2,L3, L4
CO- 4	Analyzing Income from Capital Gains and Other Sources, and Computation of Total Income	PO1,PO2, PO4	L1,L2,L3, L4, L5, L6

### *Mapping Cos to Pos :Alignment on a Three-Point Scale from Weak to Strong*

CO	PO							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2			1	1		
CO2	3	3	1		1		1	1
CO3	3	3	2	2	2		2	1
CO4	3	2		2	1		1	1

## Course 4D: Business Law

### COURSE OUTCOMES

#### CO1: Understanding the Concept and Elements of Contract

68. 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: Analyzing Offer, Acceptance, and Consideration

69. Application and Analysis: Define and analyze 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

70. Evaluation and Synthesis: Understand the rules regarding contracts with minors and their capacity to enter into contracts. Analyze the rules relating to contingent contracts. Examine different modes of contract discharge. Evaluate the rules relating to remedies for breach of contract.

#### CO4: Analyzing Sale of Goods Act and Consumer Protection Act

71. 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. Analyze 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.

#### CO-PO Mapping

CO. No.	Upon the successful completion of the course, students will be able to	Pos mapped	Cognitive Level
CO- 1	Understanding the Concept and Elements of Contract	PO1,PO2, PO5	L1,L2,L3, L4, L5, L6
CO- 2	Analyzing Offer, Acceptance, and Consideration	PO1,PO2, PO3	L1,L2,L3, L4
CO- 3	Evaluating Capacity of Parties and Contingent Contracts	PO1,PO2, PO3,PO4, PO5, PO7	L1,L2,L3, L4, L5, L6
CO- 4	Analyzing Sale of Goods Act and consumer Protection Act	PO1,PO2, PO4	L1,L2,L3, L4, L5, L6

**Mapping Cos to POs: Alignment on a Three-Point Scale from Weak to Strong**

CO	PO							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2		1	2	1	1	1
CO2	3	2	2	1	1		1	1
CO3	3	3	2	2	2		2	1
CO4	3	3	1	2	1		1	1

## **Course5A: Advertising and Media Planning**

### **COURSEOUTCOMES**

#### **CO1: Understanding the Nature and Impact of Advertising**

72. Recall and Understand : Define advertising and remember its nature ,scope, and functions.
73. Analyze and Evaluate: Examine the impact to advertising on social, ethical ,and economic aspects.
74. Understand and Apply: Recognize the significance of advertising as a marketing tool for promoting business development.
75. Analyze and Evaluate: Critically assess criticisms and controversy essure rounding advertising.

#### **CO2: Exploring Strategies and Approaches in Advertising**

76. Apply and Analyze: Apply knowledge of different types of advertising agencies and Analyze their strategies.
77. Understand and Apply: Define the objectives and apply approaches used in creating advertisements.
78. Analyze and Evaluate: Evaluate the effectiveness of the campaigning process in advertising.
79. Understand and Apply: Apply understanding of the role of Advertising Standard Council of India (ASCI) and the DAGMAR approach in advertising.

#### **CO3: Mastering the Creative Process in Advertising**

80. Apply and Synthesize: Apply creative thinking and communication skills in designing advertisements.
81. Understand and Apply: Apply the creative process, including appeals and copywriting, to develop advertisements.
82. Analyze and Synthesize: Analyze issues related to effective advertising copy and slogans.
83. Apply and Create: Create visually appealing advertisements by applying principles of design and elements of design.

#### **CO4: Planning and Executing Media Strategies**

84. Analyze and Evaluate: Evaluate the role and impact of advertising media and types of media.

85. Evaluate and Create: Create a media planning strategy by evaluating advantages and disadvantages of different media.
86. Analyze and Apply: Apply market analysis techniques to identify target audiences, influencing factors, and language and geographical considerations.
87. Analyze and Evaluate: Critically Analyze the effectiveness of media choices and market strategies through case studies.

### CO-PO Mapping

CO. No.	Upon the successful completion of the course, students will be able to	Pos mapped	Cognitive Level
CO- 1	Understanding the Nature and Impact of Advertising.	PO1,PO5	L1,L2,L5, L6
CO- 2	Exploring Strategies and Approaches in Advertising.	PO1,PO2, PO3,PO4	L1,L2,L3, L4
CO- 3	Mastering the Creative Process in Advertising.	PO1,PO2	L1,L2,L3, L4
CO- 4	Planning and Executing Media Strategies.	PO1,PO2	L1,L2,L3, L4

### *Mapping Cos to POs: Alignment on a Three-Point Scale from Weak to Strong*

CO	PO							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	1	1	1	2	1	1	1
CO2	2	3	2	2	1		1	1
CO3	2	3	1	1	1		1	1
CO4	2	3	1	1	1		1	1

## **Course 5B: Sales Promotion And Practice**

### **COURSEOUTCOMES**

#### **CO1: Understand and Analyze Sales Promotion Concepts**

88. Understand and Analyze: Explain the nature, scope, and functions of sales promotion.
89. Analyze and Evaluate: Assess the impact of social, ethical, and economic aspects on sales promotion strategies.
90. Apply and Evaluate : Evaluate the strengths and limitations of different sales promotion methods.
91. Analyze and Synthesize : Examine the role of sales promotion with in the broader marketing context.

#### **CO2: Apply Strategies for Effective Sales Promotion**

92. Apply and Analyze :Apply various sales promotion strategies based on types of advertising agencies and their approaches.
93. Analyze and Evaluate: Evaluate the suitability of sales promotion methods across different stages of the product life cycle.
94. Analyze and Synthesize: Analyze the role of advertising standard regulations in shaping sales promotion strategies.
95. Analyze and Evaluate: Evaluate the effectiveness of DAGMAR approach in developing successful sales promotion campaigns.

#### **CO3: Developing Promotion Strategies and Campaign**

96. Apply and Analyze: Apply creative thinking and communication techniques in designing appealing advertisements.
97. Analyze and Evaluate : Evaluate the impact of different appeals and copywriting strategies in sales promotion.
98. Apply and Create : Develop effective sales promotion campaign by applying principles of design and creativity.
99. Analyze and Evaluate: Assess the ethical and legal implications of various promotional strategies in advertising.

#### **CO4: Manage Sales Operations and Enhance Sales Force**

100. Apply and Analyze: Apply strategies for managing various types of salesmen and their roles.

101. Apply and Analyze: Apply sales techniques like prospecting, pre-approach ,and selling sequence.
102. Analyze and Evaluate: Evaluate the impact of sales budgets, territories, and quotas in effective sales operations.
103. Analyze and Evaluate: Assess the role of sales contests, coupons, discounts, and free offers in motivating sales personnel.

### CO- PO Mapping

CO. No.	Upon the successful completion of the course, students will be able to	Pos mapped	Cognitive Level
CO- 1	Understand and Analyse Sales Promotion Concepts	PO1,PO2, PO3,PO5, PO6	L1,L2,L3, L4, L5, L6
CO- 2	Apply Strategies for Effective Sales Promotion.	PO1,PO2, PO3, PO4, PO5	L1,L2,L3, L4, L5, L6
CO- 3	Developing Promotion Strategies and Campaigns.	PO1,PO2, PO3, PO5,	L1,L2,L3, L4, L5, L6
CO- 4	Manage Sales Operations and Enhance Sales Force	PO1,PO2, PO4, PO5	L1,L2,L3, L4

### *Mapping COs to POs: Alignment on a Three-Point Scale from Weak to Strong*

CO	PO							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	2	1	2	2	1	1
CO2	3	2	2	2	2			1
CO3	3	2	2	1	2	1		1
CO4	3	2		2	2			1

## **Course 16-A: Advanced corporate accounting**

### **CO1: purchase of business**

- 104. Knowledge and Comprehension: meaning –purchase consideration
- 105. Comprehension and Application: methods of purchase consideration
- 106. Analysis and Evaluation: discharge of purchase consideration
- 107. Evaluation and Synthesis: accounting treatment

### **CO2 : amalgamation of companies**

- 108. Application and Analysis: meaning and objectives
- 109. Analysis and Evaluation: provisions for amalgamation of companies
- 110. Analysis and Synthesis: accounting standard 14
- 111. Synthesis: accounting treatment

### **CO3: internal re construction of companies**

- 112. Understanding and Application: meaning forms of internal reconstruction
- 113. Application and Analysis: alteration of share capital
- 114. Analysis and Evaluation: reduction of share capital
- 115. Evaluation and Synthesis: accounting treatment

### **CO4: accounts of holding companies**

- 116. Understanding and Application: meaning of holding companies and subsidiary companies
- 117. Application and Analysis: consolidated financial statements

118. Analysis and Evaluation: calculation of minority interest  
 119. Application and Synthesis: accounting treatment

**CO-PO Mapping**

CO. No.	Upon the successful completion of the course, students will be able to	Pos mapped	Cognitive Level
CO- 1	Understanding purchase consideration	PO1,PO2, PO3,PO5, PO6	L1,L2,L3, L4, L5, L6
CO- 2	Analyzing Financial statements	PO1,PO2,	L1,L2,L3, L4
CO- 3	Forms of internal reconstruction	PO1,PO2, PO4	L1,L2,L3, L4, L5, L6
CO- 4	Holding company subsidiary companies	PO1,PO2, PO4	L1,L2,L3, L4, L6

**Mapping COs to POs: Alignment on a Three-Point Scale from Weak to Strong**

CO	PO							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	2	1	2	2	1	1
CO2	2	3	1	1				1
CO3	2	3	1	2	1	1		1
CO4	2	3	1	2	1			1

## **Course 5D: Cost Control Techniques**

### **COURSEOUTCOMES**

#### **CO1: Under stand Cost Control Fundamentals and Techniques**

120. Knowledge and Understanding: Define cost control and its significance .Recognize effective cost control techniques.
121. Application: Apply cost control techniques to manage expenses in various business scenarios.
122. Analysis: Compare and contract cost control and cost reduction, and explain their scopes and differences.

#### **CO2: Apply Activity Based Costing (ABC) for Overhead Allocation**

123. Understand ingand Application: Explain the concept of Activity Based Costing (ABC) and its categories.
124. Application: Allocate over heads using ABC methodology to enhance cost allocation accuracy.
125. Analysis: Assess the advantages of implementing ABC for cost reduction and improved decision-making.

#### **CO3: Analysis using Cost Volume Profit (CVP) Analysis**

126. Application: Apply marginal costing techniques for profit planning and decision-making scenarios.
127. Analysis: Evaluate performance using CVP analysis and its role in key decisions like setting selling prices.
128. Synthesis: Synthesize information to make informed decisions institutions like make or buy, accept or reject, and closing activities.

#### **CO: Implementing Standard Costing and Variance Analysis Techniques**

129. Application and Analysis: Apply standard costing methodologies to calculate standard costs for various components within a business process.
130. Analyze and Evaluate: Analyse the variance between actual costs and standard costs to identify areas of operational inefficiency or cost overruns.
131. Synthesis: Synthesize insights from variance analysis to recommend strategies forcost control and performance improvement.

## CO-PO Mapping

CO. No.	Upon the successful completion of the course, students will be able to	Pos mapped	Cognitive Level
CO- 1	Understand Cost Control Fundamentals and Techniques	PO1,PO2, PO3,PO5, PO6	L1,L2,L3, L4, L5, L6
CO- 2	Apply Activity Based Costing(ABC)for Overhead Allocation	PO1,PO2,	L1,L2,L3, L4
CO- 3	Analysis using Cost Volume Profit(CVP) Analysis	PO2,PO4	L3,L4,L6
CO- 4	Implementing Standard Costing and Variance Analysis Techniques	PO2,PO4	L3,L4,L6

### *Mapping COs to POs: Alignment on a Three-Point Scale from Weak to Strong*

CO	PO							
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	2	1	2	2	1	1
CO2	2	3	1	1	1			1
CO3		3	1	2				1
CO4	1	3		2	1			1

# ANDHRAPRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

REVISED UG SYLLABUS UNDER CBCS

(Implemented from Academic Year 2020-21)

PROGRAMME: FOUR YEAR B.Com.(Hons)

Domain Subject: Commerce

*Skill Enhancement Courses (SECs) for Semester V, from 2022-23 (Syllabus with Learning Outcomes, References, Co-curricular Activities & Model Q.P. Pattern)*

## Structure of SECs for Semester-V

*(To choose Three pairs from the Nine alternate pairs of SECs)*

*(For each SEC: Hours/Week:05, Credits:4, Max Marks:100)*

Pairs of Skill Enhancement Courses (SEC) under each series in Commerce for Semester-V.

Course No.	Series-A:Accountancy	Course No.	Series-B:Services	Course No.	Series-C:E commerce
	Course Name		Course Name		Course Name
16-A	Advanced Corporate Accounting	16-B	Advertising and Media Planning	16-C	Digital Marketing
17-A	Software Solutions to Accounting	17-B	Sales Promotion And Practice	17-C	Service Marketing
18-A	Management Accounting	18-B	Logistics Services And Practice	18-C	Income Tax Procedure & Practice
19-A	Cost Control Techniques	19-B	EXIM Procedure And practice	19-C	GST Procedure & Practice
20-A	Stock Markets	20-B	Life Insurance with Practice	20-C	E Commerce
21-A	Stock Market Analysis	21-B	General Insurance with practice	21-C	E filing



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# DEPARTMENT OF PHYSICS

## Course Outcomes



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## Course 1: Mechanics, Waves and Oscillations

- 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.
- Apply the rotational kinematic relations, the principle and working of gyroscope and its applications and the precessional motion of a freely rotating symmetric top.
- Comprehend the general characteristics of central forces and the application of Kepler's laws to describe the motion of planets and satellites in circular orbit through the study of the law of Gravitation.
- Understand postulates of Special theory of relativity and its consequences such as length contraction, time dilation, relativistic mass and mass-energy equivalence.
- 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.
- 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.
- 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.



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## Course 2: Wave Optics

- 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.
- Distinguish between Fresnel's diffraction and Fraunhofer diffraction and observe the diffraction patterns in the case of single slit and the diffraction grating.
- Describe the construction and working of the zone plate and make the comparison of the zone plate with a convex lens.
- Explain the various methods of production of plane, circularly and polarized light and their detection and the concept of optical activity..
- Comprehend the basic principle of laser, the working of He-Ne laser and Ruby lasers and their applications in different fields.
- Explain about the different aberrations in lenses and discuss the methods of minimizing them.
- Understand the basic principles of fibreoptic communication and explore the field of Holography and Nonlinear optics and their applications.



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## Course 3: Heat and Thermodynamics

- 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 gas.
- 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.
- Understand the working of Carnot's ideal heat engine, Carnot cycle and its efficiency
- Develop critical understanding of the concept of Thermodynamic potentials, the formulation of Maxwell's equations and its applications.
- Differentiate between principles and methods to produce low temperature and liquefy air and also understand the practical applications of substances at low temperatures.
- Examine the nature of black body radiation and the basic theories.



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## Course 4: Electricity, Magnetism and Electronics

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



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## Course 5: Modern Physics

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



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## Course 6B: Low Temperature Physics & Refrigerator

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

## Course 7B: Solar Energy and Applications

- Understand Sun structure, forms of energy coming from the Sun and its measurement.
- Acquire critical knowledge on the working of thermal and photovoltaic collectors.
- Understand testing procedures and fault analysis of thermal collectors and PV modules.
- Comprehend applications of thermal collectors and PV modules.

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Visakhapatnam



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## **DEPARTMENT OF PHYSICS**

### **Programme Outcomes**



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PO1	Acquire a comprehensive understanding of domain-specific knowledge and demonstrate their acquired skills effectively during practical transactions within the specific domain.
PO2	Demonstrate proficient analytical and problem-solving skills through the application of critical thinking strategies to address real-world situations effectively.
PO3	Master effective communication, collaborate skillfully with diverse stakeholders, nurture meaningful dialogues, build strong professional bonds in and beyond college.
PO4	Exhibit proficiency in ethically using information from diverse sources, analyzing and synthesizing data effectively for real-world research.
PO5	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.
PO6	Actively promote social awareness through community service, contributing to a more inclusive and compassionate global community.
PO7	Embrace continuous learning, create professional growth chances, and prioritize personality development and physical well-being for a holistic approach.
PO8	Foster self-confidence, advocate women empowerment, demonstrates expertise for growth in studies, employment, and entrepreneurship, creating a brighter and equitable future.

  
PRINCIPAL

Govt. Degree College  
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Visakhapatnam

**GOVERNMENT DEGREE COLLEGE  
PADERU**

**DEPARTMENT OF BOTANY**

**Course Out Comes**



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## Course Outcomes

### **I Semester /Botany Core Course - 1 Fundamentals of Microbes and Non-vascular Plants (Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)**

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

### **II Semester /Botany Core Course – 2 Basics of Vascular plants and Phytogeography (Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and Phytogeography)**

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.

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

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

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.

### **IV Semester/ Botany Core Course – 4**

#### **Plant Physiology and Metabolism**

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.
- Analyse 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.

**IV Semester / Botany Core Course –5**  
**Cell Biology, Genetics and Plant Breeding**

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

**Domain Subject: BOTANY**  
**IV Year B. Sc.– Semester – V**  
**Course-6A: Plant Propagation**  
**(Skill Enhancement Course (Elective))**

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

- Explain various plant propagation structures and their utilization.
- Understand advantages and disadvantages of vegetative, asexual and sexual plant propagation methods.
- Assess the benefits of asexual propagation of certain economically valuable plants using apomictics and adventive polyembryony.
- Demonstrate skills related to vegetative plant propagation techniques such as cuttings, layering, grafting and budding.
- Apply a specific macro-propagation technique for a given plant species.

**Domain Subject: BOTANY**  
**IV Year B. Sc. (Hons) – Semester – V**  
**Course-7A: Seed Technology**  
**(Skill Enhancement Course (Elective))**

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

- Explain the causes for seed dormancy and methods to break dormancy.
- Understand critical concepts of seed processing and seed storage procedures.
- Acquire skills related to various seed testing methods.
- Identify seed borne pathogens and prescribe methods to control them.
- Understand the legislations on seed production and procedure of seed certification

**Domain Subject: BOTANY**  
**IV Year B. Sc.– Semester – V**  
**Course 6B: Vegetable Crops – Cultivation**  
**Practices (Skill Enhancement Course (Elective))**

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

- Identify different vegetable plants and realize their value in human nutrition.
- Analyse the types of soils to cultivate vegetable crops.
- Demonstrate skills on agronomic practices for cultivation of vegetable crops.
- Acquire knowledge on water, weed and disease managements in vegetable farming.
- Comprehend aspects related to harvesting and storage of produce.

**Domain Subject: BOTANY**  
**IV Year B. Sc.– Semester – V**  
**Course 7B: Vegetable Crops – Post Harvest Practices**  
**Practices**  
**(Skill Enhancement Course (Elective))**

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

- Understand various practices for vegetable produce from harvesting to marketing.
- Demonstrate skills on storage, processing and preservation of vegetables.

- Summarize causes for spoilage of vegetables before and during storage and methods to prevent and control them.
- Make use of preservation methods to reduce the loss of vegetable produce.
- Explain about value added products, packaging and marketing of vegetables.

**Domain Subject: BOTANY**  
**IV Year B. Sc. – Semester – V**  
**Course 6C: Plant Tissue Culture (Skill Enhancement Course (Elective))**

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

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

**Domain Subject: BOTANY**  
**IV Year B. Sc. – Semester – V**  
**Course 7C: Mushroom Cultivation (Skill Enhancement Course (Elective))**

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

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



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**Commissionerate of Collegiate Education , Government of Andhra Pradesh**  
**Community Service Project (CSP)**

**NAME OF THE MENTOR : P. CHANDRA SEKHAR**

Sno	Zone	District	College Name	Details of the Lecturer / Mentor Allotted for Community Service Project			Student details							Details of the Community Service Project (CSP)			
				Name	Subject	Type of Lecturer	Regd. No.	NAME	Year	Gender	Mobile Number	Program studying ( BA/B.Com/B.Sc etc., )	Program Combination	Name of the CSP	Pice - Village/Ward	Mandal / Municipality	
1	A	L	G D C, PADERU	P. CHANDRA SEKHAR	PHYSICS	CONTRACT FACULTY	722125405048	BADNANI GOVINDA SWAMY	2	M		B.Sc	MATHS, PHYSICS, COMPUTER SCIENCE	ACCESS TO SAFE DRINKING WATER	PADERU	PADERU	
2							722125405049	BHEEMAVARAPU RAMYYA SRI	2	ND	F				B.Sc	PADERU	PADERU
3							722125405050	D. M. K. RAMA LAKSHMI	2	ND	F				B.Sc	PADERU	PADERU
4							722125405052	DODDI KAVYA	2	ND	F				B.Sc	PADERU	PADERU
5							722125405053	GADDALA GAYATHRI	2	ND	F				B.Sc	PADERU	PADERU
6							722125405054	GOMANGI PAVAN KALYAN	2	ND	M				B.Sc	PADERU	PADERU
7							722125405055	GOMANGI SARASWATHI	2	ND	F				B.Sc	PADERU	PADERU
8							722125405056	JARSINGI RAJITHA	2	ND	F				B.Sc	PADERU	PADERU
9							722125405057	KARUGONDA ESWARA RAO	2	ND	M				B.Sc	PADERU	PADERU
10							722125405058	KARUGONDA POOJA	2	ND	F				B.Sc	PADERU	PADERU
11							722125405059	KATARI DEVA YANI	2	ND	F				B.Sc	PADERU	PADERU
12							722125405060	KILLO RATNA KUMARI	2	ND	F				B.Sc	PADERU	PADERU
13							722125405062	KILLUDU VIJAY	2	ND	M				B.Sc	PADERU	PADERU

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Sl No	Name	Roll No	Grade	Sex	Date	Subject	Marks	Remarks	Signature	Date	Signature	Date
14	M	722125405063	KODA SANTOSH	2	ND	M		B.Sc			PADERU	PADERU
15	A	722125405064	KORRA RANJITHA	2	ND	F		B.Sc			PADERU	PADERU
16	R	722125405065	KOTTAGULLI MODHAMBKA	2	ND	F		B.Sc			PADERU	PADERU
17	A	722125405066	KUDA UDAY KIRAN	2	ND	M		B.Sc			PADERU	PADERU
18	J	722125405067	KUDA UTHEI KUMAR	2	ND	M		B.Sc			PADERU	PADERU
19	U	722125405068	KURTHADI SAI KUMAR	2	ND	M		B.Sc			PADERU	PADERU
20		722125405069	KURTHADI SURYA NARAYANA	2	ND	M		B.Sc			PADERU	PADERU
21	D	722125405070	LINGERI DURGA BHAVANI SAI	2	ND	F		B.Sc			PADERU	PADERU
22	I	722125405071	LOCHALI VINAY KUMAR	2	ND	M		B.Sc			PADERU	PADERU
23	S	722125405072	MADELA PARVATHAMMA	2	ND	F		B.Sc			PADERU	PADERU
24	T	722125405073	MARRI LALITHA	2	ND	F		B.Sc			PADERU	PADERU
25		722125405074	MATHE KONDA BABU	2	ND	M		B.Sc			PADERU	PADERU

V. W  
Principal  
Govt. Degree College  
PADERU 534 024  
Alluri Sitarama Raju-Dist.



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## DEPARTMENT OF CHEMISTRY

PROGRAMME OUTCOMES

&

COURSE OUTCOMES

## GOVT .DEGREE COLLEGE , PADERU

### ❖ Vision

- ❖ To become a centre of educational excellence for empowering women in different fields of life by realising their capabilities so that they can take their rightful place in the society.

### ❖ Mission

- ❖ To inculcate the spirit of quality in higher education.
- ❖ To trigger skills related to education and life.
- ❖ To enhance physical wellbeing.
- ❖ To promote social awareness and community service.
- ❖ To enlighten women empowerment.
- ❖ To inculcate values for betterment of women.
- ❖ To train the students for academic competition.

## DEPARTMENT OF CHEMISTRY

### B.Sc. (CHEMISTRY)

- ❖ **VISION:** It is the mission of the department to give young women with access to an education of sufficient caliber so that they may participate in the growth and development of the nation. In addition to our focus on imparting Theoretical information, we make it a point to give our students real-world experience in order to better equip them to shape their own lives and the world around them.
- ❖ **MISSION:** The mission of the Chemistry Department is to support other academic programs in the college by providing quality chemistry learning experiences, building proactive partnerships with industry, and providing efficient training as well as educational and technical services to society. This will be accomplished within an environment that is innovative and intellectually stimulating.

### PROGRAMME OUTCOMES

- ❖ PO1. Acquire a comprehensive understanding of domain-specific knowledge and demonstrate their acquired skills effectively during practical transactions within the specific domain.
- ❖ PO2. Demonstrate proficient analytical and problem-solving skills through the application of critical thinking strategies to address real-world situations effectively.
- ❖ PO3. Master effective communication, collaborate skillfully with diverse stakeholders, nurture meaningful dialogues, and build strong professional bonds in and beyond college.
- ❖ PO4. Exhibit proficiency in ethically using information from diverse sources, analysing and synthesizing data effectively for real-world research.
- ❖ PO5. 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.
- ❖ PO6. Actively promote social awareness through community service, contributing to a more inclusive and compassionate global community.
- ❖ PO7. Embrace continuous learning, create professional growth chances, and prioritize personality development and physical well-being for a holistic approach.
- ❖ PO8. Foster self-confidence, advocate women empowerment, demonstrates expertise for growth in studies, employment, and entrepreneurship, creating a brighter and equitable future.

## **PROGRAM SPECIFIC OUTCOMES**

- **PSO1: Comprehensive Knowledge**
- Graduates will demonstrate a deep understanding of Botany, Zoology, and Chemistry principles, fostering interdisciplinary competence.
- **PSO2: Research Proficiency**
- Graduates will excel in designing and conducting interdisciplinary research projects across the three disciplines.
- **PSO3: Environmental Stewardship**
- Graduates will address ecological and environmental challenges with sustainable solutions, considering human impacts.
- **PSO4: Practical Competence**
- Graduates will master laboratory, fieldwork, and data analysis techniques in Botany, Zoology, and Chemistry.
- **PSO5: Effective Communication and Ethics**
- Graduates will communicate scientific findings effectively and uphold ethical standards in research and practice.

## COURSE OUTCOMES

### Paper I: Inorganic & Physical Chemistry

- ❖ CO1: Students will understand the preparation, structures, and applications of p-block elements including Diborane, Borazine, silicones, Phosphonitrilic halides, oxides and oxoacids of Sulphur, Pseudo halogens, and Interhalogen compounds.
- ❖ **Remember (Knowledge):** Recall the preparation methods of p-block elements like Diborane, Borazine, silicones, Phosphonitrilic halides, and Interhalogen compounds.
- ❖ **Understand (Comprehension):** Explain the structural differences between the various p-block elements and their relevance to their properties.
- ❖ **Apply (Application):** Use your understanding of p-block elements to predict how they might react under specific conditions.
- ❖ **Evaluate (Evaluation):** Assess the effectiveness of different preparation methods for specific applications of p-block elements, considering factors like yield, cost, and environmental impact.
- ❖ CO2: Students will grasp the characteristics of d-block elements, their electronic configurations, magnetic properties, and ability to form complexes. They'll also comprehend the electronic structure, lanthanide contraction, and differences between lanthanides and actinides. Bonding theories like Valence Bond theory, Free Electron theory, and Band theory will be understood.
- ❖ **Remember (Knowledge):** Recall the electronic configurations and magnetic properties of d-block elements.
- ❖ **Understand (Comprehension):** Explain how the concept of lanthanide contraction influences the properties of lanthanides and actinides.
- ❖ **Apply (Application):** Apply your knowledge of bonding to predict the behavior of d-block elements in complex formation.
- ❖ **Analyze (Analysis):** Analyze the factors contributing to the stability of different oxidation states in d-block elements and compare the properties of lanthanides and actinides.
- ❖ CO3: Students will master concepts such as crystal symmetry, lattice structures, X-ray diffraction, and defects in crystals. They'll explain a behavior, van der Waal's equation, critical phenomena, and liquid crystal phases. They'll also understand solutions, azeotropes, ionic equilibrium, and colligative properties including RLVP, osmotic pressure, and freezing point depression.
- ❖ **Remembering (Knowledge):** Recall definitions of solids, liquids, and gases, and their intermolecular interactions.
- ❖ **Understanding (Comprehension):** Understand solids have strong forces, fixed shape, and volume. Liquids flow due to weaker forces and take the container's shape. Gases, with weak forces, expand to fill containers.

## Paper- II: Organic & General Chemistry

CO1: Understand the fundamentals of organic chemistry, covering hydrocarbons, isomerism, and reactions like free radical substitutions and electrophilic aromatic substitution.

**Remember (Knowledge):** Recall key principles of organic chemistry, like hydrocarbons and isomerism.

**Understand (Comprehension):** Explain the mechanisms involved in free radical substitutions and how isomerism affects properties.

**Analyze (Analysis):** Examine complex organic structures and propose reaction pathways considering multiple factors.

**Evaluate (Evaluation):** Assess the effectiveness of different reaction mechanisms and strategies in specific contexts.

CO2: Comprehend chemical bonding theories such as Valence Bond theory and Molecular Orbital theory. Describe the properties of colloids and the principles of adsorption. Apply the HSAB principle to analyze bonding in various combinations.

**Remember (Knowledge):** Recall bonding theories such as Valence Bond theory and Molecular Orbital theory.

**Apply (Application):** Utilize the HSAB principle to predict and analyze bonding in various combinations.

**Analyze (Analysis):** Examine complex chemical structures and deduce the most appropriate bonding theories for their explanation.

**Evaluate (Evaluation):** Assess the suitability of different adsorption processes in specific chemical applications.

CO3: Explore stereochemistry, chirality, and different types of isomers. Define enantiomers, diastereomers, and configurations (D,L, R,S, E,Z) with practical examples. Explain techniques to separate racemic mixtures.

**Remember (Knowledge):** Recall definitions related to stereochemistry, including chirality and enantiomers.

**Understand (Comprehension):** Explain the concept of optical activity and its connection to specific rotation.

**Apply (Application):** Utilize stereochemistry principles to classify chiral molecules and determine their configurations.

**Create (Synthesis):** Devise innovative strategies for synthesizing optically pure compounds through advanced stereochemical control.

- ❖ **Applying(Application):** Predict state changes based on temperature. Connect intermolecular forces to state transitions. Apply pressure's impact on gases.
- ❖ **Analyzing(Analysis):** Compare intermolecular forces across states. Analyze state shifts considering intermolecular interactions. Examine particle arrangement influenced by force strength.



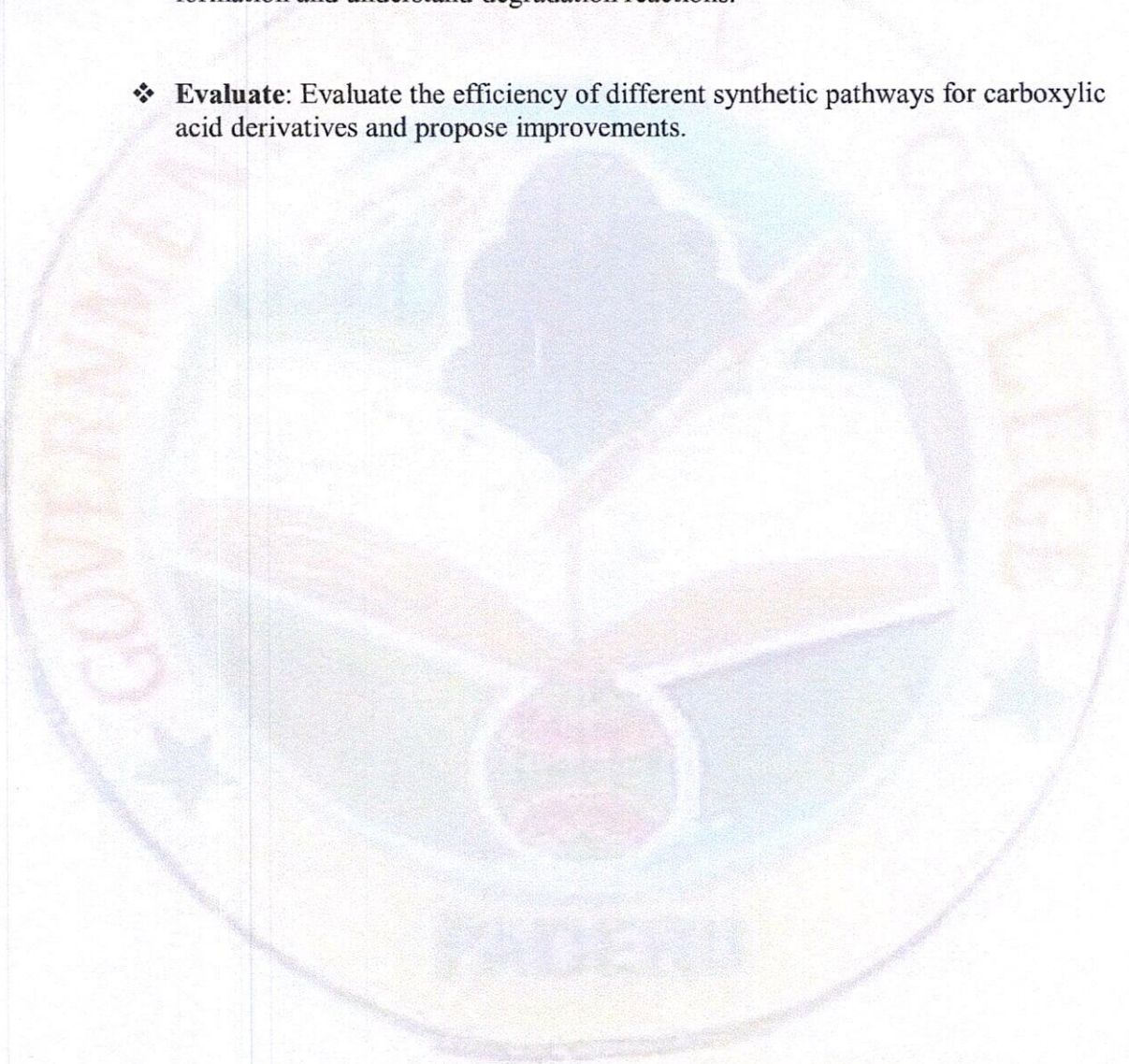
### Paper-III: ORGANIC CHEMISTRY & SPECTROSCOPY

- ❖ CO1: Understand the chemistry of halogenated hydrocarbons, including methods of preparation, properties, and nucleophilic substitution reactions. Comprehend the preparation, properties, and relative reactivity of alcohols and phenols, as well as important rearrangements and reductions.
- ❖ **Remember:** Recall the methods of preparation for halogenated hydrocarbons and identify their properties.
- ❖ **Understand:** Explain the mechanisms of nucleophilic substitution reactions(SN1, SN2, SNi) and analyze their stereochemical aspects.
- ❖ **Apply:** Apply the principles of relative reactivity to predict the outcome of nucleophilic substitution reactions in various halide compounds.
- ❖ **Evaluate:** Assess the suitability of different nucleophilic substitution mechanisms based on reaction conditions and solvent effects.
- ❖ CO2: Comprehend the structure, reactivity, preparation, and properties of carbonyl compounds. Apply mechanisms of various carbonyl reactions, including condensations, reductions, and additions. Understand  $\alpha$ -substitution reactions and their significance.
- ❖ **Remember:** Recall the preparation methods and properties of carbonyl compounds.
- ❖ **Understand:** Explain the mechanisms of nucleophilic additions and addition- elimination reactions with ammonia derivatives.
- ❖ **Apply:** Apply the knowledge of carbonyl reactions to predict product formation in various reactions, such as condensations, reductions, and additions.
- ❖ **Create:** Devise novel synthetic routes using carbonyl compounds and design experiments to synthesize specific products.
- ❖ CO3: Master the preparation, properties, and reactions of carboxylic acids and their derivatives. Analyze reactions of acid chlorides, anhydrides, esters, and amides. Understand the principles of molecular spectroscopy, including rotation, vibration, and electronic spectra.
- ❖ **Remember:** Recall the general methods of preparation and typical reactions of carboxylic acids.

#### Paper IV: INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY

- ❖ CO1: Understand organometallic compounds and nitrogen-containing functional groups. Explore their properties, reactions, and synthesis methods. Study photochemistry and thermodynamics, including laws and spectroscopy techniques.
- ❖ **Remember:** Recall the properties and classifications of organometallic compounds and nitrogen-containing functional groups.
- ❖ **Understand:** Explain the principles and mechanisms behind the reactions of organometallic compounds and nitrogen-containing functional groups.
- ❖ **Analyze:** Examine the relationships between reactants, products, and reaction conditions in organometallic and nitrogen-containing functional group reactions.
- ❖ **Evaluate:** Critically assess the suitability and efficiency of different synthetic routes involving organometallic compounds and nitrogen-containing functional groups for specific chemical transformations.
- ❖ CO2: Learn about carbohydrates, amino acids, and proteins, including their structures, properties, and reactions. Gain knowledge of heterocyclic compounds and their significance.
- ❖ **Remember:** Recall the structures and properties of carbohydrates, amino acids, and proteins.
- ❖ **Understand:** Explain the roles and functions of carbohydrates, amino acids, and proteins in biological systems.
- ❖ **Analyze:** Investigate the interactions and biochemical pathways involving carbohydrates, amino acids, and proteins to understand their contributions to cellular processes.
- ❖ **Create:** Develop hypotheses or models to explain complex biochemical processes and propose new experiments or studies to investigate these processes further.
- ❖ CO3: Explore molecular spectroscopy, including its principles and applications. Understand photochemical processes, laws of photochemistry, and thermodynamics concepts.
- ❖ **Remember:** Recall the fundamental principles and laws governing spectroscopy

- ❖ **Understand:** Explain the mechanisms of reactions involving carboxylic acid derivatives, including esterification and hydrolysis.
- ❖ **Apply:** Apply knowledge of carboxylic acid reactions to predict product formation and understand degradation reactions.
- ❖ **Evaluate:** Evaluate the efficiency of different synthetic pathways for carboxylic acid derivatives and propose improvements.



## Paper V: INORGANIC & PHYSICAL CHEMISTRY

- ❖ CO1: Understand coordination compound nomenclature. Explain structural and stereoisomerism. Grasp Valence Bond Theory (VBT) and its limitations.
- ❖ **Remember:** Recall the rules for coordination compound nomenclature.
- ❖ **Understand:** Explain the principles behind coordination compound naming conventions.
- ❖ **Apply:** Use nomenclature rules to name coordination compounds correctly.
- ❖ **Analyze:** Differentiate between coordination compounds based on their nomenclature, identifying isomers and stereochemistry.
- ❖ CO2: Describe inorganic reaction mechanisms. Analyze ligand substitution reactions and trans-effect. Explore factors affecting metal complex stability and their applications.
- ❖ **Remember:** Recall basic information about inorganic reaction mechanisms.
- ❖ **Understand:** Explain the fundamental concepts of inorganic reaction mechanisms.
- ❖ **Analyze:** Analyze different types of ligand substitution reactions and their mechanisms.
- ❖ **Evaluate:** Evaluate the factors influencing metal complex stability and assess their practical applications.
- ❖ CO3: Explain the Phase Rule and phase diagrams. Understand conductance, Debye-Huckel-Onsager's equation, and kinetics. Comprehend reaction rates, order, integrated rate equations, and activation energy.
- ❖ **Remember:** Recall the Phase Rule and its components.
- ❖ **Understand:** Explain the Phase Rule's principles and its relevance to phase diagrams.
- ❖ **Apply:** Apply the Phase Rule to interpret phase diagrams of different systems.
- ❖ **Create:** Develop phase diagrams for specific systems based on the Phase Rule.

and thermodynamics.

- ❖ **Understand:** Explain the relationships between molecular properties and spectroscopic data, as well as the implications of thermodynamic principles on chemical processes.
- ❖ **Analyze:** Examine spectroscopic data to deduce molecular structures and use thermodynamic concepts to predict reaction outcomes.
- ❖ **Evaluate:** Critically evaluate the reliability of spectroscopic data and the thermodynamic feasibility of chemical reactions, considering experimental conditions and limitations.

## Paper VI: Course6-D: Environmental Chemistry

- ❖ CO1: Grasp the fundamentals of environmental chemistry. Recognize human activities' impact on the environment. Differentiate between renewable and nonrenewable resources.
- ❖ **Remember:** Recall the key concepts and definitions related to environmental chemistry.
- ❖ **Understand:** Explain the impact of human activities on the environment and its various segments.
- ❖ **Apply:** Apply environmental knowledge to differentiate between renewable and non renewable resources.
- ❖ **Analyze:** Analyze the consequences of specific human activities on the environment, considering both natural resources and pollutants.
- ❖ CO2: Analyze air and water pollution sources and their effects. Evaluate methods to monitor and control pollution. Assess the toxic effects of chemicals in the environment.
- ❖ **Remember:** Recall the major sources of air and water pollution.
- ❖ **Understand:** Explain the effects of different types of pollution on the environment, including climate change and toxic emissions.
- ❖ **Apply:** Apply knowledge of pollution sources to evaluate and suggest methods for monitoring and controlling pollution.
- ❖ **Evaluate:** Assess the effectiveness of pollution control methods and propose improvements as needed.
- ❖ CO3: Evaluate ecosystem structures and functions. Examine energy flow and biogeochemical cycles. Analyze biodiversity levels and their significance.
- ❖ **Remember:** Recall the basic components and functions of ecosystems.
- ❖ **Understand:** Explain the concepts of energy flow, trophic levels, and biogeochemical cycles in ecosystems.
- ❖ **Apply:** Apply knowledge of ecosystem structures and functions to

evaluate the ecological impact of specific scenarios.

- ❖ **Create:** Develop strategies to preserve and enhance biodiversity at different levels, considering local, national, and global contexts.



## Paper VII: Course 7-D: Green Chemistry and Nanotechnology

- ❖ CO1: Define green chemistry and its importance. Explain the principles and goals of green chemistry. Evaluate the "greenness" and atom economy of various reactions.
- ❖ **Remember:** Define greenchemistry and its importance.
- ❖ **Understand:** Explain the principles and goals of green chemistry.
- ❖ **Apply:** Evaluate the "greenness" and atom economy of various reactions.
- ❖ **Analyze:** Compare the environmental impact of different chemical processes.
- ❖ CO2: Select appropriate solvents, including aqueous phases, ionic liquids, and solid- supported synthesis. Describe the uses and benefits of supercritical CO<sub>2</sub>. Utilize microwave and ultrasound-assisted methods for green synthesis.
- ❖ **Remember:** Recall various solvents used in green chemistry.
- ❖ **Understand:** Describe the uses and benefits of supercriticalCO<sub>2</sub> in greensynthesis.
- ❖ **Apply:** Utilize appropriate solvents,such as aqueous phases,ionic liquids,and olid- supported synthesis, in practical scenarios.
- ❖ **Analyze:** Assess the efficiency and sustainability of green synthesis methods.
- ❖ CO3: Define nanoscience and nanotechnology. Compare bottom-up and top-downapproaches in nanomaterial synthesis. Discuss the properties, synthesis, and applications of nanoparticles in green chemistry.
- ❖ **Understand:** Differentiate between bottom-up and top-down approaches in nanomaterial synthesis.
- ❖ **Apply:** Discuss the properties and applications of nanoparticles in green chemistry.
- ❖ **Evaluate:** Evaluate the environmental implications using nanotechnology in green chemistry.
- ❖ **Create:** Propose innovative ways to integrate nanotechnology for greener chemical processes.



**Government Degree College**  
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**Paderu, Alluri Sitharama Raju - District, AP.**

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## **Department of Hindi**

**Programme Outcomes**

**&**

**Course Outcomes**



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## हिन्दी विभाग सेमिस्टर - I

लक्ष्य:

1. विद्यार्थियों को गद्य की विविध विधाओं से परिचित करवाना।
2. हिन्दी भाषा के विशिष्ट साहित्यकारों का परिचय उनकी रचनाओं की विशिष्टता का ज्ञान प्राप्त कर पाना।
3. हिन्दी साहित्य के संक्षिप्त इतिहास से परिचित करवाना।
4. हिन्दी व्याकरण की सभी पहलुओं पर विद्यार्थियों को विशद रूप अध्ययन कराना, क्योंकि व्याकरण ही भाषा की रीढ़ होती है।
5. विद्यार्थियों को पत्र लेखन के आवश्यक नियमों से अवगत कराना, शिष्ट भाषा का प्रयोग एवं प्रभावपूर्ण लेखन विधि से परिचित करवाना।

परिणाम: पाठ्यक्रम के सफल समापन के उपरांत विद्यार्थी निम्न विषयों में सक्षम होंगे।

1. निबंध, रेखाचित्र, कहानी जैसी गद्य की विभिन्न विधाओं को समझ पाना एवं विश्लेषण कर पाना।
2. सच्चे मित्र के गुणों से अवगत हो पाना, जो की स्नातक स्तर के विद्यार्थियों के लिए अति आवश्यक है।
3. पठित रचनाओं में दर्शित सामाजिक, ऐतिहासिक, सांस्कृतिक आदि संदर्भों का मूल्यांकन कर पाना।
4. धार्मिक सहिष्णुता, देश प्रेम आदि उत्तम भावनाओं को जागृत कर पाना।
5. हिन्दी साहित्य इतिहास के संक्षिप्त अध्ययन से विविध काल एवं तत्कालीन परिस्थितियों से अवगत होना।
6. व्याकरणिक इकाइयों की समझ एवं प्रभावपूर्ण पत्र लेखन का ज्ञान अर्जित कर सकना।



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## हिन्दी विभाग सेमिस्टर - II

लक्ष्य:

1. कबीर और तुलसी के दोहों में व्यक्त सामाजिक संदेश जो आज के समय में भी प्रासंगिक है, विद्यार्थियों को उनसे परिचित कराना। सूर के पदों की लयात्मकता से परिचित हो पाना।
2. आधुनिक काल के प्रमुख हिन्दी कवियों का योगदान एवं विभिन्न साहित्यिक परंपराओं में उनके योगदान का आकलन कर सकेंगे।
3. निबंध के माध्यम से विद्यार्थियों के सामाजिक ज्ञान की वृद्धि होना।
4. प्रयोजन मूलक हिन्दी के अंतर्गत विद्यार्थी विभिन्न सरकारी पत्रों से अवगत हो पाना।
5. अनुवाद और संक्षेपण ऐसी कलाएँ हैं, जिनके अभ्यास से विद्यार्थी भाषाओं पर निपुणता हासिल कर सकेंगे।



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परिणाम: द्वितीय सत्र के सफल समापन के उपरांत विद्यार्थी निम्न विषयों में सक्षम होंगे।

१. प्राचीन कविता के अध्ययन से विद्यार्थियों में सामाजिक चेतना जागृत होगी, काव्यगत विशेषताओं से परिचित होंगे।

२. आधुनिक काल की विविध प्रक्रियाओं का आकलन तथा विश्लेषण।

३. विभिन्न निबंधों के माध्यम से विद्यार्थियों के सामाजिक ज्ञान की श्रीवृद्धि।

४. प्रयोजन मूलक हिन्दी का ज्ञान प्राप्त कर विद्यार्थी सरकारी तथा गैर सरकारी संगठनों में अनुवादक पद के लिए अपने आप को तैयार कर पायेंगे।

५. अनुवाद अभ्यास जो साहित्यिक एवं अनुप्रयुक्त माध्यम से करवाया जाता है, यह विद्यार्थियों के लिए उपयोगी सिद्ध होगा। संक्षेपण कला के अभ्यास से भाषाई निपुणता प्राप्त कर सकते हैं।

संदर्भ ग्रंथ

१. गद्य संदेश - डॉ नरसिंहम शिवकोटि

२. कथालोक - डॉ घनश्याम

३. काव्य दीप - श्री बी राधाकृष्ण मूर्ति

४. आधुनिक हिन्दी व्याकरण और रचना - डॉ वासुदेव नंदन प्रसाद

# ANDHRA UNIVERSITY

Telegrams: UNIVERSITY  
Telephone: 284 4000  
Fax: 0891 - 2755324



All Official letters, packages  
etc, should be addressed to  
the Registrar by designation  
and not by name

No. L I (1)/UG Courses (CBCS)/2021.

Visakhapatnam,  
Dt: 09-06-2021.

**From: THE REGISTRAR**

To

The Principals of the  
All Affiliated Colleges (U.G.),  
Courses (B.A., B.Com., B.Sc., B.B.A.)

Sir/Madam,

Sub : Revised Choice Based Credit System (CBCS) Syllabus (w.e.f. 2020- 21) U.G. Courses – Requesting – Reg.  
Ref : : Lr.No. Nil received from Academic Cell APSCHE, syllabus of English Literature, email dt. 25-05-2021.

\* \* \*

I am by direction to inform that the Principals of the affiliated colleges to strictly adhere to the APSCHE guidelines for the revised Choice Based Credit System of English Literature (CBCS) placed in A.U. website w.e.f the academic year 2020-21.

Thanking you,

Yours faithfully,

*M. Hema Naik*

(M. HEMA NAIK)  
DEPUTY REGISTRAR (ACADEMIC)

**Copies to:**

1. The Dean of Academic Affairs, A.U., VSP.
2. The Dean, U.G. & P.G, Professional Courses, A.U., Vsp.
3. The Dean, CDC, A.U., Vsp.
4. The Dean, Confidential, A.U., Vsp.
5. The Controller of Examinations, A.U., Vsp.
6. The Secretary to V.C., Rector Table, P.A. to Registrar, A.U., Vsp.
7. The Director, Computer Centre, A.U., Vsp.
8. O.C. & O.O.F.

## B.A SPECIAL ENGLISH SYLLABUS (REVISED - CBCS)

I Year, Semester I, Course - I:  
An Introduction to the English Literature (600-1500)

### Course Outcomes:

After going through the course, the learner would be able to

- Know about the features of Old, Middle English and Renaissance periods
- Review the aspects of different literary genres, forms and terms
- Identify the characteristics in Poetry, Drama and Literary Criticism
- Interpret literature of these periods critically

Unit	Module	Topic	Marks
1	History of English Literature	Old English , Middle English and Renaissance Periods	15 marks
2	Introduction to the Genres , Literary Forms and Terms	Poetry, drama, criticism, Ballad, Epic, romance, lyric, ode, elegy, pastoral elegy, sonnet, mystery / miracle plays, morality play, rhyme, meter, metaphysical conceit	15 marks
3	Poetry	Chaucer: <i>Controlling the Tongue</i> Edmund Spenser: <i>One day I Wrote Her Name</i>	15 marks
4	Drama	Marlowe: Dr. Faustus	15 marks
5	Literary Criticism	Sir Philip Sidney: Apologie for Poetry	15 marks
Internals : 25			Total marks: 100

I Year, Semester II, Course-II:  
**An Introduction to Elizabethan and Jacobean Literatures (1500-1660)**

**Course Outcomes:**

After going through the course, the learner would be able to

- identify the features of Elizabethan and Jacobean periods
- Review the aspects of romantic comedy, and the evolution of prose as a genre
- Distinguish the characteristics that evolved in Poetry, Drama, Prose and Literary Criticism
- Assess literature of these periods critically

Unit	Module	Topic	Marks
1	History of English Literature Genre, Literary Forms	Elizabethan and Jacobean (16 <sup>th</sup> and 17 <sup>th</sup> Century) Simile, metaphor, personification, alliteration, apostrophe, hyperbole, allegory, allusion, anti-climax, irony, blank verse, tragedy, comedy, tragic-comedy, romantic comedy, chronicle play, masque, comedy of humours, farce	15 marks
3	Drama (Romantic Comedy)	William Shakespeare: <i>Twelfth Night</i>	15 marks
2	Poetry	John Donne: <i>For whom the Bell Tolls</i> Ben Jonson: <i>It is not Growing Like a Tree</i>	15 marks
4	Prose	Francis Bacon: <i>Of Superstition, Of Parents and Children</i>	15 marks
5	Literary Criticism	Aristotle's <i>Poetics</i> – Section I	15 marks
Internals : 25			Total marks: 100

II Year, Semester III, Course-III:  
**An Introduction to Restoration and Augustan Literature (1660 – 1750)**

**Course Outcomes:**

After going through the course, the learner would be able to

- Know about the features of Elizabethan and Jacobean periods
- Recognise the aspects of different literary genres, forms and terms
- Identify the characteristics in literature that reflected the changing trends in society
- Interpret literature of these periods critically

Unit	Module	Topic	Marks
1	History of English Literature Literary Forms and Terms	Restoration and Augustan Periods (17 <sup>th</sup> and 18 <sup>th</sup> Centuries) Satire, mock-epic, heroic couplet, epistle, heroic tragedy, comedy of manners, genteel comedy, sentimental comedy, periodical essay,	15 marks
2	Poetry	Jonathan Swift: <i>The Place of the Damned</i> John Bunyan: <i>Upon the Disobedient Child</i>	15 marks
3	Drama	William Congreve: <i>The Way of the World</i>	15 marks
4	Prose	<i>Addison and Steele: A Lady's Diary, Advice in Love</i>	15 marks
5	Literary Criticism	Samuel Johnson: Preface to Shakespeare	15 marks
Internals : 25			Total marks:100

II Year, Semester IV, Course-IV:  
**An Introduction to Romantic and Victorian (1757-1901)**

**Course Outcomes:**

After going through the course, the learner would be able to

- Relate the features of Romantic and Victorian periods
- Observe the aspects of poetry and the contribution of women as literary artists
- Analyse the characteristics in Poetry, Drama, Prose and Literary Criticism
- Compare and evaluate literature of these periods critically

Unit	Module	Topic	Marks
1	History of English Literature Literary Forms and Terms	Romantic and Victorian Periods biography, autobiography, melodrama, historical novel, sentimental novel, gothic novel, regional novel, flat character, round character, protagonist, antagonist	15 marks
2	Poetry	Wordsworth: Tintern Abbey Christina Rossetti: A Birthday Elizabeth Barret Browning: The Lady's Yes.	15 marks
3	Drama	Oliver Goldsmith: She Stoops to Conquer	15 marks
4	Fiction	Jane Austen: <i>Pride and Prejudice</i>	15 marks
5	Literary Criticism	Matthew Arnold: The Study of Poetry	15 marks
Internals : 25			Total marks: 100

**II Year, Semester IV, Course-V**  
**A Study of the English Language**

**Course Outcomes:**

After going through the Course the learner would be able to

- Understand the characteristic features of different ages
- Analyse how language changes
- Interpret the ways that led to the formation of Standard English

Unit	Topic	Marks
1	Indo-European Family of Languages, Grimm's Law , Verner's Law and the First Sound Shift	15 marks
2	Old English, Middle English and Modern English	15 marks
3	Various Influences on the English Language – Latin, French and Scandinavian	15 marks
4	Change of Meaning , Word - Formation and Standard English	15 marks
5	English across the World – British, American, GIE	15 marks
	Internals : 25 ( Study Project, Written Test and Assignment)	Total Marks: 100

II Year, Semester IV, Course-VI:  
Glimpses of World Literature

**Course Outcomes:**

After going through the Course the learner would be able to

- Understand the aspects of literature from all over the world
- Analyse what makes the artists respond in different contexts
- Interpret how different forms contribute to reflect life across the world

Unit	Module	Topic	Marks
1	Poetry	1. Anna Akhmatova: <i>How I Taught Myself to live simple</i> 2. A.D. Hope: <i>The Sacred Way</i> 3. Maya Angelou: <i>Caged Bird</i>	15
2	Drama	Vijay Tendulkar: <i>Silence! The Court is in Session</i>	15
3	Fiction	Nadine Gordimer: <i>July's People</i>	15
4	Short Story	Tillie Olsen: <i>I Stand Here Ironing</i> Glenda Adams: <i>Lies</i>	15
5	Literary Criticism	1. A.D. McKenzie: <i>What is Commonwealth Literature?</i> 2. Chinua Achebe: <i>"An Image of Africa: Racism in Conrad's Heart of Darkness."</i>	15
Internals : 25			Total : 100

### Overall Structure of the Syllabus/Curriculum

Year	Semester	Paper	Category	Hrs/wk	Credits	Marks	Internal	External
1	I	I	Core	5	4	100	25	75
	II	II	Core	5	4	100	25	75
2	III	III	Core	5	4	100	25	75
	IV	IV	Core	5	4	100	25	75
		V	Core	5	4	100	25	75
		VI	Core	5	4	100	25	75
3	V	V	Skill Enhancement Course	5	4	100	25	75
		VI	Skill Enhancement Course	5	4	100	25	75
	VI	Internship						

**Note:** Student Activities like Practice, Analysis, Reviews, Seminars, Assignments, Group Discussions, Case studies, Fieldwork, Surveys, Study Projects, Models and Watching videos are Part of Curriculum in all papers. The teacher shall identify appropriate activities for each unit and assign them to the students for improving domain skills.

### Recommended Reference Books

1. *A History of English Literature* by W.J Long
2. *A Critical History of English Literature* by David Daiches (Published by Supernova)
3. *The Cambridge History of English Literature* by Ward and Waller (Published by Kessinger)
4. *A Glossary of Literary Terms* by M.H Abrams (Published by Cengage)
5. *The Penguin Dictionary of Literary Terms and Literary Theory* by J.A. Cuddon (Published by Penguin)
6. A.C. Baugh: *A Study of the English Language*
7. Bill Ashcroft, Graham Griffiths, Helen Tiffin: *The Empire Writes Back*

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## **ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION**

(A Statutory body of the Government of Andhra Pradesh)

3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> floors, Neeladri Towers, Sri Ram Nagar, 6<sup>th</sup> Battalion Road,  
Atmakur (V), Mangalagiri (M), Guntur-522 503, Andhra Pradesh  
**Web:** [www.apsche.org](http://www.apsche.org) **Email:** [acapsche@gmail.com](mailto:acapsche@gmail.com)

**REVISED SYLLABUS OF ENGLISH under (Part – I)  
UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21**

**PROGRAMME: THREE-YEAR B.A. /B.Sc./B.Com/BCA/BBM/BHM & CT, etc.**

**Andhra Pradesh State Council of Higher Education, Mangalagiri,  
Guntur District**

**Revised English Syllabus from 2020-21 Onwards  
Under Choice Based Credit System**

**Introduction**

The turn of the twenty first century has made the English Language skills a passport to the job market to all job seekers. Ability to communicate well in English has become a hallmark of good educational foundation and a prerequisite for all graduates. The students are expected to possess a measurable knowledge and a set of skills in using English language in personal and professional life. The present course **English Praxis** in three parts offers suitable context to teach, learn and practise target language skills. Each part of the course aims at certain specified skills which are taught through various text-based classroom activities and the English Language Laboratory activities. The syllabus of the course offers an open platform to the teacher to facilitate active participatory learning to the students. Hence the whole course is offered in three semesters. The first part of the course offers fundamentals of the English language in five units: Listening, Speaking, Grammar, Writing and Soft Skills. These introductory units are developed into full length courses in the subsequent semesters in addition to Reading Skills so as to prepare the learner into a fully equipped individual.

In addition to the classroom interaction, the course also aims at language enhancement through various ICT based online and offline activities in the English Language Laboratory. Each Unit is reinforced with Laboratory activities. The College administration will bestow special attention to make the **English Praxis** course an activity oriented one. The innovative methods and creativity of the English faculty will enhance the learners' participation in teaching and learning.

**Semester-I** English Praxis Course-I : **A Course in Communication and Soft Skills**

**Semester-II** English Praxis Course -II : **A Course in Reading & Writing Skills**

**Semester-III** English Praxis Course -III: **A Course in Conversational Skills**

# English Syllabus-Semester-I

## English Praxis Course-I

### A Course in Communication and Soft Skills

#### Learning Outcomes

*By the end of the course the learner will be able to :*

- Use grammar effectively in writing and speaking.
- Demonstrate the use of good vocabulary
- Demonstrate an understating of writing skills
- Acquire ability to use Soft Skills in professional and daily life.
- Confidently use the tools of communication skills

#### **I. UNIT: Listening Skills**

- i. Importance of Listening
- ii. Types of Listening
- iii. Barriers to Listening
- iv. Effective Listening

#### **II. UNIT: Speaking Skills**

- a. Sounds of English: Vowels and Consonants
- b. Word Accent
- c. Intonation

#### **III. UNIT: Grammar**

- a) Concord
- b) Modals
- c) Tenses (Present/Past/Future)
- d) Articles
- e) Prepositions
- f) Question Tags
- g) Sentence Transformation (Voice, Reported Speech & Degrees of Comparison)
- h) Error Correction

#### **IV. UNIT: Writing**

- i. Punctuation
- ii. Spelling
- iii. Paragraph Writing

#### **V. UNIT: Soft Skills**

- a. SWOC
- b. Attitude
- c. Emotional Intelligence
- d. Telephone Etiquette
- e. Interpersonal Skills

# English Syllabus-Semester-II

## English Praxis Course-II

### A Course in Reading & Writing Skills

#### Learning Outcomes

*By the end of the course the learner will be able to :*

- Use reading skills effectively
- Comprehend different texts
- Interpret different types of texts
- Analyse what is being read
- Build up a repository of active vocabulary
- Use good writing strategies
- Write well for any purpose
- Improve writing skills independently for future needs

#### I. UNIT

<b>Prose</b>	: 1. How to Avoid Foolish Opinions	Bertrand Russell
<b>Skills</b>	: 2. Vocabulary: Conversion of Words	
	: 3. One Word Substitutes	
	: 4. Collocations	

#### II. UNIT

<b>Prose</b>	: 1. The Doll's House	Katherine Mansfield
<b>Poetry</b>	: 2. Ode to the West Wind	P B Shelley
<b>Non-Detailed Text</b>	: 3. Florence Nightingale	Abrar Mohsin
<b>Skills</b>	: 4. Skimming and Scanning	

#### III. UNIT

<b>Prose</b>	: 1. The Night Train at Deoli	Ruskin Bond
<b>Poetry</b>	: 2. Upagupta	Rabindranath Tagore
<b>Skills</b>	: 3. Reading Comprehension	
	: 4. Note Making/Taking	

#### IV. UNIT

<b>Poetry</b>	: 1. Coromandel Fishers	Sarojini Naidu
<b>Skills</b>	: 2. Expansion of Ideas	
	: 3. Notices, Agendas and Minutes	

#### V.UNIT

<b>Non-Detailed Text</b>	: 1. An Astrologer's Day	R K Narayan
<b>Skills</b>	: 2. Curriculum Vitae and Resume	
	: 3. Letters	
	: 4. E-Correspondence	

# English Syllabus-Semester-III

## English Praxis Course-III

### A Course in Conversational Skills

#### Learning Outcomes

*By the end of the course the learner will be able to :*

- Speak fluently in English
- Participate confidently in any social interaction
- Face any professional discourse
- Demonstrate critical thinking
- Enhance conversational skills by observing the professional interviews

#### I. UNIT

**Speech Skills** : 1. Tryst with Destiny Jawaharlal Nehru  
: 2. Greetings  
: 3. Introductions

#### II. UNIT

**Speech Interview Skills** : 1. Yes, We Can Barack Obama  
: 2. A Leader Should Know How to Manage Failure  
Dr.A.P.J.Abdul Kalam/ India Knowledge at Wharton  
: 3. Requests

#### III. UNIT

**Interview Skills** : 1. Nelson Mandela's Interview With Larry King  
: 2. Asking and Giving Information  
: 3. Agreeing and Disagreeing

#### IV. UNIT

**Interview Skills** : 1. JRD Tata's Interview With T.N.Ninan  
: 2. Dialogue Building  
: 3. Giving Instructions/Directions

#### V. UNIT

1. **Speech Skills** : 1. You've Got to Find What You Love Steve Jobs  
: 2. Debates  
: 3. Descriptions  
: 4. Role Play

## **SUBJECT EXPERTS**

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## **SYLLABUS VETTED BY**

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# ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

REVISED UG SYLLABUS UNDER CBCS

(Implemented from Academic Year 2020-21)

PROGRAMME: FOUR YEAR B.Sc. (Hons)

Domain Subject: BOTANY

*Skill Enhancement Courses (SECs) for Semester V, from 2022-23 (Syllabus with Learning Outcomes, References, Co-curricular Activities & Model Q.P. Pattern)*

## Structure of SECs for Semester – V

*(To choose One pair from the Four alternate pairs of SECs)*

Univ. Code	Course NO. 6 & 7	Name of Course	Th. Hrs. / Week	IE Mar-ks	EE Mar-ks	Credits	Prac. Hrs./ Wk	Mar-ks	Credits
	6A	Plant Propagation	3	25	75	3	3	50	2
	7A	Seed Technology	3	25	75	3	3	50	2

OR

	6B	Vegetable Crops – Cultivation Practices	3	25	75	3	3	50	2
	7B	Vegetable Crops – Post Harvest Practices	3	25	75	3	3	50	2

OR

	6C	Plant Tissue Culture	3	25	75	3	3	50	2
	7C	Mushroom Cultivation	3	25	75	3	3	50	2

OR

	6D	Gardening and Landscaping	3	25	75	3	3	50	2
	7D	Agroforestry	3	25	75	3	3	50	2

**Note-1:** For Semester–V, for the domain subject Botany, any one of the four pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6B & 7B or 6C & 7C or 6D & 7D. The pair shall not be broken (ABCD allotment is random, not on any priority basis).

**Note-2:** One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations.

A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Sc. (Hons)  
Domain Subject: **BOTANY**  
IV Year B. Sc. (Hons) – Semester – V

Max Marks: 100

**Course-6A: Plant Propagation**

(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning Outcomes:**

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

1. Explain various plant propagation structures and their utilization.
2. Understand advantages and disadvantages of vegetative, asexual and sexual plant propagation methods.
3. Assess the benefits of asexual propagation of certain economically valuable plants using apomictics and adventive polyembryony.
4. Demonstrate skills related to vegetative plant propagation techniques such as cuttings, layering, grafting and budding.
5. Apply a specific macro-propagation technique for a given plant species.

**II. Syllabus:** (Hours: Teaching: 50, Lab: 30, Field training: 05, others incl. unit tests: 05)  
(*Syllabi of theory, practical and lab (skills) training together shall be completed in 80 hours*)

**Unit – 1: Basic concepts of propagation** (10h)

1. Propagation: Definition, need and potentialities for plant multiplication; asexual and sexual methods of propagation - advantages and disadvantages.
2. Propagation facilities: Mist chamber, humidifiers, greenhouses, glasshouses, cold frames, hot beds, poly-houses, phytotrons nursery - tools and implements.
3. Identification and propagation by division and separation: Bulbs, pseudobulbs, corms, tubers and rhizomes; runners, stolons, suckers and offsets.

**Unit – 2: Apomictics in plant propagation** (10h)

1. Apomixis: Definition, facultative and obligate; types – recurrent, non-recurrent, adventitious and vegetative; advantages and disadvantages.
2. Polyembryony: Definition, classification, horticultural significance; chimera and bud sport.
3. Propagation of mango, *Citrus* and *Allium* using apomictic embryos.

**Unit – 3: Propagation by cuttings** (10h)

1. Cuttings: Definition, different methods of cuttings; root and leaf cuttings.

2. Stem cuttings: Definition of stem tip and section cuttings; plant propagation by herbaceous, soft wood, semi hard wood, hard wood and coniferous stem cuttings.
3. Physiological and bio chemical basis of rooting; factors influencing rooting of cuttings; Use of plant growth regulators in rooting of cuttings.

**Unit – 4: Propagation by layering** (10h)

1. Layering: Definition, principle and factors influencing layering.
2. Plant propagation by layering: Ground layering – tip layering, simple layering, trench layering, mound (stool) layering and compound (serpentine layering).
3. Air layering technique – application in woody trees.

**Unit – 5: Propagation by grafting and budding** (10h)

1. Grafting: Definition, principle, types, graft incompatibility, collection of scion wood stick, scion-stock relationship, and their influences, bud wood certification; micrografting.
2. Propagation by veneer, whip, cleft, side and bark grafting techniques.
3. Budding: Definition; techniques of ‘T’, inverted ‘T’, patch and chip budding.

**III. References:**

1. Sharma RR and Manish Srivastav.2004. Plant Propagation and Nursery Management International Book Distributing Co. Lucknow.
2. Hartman, HT and Kester, D.E.1976. Plant Propagation: Principles and Practices, Prentice Hall of India Pvt. Ltd. Bombay.
3. Sadhu, M.K. 1996. Plant Propagation. New Age International Publishers, New Delhi.
4. Web resources suggested by the teacher concerned and college librarian including reading material.

**Course -6A: Plant Propagation - Practical syllabus**

**IV. Learning Outcomes:** On successful completion of this practical course, student will be able to:

1. Make use of different plant propagation structures for plant multiplication.
2. Explore the specialized organs or asexual propagules in some plants for their proliferation.
3. Demonstrate skills on micropropagation of plants through vegetative propagation techniques.
4. Evaluate and use a suitable propagation technique for a given plant species.

**V. Practical (Laboratory) syllabus:** (30hrs): The following experiments/practices shall be conducted by students in the lab.

1. Preparation of nursery beds – flat, raised and sunken beds.
2. Propagation through apomictic.
3. Propagation by separation and division technique.

4. Propagation by cuttings.
5. Propagation by layering
6. Propagation by grafting.
7. Propagation by budding.
8. Preparation of potting mixture, potting and repotting.

#### **VI. Lab References:**

1. Prasad, V. M. and Balaji Vikram, 2018. Practical Manual on Fundamentals of Horticulture and Plant Propagation, Write & Print Publications, New Delhi
2. Upadhyay S. K. (Ed.) 2013. Practical Manual Basic Horticulture-I, Akashdeep Printers, New Delhi
3. Web sources suggested by the teacher concerned.

#### **VII. Co-Curricular Activities:**

**a) Mandatory:** (*Lab/field training of students by teacher: (Lab: 10 + field: 05 hours):*)

1. **For Teacher:** Training of students by the teacher in the laboratory/field for a total of not less than 15 hours on the field techniques/skills of different plant propagation structures, containers, preparation of soil, plant propagation through separation and division, apomictics, cuttings, layering, grafting and budding.
2. **For Student:** Students shall (individually) visit horticulture nurseries in a University/, research institute /private nursery and observe propagation structures, propagation techniques etc., write their observations and submit a hand-written Fieldwork/Project work/Project work Report not exceeding 10 pages in the given format to the teacher.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place visited, observations, findings and acknowledgements.
5. Unit tests (IE).

#### **b) Suggested Co-Curricular Activities:**

1. Training of students by experts in plant vegetative propagation methods.
2. Assignments (including technical assignments like identifying propagation structures and their operational techniques for a specific plant species.
3. Seminars, Group discussions, Quiz, Debates etc. (suggested topics):
4. Preparation of videos on plant propagation techniques in relation to different economically useful plants.
5. Collection of material/figures/photos related to plant propagation methods, writing and organizing them in a systematic way in a file.
6. Visits to Horticulture/Agriculture/Forest nurseries, research organizations, universities etc.
7. Invited lectures and presentations on related topics by experts in the specified area.

**Model Question Paper pattern for Practical Examination**

Semester – V/ Botany Skill Enhancement Course

**Course -6A: Plant Propagation**

Max. Time: 3 Hrs.

Max. Marks: 50

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- |  |            |
|--|------------|
| 1. Demonstration plant propagation using separation and division /apomictics ‘A’ | 10         |
| 2. Demonstration plant propagation using cuttings/layering technique ‘B’         | 10         |
| 3. Demonstration of plant propagation using grafting/budding technique ‘C’       | 10         |
| 4. Scientific observation and data analysis                                      | 4 x 3 = 12 |
| D. Plant propagation structure model/photograph                                  |            |
| E. Plant Growth Regulator  |            |
| F. Nursery bed model /photograph   |            |
| G. Asexual propagule/container/pot mixture for propagation                       |            |
| 5. Record + Viva-voce  | 5+3 = 8    |

A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Sc. (Hons)  
Domain Subject: **BOTANY**  
IV Year B. Sc. (Hons) – Semester – V

Max Marks: 100

**Course-7A: Seed Technology**

(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning outcomes:**

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

1. Explain the causes for seed dormancy and methods to break dormancy.
2. Understand critical concepts of seed processing and seed storage procedures.
3. Acquire skills related to various seed testing methods.
4. Identify seed borne pathogens and prescribe methods to control them.
5. Understand the legislations on seed production and procedure of seed certification.

**II. Syllabus:** (Hours: Teaching: 50, Lab: 30, Field training: 05, others incl. unit tests: 05)  
(*Syllabi of theory, practical and lab (skills) training together shall be completed in 80 hours*)

**Unit - 1: Seed dormancy** (10h)

1. Seed and grain: Definitions, importance of seed; structure of Dicot and Monocot seed.
2. Role and goals of seed technology; characteristics of quality seed material.
3. Dormancy: Definition, causes for seed dormancy; methods to break seed dormancy.

**Unit – 2: Seed processing and storage** (10h)

1. Principles of seed processing: seed pre-cleaning, precuring, drying, seed extraction; cleaning, grading, pre-storage treatments; bagging and labelling, safety precautions during processing.
2. Seed storage; orthodox and recalcitrant seeds, natural longevity of seeds.
3. Factors affecting longevity in storage; storage conditions, methods and containers.

**Unit – 3: Seed testing** (10h)

1. Definition of seed vigour, viability and longevity; seed sampling and equipment; physical purity analysis.
2. Seed moisture – importance – methods of moisture determination.
3. Seed germination tests using paper, sand or soil – standard germination test; TZ test to determine seed viability; seed health testing.

**Unit – 4: Seed borne diseases** (10h)

1. A brief account of different seed borne diseases and their transmission.
2. Different seed health testing methods for detecting microorganisms.
3. Management of seed borne diseases; seed treatment methods: spraying and dusting.

**Unit – 5: Seed certification**

(10h)

1. Objectives - Indian seed Act; seed rules and seed order; new seed policy (1988).
2. Seed Inspector: Duties and responsibilities; classes of seeds, phases of certification standards (i.e., Land requirement, isolation distance) etc.
3. Issue of certificates, tags and sealing; pre and post control check: Genetic purity verification, certification, records and reporting.

**III. References:**

1. Umarani R, Jerlin R, Natarajan N, Masilamani P, Ponnuswamy AS 2006. Experimental Seed Science and Technology, Agrobios, Jodhpur
2. Agrawal, 2005. Seed Technology. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi
3. Desai B D 2004. Seeds Hand Book: Processing and Storage, CRC Press
4. Agarwal V K and J B Sinclair 1996, Principles of Seed Pathology, CRC Press
5. Tunwar NS and Singh SN. 1988. Indian Minimum Seed Certification Standards. CSCB, Ministry of Agriculture, New Delhi.
6. McDonald, M.B. and L.O. Copland. 1999. Seed Science and Technology Laboratory Manual. Scientific Publishers, Jodhpur
7. Web resources suggested by the teacher concerned and the college librarian including reading material.

**Course -7A: Seed Technology Practical syllabus**

**IV. Learning Outcomes:** On successful completion of this practical course, student will be able to:

1. Demonstrate skills on various methods to break the seed dormancy.
2. Determine seed moisture, seed germination percentage, seed viability and vigour.
3. Identify the seed borne pathogens and prescribe methods to prevent or control them.
4. Evaluate various methods to produce healthy seeds.

**V. Practical (Laboratory) syllabus: (30hrs)**

1. Determination of physical properties of seeds of 3 select local crops (1 each from cereals, millets, pulses and oil seeds).
2. Breaking seed dormancy in 3 select local crops.
3. Measurement of seed moisture content by O S W A or moisture meter or oven drying method.
4. Seed germination tests and evaluation.
5. Seed vigour - conductivity test.
6. Accelerated ageing tests.
7. Tetrazolium test.
8. Priming and invigoration treatments for improving germination and vigour.

9. Techniques of seed health testing - visual examination of seeds, washing test, incubation methods, embryo count method, seed soak method for the detection of certain seed borne pathogens.
10. Using various types of tools for dusting and spraying pesticides/insecticides.

#### **VI. Lab References:**

1. Sanjeev Kumar, 2019. Practical Manual Seed Technology of Vegetable Crops, M/s Asian Printery, Ahmedabad
2. Divakara Sastry, E.V., Dhirendra Singh and S.S.Rajput, 2013. Seed Technology: Practical Manual, Swami Keshwanand Rajasthan Agricultural University, Jobner
3. Web sources suggested by the teacher concerned.

#### **VII. Co-Curricular Activities:**

**Mandatory:** (*Lab/field training of students by teacher: (Lab: 10 + field: 05 hours)*)

1. **For Teacher:** Training of students by the teacher in the laboratory/field for a total of not less than 15 hours on the field techniques/skills of identifying and drawing seed structure, methods of breaking seed dormancy, seed cleaning, seed storage, identification of seed borne diseases, seed certification procedure.
2. **For Student:** Students shall (individually) visit horticulture/agriculture/ forest nursery/commercial seed production firms/ seed testing laboratories in government or private sector, observe seed production techniques, processing and storage, seed testing and certification procedures etc., write their observations and submit a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place visited, observations, findings and acknowledgements.
5. Unit tests (IE).

#### **a) Suggested Co-Curricular Activities:**

1. Training of students by experts in seed technology.
2. Assignments (including technical assignments like seed processing and storage techniques, seed testing, seed certification, seed borne diseases- prevention and control).
3. Seminars, Group discussions, Quiz, Debates etc. (suggested topics):
4. Preparation of videos on various aspects related to seed technology.
5. Collection of material/figures/photos related to seed technology, writing and organizing them in a systematic way in a file.
6. Visits to seed production units in Industries/Horticulture/Agriculture/Forest universities/colleges; research organizations, seed testing laboratories etc.
7. Invited lectures and presentations on related topics by experts in the specified area.

**Model Question Paper pattern for Practical Examination**

Semester – V/ Botany Skill Enhancement Course

**Course – 7A: Seed Technology**

Max. Time: 3 Hrs.

Max. Marks: 50

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- |  |            |
|--|------------|
| 1. Demonstration of a method to break seed dormancy 'A'              | 10         |
| 2. Determination of seed moisture content/ seed germination test 'B' | 10         |
| 3. Demonstration of test for seed viability/ seed vigour 'C'         | 10         |
| 4. Scientific observation and data analysis                          | 4 x 3 = 12 |
| D. Monocot / Dicot seed  |            |
| E. Seed sampling equipment   |            |
| F. Seed borne pathogen specimen/photograph                           |            |
| G. Seed certification agency/procedure                               |            |
| 4. Record + Viva-voce  | 5+3 = 8    |

**Course 6B: Vegetable Crops – Cultivation Practices**  
(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning Outcomes:**

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

1. Identify different vegetable plants and realize their value in human nutrition.
2. Analyse the types of soils to cultivate vegetable crops.
3. Demonstrate skills on agronomic practices for cultivation of vegetable crops.
4. Acquire knowledge on water, weed and disease managements in vegetable farming.
5. Comprehend aspects related to harvesting and storage of produce.

**II. Syllabus:** (Hours: Teaching: 50, Lab: 30, Field training: 05, others incl. unit tests: 05)  
(*Syllabi of theory, practical and lab (skills) training together shall be completed in 80 hours*)

**Unit – 1: Introduction to Olericulture** (10h)

1. Vegetables and Olericulture: Definitions, nutritive value of vegetables and economic significance of vegetable farming.
2. Classification of vegetable crops (Botanical, based on climatic zones and economic parts used).
3. Types of vegetable gardens (kitchen gardening, terrace gardening, market gardening and truck gardening); implements used in vegetable gardening; vegetable forcing – a brief concept.

**Unit – 2: Cultivation of leafy vegetables** (10h)

1. Leafy vegetables: Definition and a brief account of locally cultivated crops.
2. Study of the following leafy vegetable crops: (a) *Amaranthus* (b) Palak (c) *Hibiscus cannabinus* (d) Fenugreek: systematic position, nutritive value, origin, area, production, improved varieties.
3. General cultivation practices such as sowing, planting distance, fertilizer requirements, irrigation, weed management, harvesting.
4. Crop specific yield, storage, disease and pest control and seed production.

**Unit – 3: Cultivation of fruity vegetables** (10h)

1. Fruity vegetables: Definition and a brief account of locally cultivated crops.
2. Study of the fruity vegetable crops: (a) Okra (b) Tomato (c) Chillies (d) Brinjal: systematic position, nutritive value, origin, area, production, improved varieties.
3. General cultivation practices such as sowing, planting distance, fertilizer requirements, irrigation, weed management, harvesting.
4. Crop specific yield- storage, disease and pest control and seed production

**Unit – 4: Cultivation of peas and beans** (10h)

1. A brief account of locally cultivated peas and beans.

2. Study of the following crops: (a) *Dolichos* (b) Cluster bean (c) French bean: Systematic position, nutritive value, origin, area, production, improved Varieties.
3. General cultivation practices such as sowing, planting distance, fertilizer requirements, irrigation, weed management, harvesting.
4. Crop specific yield, storage, disease and pest control and seed production.

**Unit – 5: Cultivation of root and tuber crops** (10h)

1. A brief account of locally cultivated root and tuber crops.
2. Study of the following crops: (a) Carrot (b) Radish (c) Sweet potato (d) Potato: Systematic position, family, nutritive value, origin, area, production, improved varieties.
3. General cultivation practices such as sowing, planting distance, fertilizer requirements, irrigation, weed management, harvesting.
4. Crop specific yield, storage, disease and pest control and seed production.

**III. References:**

1. Bose T K et al. (2003) Vegetable crops, Naya Udhyog Publishers, Kolkata.
2. Singh D K (2007) Modern vegetable varieties and production, IBN Publisher Technologies, International Book Distributing Co, Lucknow.
3. Premnath, Sundari Velayudhan and D P Sing (1987) Vegetables for the tropical region, ICAR, New Delhi
4. Shanmugavelu, K. G. 1989. Production Technology of Vegetable Crops. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
5. Rana MK. 2008. Scientific Cultivation of Vegetables. Kalyani Publ., New Delhi
6. Rubatzky VE and Yamaguchi M. (Eds.). 1997. World Vegetables: Principles, Production and Nutritive Values. Chapman & Hall, London.
7. Web resources suggested by the teacher concerned and the college librarian including reading material.

**Course 7B: Vegetable Crops – Cultivation Practices – Practical syllabus**

**IV. Learning Outcomes:** On successful completion of this practical course, student will be able to:

1. List out, identify and handle different garden implements.
2. Identify the important vegetable crops grown in their locality.
3. Demonstrate various skills in cultivation of vegetable crops.
4. Identify pests, diseases and their remedies that are specific to a vegetable crop.

**V. Practical (Laboratory) Syllabus:** (30 hrs)

1. Identification of seeds of important local vegetable plants and preparation of herbarium.
2. Identification of local vegetable crops and handling of garden tools.
3. Analysis of garden soil for ratios of physical characteristics by sieve separation.
4. Determination of chemical characters of garden soil (pH, EC, Organic Carbon, SAR).
5. Planning and layout of a vegetable crop farm.

6. Preparation of nursery bed (raised, sunken and flat beds) and sowing of seeds.
7. Transplanting and care of vegetable seedlings.
8. Intercultural operations in vegetable plots.
9. Estimation of Total Soluble Solids (TSS) by Refractometer in a fruit and a leafy vegetable.
10. Estimation of Vitamin - C in a fruit and a leafy vegetable by DCIP method.
11. Identification of pests and disease-causing organisms on any two vegetable plants.
12. Seed extraction in tomato and brinjal.

#### **VI. Lab References:**

1. Akhilesh Sharma (Ed.), 2013. Practical Manual Olericulture-I, Sheel Packers, New Delhi
2. Biswajit Saha and Shri Dharampal Singh, 2013. Practical Manual Olericulture-I, Sheel Packers, New Delhi
3. Saini RS, K.D. Sharma, O.P, Dhankhar and R.A. Kaushik (Eds.). 2001. Laboratory Manual of Analytical Techniques in Horticulture. Agrobios, Jodhpur
4. Ranganna S. 1986. Handbook of Analysis and Quality Control for Fruit and Vegetable Products. Tata-McGraw Hill, New Delhi
5. Web sources suggested by the teacher concerned.

#### **VII. Co-Curricular Activities:**

##### **a) Mandatory:** (*Lab/ field training of students by teacher: (Lab: 10 + field: 05 hours)*)

1. **For Teacher:** Training of students by the teacher in the laboratory/field for a total of not less than 15 hours on the field techniques/skills of vegetable plants identification, vegetable gardening, agronomic practices, water, weed and disease management; harvesting and storage of produce.
2. **For Student:** Students shall (individually) visit a horticulture university/ research station or vegetable crop farm in their locality, observe different vegetable crops/ varieties of a vegetable crop, intercultural operations, pests and diseases, harvesting and storage etc., write their observations and submit to the teacher a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place visited, observations, findings and acknowledgements.
5. Unit tests (IE).

##### **b) Suggested Co-Curricular Activities:**

1. Training of students by related industrial experts or farmers.
2. Assignments (including technical assignments like tools in vegetable gardening and their handling, agronomic practices, modern irrigation methods, organic farming practices etc.)
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on cultivation practices for vegetable crops.
5. Collection of material/figures/photos related to different vegetable crop species, writing and organizing them in a systematic way in a file.

6. Visits to horticulture universities, research organizations, private vegetable farming units etc.
7. Invited lectures and presentations on related topics by field/industrial experts

**Model Question Paper Pattern for Practical Examination**

Semester – V/ Botany Skill Enhancement Course

**Vegetable Crops – Cultivation Practices**

Max. Time: 3 Hrs.

Max. Marks: 50

- |   |            |
|---|------------|
| 1. Demonstration of nursery bed making/transplanting of seedlings ‘A’   | 8          |
| 2. Determination of physical or chemical characters of a given soil sample / Preparation of slide and identification of pest/disease-causing organism in plant part given ‘B’ | 10         |
| 3. Estimation of Total Soluble Solids/Vitamin-C in a given plant sample ‘C’   | 12         |
| 4. Scientific observation and data analysis   | 4 x 3 = 12 |
| D. Identification of a garden tool  |            |
| E. Identification of seed/specimen of a vegetable crop species  |            |
| F. Identification of a weed/irrigation method   |            |
| G. Identification of a pest/disease causing organism  |            |
| 5. Record + Viva-voce   | 5+3 = 8    |

**Course 7B: Vegetable Crops – Post Harvest Practices**  
(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning Outcomes:**

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

1. Understand various practices for vegetable produce from harvesting to marketing.
2. Demonstrate skills on storage, processing and preservation of vegetables.
3. Summarize causes for spoilage of vegetables before and during storage and methods to prevent and control them.
4. Make use of preservation methods to reduce the loss of vegetable produce.
5. Explain about value added products, packaging and marketing of vegetables.

**II. Syllabus:** (Hours: Teaching: 50, Lab: 30, Field training: 05, others incl. unit tests: 05)  
(*Syllabi of theory, practical and lab (skills) training together shall be completed in 80 hours*)

**Unit – 1: Introduction to Post Harvest Practices** (10h)

1. Post-harvest technology: Definition; importance, scope and future status of post-harvest management of vegetables.
2. Study of maturity standards of vegetables; harvest techniques of vegetables, methods stages, signs of harvesting; harvesting and its relationship with quality, sorting and grading.
3. Careful handling of harvested vegetables; pre-harvest and post-harvest factors responsible for ripening.

**Unit – 2: Methods of storage** (10h)

1. Climacteric and non-climacteric types of vegetables.
2. Methods of storage to prolong shelf life of harvested vegetables; on-farm storage, evaporatively cooled stores, ventilated storage, pit storage etc.
3. Refrigerated storage, refrigeration cycle, controlled and modified atmosphere, hypobaric storage.

**Unit – 3: Processing of vegetables** (10h)

1. Causes for spoilage of vegetables and control measures during storage; post-harvest disease and pest management.
2. Techniques to prevent deterioration; vegetable processing equipment; minimal processing of vegetables.
3. Safe chemicals and microbial limits; application of growth regulators for quality assurance; grading.

**Unit -4: Preservation and value-addition** (10h)

1. Importance and scope of vegetable preservation in India; principles underlying general methods of preservation.
2. Methods of preservation; food additives and food colours.

3. Fried products, process of frying; dried vegetables; sauces and chutneys, pickles and salted vegetables; by-product and waste utilization.

#### **Unit – 5: Marketing**

(10h)

1. Packing line operations, packaging of vegetables and their products; transportation; codex norms for export of perishables.
2. Demand supply analysis of important vegetables; market potential of various vegetables products.
3. Important marketing agencies and institutions; importance of cooperative marketing.

#### **III. References:**

1. Salunkhe DK and Kadam SS. (Ed.). 1998. Hand Book of Vegetable Science and Technology: Production, Composition, Storage and Processing. Marcel Dekker, New York.
2. Arthey D and Dennis C. 1996. Vegetable Processing. Blackie/Springer-Verlag, New York
3. Verma LR and Joshi VK. 2000. Post-harvest Technology of Fruits and Vegetables: Handling, Processing, Fermentation and Waste Management. Indus Publishing Company, New Delhi
4. Srivastava RP and Kumar S. 2003. Fruit and Vegetable Preservation: Principles and Practices. International Book Distribution Company, Lucknow.
5. Giridharilal GS, Siddappa and Tandon GL. 1986. Preservation of Fruits and Vegetables. ICAR, New Delhi.
6. Web resources suggested by the teacher concerned and the college librarian including reading material.

#### **Course 7B: Vegetable Crops – Post harvest Practices – Practical syllabus**

**IV. Learning Outcomes:** On successful completion of this practical course, student will be able to:

1. Identify stages of maturity in vegetable crops.
2. Handle material for storage of vegetables.
3. Identify physical and biological causes for spoilage of vegetables.
4. Make some value-added products of vegetables.

#### **V. Practical (Laboratory) Syllabus: (30 hrs)**

1. Maturity selection and harvest, harvesting practices.
2. List and cost of equipment, utensils, and additives required for small scale processing industry.
3. Study of different types of spoilages in fresh as well as processed vegetables.
4. Identification and classification of spoilage organisms.
5. Estimation of total carbohydrates (Anthrone method) in a stored vegetable and un-stored vegetable.
6. Estimation of protein (Lowry method) in a stored vegetable and un-stored vegetable.
7. Sensory evaluation of fresh and processed vegetables.
8. Assessment of quality and grading, pre-packaging and protective treatments.
9. Identification of packaging materials, containers for packaging.
10. Preparation of pickle from a vegetable.

11. Preparation of tomato sauce, ketchup and chutney.

**VI. Lab References:**

1. Swati Barche, Reena Nair and P. K. Jain, 2016. A Practical Manual on Post Harvest Value Addition and Processing of Horticulture Crops. Agrobios (India), Jodhpur
2. Antonio L. Acedo Jr., Md. Atiqur Rahman, Borarin Buntong and Durga Mani Gautam, 2016. Vegetable Postharvest Training Manual, AVRDC - The World Vegetable Center, Taiwan
3. Akhilesh Sharma (Ed.), 2013. Practical Manual Olericulture-I, Sheel Packers, New Delhi
4. Biswajit Saha and Shri Dharampal Singh, 2013. Practical Manual Olericulture-I, Sheel Packers, New Delhi
5. Web sources suggested by the teacher concerned.

**VII. Co-Curricular Activities:**

**a) Mandatory:** (*Lab/field training of students by teacher: (Lab: 10 + field: 05 hours)*)

1. **For Teacher:** Training of students by teacher in the laboratory/field for a total of not less than 15 hours on the field techniques/skills of harvesting indices of vegetables, storage methods, tools and techniques for processing, causes for spoilage and methods to control, preservation methods, marketing chain and in making value added products.
2. **For Student:** Students shall (individually) visit any one of the places like horticulture university/ research station; vegetable storage units in public and private sector; vegetable processing industries in their locality and observe harvesting practices, storage methods, processing and preservation; grading, value added products and marketing. Write their observations and submit to the teacher a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place visited, observations, findings and acknowledgements.
5. Unit tests (IE).

**b). Suggested Co-Curricular Activities:**

1. Training of students by related industrial experts or farmers.
2. Assignments (including technical assignments like tools and techniques for storage, processing and preservation, causes for spoilage and methods to avoid losses, value added products of some vegetables, packaging and marketing etc.)
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on cultivation practices for vegetable crops.
5. Collection of material/figures/photos related to harvesting, storage, processing and preservation of vegetable crop produce, writing and organizing them in a systematic way in a file.

6. Visits to horticulture universities, research organizations; storage, processing industries in public or private sector; industries making value added products of vegetables etc.
7. Invited lectures and presentations on related topics by field/industrial experts.

**Model Question Paper Pattern for Practical Examination**

Semester – V/ Botany Skill Enhancement Course

**Vegetable Crops – Post Harvest Practices**

Max. Time: 3 Hrs.

Max. Marks: 50

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|--|------------|
| 1. Identification of organism(s) responsible for spoilage of vegetable ‘A’             | 8          |
| 2. Assessment of quality and grading/ technique of packaging and protective treatment. | 10         |
| 3. Estimation of carbohydrates/protein content in a vegetable sample ‘C’               | 12         |
| 4. Scientific observation and data analysis  | 4 x 3 = 12 |
| D. Identification of harvesting stage  |            |
| E. Identification of equipment for processing  |            |
| F. Identification of PGR/chemical used for PHT of vegetables.                          |            |
| G. Identification of a packaging material/value added product.                         |            |
| 5. Record + Viva-voce  | 5+3 = 8    |

Four-year B.Sc. (Hons)  
Domain Subject: **BOTANY**  
IV Year B. Sc. (Hons) – Semester – V

Max Marks: 100

**Course 6C: Plant Tissue Culture**  
(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning Outcomes:**

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.

**II. Syllabus:** (Hours: Teaching: 50, Lab: 30, Field training: 05, others incl. unit tests: 05)  
(*Syllabi of theory, practical and lab (skills) training together shall be completed in 80 hours*)

**Unit - 1: Basic concepts of plant tissue culture** (10h)

1. Plant tissue culture: Definition, history, scope and significance.
2. Totipotency, differentiation, dedifferentiation, and redifferentiation; types of cultures.
3. Infrastructure and equipment required to establish a tissue culture laboratory.

**Unit - 2: Sterilization techniques and culture media** (10h)

1. Aseptic conditions – Fumigation, wet and dry sterilization, UV sterilization, ultrafiltration.
2. Nutrient media: Composition of commonly used nutrient culture media with respect to their contents like inorganic chemicals, organic constituents, vitamins, amino acids etc.
3. Composition and preparation of Murashige and Skoog culture medium.

**Unit - 3: Callus culture technique** (10h)

1. Explant: Definition, different explants for tissue culture: shoot tip, axillary buds, leaf discs, cotyledons, inflorescence and floral organs, their isolation and surface sterilization; inoculation methods.
2. Callus culture: Definition, various steps in callus culture.
3. Initiation and maintenance of callus - Growth measurements and subculture; somaclonal variations.

**Unit – 4: Micropropagation** (10h)

1. Direct and indirect morphogenesis, organogenesis, role of PGRs; somatic embryogenesis and synthetic seeds.
2. Greenhouse hardening unit operation and management; acclimatization and hardening of plantlets - need, process, packaging, exports.
3. Pathogen (Virus) indexing- significance, methods, advantages, applications.

**Unit – 5: Applications of plant tissue culture** (10h)

1. Germplasm conservation: cryopreservation methods, slow growth, applications and limitations; cryoprotectants.
2. Plant transformation techniques and bioreactors; production of secondary metabolites-optimization of yield, commercial aspects, applications, limitations.
3. Transgenic plants- gene transfer methods; BT cotton.

### **III. References:**

1. Kalyan Kumar De (2001) An Introduction to Plant Tissue Culture, New Central Book Agency (P) Ltd., Calcutta
2. Razdan, M.K. (2005) Introduction to Plant Tissue Culture, Oxford & IBH Publishers, Delhi
3. Bhojwani, S.S. (1990) Plant Tissue Culture: Theory and Practical (a revised edition). Elsevier Science Publishers, New York, USA.
4. Vasil, I.K. and Thorpe, T.A. (1994) Plant Cell and Tissue Culture. Kluwer Academic Publishers, the Netherlands.
5. Web resources suggested by the teacher concerned and the college librarian including reading material.

### **Course 6C: Plant Tissue Culture – Practical syllabus**

**IV. Learning Outcomes:** 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. Practical (Laboratory) Syllabus:** (30 hrs)

1. Principles and applications of- Autoclave, Laminar Airflow, Hot Air Oven.
2. Sterilization techniques for glass ware, tools etc.,
3. MS medium - Preparation of different stock solutions; media preparation
4. Explant preparation, inoculation and initiation of callus from carrot.
5. Callus formation, growth measurements.
6. Induction of somatic embryos, preparation of synthetic seeds.
7. Multiplication of callus and organogenesis.
8. Hardening and acclimatization in green house.

### **VI. Lab References:**

1. Reinert, J. and M.M. Yeoman, 1982. Plant Cell and Tissue Culture - A Laboratory Manual, Springer-Verlag Berlin Heidelberg
2. Robert N. Trigiano and Dennis J. Gray, 1999. Plant Tissue Culture Concepts and Laboratory Exercises. CRC Press, Florida

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

## **VII. Co-Curricular Activities:**

### **a) Mandatory:** (*Lab/field training of students by teacher: Lab: 10 + field: 05 hours*)

1. **For Teacher:** Training of students by teacher in the laboratory/field for a total of not less than 15 hours on the field techniques/skills of sterilization procedures, preparation of media, establishment of callus culture, growth measurements; morphogenesis and organogenesis; acclimatization and hardening of plantlets.
2. **For Student:** Students shall (individually) visit anyone of plant tissue culture laboratories in universities/research organizations/private facilities, write their observations on tools, techniques, methods and products of plant tissue culture; and submit a hand-written Fieldwork/Project work Report not exceeding 10 pages to the teacher in the given format.
3. Max marks for Fieldwork/Project work Report: 05
4. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place visited, observations, findings and acknowledgements.
5. Unit tests (IE).

### **b) Suggested Co-Curricular Activities:**

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like identifying tools in plant tissue culture and their handling, operational techniques with safety and security, IPR)
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on tools and techniques in plant tissue culture.
5. Collection of material/figures/photos related to products of plant tissue culture, writing and organizing them in a systematic way in a file.
6. Visits to plant tissue culture/biotechnology laboratories in universities, research organizations, private firms, etc.
7. Invited lectures and presentations on related topics by field/industrial experts

**Model Question Paper Pattern for Practical Examination**  
Semester – V/ Botany Skill Enhancement Course  
**Plant Tissue Culture**

Max. Time: 3 Hrs.

Max. Marks: 50

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|--|------------|
| 1. Demonstration of a sterilization technique 'A'                    | 8          |
| 2. Preparation of MS medium 'B'                                      | 10         |
| 3. Demonstration of callus culture technique/growth measurements 'C' | 12         |
| 4. Scientific observation and data analysis                          | 4 x 3 = 12 |
| D. Tissue culture equipment /photograph                              |            |
| E. Morphogenesis or organogenesis - photograph                       |            |
| F. Bioreactor/Secondary metabolite                                   |            |
| G. Transgenic plant/photograph                                       |            |
| 5. Record + Viva-voce  | 5+3 = 8    |

Four-year B.Sc. (Hons)  
Domain Subject: **BOTANY**  
IV Year B. Sc. (Hons) – Semester – V

Max Marks: 100

**Course 7C: Mushroom Cultivation**

(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning Outcomes:**

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.

**II. Syllabus:** (Hours: Teaching: 50, Lab: 30, Field training: 05, others incl. unit tests: 05)  
(Syllabi of theory, practical and lab (skills) training together shall be completed in 80 hours)

**Unit – 1: Introduction and value of mushrooms** (10h)

1. Mushrooms: Definition, structure of a mushroom and a brief account of life cycle; historical account and scope of mushroom cultivation; difference between edible and poisonous mushrooms.
2. Morphological features of any four edible mushrooms, Button mushroom (*Agaricus bosporus*), Milky mushroom (*Calocybe indica*), Oyster mushroom (*Pleurotus sajor-caju*) and Paddy straw mushroom (*Volvariella volvacea*).
3. Nutraceutical value of mushrooms; medicinal mushrooms in South India - *Ganoderma lucidum*, *Phellinus rimosus*, *Pleurotus florida* and *Pleurotus pulmonaris* – their therapeutic value; Poisonous mushrooms - harmful effects.

**Unit – 2: Basic requirements of cultivation system** (10h)

1. Small village unit and larger commercial unit; layout of a mushroom farm - location of building plot, design of farm, bulk chamber, composting, equipment and facilities, pasteurization room and growing rooms.
2. Compost and composting: Definition, machinery required for compost making, materials for compost preparation.
3. Methods of composting- long method of composting and short method of composting.

**Unit – 3: Spawning and casing** (10h)

1. Spawn and spawning: Definition, facilities required for spawn preparation; preparation of spawn substrate.
2. Preparation of pure culture, media used in raising pure culture; culture maintenance, storage of spawn.

3. Casing: Definition, Importance of casing mixture, Quality parameters of casing soil, different types of casing mixtures, commonly used materials.

**Unit – 4: Mushroom cultivation** (10h)

Raw material, compost, spawning, casing, cropping, and problems in cultivation (diseases, pests and nematodes, weed molds and their management strategies), picking and packing for any Four of the following mushrooms:

- (a) Button mushroom (b) Oyster mushroom (c) Milky mushroom and (d) Paddy straw mushroom

**Unit – 5: Post harvest technology** (10h)

1. Shelf life of mushrooms; preservation of mushrooms - freezing, dry freezing, drying and canning.
2. Quality assurance and entrepreneurship - economics of different types of mushrooms; value added products of mushrooms.
3. Management of spent substrates and waste disposal of various mushrooms.

**III. References:**

1. Tewari Pankaj Kapoor, S. C. (1988). Mushroom Cultivation. Mittal Publication, New Delhi.
2. Pandey R.K, S. K Ghosh, (1996). A Hand Book on Mushroom Cultivation. Emkey Publications
3. Nita Bhal. (2000). Handbook on Mushrooms (Vol. I and II). Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi
4. Pathak, V. N. and Yadav, N. (1998). Mushroom Production and Processing Technology. Agrobios, Jodhpur.
5. Tripathi, D.P. (2005) Mushroom Cultivation, Oxford & IBH Publishing Co. Pvt. Ltd, New Delhi.
6. Pathak V.N., Nagendra Yadav and Maneesha Gaur (2000), Mushroom Production and Processing Technology Vedams Ebooks Pvt. Ltd., New Delhi
7. Web resources suggested by the teacher concerned and the college librarian including reading material.

**Course 7C: Mushroom Cultivation – Practical syllabus**

**IV. Learning Outcomes:** 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.

**V. Practical (Laboratory) Syllabus: (30 hrs)**

1. Identification of different types of mushrooms.
2. Preparation of pure culture of an edible mushroom.
3. Preparation of mother spawn.

4. Production of planting spawn and storage.
5. Preparation of compost and casing mixture.
6. Demonstration of spawning and casing.
7. Hands on experience on cropping and harvesting.
8. Demonstration of storage methods.
9. Preparation of value-added products.

#### **VI. Lab References:**

1. Sushma Sharma Sapna Thakur Ajar Nath Yadav, 2018. Mushroom Cultivation: A Laboratory Manual, Eternal University, Sirmour, H.P.
2. Kadhila-Muandingi, N.P., F. S. Mubiana and K. L. Halueendo, 2012. Mushroom Cultivation: A Beginners Guide, The University of Namibia
3. Gajendra Jagatap and Utpal Dey, 2012. Mushroom Cultivation: Practical Manual, LAMBERT Academic Publishing, Saarbrücken, Germany
4. Deepak Som, 2021. A Practical Manual on Mushroom Cultivation, P.K.Publishers & Distributors, Delhi
5. Web sources suggested by the teacher concerned.

#### **VII. Co-Curricular Activities:**

##### **a) Mandatory:** (*Lab/field training of students by teacher: Lab: 10 + field: 05 hours*)

1. **For Teacher:** Training of students by teacher in the laboratory/field for not less than 15 hours on the field techniques/skills of identification of edible and poisonous mushrooms, basic facilities of a mushroom culture unit, preparation of compost and spawn, cultivation practices of edible mushrooms, storage and marketing of produce.
2. **For Student:** Students shall (individually) visit mushroom culture units in universities/research organizations/private sector write their observations on infrastructure, cultivation practices and products of a mushroom culture unit etc., and submit to the teacher a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format.
3. Max marks for Fieldwork/Project work Report: 05.
6. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place visited, observations, findings and acknowledgements.
4. Unit tests (IE).

##### **b) Suggested Co-Curricular Activities:**

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like identifying various mushrooms, tools and techniques for culture, identification and control of diseases etc.,
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on tools and techniques in mushroom culture.
5. Collection of material/figures/photos related to edible and poisonous mushrooms, cultivation of mushrooms in cottage industries, writing and organizing them in a systematic way in a file.
6. Visits to mushroom culture units in universities, research organizations, private firms, etc.
7. Invited lectures and presentations on related topics by field/industrial experts.

**Model Question Paper Pattern for Practical Examination**

Semester – V/ Botany Skill Enhancement Course

**Mushroom Cultivation**

Max. Time: 3 Hrs.

Max. Marks: 50

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- |  |            |
|--|------------|
| 1. Demonstration of preparing pure culture/mother spawn 'A'                          | 8          |
| 2. Preparation method for planting spawn and storage/compost and casing material 'B' | 10         |
| 3. Demonstration of spawning and casing/storage and making a value-added product 'C' | 12         |
| 4. Scientific observation and data analysis  | 4 x 3 = 12 |
| D. Edible/poisonous mushroom specimen/photograph                                     |            |
| E. Infrastructure/tool used in mushroom cultivation                                  |            |
| F. Material for compost/casing   |            |
| G. Storage practice/ a value-added product   |            |
| 5. Record + Viva-voce  | 5+3 = 8    |

**Course 6D: Gardening and Landscaping**

(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning Outcomes:**

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

1. Acquire a critical knowledge about the aesthetic value, types and styles of gardens.
2. Perform field operations in a garden by understanding the role of a gardener.
3. Identify various ornamental plants and explain the growth habits.
4. Propagate garden plants through various propagation techniques.
5. Demonstrate skills of designing and developing a garden.

**II. Syllabus:** (Hours: Teaching: 50, Lab: 30, Field training: 05, others incl. unit tests: 05)  
(*Syllabi of theory, practical and lab (skills) training together shall be completed in 80 hours*)

**Unit -1: Basics of Gardening** (10h)

1. Garden and gardening: Definitions, objectives and scope; types of gardens (domestic garden, flower garden, woodland garden, rock garden, water garden and herb and vegetable garden).
2. Speciality gardens (vertical garden, roof garden and scented garden); principles of gardening; garden components and adornments;
3. Styles of garden: formal, informal, free style and wild; some famous gardens of India.

**Unit -2: Garden operations** (10h)

1. Bio-aesthetic planning, eco-tourism, theme parks, indoor gardening, therapeutic gardening.
2. Gardening operations: soil laying, manuring, watering, management of pests and diseases and harvesting.
3. Lawn making, methods of designing rockery and water garden.

**Unit-3: Ornamental plants** (10h)

1. Ornamental plants: flowering annuals and perennials; climbers and creepers; shade and ornamental trees.
2. Bulbous and foliage ornamental plants; cacti and succulents; palms, ferns.
3. Bonsai: definition, types and styles, art of making bonsai.

**Unit-4: Propagation techniques** (10h)

1. Propagation of ornamental plants by rhizomes, corms tubers, bulbs and bulbils.
2. Vegetative propagation techniques – a brief account of cuttings, layering and grafting.
3. Types of seed beds; sowing of seeds and raising seedlings, transplanting of seedlings; growing plants in pots, potting and repotting.

**Unit-5: Landscaping** (10h)

1. Landscaping: definition, landscaping of parks and public gardens.
2. Urban planning and planting avenues; Landscaping highways and educational institutions; beautifying villages and colonies.
3. Computer Aided Designing (CAD) for outdoor and indoor-scaping.

### **III. References:**

1. Bose T.K. and Mukherjee, D., 1972, Gardening in India, Oxford & IBH Publishing Co., New Delhi.
2. Sandhu, M.K. 1989 Plant Propagation, Wiley Eastern Ltd., Bengaluru.
3. Nambisan, K. M. P. 1992. Design Elements of Land Scape Gardening Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
4. Bose, T. K. Malti, R. G. Dhua, R. S and Das, P. 2004. Floriculture and Landscaping. Nayaprakash, Calcutta.
5. Arora, J.S. 2006. Introductory Ornamental Horticulture. Kalyani Publishers, Ludhiana.
6. Web resources suggested by the teacher concerned and the college librarian including reading material.

### **Course 6D: Gardening and Landscaping – Practical syllabus**

**IV. Learning Outcomes:** On successful completion of this practical course, student will be able to:

1. Perform various skills related to gardening.
2. Identify the living and non-living components required for garden development.
3. Identify the pests and diseases of garden plants and control the same.
4. Demonstrate skills of making bonsai and developing lawn.
5. Make landscape design using CAD.

### **V. Practical (Laboratory) Syllabus: (30 hrs)**

1. Preparation of beds for growing nursery of herbs, shrubs and trees.
2. Tools, implements and containers used for propagation and nursery techniques.
3. Identification of different ornamental plants.
4. Demonstration of types and styles of gardens using photos or videos.
5. Gardening operations: soil laying, manuring, watering.
6. Identification of pathogenic and non-pathogenic diseases of garden plants and grasses.
7. Propagation by cutting, layering, budding and grafting.
8. Planning and designing of gardens, functional uses of plants in the landscape.
9. Preparation of land for lawn and planting.
10. Exposure to CAD (Computer Aided Designing)
11. Demonstration of bonsai making.
12. Making of topiaries.

### **VI. Lab References:**

1. Paul Wagland, 2011. Garden Landscaping Manual: A Step-by-Step Guide to Landscaping & Building Projects in Your Garden, Haynes Publishing UK
2. Misra Kaushal Kumar, 2016. Practical Manual of Horticulture, Biotech Books, Open Library.org
3. Hemla Naik, B., S.Y. Chandrashekhar and M. Jawaharlal, 2013. Principles of Landscape Gardening, TNAU, Agrimoon.Com.
4. Web sources suggested by the teacher concerned.

**VII. Co-Curricular Activities:**

**a) Mandatory:** (*Lab/field training of students by teacher: (Lab: 10 + field: 05 hours)*)

1. **For Teacher:** Training of students by the teacher in the laboratory/field for a total of not less than 15 hours on the field techniques/skills of garden operations, lawn making, art of bonsai, plant propagation methods, Using CAD.
2. **For Student:** Students shall (individually) visit the parks in public and private places, study the living and non-living elements of gardening – landscaping; write their observations (on various plants, growth habit, propagation, design of garden etc.,) and submit a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.
3. Max marks for Fieldwork/Project work Report: 05
4. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place(s) visited, observations, findings, and acknowledgements.
5. Unit tests (IE).

**b) Suggested Co-Curricular Activities:**

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like identifying ornamental plants, types and styles of gardens, propagation of garden plants, landscaping)
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on plant propagation, garden operations, ornamental gardening.
5. Collection of material/figures/photos related to gardening and landscaping, writing and organizing them in a systematic way in a file.
6. Visits to gardens and parks in public places and/or private firms; famous gardens in A.P. and India etc.
7. Invited lectures and presentations on related topics by field/industrial experts.

## Model Question Paper Pattern for Practical Examination

Semester – V/ Botany Skill Enhancement Course

### Gardening and Landscaping

Max. Time: 3 Hrs.

Max. Marks: 50

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- |   |            |
|---|------------|
| 1. Demonstration a vegetative propagation technique 'A'         | 8          |
| 2. Demonstration of bed making/ garden operations' 'B'          | 10         |
| 3. Demonstration of bonsai technique/ designing a landscape 'C' | 12         |
| 4. Scientific observation and data analysis                     | 4 x 3 = 12 |
| D. Type or style of garden                                      |            |
| E. Ornamental plant   |            |
| F. Garden adornments  |            |
| G. Pest or disease of garden plants                             |            |
| 5. Record + Viva-voce   | 5+3 = 8    |

**Course 7D: Agroforestry**

(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning Outcomes:**

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

1. Understand the concepts and economic value of agroforestry.
2. Acquire a critical knowledge on systems and design of agroforestry.
3. Explain silviculture practices in relation to agroforestry.
4. Understand the role of agroforestry to reclaim the waste lands.
5. Perform skills in relation to tree measurement techniques.

**II. Syllabus:** (Hours: Teaching: 50, Lab: 30, Field training: 05, others incl. unit tests: 05)  
(*Syllabi of theory, practical and lab (skills) training together shall be completed in 80 hours*)

**Unit-1: Basic concepts of Agroforestry** (10h)

1. Forest and Agroforestry. Definition, objectives, scope and advantages of agroforestry; classification of agroforestry; differences between social forestry and agroforestry.
2. Agroforestry practices as existing in India and Andhra Pradesh.
3. Criteria for selection and screening of tree species; design and diagnosis methodology in relation to agroforestry.

**Unit-2: Systems of Agroforestry** (10h)

1. Global agroforestry system: shifting cultivation, taungya cultivation, shelter belt and wind breaks, and energy plantation and homestead gardens.
2. Multipurpose tree species and their characteristics; criteria for selection of agroforestry design, role tree architecture and management in agroforestry.
3. Alley cropping, high density short rotation plantation systems, silvicultural woodlots, energy plantations.

**Unit-3: Silviculture of Agroforestry trees** (10h)

1. Silviculture: Definition, objectives and scope and its place in agroforestry.
2. Choice of species, site selection, and pure versus mixed crop, planting techniques and methods, protection of seedlings/ plantations from environmental and biological adversaries, tending operations, concept of coppice etc.
3. Silviculture of agroforestry trees with special reference to: (a) *Azadirachta indica*, (b) *Tectona grandis* (c) *Embllica officinalis* and (d) *Tamarindus indica*.

**Unit-4: Waste land reclamation** (10h)

1. Wasteland definition, types: ecological characteristics, landslides, soil erosion, hoods, drought, salinity, water logging and fire.
2. Biological causes of deforestation, grazing, shifting cultivation and faulty agricultural practices.

3. Reclamation of wastelands, scientific land use practices, afforestation, soil conservation practices, improvement of water catchment areas and development of recreational and amenity areas.

**Unit-5: Measurements in Agroforestry** (10h)

1. Tree measurement techniques: Instruments and methods for measurement of tree diameter, height, bark thickness, crown volume crown surface area.
2. Tree stem form, yield tables, volume tables, concept of sustained yield, and kind of tree rotation, increment and yield; estimation of biomass.
3. Determination of tree age and introduction of working plan.

**III. References:**

1. Dwivedi, A.P. 1992. Agroforestry: Principles and Practices. Oxford & IBH
2. Nair, P.K.R. 1993. An Introduction to Agroforestry. Kluwer.
3. Nair P.K.R., M.R. Rai and L.E.Buck, 2004. New Vistas in Agroforestry. Kluwer
4. Rajeshwar Rao G., M. Prabhakar, G. Venkatesh, I. Srinivas and K. Sammi Reddy (2018) Agroforestry Opportunities for Enhancing Resilience to Climate Change in Rainfed Areas, ICAR-CRIDA, Hyderabad
5. Young, A. 1997. Agroforestry for Soil Management. CABI
6. Web resources suggested by the teacher concerned and the college librarian including reading material.

**Course 7D: Agroforestry – Practical syllabus**

**IV. Learning Outcomes:** On successful completion of this practical course, student will be able to:

1. Identify suitable tree species for agroforestry and their products.
2. Demonstrate skills on raising tree species from seeds and by vegetative propagation.
3. Perform skills on measurements related to wood-based products.
4. Estimate biomass in an energy plantation.

**V. Practical (Laboratory) Syllabus:** (30 hrs)

1. Identification of agroforestry tree-species.
2. Identification of important major and minor agroforest products.
3. Collection and maintenance of agro-forest products and herbarium
4. Nursery lay out seed sowing and pre-sowing seed treatments.
5. Vegetative propagation techniques – hard wood cuttings and air layering.
6. Diameter measurements using calipers and tape; diameter measurements of forked, buttressed, fluted and leaning trees.
7. Height measurement of standing trees by shadow method, single pole method and hypsometer.
8. Volume measurement of logs using various formulae.
9. Biomass estimation in energy plantations.

**VI. Lab References:**

1. Meena, R. N. and R.K. Singh, 2014. A Practical Manual on Agroforestry, Srijan Samiti Publication, Varanasi
2. Dadhwal, K.S., P.Panwar, R.Kaushal, H.S.Saralch and R.Chauhan, 2014. Practical Manual on Agroforestry, Jaya Publishing House, Delhi

3. Sen, N. L., R. C. Dadheech, L. K. Dashora and T. S. Rawat, 2010. Manual of Agroforestry and Social forestry, Agrotech Publishing Academy, Udaipur
4. Web sources suggested by the teacher concerned.

#### **VII. Co-Curricular Activities:**

**a) Mandatory:** (*Lab/field training of students by teacher: (Lab: 10 + field: 05 hours)*)

1. **For Teacher:** Training of students by the teacher in the laboratory/field for not less than 15 hours on techniques like selection and screening of tree species, design and diagnosis methodology in agroforestry, silviculture practices for some selected tree species and measurements in agroforestry.
2. **For Student:** Students shall (individually) visit to nurseries of forest department, agroforestry division in Horticulture university/research station, agroforest/silviculture sites, write their observations on nursery practices, various species grown in an agroforest, growth habit, cultivation practices, measurements, products etc., and submit to the teacher a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format.
3. Max marks for Fieldwork/Project work Report: 05
4. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place visited, observations, findings and acknowledgements.
5. Unit tests (IE).

**a) Suggested Co-Curricular Activities:**

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like criteria for selection of agroforestry tree species; silviculture practices in agroforests; measurements in agroforestry; economic, social, land use and cultural services of agroforestry)
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on various agroforestry methods, silviculture practices, tree measurement techniques etc.,
5. Collection of material/figures/photos related to agroforestry, writing and organizing them in a systematic way in a file.
6. Visits to social forest nurseries, energy plantations and forest research centres; nearby agro-forest based industries in A.P.
7. Invited lectures and presentations on related topics by field/industrial experts

## Model Question Paper Pattern for Practical Examination

Semester – V/ Botany Skill Enhancement Course

### Agroforestry

Max. Time: 3 Hrs.

Max. Marks: 50

- 
- |  |            |
|--|------------|
| 1. Demonstration pre-sowing seed treatments ‘A’                  | 8          |
| 2. Demonstration of hard wood cutting/air layering technique ‘B’ | 10         |
| 3. Demonstration of technique of diameter/height measurement ‘C’ | 12         |
| 4. Scientific observation and data analysis                      | 4 x 3 = 12 |
| D. Agroforest plant  |            |
| E. Agroforest product  |            |
| F. A tool used for measurement                                   |            |
| G. A herbarium specimen collected by him/her for identification  |            |
| 5. Record + Viva-voce  | 5+3 = 8    |

### Suggested pattern for Question Paper of Theory Examination(s) at Semester end

Max. Time: 3 Hrs.

Max. Marks: 75 M

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#### Section – A

Answer **all** the following questions.

5 x 2 = 10 M

- ✓ One question should be given from each Unit in the syllabus.

#### Section – B

Answer any **Four** of the following questions. Draw a labelled diagram wherever necessary

3 x 5 = 15 M

- ✓ One question should be given from each Unit in the syllabus.

#### Section – C

Answer any **five** of the following questions. Draw a labelled diagram wherever necessary

5 x 10 = 50 M

- ✓ Two questions (a & b) are to be given from each Unit in the syllabus (internal choice in each unit). Student has to answer 5 questions by choosing one from a set of questions given from a Unit.

**Note:** Questions should be framed in such a way to test the understanding, analytical and creative skills of the students. All the questions should be given within the frame work of the syllabus prescribed.

**ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION**

(A Statutory body of the Government of Andhra Pradesh)

REVISED UG SYLLABUS UNDER CBCS

(Implemented from Academic Year 2020-21)

PROGRAMME: FOUR YEAR B.Com. (Hons)

**Domain Subject: Commerce*****Skill Enhancement Courses (SECs) for Semester V, from 2022-23 (Syllabus with Learning Outcomes, References, Co-curricular Activities & Model Q.P. Pattern)*****Structure of SECs for Semester– V***(To choose Three pairs from the Nine alternate pairs of SECs)**(For each SEC: Hours/Week: 05, Credits: 4, Max Marks: 100)*

Pairs of Skill Enhancement Courses (SEC) under each series in Commerce for Semester-V.

Course No.	Series-A: Accountancy	Course No.	Series-B: Services	Course No.	Series-C: E commerce
	Course Name		Course Name		Course Name
16-A	Advanced Corporate Accounting	16-B	Advertising and Media Planning	16-C	Digital Marketing
17-A	Software Solutions to Accounting	17-B	Sales Promotion and Practice	17-C	Service Marketing
18-A	Management Accounting	18-B	Logistics Services and Practice	18-C	Income Tax Procedure & Practice
19-A	Cost Control Techniques	19-B	EXIM Procedure and practice	19-C	GST Procedure & Practice
20-A	Stock Markets	20-B	Life Insurance with Practice	20-C	E Commerce
21-A	Stock Market Analysis	21-B	General Insurance with practice	21-C	E filing

Note: In Semester-V a B.Com. General students have to study Three pairs of SECs (a total of 6 courses). The Pairs are, SEC numbers 16 & 17, 18 & 19 and 20 & 21. As there shall be choice to students under CBCS, a total of 9 pairs shall be offered from which B.Com. General students have to choose a total of Three pairs of SECs.

The 9 pairs are from 3 series namely (A) Accountancy, (B) Services and (C) E-Commerce. Students can, however, choose their **Three pairs** from any of the **Nine** pairs but a pair shall not be broken.

For example students can choose any Three pairs like the following;

16-A & 17-A (from Accountancy), 18-B, 19-B (from Services) and 20-C, 21-C from E-Commerce.

Or 16-A & 17-A, 18-C & 19-C and 20-B & 21-B

Or 16-B & 17-B, 18-A & 19-A and 20-C & 21-C

Or 16-B & 17-B, 18-C & 19-C and 20-A & 21-A

Or 16-C & 17-C, 18-B & 19-B and 20-A & 21-A

Or 16-C & 17-C, 18-A & 19-A and 20-B, 21-B

Whereas, B.Com Computers Students can choose any two pairs from the above 9 pairs.

*Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations.*

Four-Year B. Com. (Hons)  
Domain Subject: COMMERCE  
IV YEAR B.COM (HONS) - Semester -V-

Max Marks: 100

Time: 3 Hrs

**Course 16-C: DIGITAL MARKETING**  
(Skill Enhancement Course (Elective) 4 credits)

**I. Learning Outcomes**

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

1. Analyze online Micro and Macro Environment
2. Design and create website
3. Discuss search engine marketing
4. Create blogs, videos, and share

**II. Syllabus:** Total 75hrs (Teaching 60, Training10, Others 05 including IE etc.)

**Unit 1: Introduction**

Digital marketing: Meaning – importance – traditional online marketing vs digital marketing – online market place analysis Micro Environment – Online Macro Environment - trends in digital marketing – competitive analysis.

**Unit – II: Web site planning and creation**

Web Site: meaning – objectives – components of website - website creation – incorporation of design and– adding content, installing and activating plugins.

**Unit 3: Search Engine Optimization (SEO)**

SEO: Meaning – History and growth of SEO –Importance of Search Engine - On page Optimization – off page optimization – Role of Search Engine Operation- google Ad words – Search Engine Marketing: Campaign Creation – Ad Creation, Approval and Extensions.

**Unit 4: Social Media Marketing:**

Meaning of social media and Social Media Marketing – social Management tools-strategy and planning – social media network – Social Networking – video creation and sharing – use of different social media platforms - Content creation - Blogging – Guest Blogging.

**Unit 5: Email marketing:**

Meaning – Evolution of email – importance of email marketing – Development and Advancements in e mail marketing - email marketing platforms – creating and Tracking emailers–create forms – create opt-in lists – mapping industry trends and eliminating spam messages.

**III. References**

1. Digital Marketing for Dummies by Ryan Deiss & Russ Henneberry, publisher John Wiley first edition 2020.
2. **Youility** by JayBaer, Published by Gilda MediaL C Portfolio 2013,
3. **Epic Content Marketing** by Joe Pulizzi, McGraw-Hill Education, 2013

4. New Rules of Marketing and PR by David Meerman Scott. Wiley, 2017
5. **Social Media Marketing All-in-one Dummies** by Jan Zimmerman, Deborah Ng, John Wiley & Sons.
6. Digital Marketing 2020 by Danny Star, Independently Published, 2019
7. *Web sources suggested by the concerned teacher and college librarian including reading material.*

#### **IV. Co-Curricular Activities:**

##### **A. Mandatory** (*Student training by teacher in field related skills: 10 hrs.*):

1. **For Teachers:** teacher shall train students (using actual field material) in classroom/field for not less than 10 hours in the skills in digital marketing viz., SEO, SEM, Social media Marketing, content writing, e-mail marketing, web designing and development, Blogging, Google ad words.
2. **Students:** Students shall individually undertake an online study on any aspect such as Analysis of local online Micro and Macro Environment and make a trend analysis of digital marketing, Build a blog on any topic or subject of their interest, Develop website to market for (real/imaginary) product or service, Create video with product or service description to evoke customer attention. Each student has to submit his/her observations as a handwritten Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work (not more than 10 pages): Title page, student details, contents, objective, step-wise work done, findings, conclusions and acknowledgements.
5. Unit tests (IE).

##### **B. Suggested Co-Curricular Activities**

1. Organize short term training on Digital Marketing in collaboration with local or online skill providers.
2. Seminars/Conference/ Workshops on significant and emerging areas in Digital Marketing
3. Real time work experience with Digital marketing service providers.
4. Arrange for Interaction with Area Specific Experts.

#### **V. Suggested Question Paper Pattern:**

Max. Marks 75

Time: 3 hrs

##### **SECTION - A (Total 25 marks)**

Answer any FIVE Questions (5×5 Marks)

OUT OF EIGHT. COVER ALL UNITS

##### **SECTION - B (Total 50 marks)**

Answer any FIVE Questions (5×10 Marks)

OUT OF EIGHT. COVER ALL UNITS

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A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-Year B. Com. (Hons)  
Domain Subject: **COMMERCE**  
**IV YEAR B.COM (HONS) - Semester -V**

Max Marks: 100

Time: 3Hrs

**Course 17 C -Service Marketing**  
(Skill Enhancement Course (Elective) 4 credits)

**I. Learning Out comes**

Upon successful completion of the course the student will be able to;

1. Discuss the reasons for growth of service sector.
2. Examine the marketing strategies of Banking Services, insurance and education services.
3. Review conflict handling and customer Responses in services marketing
4. Describe segmentation strategies in service marketing.
5. Suggest measures to improve services quality and their service delivery.

**II. Syllabus:** Total 75hrs (Teaching 60, Training10, Others 05 including IE etc.)

**Unit 1: Introduction: Nature and Scope of services**

Introduction: Nature and Scope of services characteristics of services, classification of services – need for service marketing - reasons for the growth of services sector, Overview of marketing Different Service Sectors -Marketing of Banking Services -Marketing in Insurance Sector - Marketing of Education Services.

**Unit-2: Consumer Behavior in Services Marketing**

Customer Expectations on Services- Factors influencing customer expectation of services. - Service Costs experienced by Consumer, the Role of customer in Service Delivery, Conflict Handling in Services, Customer Responses in Services, Concept of Customer Delight

**Unit-3: Customer Relationship marketing and Services Market Segmentation.**

Customer Relationship marketing: Meaning -Importance of customer & customer's role in service delivery, Benefits of customer relationship, retention strategies. Services Market Segmentation: - Market segmentation -Basis & Need for segmentation of services, bases of segmentation services, segmentation strategies in service marketing.

**UNIT 4: Customer Defined Service Standards.**

Customer Defined Service Standards - Hard and Soft, Concept of Service Leadership and Service Vision -Meeting Customer Defined Service Standards -Service Flexibility Versus Standards - Strategies to Match Capacity and Demand - managing Demand and Supply of Service –applications of Waiting Line and Queuing Theories to Understand Pattern Demand.

## **Unit 5: Service Development and Quality Improvement.**

Service Development – need, importance and Types of New Services - stages in development of new services, service Quality Dimensions - Service Quality Measurement and Service Mapping, Improving Service Quality and Service Delivery, Service Failure and Recovery.

### **III. References**

1. John E.G. Bateson, K.Douglas Hoffman: Services Marketing, Cengage Learning, 4e, 2015 publication
2. Vinnie Jauhari, Kirti Dutta: Services Marketing: Operations and Management, Oxford University Press, 2014.
3. Valarie A. Zeithaml and Mary Jo-Bitner: Services Marketing – Integrating Customer Focus Across The Firm, Tata McGraw Hill Publishing Company Ltd., 6e, 2013.
4. Nimit Chowdhary, Monika Chowdhary, Textbook of Marketing Of Services: The Indian Experience, Macmillan, 2013.
5. K. Rama Mohana Rao, Services Marketing, Pearson, 2e, 2011.
6. Dr. K. Karunakaran, Service Marketing (Text and Cases in Indian Context), Himalaya Publications.
7. *Web sources suggested by the concerned teacher and college librarian including reading material.*

### **IV. Co-Curricular Activities:**

#### **A. Mandatory (Student training by teacher in field related skills: 10 hrs.):**

1. **For Teachers:** Teacher shall train students (using actual field material)in classroom/field for 10 hours in the skills in service marketing such as planning and designing marketing strategies for any real/imaginary service of their interest, procedure to identify customer behavior and their satisfaction for any service and issues thereof.
2. **Students:** Students shall individually take up a study on marketing strategies adopted (w.r.t.) any one specific service product) adopted by any of the service providers like Banking, Insurance, Telecom companies, (BSNL, Reliance Jio, Airtel, etc.) any other sector like electric household appliances, hospitals, hotels etc. Assess Customer expectations and Customer satisfaction feedback on services provided by Network providers. Of Mobile Companies/Banking/Insurance/hospitals Zamoto, Swiggy, etc. Each student has to submit his/her observations as a handwritten Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work (not more than 10 pages): Title page, student details, contents, objective, step-wise work done, findings, conclusions and acknowledgements.
5. Unit tests (IE).

**B. Suggested Co-Curricular Activities**

1. Organize short term training on specific technical skills in collaboration with Computer Department or skill training institution (Government or Non-Government Organization). Like Zoho, Fresh book, MS Excel....
2. Seminars/Conference/ Workshops on emerging trends in service marketing
3. Real time work experience with service marketing providers
4. Arrange for Interaction with Area Specific Experts.

**V. Suggested Question Paper Pattern:**

Max. Marks 75

Time: 3 hrs

SECTION - A (Total 25 marks)

Answer any FIVE Questions (5×5 Marks)

OUT OF EIGHT. COVER ALL UNITS

SECTION - B (Total 50 marks)

Answer any FIVE Questions (5×10 Marks)

OUT OF EIGHT. COVER ALL UNITS

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A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Com. (Hons)  
Domain Subject: **COMMERCE**  
IV Year B. Com.(Hons) – Semester – V

Max Marks: 100

Time: 3 Hrs

**Course-18-C. INCOME TAX ASSESSMENT PROCEDURES AND PRACTICE**

(Skill Enhancement Course (Elective), 4 Credits)

**I: Course Learning Outcomes**

After successfully completing the course, the student shall be able to:

1. Understand the basic concepts in computation of tax liability under all heads of income of the individuals.
2. Analyze the clubbing provisions, aggregate income after set-off and carry forward of losses under the Income Tax Act.
3. Compute taxable income and tax liability of individuals and firms.
4. Acquire the ability to file online returns of income.
5. Acquire skills of TDS/TCS and online filing of Tax returns.

**II. Syllabus:** Total 75hrs (Teaching 60, Training10, Others 05 including IE etc.)

**Unit-I: Computation of Total Income and Tax Liability**

Computation of Total Income and Tax Liability of Individuals- Firms and Companies - Procedure for Assessment including Problems in calculation of tax for firms& Companies

**Unit-II: Clubbing of Income-Set off of Losses**

Meaning of clubbing of income– Different items come under the provisions of clubbing of income

Meaning of set-off of losses and carry-forward and set-off of losses – Types of set-off - Intra-set off and Inter-set off

**Unit-III: Tax Payment- Penalties**

Advance Payment of Tax - Persons liable to pay Advance Tax – Procedure for Computation of Advance Tax – Due Dates for the Payment of Advance Tax - Consequences of Non-payment of Advance Tax- Refund of tax, interest on refund – Appeals and Revisions

**Unit-IV: Returns Filing**

Procedure for Assessment - Filing of Return – Prescribed Forms for filing of Returns – PAN & TAN - On-line filing of Returns- 26 AS - Traces.

**Unit-V: TDS &TCS and e-Filing**

TDS-TCS- Provisions in brief relating to TDS/TCS- Schedule for deposit & Submission of Returns of TDS- Form-16 generation.

**III: References:**

1. Systematic Approach to Income Tax, Girish Ahuja & Ravi Gupta, Bharat Law House Pvt. Ltd, New Delhi.
2. Income Tax, Vinod K. Sinhania & Monica Sinhania, Taxmann Publications Pvt. Ltd, New Delhi.
3. Taxation Law & Practice, Mehtrotra & Goyal, Sahitya Bhavan Publications, Agra.
4. E.A. Srinivas, Corporate Tax Planning, Tata McGraw Hill.
5. Vinod K. Sinhania, Taxman's Direct Taxes Planning and Management.

6. Bhagawati Prasad, Direct Taxes Laws Practice, Vishwa Prakashan.
7. <https://incometaxindia.gov.in>
8. Web resources suggested by the Teacher concerned and the College Librarian including reading material

#### IV. Co-Curricular Activities

##### A. Mandatory (Student training by teacher in field related skills: 10 hrs.):

1. **For Teachers:** Training of students by the teacher (using actual field material) in classroom/field for not less than 10 hours on techniques in tax consultancy, Income Tax calculation and Tax filing. Tax filing in respect to individuals, firms and Corporate. Income Tax Portal for a selected Tax Payer. Each student has to be trained in using forms for filing of returns.
  - a. Tax Calculation and preparation of Annexure w.r.t employees in the institutions and selected organizations (ref. unit-1)
  - b. Working with Clubbing income and set of losses/carry forward losses for a given Company/organization (ref. unit-2)
  - c. Working with CBDT website for Income Tax website for various provisions and Penalties (ref. unit-3)
  - d. Working with Online tax portal for downloading different formats (ref. unit 4)
  - e. Preparation of TDS and TCS reports and generating Form 16 from respective DDO (ref. unit.5)
2. **For Students:** Students shall individually take up a field study and make observations on Tax Assessment and Submission of Tax Return to Income tax department, payment of tax and other formalities. They may also work with an Income Tax Practitioner and participate in the real time submissions of Tax. Each student has to submit his/her observations as a handwritten Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.
3. Max marks for Fieldwork/Project work Report: 05
4. Suggested Format for Fieldwork/Project work (not more than 10 pages): Title page, student details, Contents, objective, step-wise work done, findings, conclusions and acknowledgements.
5. Unit tests (IE).

##### B. Suggested Co-Curricular Activities

1. Training of students by a related field expert.
2. Assignments including technical assignments like Working with Tax Consultancy for observation of Tax Assessment and Return Filing Procedure.
3. Seminars, Conferences, discussions by inviting concerned institutions
4. Field Visit
5. Invited lectures and presentations on related topics

#### V. Suggested Question Paper Pattern:

Max. Marks 75

Time: 3 hrs

SECTION - A (Total 25 marks)

Answer any FIVE Questions (5×5 Marks)

SECTION - B (Total 50 marks)

Answer any FIVE Questions (5×10 Marks)

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A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Com. (Hons)  
Domain Subject: **COMMERCE**  
IV Year B. Com.(Hons) – Semester – V

Max Marks: 100

Time: 3Hrs

**Course 19-C-GOODS AND SERVICES TAX WITH TALLY**  
(Skill Enhancement Course (Elective), 4 Credits)

**I: Course Learning Outcomes**

After completing the course, the student shall be able to:

1. Understand the concept of Liability and Payment of GST
2. Create a new company in Tally with GST components and establish environment for GST Voucher entry.
3. Comprehend the utilization of input tax credit, and the reverse charge mechanism in GST
4. Acquire Skills of preparation of GST Returns in accordance with GST Law and Tally
5. Acquire skill of online payment of GST through GST Portal.

**II. Syllabus:** Total 75hrs (Teaching 60, Training10, Others 05 including IE etc.)

**Unit 1: GST- Liability and Payment**

Output tax liability - Input tax credit utilization-- Schedule for payment of GST- Interest/penalty for late/non-filing of return-Payment of GST- GST Network

**Unit-II: GST – Accounting Masters and Inventory Masters in Tally**

Company Creation- General Ledgers & GST Ledgers Creation - Stock Groups , Stock Items and Unit of Measure - GST Rate Allocation to Stocks

**Unit-III: GST Voucher Entry**

GST Vouchers - Customizing the Existing Voucher types with applicable GST Rates –Mapping of Input Tax Credit on Purchase Vouchers - Output Tax on Sales Vouchers- Purchase and Sales Voucher Entries with Single Rated GST and Multiple Rated GST Goods.

**Unit-IV: GST Returns**

Regular Monthly returns and Annual Return- Returns for Composition Scheme- Generation of Returns - GSTR-1, GSTR-2, GSTR-3, GSTR-4, GSTR-9, GSTR-3B

**Unit-V: Payment of GST online**

Payment of GST- Electronic Filing of GST Returns – Refunds – Penalties- Administrative structure of GST Officers- Powers- Jurisdiction.

### III: References:

1. Ahuja, Girish, Gupta Ravi, GST & Customs Law.
2. Babbar, Sonal, Kaur, Rasleen and Khurana, Kritika. Goods and Service Tax (GST) and Customs Law. Scholar Tech Press.
3. Bansal, K. M., GST & Customs Law, Taxmann Publication.
4. Singhania, Vinod K. and Singhania Monica. Students' guide to Income Tax. University Edition. Taxmann Publications Pvt Ltd., New Delhi.
5. Sisodia Pushpendra, GST Law, Bharat Law House.
6. **Web resources:** <https://cbic-gst.gov.in>
7. Web resources suggested by the Teacher concerned and the College Librarian including reading material

### IV. Co-Curricular Activities

#### A. Mandatory (*Student training by teacher in field related skills: 10 hrs.*):

1. **For Teachers:** Training of students by the teacher (using actual field material) in classroom/ field for not less than 10 hours on techniques in computation of and online submission of GST. On Tally ERP 9 for entering entries of a selected firm.
  - a. Calculation of output tax liability and input Tax Credit through voucher entries (ref. unit-1)
  - b. Creation of Company and working with Masters in Tally ERP9 (ref. unit-2)
  - c. Voucher entry along with Input tax and output taxed entries (ref. unit-3)
  - d. Preparation of GST Returns for regular dealer and composite dealer in tally (Ref. unit 4)
  - e. Online Payment of GST using Tally (ref. unit.5)
2. **For Students:** Students shall take up individual field study on Entry of GST Voucher, Calculation of Input Tax and Output Tax including single rated /multi rated GST with a selected organizations. Submission of online GST Returns for a selected business firm. Each student has to submit his/her observations as a handwritten Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work Report (not more than 10 pages): Title page, student details, contents, objective, step-wise work done, findings, conclusions and acknowledgements.
5. Unit tests (IE).

#### B. Suggested Co-Curricular Activities

1. Training of students by a related field expert.
2. Assignments including technical assignments like Working with Tally for Observation of real-time entries for transaction of accounting with inventory
3. Seminars, Conferences, discussions by inviting concerned institutions
4. Field Visit
5. Invited lectures and presentations on related topics.

### V. Suggested Question Paper Pattern:

Max. Marks 75

Time: 3 hrs

SECTION - A (Total 25 marks)

Answer any FIVE Questions (5×5 Marks).  
OUT OF EIGHT COVERIBG ALL UNITS

SECTION - B (Total 50 marks)

Answer any FIVE Questions (5×10 Marks)  
OUT OF EIGHT COVERIBG ALL UNITS

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A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Com. (Hons)  
Domain Subject: **COMMERCE**  
IV Year B. Com.(Hons) – Semester – V

Max Marks: 100

Time: 3 Hrs

Course **20C: E COMMERCE**  
(Skill Enhancement Course) (Elective 4 Credits)

**I. Learning Outcomes:**

By the completion of the course, the students are able to

1. Understand the mechanism of ecommerce
2. Equip specialization in website designing for e commerce
3. Enhance their skills in operational services of e commerce
4. Involve in activities of e commerce
5. Able to create awareness among the public on commerce activities

**II. Syllabus** Total 75hrs (Teaching 60, Training 10 and others 05 including IE etc)

**UNIT 1: Introduction, Nature and Scope**

Introduction- Definition –importance- Nature and scope of e commerce-Advantages and limitations-Types of ecommerce – B2B,B2C,C2B,C2C,B2A,C2A- Framework e commerce

**UNIT 2:- Environmental and Technical support Aspects**

Technical Components- Internet and its component structure-Internet Vs Intranet, Vs Extranet and their differences-Website design- its structure-designing, developing and deploying the system-

**UNIT 3. –Security and Legal Aspects**

Security environment –its preliminaries and precautions-protecting Web server with Firewalls-Importance of Digital Signature –its components – Cyber Law-Relevant Provisions of IT Act 2000.

**UNIT 4. - Operational Services of e Commerce**

E retailing –features- E Services-Banking, Insurance, Travel, Auctions, Learning, Publication and Entertainment-Payment of utilities (Gas, Current Bill, Petrol Products)- On Line Shopping (Amazon, Flip kart, Snap deal etc.)

**UNIT 5.–E Payment System**

Types of e payment system- its features-Digital payments (Debit Card/Credit Cards, Internet Banking, Mobile wallets- Digital Apps (unified Payment Services-Phone Pay, Google Pay, BHIM Etc.) Unstructured Supplementary Services Data (Bank Prepaid Card, Mobile banking)-

**III. References:**

1. Bharat Bhaskar , Electronic Commerce Framework, Technology and Application.  
McGraw Hill Education
2. Bajaj,D.Nag,E Commerce, Tata McGraw Hill Publication
3. Whitely David , E-Commerce, McGraw Hill
4. TN Chhabra ,E Commerce, Dhanapat Rai & Co
5. Dave Chaffey, E Business and E Commerce Management, Pearson Publication
6. Dr.Pratik Kumar Prajapati, Dr.M.Patel, E Commerce , Redshine Publication

7. *Web resources suggested by the Teacher concerned and the College Librarian including reading material*

**IV Co-Curricular Activities (teacher participation: total 15 hours):**

**A. Mandatory**

**1. For Teachers:** Training of students by the teacher (using actual field material) in classroom and field for a total of not less than 10 hours on the skills of listing out the local institutions who are involved in e commerce activities, Identifying the institutions and their experience in operational activities of e commerce, Case studies are to be analyzed of various problems raised at the time of e payment and operational activities of e commerce

**2. For Students:** Students shall individually undertake field study by contact website designers and studying various procedures adopted by the merchants and individuals and their experiences. Each student has to record and submit his/her observations in a handwritten Fieldwork/Project work Report not exceeding 10 pages to teacher in the given format.

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

**4. Suggested Format for Fieldwork/Project work Report (not more than 10 pages):** Title page, student details, contents, objective, step-wise work done, findings, conclusions and acknowledgements.

**5. Unit tests (IE).**

**B. Suggested Co-Curricular Activities**

1 Training of students by a related field expert.

2. Assignments (including technical assignments like volume of business operated through e commerce, Case Studies of problems raised at the time of e commerce

3. Seminars, Conferences, discussions by inviting concerned institutions

4. Conduct surveys on pros and cons of ecommerce

5. Invited lectures and presentations on related topics by field experts.

**V. Suggested Question Paper Pattern:**

Max. Marks 75

Time: 3 hrs

SECTION - A (Total 25 marks)

Answer any FIVE Questions (5×5 Marks)

OUT OF EIGHT COVER ALL UNITS

SECTION - B (Total 50 marks)

Answer any FIVE Questions (5×10 Marks)

OUT OF EIGHT COVERING ALL UNITS

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A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Com. (Hons)  
Domain Subject: **COMMERCE**  
IV Year B. Com.(Hons) – Semester – V

Max Marks: 100

Time: 3 Hrs

Course **21 C: e FILING**  
(Skill Enhancement Course (Elective) 4credits)

**Learning Outcomes:**

By the completion of the course, the students are able to

- Understand and apply basic knowledge of Indian Tax System
- Equip specialization in taxation system
- Enhance their skills in presenting returns
- Involve in activities of Chartered Accountants for filing returns
- file returns of Income Tax and GST

**II. Syllabus:** Total 75hrs (Teaching 60, Training10, Others 05 including IE etc.)

**UNIT 1: Introduction, Nature and Scope**

Introduction- Definition –importance and scope of returns--Types of Assesses –under Income Tax and Goods and Service Tax-Sources of income-

**UNIT 2:- Returns filing under Income Tax**

Types of Returns- Mode of filing-Manual-Electronic Bureau of Internal Revenue Form (eBIR) Electronic Filing and Electronic and Payment System (eFPS)-for Individuals- ITR1,ITR2,ITR3,ITR4,For Firms and CompaniesITR5,ITR6,ITR7.

**UNIT 3: –Penalties and Prosecution under Income Tax**

Nonpayment, failure to comply,-Concealment-, Book Audit, Loans-International transactions, TDS

**UNIT 4:-Returns filing under Goods Service Tax**

GSTR1, GSTR2, GSTR2A, GSTR3B, GSTR4, GSTR5, GSTR6

**UNIT 5.–Penalties and Prosecution under GST**

Differences between fees and penalty-Types of penalties under section 122 to 138

**III. References:**

1. Varun Panwar ,Jyothi Mahajan Introduction to efileing returns MKM Publishers
2. Hemachandjain and H.N.Tiwari Computer Application in Business Taxman’s Publication
3. SusheelaMadan Computer Application in Business MKM Publishers
4. [www.incometaxindiafiling.gov.in](http://www.incometaxindiafiling.gov.in)
5. [www.taxguru.in](http://www.taxguru.in)
6. [www.bharatlaws.com](http://www.bharatlaws.com)
7. [www.cbic-gst.gov.in](http://www.cbic-gst.gov.in)
- 8.. [www.taxmann.com](http://www.taxmann.com)

*Web resources suggested by the Teacher concerned and the College Librarian including reading material*

#### **IV Co-Curricular Activities (teacher participation: total 15 hours):**

##### **A. Mandatory**

**1. For Teachers:** Training of students by the teacher (using actual field material) in classroom and field for not less than 10 hours on the skills of Local tax consultants and the problems raised at the time of e filing, Identifying the assesses and their experience in e filing activities, Analysis of various returns filed through manual and e filing and their difficulties and advantages, Listing out assesses who paid penalties and identify the various reasons

**2. For Students:** Filing of tax returns through the tax experts and concerned websites, Students shall be submitted a project report on filing of returns.

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

**4.** Suggested Format for Fieldwork/Project work Report (not more than 10 pages):  
Title page, student details, contents, objective, step-wise work done, findings, conclusions and acknowledgements.

**5.** Unit tests (IE).

##### **B. Suggested Co-Curricular Activities**

- Training of students by a related field expert.
- Assignments (including technical assignments like collection of submitted returns of various organizations, Case Studies of problems raised at the time of submission of returns.
- Seminars, Conferences ,discussions by inviting concerned institutions
- Visits to local chartered Accountants to expose the practical filing procedure
- Invited lectures and presentations on related topics by field experts.

#### **V. Suggested Question Paper Pattern:**

Max. Marks 75

Time: 3 hrs.

SECTION - A (Total 25 marks)

Answer any FIVE Questions (5×5 Marks)

.OUT OF EGHIT UNITS COVERING ALL UNITS

SECTION - B (Total 50 marks)

Answer any FIVE Questions (5×10 Marks)

OUT OF EIGHT COVERING ALL UNITS

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**ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION**

(A Statutory body of the Government of Andhra Pradesh)

Revised UG Syllabus Under CBCS

(Implemented from Academic Year 2020-21)

PROGRAMME: FOUR YEAR B.Sc. (Hons)

Domain Subject: COMPUTER SCIENCE

*Skill Enhancement Courses (SECs) for Semester V, from 2022-23 (Syllabus with Learning Outcomes, References, Co-curricular Activities)*

**Structure of SECs for Semester – V***(To choose one pair from the three alternate pairs of SECs)*

Univ Code	Course Number 6 & 7	Name of Course	Hours/ Week Theo+Prac	Credits Theo+Prac	Marks	
					IA – 20 Filed Work 05	Sem End
	6A	Web Interface Designing Technologies	3 + 3	3+ 2	25	75
	7A	Web Applications Development using PHP& MYSQL	3 + 3	3 + 2	25	75
OR						
	6B	Internet of Things	3 + 3	3+ 2	25	75
	7B	Application Development using Python	3 + 3	3 + 2	25	75
OR						
	6C	Data science	3 + 3	3+ 2	25	75
	7C	Python for Data science	3 + 3	3 + 2	25	75

Note-1: For Semester–V, for the domain subject Computer Science **any one** of the **three** pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6B & 7B or 6C & 7C. The pair shall not be broken (ABCD allotment is random, not on any priority basis).

*Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate field related skills of the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations.*

Four-year B.Sc.(Hons)  
Domain Subject: **Computer Science**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100 + 50

**Course 6A: Web Interface Designing Technologies**  
(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning Outcomes:** Students after successful completion of the course 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.

**II. Syllabus:** *(Total Hours: 90 including Teaching, Lab, and Field training, Unit tests etc.)*

**Unit - I** (10 hours)

**HTML:** Introduction to web designing, difference between web applications and desktop applications, introduction to HTML, HTML structure, elements, attributes, headings, paragraphs, styles, colours, HTML formatting, Quotations, Comments, images, tables, lists, blocks and classes, HTML CSS, HTML frames, file paths, layout, symbols, HTML responsive.

**Unit – II** (10 hours)

**HTML forms:** HTML form elements, input types, input attributes, HTML5, HTML graphics, HTML media – video, audio, plug INS, you tube.

**HTML API'S:** Geo location, Drag/drop, local storage, HTML SSE.

**CSS:** CSS home, introduction, syntax, colours, back ground, borders, margins, padding, height/width, text, fonts, icons, tables, lists, position, over flow, float, CSS combinators, pseudo class, pseudo elements, opacity, tool tips, image gallery, CSS forms, CSS counters, CSS responsive.

**Unit – III** (10 hours)

**Client side Validation:** Introduction to JavaScript - What is DHTML, JavaScript, basics, variables, string manipulations, mathematical functions, statements, operators, arrays, functions. Objects in JavaScript - Data and objects in JavaScript, regular expressions, exception handling. DHTML with JavaScript - Data validation, opening a new window, messages and confirmations, the status bar, different frames, rollover buttons, moving images.

**Unit – IV** (10 hours)

**Word press:** Introduction to word press, servers like wamp, bitnami e.tc, installing and configuring word press, understanding admin panel, working with posts and pages, using editor, text formatting with shortcuts, working with media-Adding, editing, deleting media elements, working with widgets, menus.

### Unit – V (10 hours)

Working with themes-parent and child themes, using featured images, configuring settings, user and user roles and profiles, adding external links, extending word press with plug-ins. Customizing the site, changing the appearance of site using css , protecting word press website from hackers.

### III. References

1. Chris Bates, Web Programming Building Internet Applications, Second Edition, Wiley (2007)
2. Paul S.WangSanda S. Katila, an Introduction to Web Design plus Programming, Thomson (2007).
3. Head First HTML and CSS, Elisabeth Robson, Eric Freeman, O'Reilly Media Inc.
4. An Introduction to HTML and JavaScript: for Scientists and Engineers, David R. Brooks. Springer, 2007
5. Schaum's Easy Outline HTML, David Mercer, Mcgraw Hill Professional.
6. Word press for Beginners, Dr.Andy Williams.
7. Professional word press, Brad Williams, David damstra, Hanstern.
8. Web resources:
  - a. <http://www.codecademy.com/tracks/web>
  - b. <http://www.w3schools.com>
  - c. <https://www.w3schools.in/wordpress-tutorial/>
  - d. <http://www.homeandlearn.co.uk>
9. Other web sources suggested by the teacher concerned and the college librarian including reading material.

### IV. Co-Curricular Activities

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

1. **For Teacher:** Field related training of students by the teacher in laboratory/field for not less than 15 hours on identifying the case study to build a website, designing the format, structure, menus, submenus etc for a website and finally to build a website.
2. **For Student:** Students shall (individually) search online and visit any of the agencies like hotels, hospitals, super bazaars, organizations, etc. where there is a need for a website and identify any one case study and submit a hand-written Fieldwork/Project work/Project work/Project work/Project work Report not exceeding 10 pages. Example: Choosing a firm or business to develop a website, identifying various business entities to be included in the website, identifying menu bar and content to be placed in their websites.
3. Max marks for Fieldwork/Project work/Project work/Project work/Project work/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work/Project work/Project work/Project work: *Title page, student details, index page, details of place visited, observations, findings and acknowledgements.*
5. Unit tests (IE).

### **b) Suggested Co-Curricular Activities**

1. Build a website with 10 pages for the case study identified.
2. Training of students by related industrial experts.
3. Assignments
4. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
5. Presentation by students on best websites.

## Course 6A: Web Interface Designing Technologies – PRACTICAL SYLLABUS

### V. Learning Outcomes:

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

1. Create a basic website with the help of HTML and CSS.
2. Acquire the skill of installing word press and various plugins of Word press.
3. Create a static website with the help of Word press.
4. Create an interface for a dynamic website.
5. Apply various themes for their websites using Word press.

### VI. Practical (Laboratory) Syllabus: (30 hrs.)

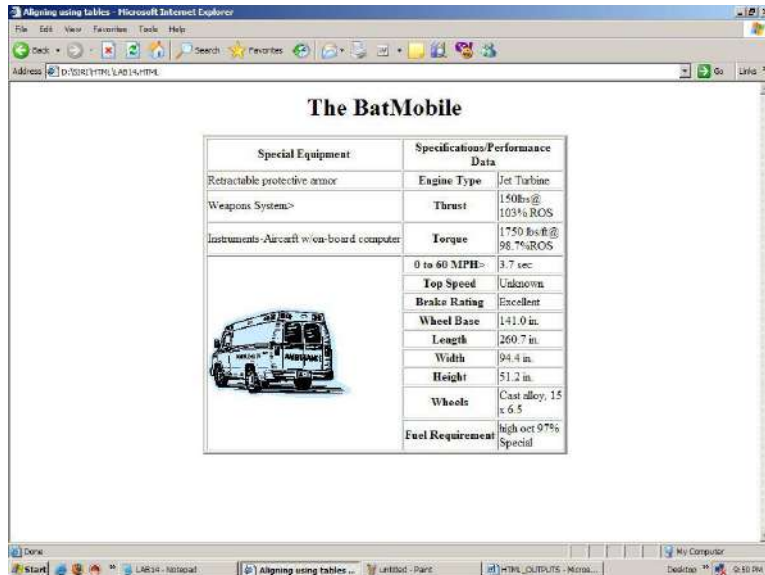
#### HTML and CSS:

1. Create an HTML document with the following formatting options:
  - (a) Bold, (b) Italics, (c) Underline, (d) Headings (Using H1 to H6 heading styles), (e) Font (Type, Size and Color), (f) Background (Colored background/Image in background), (g) Paragraph, (h) Line Break, (i) Horizontal Rule, (j) Pre tag
2. Create an HTML document which consists of:
  - (a) Ordered List (b) Unordered List (c) Nested List (d) Image
3. Create a Table with four rows and five columns. Place an image in one column.
4. Using “table” tag, align the images as follows:



5. Create a menu form using html.
6. Style the menu buttons using css.
7. Create a form using HTML which has the following types of controls:
  - (a) Text Box (b) Option/radio buttons (c) Check boxes (d) Reset and Submit buttons
8. Embed a calendar object in your web page.

9. Create an applet that accepts two numbers and perform all the arithmetic operations on them.
10. Create nested table to store your curriculum.
11. Create a form that accepts the information from the subscriber of a mailing system.
12. Design the page as follows:



13. Create a help file as follows:



14. Create a webpage containing your bio data (assume the form and fields).
15. Write a html program including style sheets.
16. Write a html program to layers of information in web page.
17. Create a static webpage.

**Word press:**

18. Installation and configuration of word press.
  19. Create a site and add a theme to it.
  - 20 Create a child theme
  21. Create five pages on COVID – 19 and link them to the home page. .
  22. Create a simple post with featured image.
  23. Add an external video link with size 640 X 360.
  24. Create a user and assign a role to him.
  25. Create a login page to word press using custom links
  26. Create a website for your college.
-

A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four -year B.Sc.(Hons)  
Domain Subject: **Computer Science**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100 + 50

**Course 7A: Web Applications Development using PHP & MYSQL**  
(Skill Enhancement Course (Elective), Credits: 05)

**I. Learning Outcomes:**

Students after successful completion of the course 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.

**II. Syllabus:** (*Total Hours: 90 including Teaching, Lab, and Field training, Unit tests etc.*)

**Unit-1:** (10 hours)

The Building blocks of PHP: Variables, Data Types, Operators and Expressions, Constants. Flow Control Functions in PHP: Switching Flow, Loops, Code Blocks and Browser Output. Working with Functions: What is function?, Calling functions, Defining Functions, Returning the values from User-Defined Functions, Variable Scope, Saving state between Function calls with the static statement, more about arguments.

**Unit-2:** (10 hours)

Working with Arrays: What are Arrays? Creating Arrays, Some Array-Related Functions. Working with Objects: Creating Objects, Object Instance Working with Strings, Dates and Time: Formatting strings with PHP, Investigating Strings with PHP, Manipulating Strings with PHP, Using Date and Time Functions in PHP.

**Unit-3:** (10 hours)

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

**Unit-4:** (10 hours)

Working with Files and Directories: Including Files with include(), Validating Files, Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from Files, Writing or Appending to a File, Working with Directories, Open Pipes to and from Process Using popen(), Running Commands with exec(), Running Commands with system() or passthru().

Working with Images: Understanding the Image-Creation Process, Necessary Modifications to PHP, Drawing a New Image, Getting Fancy with Pie Charts, Modifying Existing Images, Image Creation from User Input.

#### **Unit-5:** (10 hours)

Interacting with MySQL using PHP: MySQL Versus MySQLi Functions, Connecting to MySQL with PHP, Working with MySQL Data. Creating an Online Address Book: Planning and Creating Database Tables, Creating Menu, Creating Record Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record.

### **III. References**

1. Julie C. Meloni, SAMS Teach yourself PHP MySQL and Apache, Pearson Education (2007).
2. Steven Holzner , PHP: The Complete Reference, McGraw-Hill
3. Robin Nixon, Learning PHP, MySQL, JavaScript, CSS & HTML5, Third Edition O'reilly, 2014
4. Xue Bai Michael Ekedahl, The web warrior guide to Web Programming, Thomson (2006).
5. Web resources:
  - e. <http://www.codecademy.com/tracks/php>
  - f. <http://www.w3schools.com/PHP>
  - g. <http://www.tutorialpoint.com>
6. Other web sources suggested by the teacher concerned and the college librarian including reading material.

### **IV. Co-Curricular Activities:**

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

1. **For Teacher:** Field related training of students by the teacher in laboratory/field for not less than 15 hours on demonstrating various **interactive and dynamic websites** available online, addressing the students on identifying the case study to build an interactive and database driven website, forms to be used in website, database to be maintained, reports to be produced, etc.
2. **For Student:** Students shall (individually) search online and visit any of the agencies like malls, hotels, super bazaars, etc. where there is a need for an interactive and database driven website and submit a hand-written Fieldwork/Project work/Project work/Project work/Project work Report not exceeding 10 pages. Example: Choosing a firm or business to develop a website, identifying forms to be placed in the websites, back end databases to be maintained and reports to be generated and placed in the websites.
3. Max marks for Fieldwork/Project work/Project work/Project work/Project work/Project work Report: 05.

4. Suggested Format for Fieldwork/Project work/Project work/Project work/Project work:  
*Title page, student details, index page, details of place or websites visited, structure of the website and acknowledgements.*

5. Unit tests (IE).

#### **b) Suggested Co-Curricular Activities**

1. Arrange expert lectures by IT experts working professionally in the area of web content development
2. Assignments (in writing or implementing contents related to syllabus or outside the syllabus. Shall be individual and challenging)
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation by students on best websites.
5. Arrange a webpage development competition among small groups of students.

### **Course 7A: Web Applications Development using PHP & MYSQL– PRACTICAL SYLLABUS**

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

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

1. Write, debug and implement the Programs by applying concepts and error handling techniques of PHP.
2. Create an interactive and dynamic website.
3. Create a website with reports generated from a database.
4. Write programs to create an interactive website for e-commerce sites like online shopping, etc.

#### **VI. Practical (Laboratory) Syllabus: (30 hrs.)**

1. Write a PHP program to Display “Hello”
2. Write a PHP Program to display the today’s date.
3. Write a PHP program to display Fibonacci series.
4. Write a PHP Program to read the employee details.
5. Write a PHP program to prepare the student marks list.
6. Write a PHP program to generate the multiplication of two matrices.
7. Create student registration form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.
8. Create Website Registration Form using text box, check box, radio button, select, submit button. And display user inserted value in new PHP page.
9. Write PHP script to demonstrate passing variables with cookies.
10. Write a program to keep track of how many times a visitor has loaded the page.
11. Write a PHP application to add new Rows in a Table.
12. Write a PHP application to modify the Rows in a Table.
13. Write a PHP application to delete the Rows from a Table.
14. Write a PHP application to fetch the Rows in a Table.
15. Develop an PHP application to implement the following Operations

- i. Registration of Users.
  - ii. Insert the details of the Users.
  - iii. Modify the Details.
  - iv. Transaction Maintenance.
    - a) No of times Logged in
    - b) Time Spent on each login.
    - c) Restrict the user for three trials only.
    - d) Delete the user if he spent more than 100 Hrs of transaction.
- 
16. Write a PHP script to connect MySQL server from your website.
  17. Write a program to read customer information like cust-no, cust-name, item-purchased, and mob-no, from customer table and display all these information in table format on output screen.
  18. Write a program to edit name of customer to “Kiran” with cust-no =1, and to delete record with cust-no=3.
  19. Write a program to read employee information like emp-no, emp-name, designation and salary from EMP table and display all this information using table format in your website.
  20. Create a dynamic web site using PHP and MySQL.
-

A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four -year B.Sc.(Hons)  
Domain Subject: **Computer Science**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100 + 50

**Course 6B: INTERNET OF THINGS**  
(Skill Enhancement Course (Elective), Credits: 05)

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

1. Appreciate the technology for IoT
2. Understand various concepts, terminologies and architecture of IoT systems.
3. Understand various applications of IoT
4. Learn how to use various sensors and actuators for design of IoT.
5. Learn how to connect various things to Internet.
6. Learn the skills to develop simple IOT Devices.

**II. Syllabus:** (Total Hours: 90 including Teaching, Lab, Field training, Unit tests etc.)

**Unit - I** (10 hours)

Fundamentals of IoT: Introduction, Definitions & Characteristics of IoT, IoT Architectures, Physical & Logical Design of IoT, Enabling Technologies in IoT, History of IoT, About Things in IoT, The Identifiers in IoT, About the Internet in IoT, IoT frameworks, IoT and M2M.

**Applications of IoT:** Home Automation, Smart Cities, Energy, Retail Management, Logistics, Agriculture, Health and Lifestyle, Industrial IoT, Legal challenges, IoT design Ethics, IoT in Environmental Protection.

**Unit - II** (10 hours)

Sensors Networks : Definition, Types of Sensors, Types of Actuators, Examples and Working, IoT Development Boards: Arduino IDE and Board Types, RaspberriPi Development Kit, RFID Principles and components, Wireless Sensor Networks: History and Context, The node, Connecting nodes, Networking Nodes, WSN and IoT.

**Unit - III** (10 hours)

Wireless Technologies for IoT: WPAN Technologies for IoT: IEEE 802.15.4, Zigbee, HART, NFC, Z-Wave, BLE, Bacnet And Modbus.  
IP Based Protocols for IoT IPv6, 6LowPAN, LoRA, RPL, REST, AMPQ, CoAP, MQTT.  
Edge connectivity and protocols.

**Unit - IV** (10 hours)

Arduino Simulation Environment: Arduino Uno Architecture, Setting up the IDE, Writing Arduino Software, Arduino Libraries, Basics of Embedded C programming for Arduino, Interfacing LED, push button and buzzer with Arduino, Interfacing Arduino with LCD.

Sensor & Actuators with Arduino: Overview of Sensors working, Analog and Digital Sensors, Interfacing of Temperature, Humidity, Motion, Light and Gas Sensors with Arduino, Interfacing of Actuators with Arduino, Interfacing of Relay Switch and Servo Motor with Arduino.

### Unit - V (10 hours)

Developing IOT's: Implementation of IoT with Arduino, Connecting and using various IoT Cloud Based Platforms such as Blynk, Thingspeak, AWS IoT, Google Cloud IoT Core etc. Cloud Computing, Fog Computing, Privacy and Security Issues in IoT.

### III. References

9. Internet of Things - A Hands-on Approach, ArshdeepBahga and Vijay Madiseti, Universities Press, 2015, ISBN: 9788173719547
10. Vijay Madiseti and ArshdeepBahga, "Internet of Things (A Hands-onApproach)", 1st Edition, VPT, 2014
11. Daniel Minoli, — "Building the Internet of Things with IPv6 and MIPv6: The Evolving World of M2M Communications", ISBN: 978-1-118-47347-4, Willy Publications
12. Pethuru Raj and Anupama C. Raman, "The Internet of Things: Enabling Technologies, Platforms, and Use Cases", CRC Press
13. Open source software / learning websites
  - a. <https://github.com/connectIOT/iottoolkit>
  - b. <https://www.arduino.cc/>
  - c. [https://onlinecourses.nptel.ac.in/noc17\\_cs22/course](https://onlinecourses.nptel.ac.in/noc17_cs22/course)
  - d. [http://www.cse.wustl.edu/~jain/cse570-15/ftp/iot\\_prot/index.html](http://www.cse.wustl.edu/~jain/cse570-15/ftp/iot_prot/index.html)
  - e. Contiki (Open source IoT operating system)
  - f. Ardudroid (open source IoT project)
  - g. <https://blynk.io> (Mobile app)
  - h. IoT Toolkit (smart object API gateway service reference implementation)
6. Other web sources suggested by the teacher concerned and the college librarian including reading material.

### IV. Co-Curricular Activities:

- a) Mandatory:** (*Training of students by teacher in field related skills: (lab: 10 + field: 05) :*
1. **For Teacher:** Field related training of students by the teacher in laboratory/field for not less than 15 hours on identifying the case study for the IoT, design an IoT solution, build physical IoT device, connect it to a mobile app and deploy the IoT device.
  2. **For Student:** Students shall (individually) search online and visit any of the places like aquaculture farms, agencies using IOT devices, etc to identify problems for IoT solution and submit a hand-written Fieldwork/Project work/Project work/Project work/Project work Report not exceeding 10 pages. Example: Choosing a Problem for IoT solution (agriculture, aquaculture, smart home appliances, testing moisture levels, oxygen levels, etc), reasons why IoT solution is feasible for the said problem, material required, Design and architecture for the proposed IoT device, method of implementation and how to connect the device to mobile.
  3. Max marks for Fieldwork/Project work/Project work/Project work/Project work/Project work Report: 05.
  4. Suggested Format for Fieldwork/Project work/Project work/Project work/Project work: *Title page, student details, index page, details of websites searched, place visited, observations, findings, proposed IOT problem, and design of the IOT device, implementation and acknowledgements.*
  5. Unit tests (IE).

**b) Suggested Co-Curricular Activities**

1. Training of students by related industrial experts.
2. Assignments
3. Preparation and presentation of power-point slides, which include videos, animations, pictures, graphics, etc by the students.
4. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
5. Field visits to identify the problems for IoT solutions.

**Course 6B: Internet of Things – PRACTICAL SYLLABUS****V. Learning Outcomes:**

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

1. Acquire the skills to design a small IoT device.
2. Connect various sensors, actuators, etc to Arduino board.
3. Connect the things to Internet
4. Design a small mobile app to control the sensors.
5. Deploy a simple IoT device.

**VI. Practical (Laboratory) Syllabus: (30 hrs)**

1. Understanding Arduino UNO Board and Components
2. Installing and work with Arduino IDE
3. Blinking LED sketch with Arduino
4. Simulation of 4-Way Traffic Light with Arduino
5. Using Pulse Width Modulation
6. LED Fade Sketch and Button Sketch
7. Analog Input Sketch (Bar Graph with LEDs and Potentiometre)
8. Digital Read Serial Sketch (Working with DHT/IR/Gas or Any other Sensor)
9. Working with Adafruit Libraries in Arduino
10. Spinning a DC Motor and Motor Speed Control Sketch
11. Working with Shields
12. Design APP using Blink App or Things peak API and connect it LED bulb.
13. Design APP Using Blynk App and Connect to Temperature, magnetic Sensors.

Four-year B.Sc.(Hons)  
Domain Subject: **Computer Science**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100 + 50

**Course 7B: APPLICATION DEVELOPMENT USING PYTHON**  
(Skill Enhancement Course (Elective), Credits: 05)

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

1. Understand and appreciate the web architecture and services.
2. Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
3. Demonstrate proficiency in handling Strings and File Systems.
4. Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.
5. Interpret the concepts of Object-Oriented Programming as used in Python.
6. Apply concepts of Python programming in various fields related to IOT, Web Services and Databases in Python.

**II. Syllabus:** (*Total Hours: 90 including Teaching, Lab, Field training, Unit tests etc.*)

**Unit - I** (10 hours)

**Python basics, Objects-** Python Objects, Standard Types, Other Built-in Types, Internal Types, Standard Type Operators, Standard Type Built-in Functions, Categorizing the Standard Types, Unsupported Types

**Numbers** - Introduction to Numbers, Integers, Floating Point Real Numbers, Complex Numbers, Operators, Built-in Functions, Related Modules

**Sequences** - Strings, Lists, and Tuples, Mapping and Set Types

**Unit – II** (10 hours)

**Files:** File Objects, File Built-in Function [ open() ], File Built-in Methods, File Built-in Attributes, Standard Files, Command-line Arguments, File System, File Execution, Persistent Storage Modules, Related Modules

**Exceptions:** Exceptions in Python, Detecting and Handling Exceptions, Context Management, Exceptions as Strings, Raising Exceptions, Assertions, Standard Exceptions, Creating Exceptions, Why Exceptions (Now)?, Why Exceptions at All?, Exceptions and the sys Module, Related Modules

**Modules:** Modules and Files, Namespaces, Importing Modules, Importing Module Attributes, Module Built-in Functions, Packages, Other Features of Modules

**Unit – III** (10 hours)

**Regular Expressions:** Introduction, Special Symbols and Characters, Res and Python Multithreaded Programming: Introduction, Threads and Processes, Python, Threads, and the Global Interpreter Lock, Thread Module, Threading Module, Related Modules

**Unit – IV** (10 hours)

**GUI Programming:** Introduction, Tkinter and Python Programming, Brief Tour of Other GUIs, Related Modules and Other GUIs

**Web Programming:** Introduction, Web Surfing with Python, Creating Simple Web Clients, Advanced Web Clients, CGI-Helping Servers Process Client Data, Building CGI Application, Advanced CGI, Web (HTTP) Servers

#### **Unit – V (10 hours)**

**Database Programming:** Introduction, Python Database Application Programmer's Interface (DBAPI), Object Relational Managers (ORMs), Related Modules

### **III. References**

1. Core Python Programming, Wesley J. Chun, Second Edition, Pearson.
2. Think Python, Allen Downey, Green Tea Press.
3. Introduction to Python, Kenneth A. Lambert, Cengage.
4. Python Programming: A Modern Approach, Vamsi Kurama, Pearson.
5. Learning Python, Mark Lutz, O' Reilly.
6. Web sources suggested by the teacher concerned and the college librarian including reading material.

### **IV. Co-Curricular Activities:**

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

1. **For Teacher:** Training of students by the teacher in laboratory/field for not less than 15 hours on field related skills like building an IOT device with the help of Python.
2. **For Student:** Students shall (individually) identify the method to link their IOT project done in Paper 7A with Python and submit a hand-written Fieldwork/Project work/Project work/Project work/Project work Report not exceeding 10 pages. It should include a brief report on the selected case study of IOT device, algorithm and Python program to operate the IOT device.
3. Max marks for Fieldwork/Project work/Project work/Project work/Project work/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work/Project work/Project work/Project work: *Title page, student details, index page, design of the IOT device, implementation of Python program to connect the IOT device, findings and acknowledgements.*
5. Unit tests (IE).

### **b) Suggested Co-Curricular Activities**

1. Training of students by related industrial experts.
2. Assignments
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Presentation by students on best websites.

## **Course 7B: Application Development Using Python– PRACTICAL SYLLABUS**

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

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

1. Implement simple programs in Python
2. Implement programs related to various data structures like lists, dictionaries, etc.
3. Implement programs related to files.

4. Implement applications related to databases, Web services and IOT.

**VI. Practical (Laboratory) Syllabus: (30 hrs.)**

1. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
2. Write a python program to calculate total marks, percentage and grade of a student. Marks obtained in each of the three subjects are to be input by the user. Assign grades according to the following criteria :
  - Grade A: Percentage  $\geq 80$
  - Grade B: Percentage  $\geq 70$  and  $< 80$
  - Grade C: Percentage  $\geq 60$  and  $< 70$
  - Grade D: Percentage  $\geq 40$  and  $< 60$
  - Grade E: Percentage  $< 40$
3. Write a python program to display the first n terms of Fibonacci series.
4. Write a python program to calculate the sum and product of two compatible matrices.
5. Write a function that takes a character and returns True if it is a vowel and False otherwise.
6. Write a menu-driven program to create mathematical 3D objects
  - I. curve
  - II. sphere
  - III. cone
  - IV. arrow
  - V. ring
  - VI. Cylinder.
7. Write a python program to read n integers and display them as a histogram.
8. Write a python program to display sine, cosine, polynomial and exponential curves.
9. Write a python program to plot a graph of people with pulse rate p vs. height h. The values of P and H are to be entered by the user.
10. Write a python program to calculate the mass m in a chemical reaction. The mass m (in gms) disintegrates according to the formula  $m=60/(t+2)$ , where t is the time in hours. Sketch a graph for t vs. m, where  $t \geq 0$ .
11. A population of 1000 bacteria is introduced into a nutrient medium. The population p grows as follows:  
$$P(t) = (15000(1+t)) / (15 + e)$$
12. Where the time t is measured in hours. WAP to determine the size of the population at given time t and plot a graph for P vs t for the specified time interval.
13. Input initial velocity and acceleration, and plot the following graphs depicting equations of motion:
  - I. velocity wrt time ( $v=u+at$ )
  - II. distance wrt time ( $s=u*t+0.5*a*t*t$ )

III. distance wrt velocity (  $s=(v*v-u*u)/2*a$  )

14. Write a program that takes two lists and returns True if they have at least one common member.
15. Write a Python program to print a specified list after removing the 0th, 2nd, 4th and 5th elements.
16. Write a program to implement exception handling.
17. Try to configure the widget with various options like: `bg="green"`, `family="times"`, `size=20`.
18. Write a Python program to read last 5 lines of a file.
19. Design a simple database application that stores the records and retrieve the same
20. Design a database application to search the specified record from the database.
21. Design a database application to that allows the user to add, delete and modify the records.

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Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Sc.(Hons)  
Domain Subject: **Computer Science**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100 + 50

**Course 6C: DATA SCIENCE**  
(Skill Enhancement Course (Elective), Credits: 05)

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

1. Develop relevant programming abilities.
2. Demonstrate proficiency with statistical analysis of data.
3. Develop the ability to build and assess data-based models.
4. Demonstrate skill in data management
5. Apply data science concepts and methods to solve problems in real-world contexts and will communicate these solutions effectively

**II. Syllabus:** ((Total Hours: 90 including Teaching, Lab, Field training, Unit tests etc.)

**UNIT I (10 hours)**

**Introduction:** The Ascendance of Data, What is Data Science? , Finding key Connectors, Data Scientists You May Know, Salaries and Experience, Paid Accounts, Topics of Interest, Onward.

**Python:** Getting Python, The Zen of Python, Whitespace Formatting, Modules, Arithmetic, Functions, Strings, Exceptions, Lists, Tuples, Dictionaries, Sets, Control Flow, Truthiness, Sorting, List Comprehensions, Generators and Iterators, Randomness, Object – Orienting Programming, Functional Tools, enumerate, zip and Argument Unpacking, args and kwargs, Welcome to Data Science!

**Visualizing Data:** matplotlib, Bar charts, Line charts, Scatterplots.

**Linear Algebra:** Vectors, Matrices

**UNIT II (10 hours)**

**Statistics:** Describing a Single Set of Data, Correlation, Simpson’s Paradox, some Other Correlation Caveats, Correlation and Causation.

**Probability:** Dependence and Independence, Conditional Probability, Bayes’s Theorem, Random Variables, Continuous Distributions, The Normal Distribution, The Central Limit Theorem.

**Hypothesis and Inference:** Statistical Hypothesis Testing, Example: Flipping a Coin, Confidence Intervals, P-hacking, Example: Running an A/B Test, Bayesian Inference.

**Gradient Descent:** The Idea behind Gradient Descent, Estimating the Gradient, Using the Gradient, Choosing the Right Step Size, Putting It All Together, Stochastic Gradient Descent.

**UNIT III (10 hours)**

**Getting Data:** stdin and stdout, Reading Files – The Basics of Text Files, Delimited Files, Scraping the Web - HTML and the parsing Thereof, Example: O’Reilly Books About Data, Using APIs – JSON ( and XML), Using an Unauthenticated API, Finding APIs.

**Working with Data:** Exploring Your Data, Exploring One-Dimensional Data, Two Dimensions Many Dimensions, Cleaning and Munging, Manipulating Data, Rescaling, Dimensionality Reduction.

**Machine Learning:** Modeling, What Is Machine Learning? Over fitting and under fitting, Correctness, The Bias-Variance Trade-off, Feature Extraction and Selection

#### UNIT IV (10 hours)

**K-Nearest Neighbors:** The Model, Example: Favorite Languages, The Curse of Dimensionality.

**Naive Bayes:** A Really Dumb Spam Filter, A More Sophisticated Spam Filter, Implementation, Testing Our Model.

**Simple Linear Regression:** The Model, Using Gradient Descent, Maximum Likelihood Estimation.

**Multiple Regression:** The Model, Further Assumptions of the Least Squares Model, Fitting the Model, Interpreting the Model, Goodness of Fit.

#### UNIT V (10 hours)

**Logistic Regression:** The Problem, The Logistic Function, Applying the Model, Goodness of Fit Support Vector Machines.

**Decision Trees:** What Is a Decision Tree? Entropy, The Entropy of a Partition, Creating a Decision Tree, Putting It All Together, Random Forests.

**Neural Networks:** Perceptron, Feed-Forward Neural Networks And Back propagation, Example: Defeating a CAPTCHA.

**Clustering:** The Idea, The Model, Example: Meetups , Choosing k, Example: Clustering Colors, Bottom-up Hierarchical Clustering.

### III. References

1. Data Science from Scratch by Joel Grus O'Reilly Media
2. Wes McKinney, "Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython", O'Reilly, 2nd Edition, 2018.
3. Jake VanderPlas, "Python Data Science Handbook: Essential Tools for Working with Data", O'Reilly, 2017.
4. Web resources:
  - a. <https://www.edx.org/course/analyzing-data-with-python>
  - b. [http://math.ecnu.edu.cn/~lfzhou/seminar/\[Joel Grus\] Data Science from Scratch First Princ.pdf](http://math.ecnu.edu.cn/~lfzhou/seminar/[Joel Grus] Data Science from Scratch First Princ.pdf)
5. 9. Other web sources suggested by the teacher concerned and the college librarian including reading material.

### IV. Co-Curricular Activities:

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

1. **For Teacher:** Field related training of students by the teacher in laboratory/field for not less than 15 hours on identifying, analyzing and presenting the data and then to predict the future instances.

2. **For Student:** Students shall (individually) search online and visit any of the agencies like Statistical cell, weather forecasting centers, pollution control boards, manufacturing industries, agriculture departments, etc. to observe the manual process going on to collect the data, maintain the data, present the data and to predict the data for future instances and submit a hand-written Fieldwork/Project work/Project work/Project work/Project work Report not exceeding 10 pages.

3. Max marks for Fieldwork/Project work/Project work/Project work/Project work/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work/Project work/Project work/Project work: *Title page, student details, index page, details of place visited, observations, findings and acknowledgements.*
5. Unit tests (IE).

**b) Suggested Co-Curricular Activities**

1. Training of students by related industrial experts.
2. Assignments
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Presentation by students in related topics.

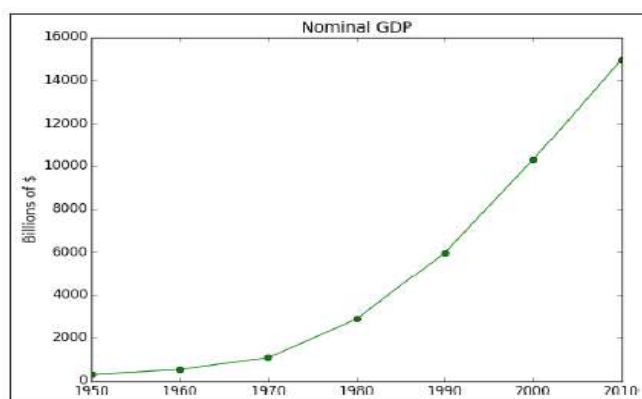
**Course 6C: Data Science – PRACTICAL SYLLABUS**

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

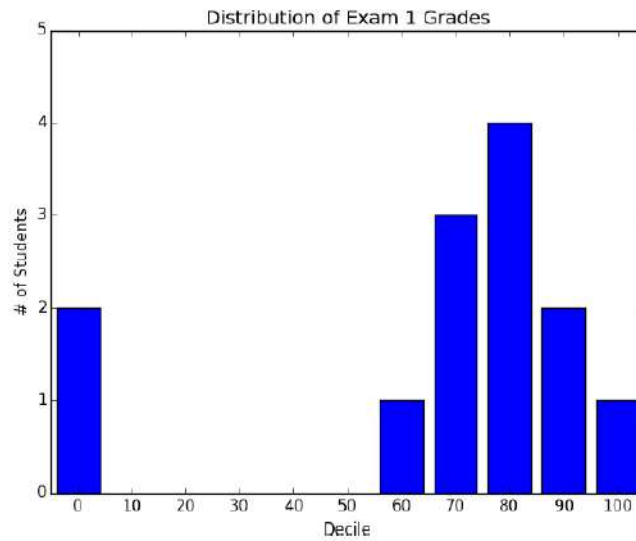
1. Apply data science solutions to real world problems.
2. Implement the programs to get the required data, process it and present the outputs using Python language.
3. Execute statistical analyses with Open source Python software.

**VI. Practical (Laboratory) Syllabus: (30 hrs.)**

1. Write a Python program to create a line chart for values of year and GDP as given below



2. Write a Python program to create a bar chart to display number of students secured different grading as given below



3. Write a Python program to create a time series chart by taking one year month wise stock data in a CSV file
4. Write a Python program to plot distribution curve
5. Import a CSV file and perform various Statistical and Comparison operations on rows/columns. Write a python program to plot a graph of people with pulse rate  $p$  vs. height  $h$ . The values of  $P$  and  $H$  are to be entered by the user.
6. Import rainfall data of some location with the help of packages available in R Studio and plot a chart of your choice.

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Course Code:

Four -year B.Sc.(Hons)  
Domain Subject: **Computer Science**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100 + 50

**Course 7C: Python for Data Science**  
(Skill Enhancement Course (Elective), Credits: 05)

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

1. Identify the need for data science and solve basic problems using Python built-in data types and their methods.
2. Design an application with user-defined modules and packages using OOP concept
3. Employ efficient storage and data operations using NumPy arrays.
4. Apply powerful data manipulations using Pandas.
5. Do data pre-processing and visualization using Pandas

**II. Syllabus:** (*Total Hours: 90 including Teaching, Lab, Field training, Unit tests etc.*)

**Unit - I** (10 hours)

Introduction to Data Science - Why Python? - Essential Python libraries - Python Introduction- Features, Identifiers, Reserved words, Indentation, Comments, Built-in Data types and their Methods: Strings, List, Tuples, Dictionary, Set - Type Conversion- Operators. Decision Making- Looping- Loop Control statement- Math and Random number functions. User defined functions - function arguments & its types.

**UNIT –II** (10 hours)

User defined Modules and Packages in Python- Files: File manipulations, File and Directory related methods - Python Exception Handling.  
OOPs Concepts -Class and Objects, Constructors – Data hiding- Data Abstraction- Inheritance.

**UNIT –III** (10 hours)

NumPy Basics: Arrays and Vectorized Computation- The NumPy ndarray- Creating ndarrays- Data Types for ndarrays- Arithmetic with NumPy Arrays- Basic Indexing and Slicing - Boolean Indexing-Transposing Arrays and Swapping Axes.  
Universal Functions: Fast Element-Wise Array Functions- Mathematical and Statistical Methods-Sorting- Unique and Other Set Logic.

**UNIT –IV** (10 hours)

Introduction to pandas Data Structures: Series, Data Frame and Essential Functionality: Dropping Entries- Indexing, Selection, and Filtering- Function Application and Mapping- Sorting and Ranking.  
Summarizing and Computing Descriptive Statistics- Unique Values, Value Counts, and Membership. Reading and Writing Data in Text Format

### UNIT –V (10 hours)

Data Cleaning and Preparation: Handling Missing Data - Data Transformation: Removing Duplicates, Transforming Data Using a Function or Mapping, Replacing Values, Detecting and Filtering Outliers- String Manipulation: Vectorized String Functions in pandas.

Plotting with pandas: Line Plots, Bar Plots, Histograms and Density Plots, Scatter or Point Plots.

### III. References

1. Y. Daniel Liang, “Introduction to Programming using Python”, Pearson, 2012.
2. Wes McKinney, “Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython”, O’Reilly, 2nd Edition, 2018.
3. Jake VanderPlas, “Python Data Science Handbook: Essential Tools for Working with Data”, O’Reilly, 2017.
4. Wesley J. Chun, “Core Python Programming”, Prentice Hall, 2006.
5. Mark Lutz, “Learning Python”, O’Reilly, 4th Edition, 2009.
6. Web resources:
  - a. <https://www.edx.org/course/python-basics-for-data-science>
  - b. <https://www.edx.org/course/analyzing-data-with-python>
  - c. <https://www.coursera.org/learn/python-plotting?specialization=data-science-python>
  - d. <https://www.programmer-books.com/introducing-data-science-pdf/>
  - e. <https://www.cs.uky.edu/~keen/115/Haltermanpythonbook.pdf>
7. Other web sources suggested by the teacher concerned and the college librarian including reading material.

### IV. Co-Curricular Activities:

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

1. **For Teacher:** Field related training of students by the teacher in laboratory/field for not less than 15 hours on collecting the data, analyzing the data and presenting the data using Python language with some real time data.

2. **For Student:** Students shall (individually) visit any of the agencies like Agriculture dept, statistical cell, irrigation department, Ground water department, CPO office, Rural Water Supply and Sanitation department etc or search online to get real time data like Aids database, weather forecasting database, social networking data, etc and identify any one database, implement and present the necessary charts in Python language and submit a hand-written Fieldwork/Project work/Project work/Project work/Project work Report not exceeding 10 pages. Example: Identifying a database, get the data, present the data in required charts and to predict the future instances if possible.

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

4. Suggested Format for Fieldwork/Project work/Project work/Project work/Project work: *Title page, student details, index page, and details of place visited, observations, method of data collection, database identified, and implementation in Python language, other findings and acknowledgements.*

5. Unit tests (IE).

### **b) Suggested Co-Curricular Activities**

2. Training of students by related industrial experts.
3. Assignments
4. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
5. Presentation by students on the topics within and outside the syllabus.

## **Course 7C: Python for Data Science – PRACTICAL SYLLABUS**

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

1. Implement simple programs in Python.
2. Implement programs related to various structures like arrays, lists, Data frames, etc.
3. Implement programs related to files.
4. Implement applications related to data science.

### **VI. Practical (Laboratory) Syllabus: (30 hrs.)**

1. Perform Creation, indexing, slicing, concatenation and repetition operations on Python built-in data types: Strings, List, Tuples, Dictionary, Set
2. Apply Python built-in data types: Strings, List, Tuples, Dictionary, Set and their methods to solve any given problem.
3. Handle numerical operations using math and random number functions
4. Create user-defined functions with different types of function arguments.
5. Create packages and import modules from packages.
6. Perform File manipulations- open, close, read, write, append and copy from one file to another.
7. Write a program for Handle Exceptions using Python Built-in Exceptions
8. Write a program to implement OOP concepts like Data hiding and Data Abstraction.
9. Create NumPy arrays from Python Data Structures, Intrinsic NumPy objects and Random Functions.
10. Manipulation of NumPy arrays- Indexing, Slicing, Reshaping, Joining and Splitting.
11. Computation on NumPy arrays using Universal Functions and Mathematical methods.
12. Load an image file and do crop and flip operation using NumPy Indexing.
13. Create Pandas Series and Data Frame from various inputs.
14. Import any CSV file to Pandas Data Frame and perform the following:
  - (a) Visualize the first and last 10 records
  - (b) Get the shape, index and column details
  - (c) Select/Delete the records (rows)/columns based on conditions.
  - (d) Perform ranking and sorting operations.
  - (e) Do required statistical operations on the given columns.

- (f) Find the count and uniqueness of the given categorical values.
- (g) Rename single/multiple columns

15. Import any CSV file to Pandas Data Frame and perform the following:
- (a) Handle missing data by detecting and dropping/ filling missing values.
  - (b) Transform data using apply () and map() method.
  - (c) Detect and filter outliers.
  - (d) Perform Vectorized String operations on Pandas Series.
  - (e) Visualize data using Line Plots, Bar Plots, Histograms, Density Plots and Scatter Plots.

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*Draft Syllabus prepared by:*

1. *Dr. A.V. Kavitha, Asst. Professor in Computer Science, Government Degree College for Women, Guntur.*
2. *Dr. M. Hussainiah, Asst. Professor, Department of Computer Science, Vikram Simhapuri University, Nellore.*

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**ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION**

(A Statutory body of the Government of Andhra Pradesh)

REVISED UG SYLLABUS UNDER CBCS

(To Be Implemented from Academic Year 2020-21)

PROGRAMME: FOURYEAR B.A. (Hons)

Domain Subject: ECONOMICS***Skill Enhancement Courses (SECs) for Semester V***

(Syllabus with Learning Outcomes, References, Co-curricular Activities &amp; Model Q.P. Pattern)

**Structure of SECs for 5<sup>th</sup> Semester**

(To Choose One pair from the Four (A, B, C, &amp; D) alternative pairs of SECs)

Uni Code	Course Number 6 & 7	Name of Course	Hours/ Week	Credits	Marks	
					IA – 20 Fieldwork/Pro ject work 5	Sem End
	6A	Rural Entrepreneurship	5	4	25	75
	7A	Farmer Producer Organizations	5	4	25	75

OR

	6B	Urban Entrepreneurship and MSMEs	5	4	25	75
	7B	Retail and Digital Marketing	5	4	25	75

OR

	6C	Insurance Services	5	4	25	75
	7C	Banking and Financial Services	5	4	25	75

OR

	6D	Inferential Statistics and Software Packages	5	4	25	75
	7D	Project Designing and Report Writing	5	4	25	75

**Note1:** For Semester-V, for the domain subject, Economics, any one of the four pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6B & 7B or 6C & 7C or 6D & 7D. The pair shall not be broken (ABCD allotment is random, not on any priority basis).

**Note-2:** One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate skills related to the domain subject among students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations

A.P. State Council of Higher Education  
Semester-Wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-Year B.A. (Hons).

Domain Subject: **ECONOMICS**

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

Max Marks: 100

**Course 6A: Rural Entrepreneurship**  
(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 rural area;
3. Apply the theories of entrepreneurship to the conditions of local rural area and formulate appropriate business ideas;
4. Demonstrate practical skills that will enable them to start rural entrepreneurship.

**II. Syllabus:** (Hours: Teaching: 60, Training: 10, Others Including Unit Tests: 05)

**Unit - 1: Entrepreneurship: Concept and Theories**

Concept and Importance of Entrepreneurship - Theories of Entrepreneurship: Innovations, X-Efficiency, Risk Bearing - Qualities and Functions of an Entrepreneur –Women Entrepreneurship – Ecopreneurship.

**Unit - 2: Rural Entrepreneurship, Business Planning and Agribusiness**

Rural Entrepreneurial Ecosystem – Factors, Problems and Challenges of Rural Entrepreneurships - Process of Identification of new Entrepreneurship Opportunities in Rural Areas - Formulation of Business Planning for Rural Entrepreneurship - Agribusiness and Value Addition: Procuring, Processing, Storing, and Marketing.

**Unit- 3: New Rural Entrepreneurship Opportunities**

New Entrepreneurship Opportunities in Farm sector: Organic Farm Products, Nutri-Cereals, Horticultural Products, Forest Produce, Medicinal Plant Products - New Entrepreneurship Opportunities in Rural Non-farm sector: Poultry, Aquaculture, Sericulture, Honeybee, Mushrooms Cultivation, Handicrafts.

#### **Unit - 4: Financing and Marketing for Rural Entrepreneurship**

Financing the Rural Entrepreneurship: Procedures to obtain formal loans from banks and other institutions - Preparation of Detailed Project Report for Loan - New avenues of Finance: Crowd Funding and Venture Capital - Marketing of Rural Products: Market Survey, Demand Forecasting, Marketing Strategies, Branding, Planning and Promotion, Digital and Social Media Marketing.

#### **Unit - 5: Institutional Support and Case Studies of Rural Entrepreneurship**

Institutional Support for Rural Entrepreneurship - Special Role of NABARD in promoting and supporting the Rural Entrepreneurship - Government Schemes for promotion of Rural Entrepreneurship– Rules and Procedures to start a Rural Entrepreneurship Firm – Discussion of two different types of Case Studies related to Rural Entrepreneurship with local relevance.

#### **III. References:**

1. Gordona, E and N. Natarajan: *Entrepreneurship Development*, Himalaya Publishing House Pvt Ltd, Mumbai, 2017.
2. Sudhir Sharma, Singh Balraj, Singhal Sandeep, *Entrepreneurship Development*, WisdomPublications, Delhi, 2005.
3. Drucker, P., *Innovation and Entrepreneurship: Practice and Principles*, Harper & Row, New York, 1985; revised edn., Butterworth-Heinemann, Oxford, 1999.
4. National Council of Rural Institute (NCRI): Curriculum for Rural Entrepreneurship, 2019. <http://www.mgncre.org/pdf/Rural%20Entrepreneurship%20Material.pdf>
5. NITI Aayog: *Report of Expert Committee on Innovation and Entrepreneurship*, New Delhi, 2015. [https://niti.gov.in/writereaddata/files/new\\_initiatives/report-of-the-expert-committee.pdf](https://niti.gov.in/writereaddata/files/new_initiatives/report-of-the-expert-committee.pdf)
6. Vardhaman Mahavir Open University, *Entrepreneurship Development & Small Scale Business*, Kota. <http://assets.vmou.ac.in/BBA12.pdf>
7. MANAGE: *Agri-Business and Entrepreneurship Development*, Course Material AEM-202, 2013. <https://www.manage.gov.in/pgdaem/studymaterial/aem202.pdf>
8. NABARD: *Model Bankable Farming on Hi-Tech Agriculture, Green Farming*, 2015. [https://www.nabard.org/demo/auth/writereaddata/ModelBankProject/1612162301Precision\\_farming\\_for\\_vegetable\\_cultivation\\_in\\_Kerala\\_\(E\).pdf](https://www.nabard.org/demo/auth/writereaddata/ModelBankProject/1612162301Precision_farming_for_vegetable_cultivation_in_Kerala_(E).pdf)
9. Johanne Hanko: *A Handbook for Training of Disabled on Rural Enterprise Development*, Food and Agricultural Organisation (FAO), 2003. <http://www.fao.org/3/ad453e/ad453e.pdf>
10. IGNOU: *Marketing for Managers*, New Delhi. <http://egyankosh.ac.in/handle/123456789/4271>
11. www.nirdpr.org

12. <https://www.nabard.org/>
13. <http://sfacindia.com/>
14. Other Relevant web resources suggested by the teacher and college librarian

#### **IV. Co-Curricular Activities:**

**a) Mandatory** (*Training of students in the related skills by the teacher for a total 10 Hours*)

1) **For Teacher:** Training of students by teacher in the classroom and in the field for a total of not less than 10 hours on skills and hands on experience like identification business product, making business plan, preparing DPR for loan, application for bank loan, doing marketing survey, marketing a product etc pertaining to any type of rural entrepreneurship of local relevance and make a field visit to any one such unit. The expertise of practicing rural entrepreneurs can be utilized for this purposes.

2) **For Student:** Students shall visit and understand the functioning of rural entrepreneurship of their interest in the local area. They shall write their individual observations in the given format, not exceeding 10 pages, and submit to the teacher, as Fieldwork/Project work Report

3) **Suggested Fieldwork/Project work Format** (*Report shall not exceed 10 pages*):

Title Page, Student Details, Acknowledgments, Index page, Objectives, Step-wise process, Findings, Conclusion & References.

4) Max Marks for Fieldwork/Project work Report: 05

5) Unit Tests/Internal Examinations.

#### **b) Suggested Co-Curricular Activities**

1. Invited Lectures with academic experts, practicing entrepreneurs, concerned government officials
2. Hands on experience by field experts.
3. Assignments
4. Debates on related topics
5. Seminars, Group discussions, Quiz, etc.

**Note:** For the latest topics which have no formal material available, the teacher is expected to prepare own material by using multiple latest sources and practical knowledge.

###

A.P. State Council of Higher Education  
Semester-Wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-Year B.A. (Hons)  
Domain Subject: **ECONOMICS**  
IV Year B.A.(Hons)-Semester-V

Max Marks: 100

Course 7A: **Farmer Producer Organizations (FPOs)**  
(Skill Enhancement Course (Elective), 4 Credits)

**I. Learning Outcomes:**

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

1. Explain the concept and organization of FPO and its economic activities.
2. Identify and analyse the opportunities related to FPO in local rural area.
3. Apply the concepts to the identified FPO related opportunities available in the local area and formulate business ideas.
4. Demonstrate practical skills that will enable them to start a FPO or earn wage employment in it

**II. Syllabus:** (Hours: Teaching: 60, Training: 10, Others Including Unit Tests: 05)

**Unit 1: Concept of FPO and Importance**

Concept and importance of FPO – Types of FPOs - Organizational structure and Functions of FPO - Ecosystem required for FPO - Role of FPOs in present Indian Agricultural Development – Factors, Problems and Challenges of FPOs in India.

**Unit 2: Establishing FPO and Collaborations**

Situation Analysis and Mobilizing Farmer Producers for FPO - Rules and Regulation related to FPOs - Procedures to start FPO –Infrastructure required for FPO - Collaboration with Other Organizations –Training and Capacity Building to Persons in FPO – Managing Financial Accounts of FPO.

**Unit 3: Economic Activities and Business Planning of FPO**

Economic Activities undertaken by FPO: Input Purchase, Custom Hiring Machines - Output Business: Procuring, Processing, Storage, Logistics, Marketing, Exporting etc. - Product Identification and Value Chain Analysis for FPO - Business Planning for FPO - Viable Business Models of FPO: Multi-product and Value Added.

## Unit 4: Financing and Marketing of FPO

Financial Planning in FPO - Mobilization of Capital from Members, Promoters, Banks and other Funding Agencies-Marketing of FPO Products: Market Survey, Demand Forecasting, Marketing Strategies, Branding, Planning and Promotion, Digital and Social Media Marketing.

## Unit 5: Institutional Support and Case Studies of FPOs

Institutional Support and Resource Supporting Agencies for FPOs - Special Roles of NABARD and SFAC – Government Schemes for promotion of FPOs - Discussion of two important Case Studies related to FPOs with different product or process types of local relevance.

### III. References:

1. NABARD: *Farmer Producer Organizations*, FAQs. Mumbai, 2015. <https://www.nabard.org/demo/auth/writereaddata/File/FARMER%20PRODUCER%20ORGANISATIONS.pdf>
2. NABARD: *Farmer Producer Organizations: Status, Issues and Suggested Policy Reforms*, Mumbai, 2019-20. <https://www.nabard.org/auth/writereaddata/CareerNotices/2708183505Paper%20on%20FPOs%20-%20Status%20&%20%20Issues.pdf>
3. NABARD: *FPO e-Learning Module*. [https://www.nabard.org/FPO/story\\_html5.html](https://www.nabard.org/FPO/story_html5.html)
4. SFAC: *Formation and Promotion of 10, 000 Farmer Producer Organisations: Operational Guidelines*, New Delhi, 2020. <http://sfacindia.com/UploadFile/Statistics/Formation%20&%20Promotion%20of%2010,000%20FPOs%20Scheme%20Operational%20Guidelines%20in%20English.pdf>
5. FAO: *Course on Agribusiness Management for Producers' Associations*, 2009. <http://www.fao.org/3/i0499e/i0499e00.htm>
6. Richa Govil, Annapurna Neti and Madhushree R. Rao: *Farmer Producer Organizations: Past, Present and Future*, Azim Premji University, Bengaluru, 2020 . <http://publications.azimpremjifoundation.org/2268/>
7. IGNOU: *Marketing for Managers*, New Delhi. <http://egyankosh.ac.in/handle/123456789/4271>
8. <https://www.nabard.org/>
9. <http://sfacindia.com/FPOS.aspx>
10. Other Relevant web resources suggested by the teacher and college librarian

### IV. Co-Curricular Activities:

**a) Mandatory** (Training of students in the related skills by the teacher for a total 10 Hours)

1) **For Teacher:** Training of students by teacher in the classroom and in the field for a total of not less than 10 hours on skills and hands on experience like preparing business model, value chain analysis of any product, application for the support of NABARD, SFAC and any similar supporting organization, financial planning, capacity building form staff and members

etc. pertaining to FPO of local relevance and make a field visit to any one such unit. The expertise of practicing FPO persons can be utilized for this purposes.

2) **For Student:** Students shall visit and understand the functioning of FPO in their local area. They shall write their individual observations in the given format, not exceeding 10 pages, and submit to the teacher, as Fieldwork/Project work Report

3) **Suggested Fieldwork/Project work Format** (*Report shall not exceed 10 pages*):  
Title Page, Student Details, Acknowledgments, Index page, Objectives, Step-wise process, Findings, Conclusion & References.

4) Max Marks for Fieldwork/Project work Report: 05

5) Unit Tests/Internal Examinations.

**b) Suggested Co-Curricular Activities**

1. Invited Lectures with academic experts, practicing FPO persons, concerned government officials
2. Hands on experience by field experts.
3. Assignments
4. Debates on related topics
5. Seminars, Group discussions, Quiz, etc.

**Note:** For the latest topics which have no formal material available, the teacher is expected to prepare own material by using multiple latest sources and practical knowledge.

###

A.P. State Council of Higher Education  
Semester-Wise Revised Syllabus under CBCS, 2020-21

Course Code:

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

**II. Syllabus:** (Hours: Teaching: 60, Training: 10, Others Including Unit Tests: 05)

**Unit1: Entrepreneurship: Concept and Theories**

Concept and Importance of Entrepreneurship - Theories of Entrepreneurship: Innovations, X-Efficiency, Risk Bearing - Qualities and Functions of an Entrepreneur – Women Entrepreneurship -Ecopreneurship.

**Unit2: Urban Entrepreneurship and Business Planning**

Urban Entrepreneurial Ecosystem – Factors, Problems and Challenges of Urban Entrepreneurships - Process of Identification of new Entrepreneurship Opportunities in Urban Areas - Formulation of Business Planning for Urban Entrepreneurship.

**Unit 3: MSMEs and New Urban Entrepreneurship Opportunities**

Features of Micro Small Medium Enterprises (MSMEs) – Cluster Development Approach and Leveraging Technology for MSMEs – Problems and Challenges of MSMEs - New Entrepreneurial Opportunities in Urban Area: Food and Beverages, Sanitary and Health Products, Solid Waste and Scrap Disposal, Tourism and Hospitality Services, Consultancy Services and Event Management, Logistic services.

#### **Unit 4: Financing and Marketing of Urban Entrepreneurship**

Financing the Urban Entrepreneurship and MSMEs: Procedures to obtain formal loans from Banks and other Institutions, Preparing Detailed Project Report for Loan - New avenues of Finance: Crowd Funding and Venture Capital –Marketing of Urban Entrepreneurship and MSMEs products: Market Survey, Demand Forecasting, Marketing Strategies, Branding, Planning and Promotion, Digital and Social Media Marketing – Public Procurement Policy to purchase MSME Products.

#### **Unit 5: Institutional Support and Case Studies of Urban Entrepreneurship**

Institutional support for Urban Entrepreneurship and MSMEs - Government Schemes for promotion of Urban Entrepreneurship and MSMEs: Startup, Standup, PMKVY, PLI etc. – Rules and Procedures to start a Urban Entrepreneurship Firm and MSME –Discussion of two different types of Case Studies related to Urban Entrepreneurship with local relevance.

#### **III. References:**

1. Gordona, E and N. Natarajan: *Entrepreneurship Development*, Himalaya Publishing House Pvt Ltd, Mumbai, 2017.
2. Sharma Sudhir, Singh Balraj, Singhal Sandeep, *Entrepreneurship Development*, Wisdom Publications, Delhi, 2005.
3. Drucker, P., *Innovation and Entrepreneurship: Practice and Principles*, Harper & Row, New York, 1985; revised edn, Butterworth-Heinemann, Oxford, 1999.
4. NITI Aayog: *Report of Expert Committee on Innovation and Entrepreneurship*, New Delhi, 2015. [https://niti.gov.in/writereaddata/files/new\\_initiatives/report-of-the-expert-committee.pdf](https://niti.gov.in/writereaddata/files/new_initiatives/report-of-the-expert-committee.pdf)
5. Vardhaman Mahavir Open University, *Entrepreneurship Development & Small Scale Business*, Kota. <http://assets.vmou.ac.in/BBA12.pdf>
6. Reserve Bank of India: *Report of Expert Committee on Marginal, Small, Medium Enterprises*, Mumbai, 2019. <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=924>
7. IGNOU: Marketing for Managers, New Delhi. <http://egyankosh.ac.in/handle/123456789/4271>
8. <https://nimsme.org>
9. Other Relevant web resources suggested by the teacher and college librarian

#### **IV. Co-Curricular Activities:**

**a) Mandatory** (Training of students in the related skills by the teacher for a total 10 Hours)

1) **For Teacher:** Training of students by teacher in the classroom and in the field for a total of not less than 10 hours on skills and hands on experience like identification business product, making business plan, preparing DPR for loan, application for bank loan, marketing

survey, marketing a product etc pertaining to any type of urban entrepreneurship of local relevance and make a field visit to any one such unit. The expertise of practicing rural entrepreneurs can be utilized for this purposes.

2) **For Student:** Students shall visit and understand the functioning of urban entrepreneurship of their interest in the local area. They shall write their individual observations in the given format, not exceeding 10 pages, and submit to the teacher, as Fieldwork/Project work Report

3) **Suggested Fieldwork/Project work Format** (*Report shall not exceed 10 pages*): Title Page, Student Details, Acknowledgments, Index page, Objectives, Step-wise process, Findings, Conclusion & References.

4) Max Marks for Fieldwork/Project work Report: 05

5) Unit Tests/Internal Examinations.

**b) Suggested Co-Curricular Activities**

1. Invited Lectures with academic experts, practicing entrepreneurs, concerned government officials
2. Hands on experience by field experts.
3. Assignments
4. Debates on related topics
5. Seminars, Group discussions, Quiz, etc.

**Note:** For the latest topics which have no formal material available, the teacher is expected to prepare own material by using multiple latest sources and practical knowledge.

###

A.P. State Council of Higher Education  
Semester-Wise Revised Syllabus under CBCS, 2020-21

Course Code:

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.

**II. Syllabus:** (Hours: Teaching: 60, Training: 10, Others Including Unit Tests: 05)

**Unit 1: Concept of Marketing**

Concept of Marketing - Type of Markets – Marketing Mix – Marketing Strategies – Marketing Segmentation – Marketing Organization - Marketing Research - Pricing Policies and Practices - Major Players in Retail and Digital Market in India.

**Unit 2: Understanding Product and Consumer**

Marketing Product Types – Product Decision and Strategies - Product Life Cycle - Consumer Behavior Model – Factors of Consumer Behavior -Understanding Indian Consumer - Strategies of persuading the Consumer – Sale Promotion: Advertisement, Branding and Packaging.

**Unit 3: Retail Marketing**

Concept of Retail Marketing – Types of Retailing – Big and Small Retail Markets - Retail Marketing Mix – Essentials of Successful Retail Marketing - Retail Marketing Strategies – Multichannel Retailing – Store Management – Shopping Market Dynamics.

## Unit 4: Digital Marketing

Digital Marketing: Concept and Types – Telemarketing –Online or e-tailing – Essentials of Digital Marketing –Difference between Physical Retail and Digital Marketing – Digital Marketing Channels - Customer Behavior in Digital Marketing – Major players in Digital Marketing and their Marketing Strategies - Tools and Apps of Digital Marketing.

## Unit 5: Marketing Models and Case Studies

Marketing Models of Retail and Digital Market Companies/Shops: Global, National and Local levels- Discussion of two different types of Case Studies related to Retail and Digital Marketing.

### III. References:

1. Venkatesh Ganapathy: *Modern Day Retail Marketing Management*, Bookboon Company, 2017.<https://mmimert.edu.in/images/books/modern-day-retail-marketing-management.pdf>
2. Prashant Chaudary: *Retail Marketing in the Modern Age*, Sage Publication, 2019
3. Jermy Kagan and Siddarth Shekar Singh: *Digital Marketing & Tactics*, Wiely Publishers, 2020.
4. Philip Kotler: *Marketing Management*, 11<sup>th</sup> Edition, Prentice-Hall of India Pvt. Ltd., New Delhi. , 2002
5. S.Neelamegham: *Marketing in India*, 3<sup>rd</sup> edition, Vikas Publications, New Delhi, 2000.
6. IGNOU: *Marketing for Managers*, New Delhi.  
<http://egyankosh.ac.in/handle/123456789/4271>
7. Digitalmarketer: The Ultimate Guide to Digital Marketing.  
<https://www.digitalmarketer.com/digital-marketing/assets/pdf/ultimate-guide-to-digital-marketing.pdf>
8. NITI Aayog: *Connected Commerce: Creating a Roadmap for Digitally Inclusive Bharat, 2021*. <https://niti.gov.in/writereaddata/files/Connected-Commerce-Full-Report.pdf>
9. IASRI Course in *Agribusiness Management and Trade Concepts in Marketing*<http://ecoursesonline.iasri.res.in/mod/page/view.php?id=710>
10. World Bank: *Digital Economy in South East Asia: Strengthening the Foundations for Future Growth*, 2019.  
<https://documents1.worldbank.org/curated/en/328941558708267736/pdf/The-Digital-Economy-in-Southeast-Asia-Strengthening-the-Foundations-for-Future-Growth.pdf>
11. Relevant web resources suggested by the teacher and college librarian

### IV. Co-Curricular Activities:

**a) Mandatory** (*Training of students in the related skills by the teacher for a total 10 Hours*)

1) **For Teacher:** Training of students by teacher in the classroom and in the field for a total of not less than 10 hours on skills and hands on experience like marketing research, product life

cycle analysis, preparing marketing model, behavior with customer, store management, use of important digital marketing websites and apps etc. pertaining to retail and digital marketing organization and make a field visit to any one such unit in local area. The expertise of practicing marketing persons can be utilized for this purposes.

2) **For Student:** Students shall visit and understand the functioning of retail and digital marketing organization in their local area. They shall write their individual observations in the given format, not exceeding 10 pages, and submit to the teacher, as Fieldwork/Project work Report

3) **Suggested Fieldwork/Project work Format** (*Report shall not exceed 10 pages*):  
Title Page, Student Details, Acknowledgments, Index page, Objectives, Step-wise process, Findings, Conclusion & References.

4) Max Marks for Fieldwork/Project work Report: 05

5) Unit Tests/Internal Examinations.

**b) Suggested Co-Curricular Activities**

1. Invited Lectures with academic experts and practicing marketing persons
2. Hands on experience by field experts.
3. Assignments
4. Debates on related topics
5. Seminars, Group discussions, Quiz, etc.

**Note:** For the latest topics which have no formal material available, the teacher is expected to prepare own material by using multiple latest sources and practical knowledge.

###

A.P. State Council of Higher Education  
Semester-Wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-Year B.A. (Hons)  
Domain Subject: **ECONOMICS**  
IV Year B.A.(Hons)-Semester-V

Max Marks: 100

Course 6C: **Insurance Services**  
(Skill Enhancement Course (Elective), 4 Credits)

**I. Learning Outcomes:**

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

1. Explain the concept and principles of insurance service and functioning of insurance service agencies;
2. Identify and analyse the opportunities related insurance services in local rural area;
3. Apply the concepts and principles of insurance to build a career in Insurance services;
4. Demonstrate practical skills to enable them to start insurance service agency or earn wage employment in it.

**II. Syllabus:** (Hours: Teaching: 60, Training: 10, Others Including Unit Tests: 05)

**Unit 1: Insurance Concept and Principles**

Risk Management: Risk and Uncertainty, Risk Classification – Concept, Importance and Types of Insurance– Principles of Insurance – Insurance Regulations in India - Role of IRDA and Insurance Ombudsman –Scope for Insurance Business in India.

**Unit 2: Life Insurance and Products**

Life Insurance: Nature and Features - Major Life Insurance Companies in India - Important Life Insurance Products/policies and their Features: Conventional, Unit Linked, Annuities, Group Policies – Medical Examiner.

**Unit 3: General and Health Insurances and Products**

General Insurance: Nature, Features and Types - Major General Insurance Companies in India - Important General Insurance Products/Policies and their Features - Surveyor – Health Insurance: Nature and Features - Health Insurance Companies in India - Major Health Insurance Products/policies and their Features: Individual, Family, Group.

#### **Unit 4: Practicing as an Insurant Agent**

Insurance Contract and Terms of Insurance Policy - Registration of Insurance Agency with the Company — Procedure to issue a Policy: Application and Acceptance – Policy Lapse and Revival – Premium Payment, Assignment, Nomination and Surrender of Policy – Policy Claim - Important Websites and Apps of Insurance in India.

#### **Unit 5: Understanding the Customer and Case Studies**

Insurance Customer and Categories – Understanding Customer Mindset and Satisfaction - Addressing the Grievances of the Customer – Ethical Behavior in Insurance – Moral Hazard –Discussion of two different Case Studies related to Life or General or Health Insurance Services.

#### **III. References:**

1. Insurance Institute of India: *Principles of Insurance (IC-01)*, Mumbai, 2011.
2. Insurance Institute of India: *Practice of Life Insurance (IC-02)*, Mumbai, 2011.
3. Insurance Institute of India: *Practice of General Insurance (IC-11)*, Mumbai, 2011
4. IGNOU: *Life Insurance*  
<https://egyankosh.ac.in/bitstream/123456789/6472/1/Unit-20.pdf>
5. IGNOU: *Non-Life Insurance*  
<https://egyankosh.ac.in/bitstream/123456789/6470/1/Unit-21.pdf>
6. P. Periyaswamy: *Principles and Practice of Insurance*, Himalaya Publishers, New Delhi (2<sup>nd</sup> Edition), 2019.
7. G. Dionne and S.E. Harrington (Eds.): *Foundations of Insurance Economics*, Kluwer Academic Publishers, Boston, 1997.
8. K. Jr. Black, and H.D. Skipper Jr.:*Life and Health Insurance*, Prentice Hall, Upper Saddle River, New Jersey, 2000.
9. <https://www.irdai.gov.in>
10. <https://www.insuranceinstituteofindia.com>
11. <https://licindia.in/>
12. Other Relevant web resources suggested by the teacher and college librarian

#### **IV. Co-Curricular Activities:**

**a) Mandatory** (*Training of students in the related skills by the teacher for a total 10 Hours*)

1) **For Teacher:** Training of students by teacher in the classroom and in the field for a total of not less than 10 hours on skills and hands on experience like explaining the details of an insurance policy to a customer – life, health and general policy, filling up application for a policy, calculation of premium and claim, make use of important websites and apps etc. pertaining to insurance and make a field visit to any insurance organization in local area. The expertise of practicing insurance agent or trainer can be utilized for this purposes.

2) **For Student:** Students shall visit and understand the functioning of insurance agency of their interest in the local area. They shall write their individual observations in the given format, not exceeding 10 pages, and submit to the teacher, as Fieldwork/Project work Report

3) **Suggested Fieldwork/Project work Format** (*Report shall not exceed 10 pages*):

Title Page, Student Details, Acknowledgments, Index page, Objectives, Step-wise process, Findings, Conclusion & References.

4) Max Marks for Fieldwork/Project work Report: 05

5) Unit Tests/Internal Examinations.

**b) Suggested Co-Curricular Activities**

1. Invited Lectures with academic experts, practicing insurance agents. Trainers, concerned officials.
2. Hands on experience by field experts.
3. Assignments
4. Debates on related topics
5. Seminars, Group discussions, Quiz, etc.

**Note:** For the latest topics which have no formal material available, the teacher is expected to prepare own material by using multiple latest sources and practical knowledge.

###

A.P. State Council of Higher Education  
Semester-Wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-Year B.A. (Hons)  
Domain Subject: **ECONOMICS**  
IV Year B.A.(Hons)-Semester-V

Max Marks: 100

Course 7C: **Banking and Financial Services**  
(Skill Enhancement Course (Elective), 4 Credits)

**I. Learning Outcomes:**

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

1. Explain the concept and essentials banking and financial services.
2. Identify and analyse the employment opportunities related to banks and other financial institutions.
3. Apply the concepts to banking and financial opportunities and formulate ideas related to them.
4. Demonstrate practical skills to enable them to get employment in Banks and other financial institutions as business correspondents or Common Service Centers or marketing agents.

**II. Syllabus:** (Hours: Teaching: 60, Training: 10, Others Including Unit Tests: 05)

**Unit1: Principles of Banking and Indian Banking System**

Meaning of Banking – Principles of Banking – Functions of Banking – Structure of Indian Banking System – Regulations of Banking in India – Role of RBI in Banking – Anti-money Laundering - Basics of Financial literacy - Problems and Challenges of Banking in India.

**Unit 2: Deposits, Loans and Digital Banking**

Bank Deposit Account Types – Account Opening and Closing – Banking Customer types – KYC Norms – Negotiable Instruments: Cheque, Bill of Exchange, Promissory Note, Endorsement - Principles of Lending – Different categories of Loans – Mortgaging -Priority Sector Lending – E-Banking facilities: Debit Card, Credit Card, Net Banking, Mobile Banking, Tele-banking, Micro ATMs, Digital Currency – Core Banking Solutions.

### **Unit 3: Banking Correspondents and Common Service Centers**

Banking Correspondent Model - Activities of Banking Correspondent: Deposit Mobilization. Identification of Borrowers, Collection and Recovery Loan, Other Banking Services – Common Services Centre (CSC) - Provision of Services by CSC – Requirement for Registering CSC and Telecentre - Case Study of Banking Correspondents with any Bank or CSC in Local Area.

### **Unit 4: Financial Services of NBFIs**

Non-Banking Financial Institutions (NBFIs): Types and Major Players of NBFIs in India – Important Financial Services offered by NBFIs and their Features – Concept of EMI - Micro Finance: Concept and Operation - Chit Funds: Concept and Operations– Payment Banks - Regulations of NBFIs in India – Problems and Challenges of NBFIs in India.

### **Unit 5: Work with Finance Service Company (FSC)**

Types of loans by Finance Service Company (FSC) – Customer of FSC: Types and Needs - Marketing of FSC's Loans – Procedures and Requirements in FSC's Loan Sanction - Collection and Recovery of FSC Loans - Case Study of a FSC's services in Local Area.

### **III. References:**

1. Indian Institute of Banking and Finance: *Principles and Practices of Banking*, Macmillan India Limited, 2021.  
<https://drive.google.com/file/d/1VU7aN4s5ikPQI7nX6mTBW-sVLQCNhfvK/view>
2. Indian Institute of Banking and Finance: *Retail Banking*, Macmillan India Limited, 2015.
3. D.R.Patade Babasaheb Sangale and T.N.Salve : *Banking and Finance: Fundamental of Banking*, Success Publications, Pune, January 2013.  
<https://app1.unipune.ac.in/external/course-material/Fundamental-of-Banking-English.pdf>
4. N. Mukund Sharma: *Banking and Financial Services*, Himalaya Publishers, 2015.
5. Akhan Ali Jafor: *Non-Banking Financial Companies in India: Functioning and Practice*, New Century Publications, New Delhi, 2010.
6. RBI: “Non-Banking Financial Institutions” in *Report on Trend and Progress of Banking in India 2019-20*.
7. RBI: Discussion Paper on *Engaging Business Correspondents*.  
[https://www.rbi.org.in/scripts/bs\\_viewcontent.aspx?Id=2234](https://www.rbi.org.in/scripts/bs_viewcontent.aspx?Id=2234)
8. Govt. of India: Ministry of Electronic and Information Technology: *Digital Seva-Operational Manual for Common Service Centres*.  
<https://csc.gov.in/assets/cscmanual/digitalsevaoperationalmanual.pdf>
9. <http://www.cscentrepneur.in/> for Telecentre Entrepreneurship Course
10. <https://www.rbi.org.in/>
11. <http://www.iibf.org.in/>

12. Other Relevant web resources suggested by the teacher and college librarian

#### **IV. Co-Curricular Activities:**

**a) Mandatory** (*Training of students in the related skills by the teacher for a total 10 Hours*)

1) **For Teacher:** Training of students by teacher in the classroom and in the field for a total of not less than 10 hours on skills and hands on experience like opening and closing bank account, explaining negotiable instruments, loan application process at banks, operation of digital banking, operating common service center, loan application and sanction in FSC, make use of important websites and apps etc. pertaining to banks and FSCs and make a field visit to any bank and FSC in local area. The expertise of practicing insurance agent or trainer can be utilized for this purposes.

2) **For Student:** Students shall visit and understand the functioning of bank and FSC of their interest in the local area. They shall write their individual observations in the given format, not exceeding 10 pages, and submit to the teacher, as Fieldwork/Project work Report

3) **Suggested Fieldwork/Project work Format** (*Report shall not exceed 10 pages*):  
Title Page, Student Details, Acknowledgments, Index page, Objectives, Step-wise process, Findings, Conclusion & References.

4) Max Marks for Fieldwork/Project work Report: 05

5) Unit Tests/Internal Examinations.

#### **b) Suggested Co-Curricular Activities**

1. Invited Lectures with academic experts, practicing bankers, trainers and concerned officials.
2. Hands on experience by field experts.
3. Assignments
4. Debates on related topics
5. Seminars, Group discussions, Quiz, etc.

**Note:** For the latest topics which have no formal material available, the teacher is expected to prepare own material by using multiple latest sources and practical knowledge.

###

A.P. State Council of Higher Education  
Semester-Wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-Year B.A. (Hons)  
Domain Subject: **ECONOMICS**  
IV Year B.A.(Hons)-Semester-V

Max Marks: 100

Course 6D: **Inferential Statistics and Software Packages**  
(Skill Enhancement Course (Elective), 4 Credits)

**1. Learning Outcomes:**

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

1. Demonstrate the knowledge related to the important concepts and techniques of inferential statistics
2. Calculate correlation, regression coefficients and interpret the results.
3. Use Excel sheets and SPSS package to analyse the data and derive the results.

**II. Syllabus:** (Hours: Teaching: 60, Training: 10, Others Including Unit Tests: 05)

**Unit 1: Concept and Theories of Probability**

Concept of Probability - Definitions of Probability: Classical or Mathematical and Empirical or Statistical – Axiomatic Approach to Probability – Theorems of Probability: Addition and Multiplication (without proofs).

**Unit 2: Theoretical Probability Distributions**

Binomial Distribution: Constants (without proof) and Properties – Poisson Distribution: Constants (without proof) and Properties – Normal Distribution: Constants (without proof) and Properties – Standard Normal Distribution and Standard Normal Curve – Economic and Practical Applications of Binomial, Poisson and Normal Distributions.

**Unit 3: Test of Significance - Large and Small Sample Tests**

Steps involved in Testing of Hypotheses – Large Sample or Z-Test – Testing the difference between Means and Proportions – Small Sample Tests – Difference between Large and Small Sample Tests – Applications of Student's t-test,  $\chi^2$  test, F-test – One way and Two way ANOVA.

#### Unit 4: Linear and Non-linear Multiple Regression Models

Four Variable Linear Multiple Regression Model – Notation – Assumptions – Estimation of Partial Regression Coefficients – Interpretation of Regression coefficients - Testing the coefficients: t-test, p- value – Coefficient of Determination:  $R^2$  and adjusted  $R^2$  – Estimation of Non-linear Multiple Regression: Cobb-Douglas Production Function and Interpretation of Elasticity Coefficients.

#### Unit 5: Excel and Software Packages for Data Analysis

Worksheet – Entering data in Worksheets – Creating Graphs and Charts - Mathematical and Statistical Functions -Data Analysis Pack in Excel - Descriptive Statistics, Testing of Hypotheses, ANOVA, Correlation and Regression, Random Number Generation - Data Handling Using SPSS - Opening Excel files in SPSS - Analysis Tools - Descriptive Statistics - Selection of Variables in Multiple Linear Regression – Estimation of Regression Coefficients using SPSS and their interpretation.

#### III. References:

1. S. C. Gupta: **Fundamentals of Statistics**, Himalaya Publishing House, Bombay, 1982.
2. S. P. Gupta: *Statistical Methods*, S. Chand & Company, New Delhi, 2000.
3. K. V. S. Sharma : *Statistics Made Simple: Do it yourself on PC, (Second edn.)* Prentice Hall of India, New Delhi, 2010.
4. తెలుగు అకాడమీ ప్రచురణ “పరిమాణాత్మక పద్ధతులు”
5. B. N. Gupta: *Statistics Theory and Practice*, Sahitya Bhavan, Agra, 1992.
6. Goon A.M., M. K. Gupta and B. Dasgupta: *Fundamentals of Statistics*, Vol.1, The World Press, Ltd, Calcutta, 1975.
7. Nagar, A.L. and R. K. Das: *Basic Statistics*, Oxford University Press, New Delhi, 1996.
8. *D N Elhance*, Veena Elhance & B M Aggarwal *Foundation of Statistics*, Kitab Mahal, New Delhi, 2018.
9. Relevant web resources suggested by the teacher and college librarian

#### IV. Co-Curricular Activities:

**a) Mandatory** (*Training of students in the related skills by the teacher for a total 10 Hours*)

1) **For Teacher:** Training of students by teacher in the classroom and in the field for a total of not less than 10 hours on skills and hands on experience like calculation and interpretation normal curve, Z-values, t-test,  $\chi^2$  test, F-test, ANOVA, regression results, t, p and  $R^2$  values using Excel and/or SPSS. The expertise of practicing persons can be utilized for this purposes.

2) **For Student:** Students shall take up a real time data of any economic organisation or firm and calculate the important statistical tests for the data and write the results with

interpretations in the given format, not exceeding 10 pages, and submit to the teacher, as Fieldwork/Project work Report

3) **Suggested Fieldwork/Project work Format** (*Report shall not exceed 10 pages*):

Title Page, Student Details, Acknowledgments, Index page, Objectives, Step-wise process, Findings, Conclusion & References.

4) Max Marks for Fieldwork/Project work Report: 05

5) Unit Tests/Internal Examinations.

**b) Suggested Co-Curricular Activities**

1. Invited Lectures with academic experts, practicing persons.
2. Hands on experience by field experts.
3. Assignments
4. Debates on related topics
5. Seminars, Group discussions, Quiz, etc.

###

A.P. State Council of Higher Education  
Semester-Wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-Year B.A. (Hons)  
Domain Subject: **ECONOMICS**  
IV Year B.A.(Hons)-Semester-V

Max Marks: 100

**Course 7D: Project Designing and Report Writing**  
(Skill Enhancement Course (Elective), 4 Credits)

**I. Learning Outcomes:**

The Student at the successful completion of the course shall be able to:

1. Demonstrate the knowledge relating to research, its role in enhancement of knowledge in social sciences in general and economics in particular;
2. Formulate a good research design to undertake mini research projects with a view to studying the socio-economic problems of the society;
3. Undertake a field survey by himself/herself to collect relevant data and information relating to his/her project work;
4. Develop capacity to write a simple project report with all relevant components on the research project undertaken by him/her.

**II. Syllabus:** (Hours: Teaching: 60, Training: 10, Others Including Unit Tests: 05)

**Unit 1: Foundations of Research**

Meaning and Importance of Research - Scientific Research – Social Science Research – Methods of ensuring Objectivity in Social Science Research – Limitations of Research in Social Science – Ethics in Research.

**Unit 2: Classification of Research**

Pure and Applied Research – Exploratory and Descriptive Research – Diagnostic Research – Action Research – Analytical Research – Evaluation Research – Experimental Research Design – Concepts of Independent and Dependent Variables – Case Study method.

**Unit 3: Planning of Research Project**

Selection of a Research Problem – Criteria for Selecting a Research Problem – Review of Theoretical and Related Research Studies - Choice of Secondary and Primary Data for the Study - Choice of Census and Sample Data – Preparation of a Research Proposal – Components of a good Research Proposal.

## Unit 4: Implementation of a Project Design

Fieldwork/Project work and Collection of Data – Choice of Schedules and Questionnaire – Pilot Study – Role of Observation and Participation – Documentary Evidences - Projective Techniques: Functions and Types - Editing Data – Graphical and Statistical Analysis of Data using Appropriate Statistical Techniques.

## Unit 5: Report Writing

Types of Research Report – Target Audience – Nature of Language to be used in Research Report - Outlines of a good Research Report – Prefatory Items – Body of the Report – Terminal Items: Differences between References and Bibliography – Appendices - Ethical values in Research Report - Plagiarism Test - Components of a good Research Paper.

### III. References:

1. C. T. Kurien: *A Guide to Research in Economics*, Sangam Publishers for Madras Institute of Development Studies, Chennai, 1973.
2. O. R. Krishnaswami and M. Ranganatham: *Methodology of Research in Social Sciences*, Himalaya Publishing House, Mumbai, 2018.
3. C. R. Kothari: *Research Methodology: Methods and Techniques*, New Age International (Pvt.) Ltd. Publishers, New Delhi, 2004.
4. K. V. S. Sharma : *Statistics Made Simple: Do it yourself on PC*, (Second edn.) Prentice Hall of India, New Delhi, 2010.
5. John W. Creswell and J. David Creswell : *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, Sage Publications, New Delhi, 2018.
6. Shanti Bhushan Mishra and Shashi Alok, *Handbook of Research Methodology*, Educreation, Bilaspur, 2017.
7. Wayne C. Booth, Gregory G. Colomb, and Joseph M. Williams: *The Craft of Research*, University of Chicago Press, Chicago, 2016.
8. Dr. Ranjit Kumar: *Research Methodology: A Step-by-Step Guide for Beginners*, Sage Publications, New Delhi, 2014.
9. Geoffrey Marcyk, David DeMatteo, and David Festinger: *Essentials of Research Design and Methodology*, John Wiley and Sons, New Jersey, 2005.
10. Sharan B. Merriam: *Qualitative Research: A Guide to Design and Implementation* Jossey Boss, San Francisco, 2009.
11. Mark Balnaves & Peter Caputi: *Introduction to Quantitative Research Methods: An Investigative Approach*, Sage Publications, New Delhi, 2001.
12. Relevant web resources suggested by the teacher and college librarian.

### IV. Co-Curricular Activities:

**a) Mandatory** (Training of students in the related skills by the teacher for a total 10 Hours)

1) **For Teacher:** Training of students by teacher in the classroom and in the field for a total of not less than 10 hours on skills and hands on experience like evaluation of program, selection of research problem, doing literature survey, preparation of research proposal, data editing, graphs and statistics, writing research report and paper etc. and make field visit to study a simple research issue. The expertise of practicing researcher can be utilized for this purposes.

2) **For Student:** Students shall take up small research issue of their interest and visit a field area related to that problem. They shall write their individual observations in the given format, not exceeding 10 pages, and submit to the teacher, as Fieldwork/Project work Report

3) **Suggested Fieldwork/Project work Format** (*Report shall not exceed 10 pages*):  
Title Page, Student Details, Acknowledgments, Index page, Objectives, Step-wise process, Findings, Conclusion & References.

4) Max Marks for Fieldwork/Project work Report: 05

5) Unit Tests/Internal Examinations.

**b) Suggested Co-Curricular Activities**

1. Invited Lectures with academic experts and researchers.
2. Hands on experience by field experts.
3. Assignments.
4. Debates on related topics.
5. Seminars, Group discussions, Quiz, etc.

###

**MODEL QUESTION PAPER PATTERN**

Max. Marks: 75

Time: 3 Hours

**Section A** (Total 5 x 5 Marks = 25 Marks)

Write Short Answers for any five of the following Questions. Each Answer Carries 5 Marks

1	
2	
3	
4	
5	
6	
7	
8	

(At least one question should be given from every unit of all the five units. At least two questions should be related to testing skills)

**Section B** (Total 5 x 10 Marks = 50 Marks)

Write Answers for the following *five* Questions.

Each Answer Carries 10 Marks

9	(a) Or (b)
10	(a) Or (b)
11	(a) Or (b)
12	(a) Or (b)
13	(a) Or (b)

(Each set of question contains two internal choice sub-questions (a or b) which should be given from the same unit and one set form each unit of all the five units. At least two choice sub-questions should be related to testing skills)

**Prepared by:**

1. Prof. D. Krishnamoorthy, Department of Economics, Sri Venkateswara University, Tirupati.
2. Dr. Ch. Sankar Rao, Lecturer in Economics, T.R.R. Govt. Degree College, Kandukur, Prakasam District, A.P.

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REVISEDUGSYLLABUS UNDERCBCS ANDHRA PRADESH STATE COUNCIL OF  
**HIGHER EDUCATION**

(A Statutory body of the Government of Andhra Pradesh)

(Implemented from Academic Year 2020-21)

PROGRAMME: FOUR YEAR B.Sc. (Hons)

Domain Subject: PHYSICS

*Skill Enhancement Courses (SECs) for Semester V, from 2022-23 (Syllabus with Learning Outcomes, References, Co-curricular Activities & Model Q.P. Pattern)*

Structure of SECs for Semester-V

*(To choose one pair from the three alternate pairs of SECs)*

Univ. Code	Course No. 6&7	Name of Course	Th. Hrs / Week	IE Marks	EE Marks	Credits	Prac Hrs/ Wk	Marks	Credits
	6A	Optical Instruments and Optometry	3	25	75	3	3	50	2
	7A	Optical Imaging and Photography	3	25	75	3	3	50	2
OR									
	6B	Low Temperature Physics & Refrigeration	3	25	75	3	3	50	2
	7B	Solar Energy and Applications	3	25	75	3	3	50	2
OR									
	6C	Applications of Electricity & Electronics	3	25	75	3	3	50	2
	7C	Electronic Instrumentation	3	25	75	3	3	50	2

**Note-1:** For Semester-V, for the domain subject Physics, any one of the above three pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6B & 7B or 6C & 7C. The pair shall not be broken (ABC allotment is random, not on any priority basis).

**Note-2:** One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations.

**A.P. STATE COUNCIL OF HIGHER EDUCATION**  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Sc. (Hons)  
Domain Subject: **PHYSICS**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100+50

**Course 6A: OPTICAL INSTRUMENTS AND OPTOMETRY**  
[Skill Enhancement Course (Elective), Credits: 05]

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

1. Understand the construction and working principles of various optical instruments used in daily life.
2. Acquire a critical knowledge on the various defects of eye and their correcting methods with suitable lenses.
3. Demonstrate skills of using biological microscope through hands on experience.
4. Understand the various techniques used in optometry and computer based eye testing.
5. Comprehend the various applications of microscopes and telescopes.

**II. Syllabus:** (Total Hours: 90 including Teaching, Lab, Field Training, Unit tests etc.)

**UNIT-I OPTICAL MICROSCOPES (10hrs)**

Introduction to Microscopes, Need of a Microscope, Different types of microscopes and their uses, Simple microscope-Construction, Magnifying power, normal adjustment; Compound microscope-Construction, Magnifying power, normal adjustment, Phase contrast microscope-Operating principle, Travelling microscope-Construction, working and uses

**UNIT-II TELESCOPES (10hrs)**

Introduction to Telescopes, Different types of Telescopes and their uses, Refracting Telescopes and Reflecting telescopes, Construction, working and magnifying power of Astronomical Telescope and Terrestrial Telescopes, Binoculars – working principle and applications.

**UNIT-III APPLICATIONS OF OPTICAL INSTRUMENTS (10hrs)**

Introductory ideas and applications of various microscopes *viz.*, (i) Optical microscopes (Compound microscope, Stereo microscope, Confocal microscope) (ii) Electron microscopes (TEM, SEM), (iii) Scanning Probe microscope (iv) Scanning Acoustic microscope and (v) X-ray microscope.

Introductory ideas and applications of various telescopes *viz.*, (i) Optical telescopes (ii) Radio telescopes (iii) Solar telescopes (iv) Infrared telescope (v) Ultraviolet telescope (vi) X-ray telescope and (vii) Gamma ray telescope

**UNIT-IV OPTICAL VISION (10hrs)**

Introduction to optical Vision, Eye as an optical instrument, Formation of image in the eye and the camera, Ophthalmic lenses, Power of the lenses, Far point and near points, Myopia and Hypermetropia defects, Removal of defects in vision using ophthalmic lenses, Contact lenses-Working principle, Different types of Contact lenses.

**UNIT-V OPHTHALMIC TECHNIQUES AND OPTOMETRY (10hrs)**

Ophthalmoscope and keratometer and their working principles, Evaluation of eye disorders, Guidelines for standardized eye chart preparation, Simple phoropter and its working principle and its uses, Checking the power of lenses, Principles of Computer based eye testing

**References:**

1. Optics and Optical Instruments: An Introduction by B. K. Johnson, Dover Publications.
2. Modern Optical Instruments and their construction by or ford Henry-Publisher: Biblio Life, LLC.
3. A Text Book of Optics by Brj Lal and N.Subramanyam, S.Chand & Co.
4. Practical Optics by Menn Naftly, Elsevier Science Publishing.
5. Applications of Optics in daily life | CK-12 Foundation. <https://flexbooks.ck12.org> ›
6. Web sources suggested by the teacher concerned and the college librarian including Reading material.

**Course 6A: Optical Instruments and Optometry –  
PRACTICAL SYLLABUS (30 Hrs. Max Marks: 50)**

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

1. List out, identify and handle various equipments like binoculars, telescopes and microscopes.
2. Learn the procedures of operation of various optical instruments.
3. Demonstrate skills on testing the power of lenses, improving the resolution of telescopes and microscopes.
4. Acquire skills in observing and measuring the power, focal length and different refractive errors of eye.
5. Perform some techniques related to testing the blood and other biological samples.
6. Understand the technique of operation of Computer eye testing and evaluation.

**V. Practical (Laboratory) Syllabus:** (30 hrs)

1. Evaluation of magnifying power of simple microscope.
2. Measurement of reflection and transmission coefficient of certain materials using a microscope.
3. Resolving power of telescope
4. Determination of radii of different capillary tubes using travelling microscope.
5. Refractive index of a liquid (water) using (i) concave mirror and (ii) convex lens and a plane mirror.
6. Removal of refractive errors of eye using combination of lenses.
7. Determination of power of a convex lens by finding its focal length.

**VI. Lab References:**

1. A Practical Guide to Experimental Geometrical Optics by Yuriy A. Garbovskiy-Cambridge Univ. Press
2. <https://physics.columbia.edu/sites/default/files/content/Lab%20Resources/1292%20Lab%20Manual.pdf>
3. [https://www.lnmiit.ac.in/Department/Physics/uploaded\\_files/lab-manual.pdf](https://www.lnmiit.ac.in/Department/Physics/uploaded_files/lab-manual.pdf)
4. Basic Optics Experiments -<http://www.phys.unm.edu> › Optics Lab › Basics
5. A Practical Guide to Experimental Geometrical Optics by Yuriy A. Garbovskiy, Anatoliy V. Glushchenko, Cambridge Univ. Press
6. Web sources suggested by the teacher concerned.  
[http://www.phy.olemiss.edu/~thomas/weblab/Optics\\_lab\\_Items/Telescope\\_Microscope\\_PROCED\\_Spring\\_2018.pdf](http://www.phy.olemiss.edu/~thomas/weblab/Optics_lab_Items/Telescope_Microscope_PROCED_Spring_2018.pdf)

## VII. Co-Curricular Activities

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

1. **For Teacher:** Training of students by the teacher (if necessary, by a local expert) in laboratory/field for a total of not less than 15 hours on the field techniques/skills on the familiarization of various optical instruments available in the laboratory; construction of different types of telescopes and their comparison in construction, operation and their utility and limitations; the details of construction of eye and various defects in the eye sight, emerging techniques in the design of eye lenses including contact lenses and making the student to understand on the testing of a biological sample using a clinical microscope

**For Student:** Students shall (individually) visit and observe the functioning of optical instruments at any one of the following places /centres like (a) pathological laboratory **or** (b) a local ophthalmologist **or** (c) a local optician to understand the various types of eye lenses **or** (d) a local computer based eye testing centre **or** (e) an optician, who fixes contact lenses **or** (f) a local cinema theatre **or** (g) a planetarium. Student shall write the observations and submit a hand-written Fieldwork/Project work not exceeding 10 pages in the given format to the teacher.

2. Max marks for Fieldwork/Project work: 05.
3. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, details of place visited, observations, findings and acknowledgements.*
4. Unit tests (IE).

### (b) **Suggested Co-Curricular Activities**

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like identifying tools in the lens grinding, frame fitting, lens cleaning culture and other operational techniques with safety and security, IPR)
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on tools and techniques in optical instruments and optical lenses, contact lenses.
5. Making a model microscope and measuring its magnification.
6. Making a simple astronomical telescope using two convex lenses.
7. Checking the power of your spectacles or lenses at home.
8. Students shall take up making their own (i) Telescope and (ii) Binoculars with the accessories available at home.

<https://paksc.org/pk/science-experiments/physics-experiments/how-to-make-astronomical-telescope>

<https://kids.nationalgeographic.com/nature/article/make-a-telescope>

<https://learning-center.homesciencetools.com/article/how-to-make-a-telescope-optical-science-project/>

<http://scipop.iucaa.in/Amateurs/telemaking.html>

9. Collection of material/figures/photos related to various types of lenses and their power.
10. Visit to any eye research laboratories, if available
11. Invited lectures and presentations on related topics by field/industrial experts

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**A.P. STATE COUNCIL OF HIGHER EDUCATION**  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Sc. (Hons)  
Domain Subject: **PHYSICS**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100+50

**Course 7A: OPTICAL IMAGING AND PHOTOGRAPHY**  
(Skill Enhancement Course (Elective), Credits: 05)

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

1. Identify the different types of cameras and camera lenses according to different purposes.
2. Identify and understand the focal length of the different types of lenses
3. Acquire a critical knowledge on natural and artificial sources of light and their application in photography.
4. Demonstrate skills of camera usage especially Digital Cameras.
5. Understand the various Image development and editing techniques.
6. Comprehend the concept of different types of common shooting techniques.

**II. Syllabus:** (Total Hours: 90 including Teaching, Lab, Field Training, Unit tests etc.)

**Unit-I: INTRODUCTION TO PHOTOGRAPHY:** (10 hrs)

Photography-Introduction, Working principle of a camera, Image formation in simple camera and human eye, Types of cameras , Pin-hole camera , Single Lens Reflex (SLR) camera, Twin Lens Reflex (TLR) camera , Digital Single-lens reflex camera (DSLR), Digital camera, Drone flying cameras, Care and maintenance of camera, Factors influencing choice of camera

**Unit-II: DIGITAL PHOTOGRAPHY:** (10 hrs)

Different types of Digital cameras and their parts, Working of DSLR camera, Types of lenses-Normal, Wide angle, telephoto, Zoom lenses, Digital Image formation, Digital camera image sensors, Size of the image, Depth of focus, Depth of field, Exposure time, Aperture, Shutter speed, ISO, filters, knowledge on pixels and their uses , resolution, Camera accessories

**Unit-III: PHOTOGRAPHIC LIGHT SOURCES:** (10 hrs)

Need for the light in photography, Light sources- Natural light, Sun light, Moon light, Ambient light, Artificial light sources-Flood light, Spot light, Halogen light, Halogen flash light, Digital lights, Exposure, Studio photography

**Unit-IV: PHOTOGRAPHIC SHOOTING TECHNIQUES:** (10 hrs)

Significance and role of Camera lens in photo shooting, Arrangement of lenses in a Camera-Positioning, Techniques involved in the use of DSLR cameras, Usage of Filters, Techniques of Photomicrography, High speed Photography with motor driven camera, Basic ideas on Underwater Photography, Medical Photography, Astronomical Photography, Infra-Red (IR) Photography, Ultra Violet (UV) Photography and Forensic Photography.

## Unit-V : PHOTO MANIPULATION :

(10 hrs)

Developing and printing the photographs, equipment and materials used in developing and printing, image mixing and printing, Image editing through image editing software's like Adobe Photoshop – Adjustment of Brightness, Contrast, Tonal and Colour Values, Factors influencing quality of digital image, Methods of storing and processing, Image transportation through Pendrive, CD, HDD and CLOUD [Internet]

### III Reference Books:

1. Object and image; An introduction to photography by George M Craven, PHI
2. An Introduction to Digital Photo Imaging Agfa, 1994
3. Advance Photography by M. Langford.
4. Digital Photography-A hands on Introduction by Phillip Krejcarek, Delmer Publishers
5. Multimedia – An Introduction by John Villamil, PHI
6. <https://www.adobe.com/in/creativecloud/photography/discover/dslr-camera.html>
7. Web sources suggested by the teacher concerned and the college librarian including reading material.

### Course 7A: Optical Imaging and Photography

**PRACTICAL SYLLABUS** (30 Hrs, Max Marks: 50)

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

1. List out, identify and understand various image formation techniques including Eye.
2. Learn the procedures of using Analog and Digital cameras.
3. Demonstrate the focusing techniques of Analog and Digital cameras.
4. Acquire skills in the editing and development of photos and videos.
5. Perform some experimental skills related to images, videos using the equipment available in the lab or in a local studio.

### V. Practical (Laboratory) Syllabus: (30 hrs)

1. Construction of a simple pin hole Camera and study it's working.
2. Capture an image using a Digital Camera and apply editing techniques.
3. Understanding various image formats and convert one image format into other (For ex: JPEG to BMP)
4. Convert a video stream into image stream by using a suitable editing software.
5. Evaluate the number of pixels and size of digital Image.
6. Comparison of the quality of a 8-bit, 16-bit and 32 bit images.
7. Perform the reduction and enlargement of a given Digital Image.
8. Change the appearance of an image by applying the filters (For ex: from the IR image of the given digital Image by suitable IR filter)

### VI. Lab References:

1. DSLR Photography for Beginners by Brian Black
2. The Art of Photography by Bruce Barnbaum
3. Photoshop for Photographers by John Slavo
4. <https://www.youtube.com/channel/UCwWyFRy2l6aUFMsRemP51Sw>. You Tube resource.
5. <https://www.udemy.com/course/complete-photography-course/>
6. Web sources suggested by the teacher concerned.

## VII. Co-Curricular Activities

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

1. **For Teacher:** Training of students by the teacher (if necessary, by a local expert) in laboratory/field for not less than 15 hours on the field techniques/skills of Image formation by using lenses and mirrors. Also to make students to understand the construction, operation and the Physics principles involved in a normal Camera and Digital Camera.

2. **For Student:** Students shall (individually) visit a local Photo studio or any such facility in a university/research organization/private and observe (i) the operation of different digital cameras, compact and SLR and in taking photographs using different types of lenses by varying aperture, shutter speed for still camera, video camera, CCTV and spy camera **or** (ii) the use of natural light, tungsten light, fluorescent light, electronic flash reflectors, exposure meters, studio flash and its accessories **or** (iii) the usage of various lighting techniques for different lenses and will do practice on special areas of photography in outdoor and indoor conditions **or** (iv) the different processes viz., audio video recording, mixing, editing, dubbing of sound, using different types of microphones **or** (v) the handling of the digital video cameras, DVD, HDD, accessories and exposure to take different common shots, dimension of images and movements as per requirement **or** (v) the computer system by digital editing software, printing the photographs taken by digital cameras and the image transportation to the storage media, sending photographs through E-mail and Scanning the photographs, capture frames and analysis of images and record their observations and submit a hand-written Fieldwork/Project work not exceeding 10 pages in the given format to the teacher.

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

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

5. Tests (IE).

### (b) Suggested Co-Curricular Activities:

1. Training of students by a related skilled person from a Photo studio.

2. Assignments (including technical assignments like identifying the tools & techniques involved in photography and handling, operational techniques of different Cameras with safety and security )

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

4. Preparation of videos on tools and techniques related to Image formation and Photographic Techniques.

5. Practice taking outdoor photographs with a digital camera in (i) Black & White and (ii) Colour in the following conditions:

Landscapes – Street / Building – Sculpture – Insect / Animal movement – Industrial plant (outside view) – Children, birds (close up / long shot / model photography)- slow and fast moving objects-Night photography etc.

6. Shooting of different areas and topics such as sports, wildlife, modeling, drama, documentary, serial, story board making, news, interview, seminar/ workshop, industrial, live broadcasting, musical event, advertisement, etc.

7. Collection of material/figures/photos related to various components of a Camera, writing and organizing them in a systematic way in a file.

8. Visits to any local Photo Studio or any Lab in universities, research organizations, private firms, etc.

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

**A.P. STATE COUNCIL OF HIGHER EDUCATION**  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Sc. (Hons)  
Domain Subject: **PHYSICS**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100+50

**Course 6B: LOW TEMPERATURE PHYSICS & REFRIGERATION**  
(Skill Enhancement Course (Elective), Credits: 05)

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

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.

**II. Syllabus:** (Total Hours: 90 including Teaching, Lab, Field Training, Unit tests etc.)

**UNIT-I PRODUCTION OF LOW TEMPERATURE (10 hrs)**

Production of low temperatures-Introduction, Freezing mixtures, Joule-Thomson effect, Regenerative cooling, Different methods of liquefaction of gases, liquefaction of air, Production of liquid hydrogen and nitrogen, Adiabatic demagnetization, Properties of materials at low temperatures, Superconductivity

**UNIT-II MEASUREMENT OF LOW TEMPERATURE (10 hrs)**

Gas thermometer and its correction and calibration, Secondary thermometers, resistance thermometers, thermocouples, Vapour pressure thermometers, Magnetic thermometers, Advantages and drawbacks of each type of thermometer.

**UNIT-III PRINCIPLES OF REFRIGERATION (10 hrs)**

Introduction to Refrigeration- Natural and artificial refrigeration , Stages of refrigeration, Types of refrigeration - Vapor compression and vapor absorption refrigeration systems, Refrigeration cycle and explanation with a block diagram, Introductory ideas on air-conditioning.

Refrigerants-Introduction, Ideal refrigerant, Properties of refrigerant, Classification of refrigerants, commonly used refrigerants, Eco-friendly refrigerants

**UNIT-IV COMPONENTS OF REFRIGERATOR (10 hrs)**

Refrigerator and its working, Block diagram, Coefficient of Performance (COP), Tons of refrigeration (TR) and Energy Efficiency Ratio (EER), Refrigerator components: Types of compressors, evaporators and condensers and their functional aspects, defrosting in a refrigerator, Refrigerant leakage and detection

**UNIT-V APPLICATIONS OF LOW TEMPERATURE & REFRIGERATION (10 hrs.)**

*Applications of Low temperatures:* Preservation of biological material, Food freezing, liquid nitrogen and liquid hydrogen in medical field, Superconducting magnets in MRI- Tissue ablation (cryosurgery) - Cryogenic rocket propulsion system.

*Applications of refrigeration:* Domestic refrigerators, Water coolers, Cold storages, Ice plants, Food preservation methods, Chemical and Process industries, Cold treatment of metals, Construction field, Desalination of water, Data centers.

### III. References:

1. Heat and Thermodynamics by Brij Lal & N. Subramanyam, S. Chand Publishers.
2. Thermal Physics by S C Garg, R M Bansal & C K Ghosh, McGrawHill Education, India
3. Heat and Thermodynamics by M M Zemansky, McGrawHill Education (India).
4. Low-Temperature Physics by Christian E. & Siegfried H., Springer.
5. Thermal Engineering by S. Singh, S. Pati, Ch:18 Introduction to Refrigeration.
6. The Physics Hyper Text Book. Refrigerators. <https://physics.info/refrigerators/>
7. Refrigeration and Air Conditioning by Manohar Prasad, New age international (P) limited, New Delhi
8. A course in Refrigeration and Air Conditioning by S.C. Arora and S. Domkundwar, Dhanpatrai and sons, Delhi
9. [https://trc.nist.gov/cryogenics/Papers/Review/2017-Low\\_Temperature\\_Applications\\_and\\_Challenges.pdf](https://trc.nist.gov/cryogenics/Papers/Review/2017-Low_Temperature_Applications_and_Challenges.pdf)
10. <https://nptel.ac.in/content/storage2/courses/112105129/pdf/RAC%20Lecture%203.pdf>
11. Other Web sources suggested by the teacher concerned and the reading material. <https://nptel.ac.in>

### Course 6B: Low Temperature Physics & Refrigeration

#### PRACTICAL SYLLABUS (30 Hrs. Max Marks: 50)

**IV. Learning Outcomes:** On completion of practical course, student shall be able to

1. List out, identify and handle equipment used in refrigeration and low temperature lab.
2. Learn the procedures of preparation of Freezing Mixtures.
3. Demonstrate skills on developing various Freezing mixtures and materials and their applications in agriculture, medicine and day to day life.
4. Acquire skills in observing and measuring various methodologies of very low temperatures
5. Perform some techniques related to Refrigeration and Freezing in daily life.

**V. Practical (Laboratory) Syllabus:** (30 hrs. Max marks: 50)

1. Record the Principles and applications of Refrigerators and Freezers.
2. Measure the temperatures below Melting point of Ice using a thermometer available in the Lab.
3. Make a freezing mixture by adding different salts viz., Sodium chloride, Potassium Hydrate (KOH), Calcium chloride to ice in different proportions and observe the temperature changes.
4. Study the operation of a refrigerator and understand the working of different parts.
5. Study the properties of refrigerants like chlorofluorocarbons-hydrochlorofluoro-carbons and record the lowest temperatures obtained.
6. Consider a simple faulty refrigerator and try to troubleshoot the simple problems by understanding its working.

7. Understand the practical problem of filling the Freon Gas into the Refrigerator.
8. Get the Liquid Nitrogen or Liquid Helium from nearby Veterinary Hospital and measure their temperatures using chromel-alumel thermocouple or mercury thermometer and observe their physical properties like colour, smell etc and precautions to be taken for their safe handling.
9. Preparation of freeze drying food with Dry ice and liquid nitrogen
10. Preparation of freeze drying food with liquid nitrogen

## VI. Lab References:

1. Experimental techniques in low temperature physics by Guy White, Philip Meeson.
2. Experimental low-temperature physics by A. Kent, Macmillan physical science series
3. Physics and Chemistry at Low Temperatures by Leonid Khriachtchev.  
<https://www.routledge.com/Physics-and-Chemistry-at-Low-Temperatures/Khriachtchev/p/book/9789814267519>
4. Practical Cryogenics .<http://research.physics.illinois.edu/bezryadin/links/practical%20Cryogenics.pdf>
5. Freeze-Drying, 3rd Edition by Peter Haseley, Georg-Wilhelm Oetjen, Wiley (e-Book)
6. Web sources suggested by the teacher concerned.

## VII. Co-Curricular Activities:

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

1. **For Teacher:** Training of students by the teacher in the in the laboratory/field for a total of not less than 15 hours on the techniques/skills of Low Temperature Production, methods used and applications of Low temperatures and refrigeration in day to day life and other applications in medicine and industry.
2. **For Student:** Student shall (individually) visit (i) a small ice plant or a cold storage plant (ii) Air Conditioner (AC) repair shop or (iii) Refrigerator repair shop to understand the construction, working principle and the trouble shooting of these devices after interacting with the technicians. **Or** Student shall observe the various thermodynamic processes taking place while working with the refrigerator and observe the leak detection in refrigeration system by different methods, air removal and charging of a refrigeration unit and testing of a refrigeration system to find out the Refrigerating capacity/Ton of refrigeration (TR) and the Power input. **Or** Student shall identify the refrigerant cylinder by color coding and standing pressure. **Or** Student shall visit the freezer aisle of a supermarket and observes the bags of different frozen fruits. Student shall write the observations and submit a hand-written Fieldwork/Project work not exceeding 10 pages in the given format to the teacher.
3. Max marks for Fieldwork/Project work: 05.
4. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, details of place visited, observations, findings and acknowledgements.*
5. Unit tests (IE).

(b) **Suggested Co-Curricular Activities**

1. Training of students by related Factory, industrial experts.
2. Assignments (including technical assignments like identifying tools in Refrigerators, Freezers and their handling, operational techniques with safety and security )
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on tools and techniques in Low Temperatures and applications.
5. Collection of material/figures/photos related to substances used in Freezing Mixtures, their Properties and availability etc., writing and organizing them in a systematic way in a file.
6. Visits to Ice plants and labs in universities, research organizations, private firms, etc.
7. Making your own mini refrigerator at home
8. Build your own water cooler with the materials available at home.
9. Making hand launched liquid nitrogen rockets
10. Experiments with Liquid nitrogen and strawberry/ banana/ lemon/ onion/ mushroom/ egg etc. (*To be tried under professional supervision only*).
11. Invited lectures and presentations on related topics by field/industrial experts
12. Identification of different Ozone-depleting substances (ODS) that damage the ozone layer in the upper atmosphere.
13. Demonstration to illustrate the greenhouse effect and the role of carbon dioxide as a greenhouse gas using plastic water bottles, flood light lamp, beakers and temperature sensors and observe the temperature changes.

<https://edu.rsc.org/experiments/modelling-the-greenhouse-effect/1543.article>

<https://sealevel.jpl.nasa.gov/files/archive/activities/ts1hiac1.pdf>

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**A.P. STATE COUNCIL OF HIGHER EDUCATION**  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Sc. (Hons)  
Domain Subject: **Physics**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100+50

**Course 7B: Solar Energy and Applications**  
[Skill Enhancement Course (Elective), Credits: 05]

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

1. Understand Sun structure, forms of energy coming from the Sun and its measurement.
2. Acquire a critical knowledge on the working of thermal and 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.

**II. Syllabus:** (Total Hours: 90 including Teaching, Lab, Field Training, Unit tests etc.)

**Unit - I: BASIC CONCEPTS OF SOLAR ENERGY** (10hrs)

Spectral distribution of solar radiation, Solar constant, zenith angle and Air-Mass, standard time, local apparent time, equation of time, direct, diffuse and total radiations. Pyrheliometer - working principle, direct radiation measurement, Pyranometer-working Principle, diffuse radiation measurement, Distinction between the two meters.

**Unit - II: SOLAR THERMAL COLLECTORS** (10hrs)

Solar Thermal Collectors-Introduction, Types of Thermal collectors, Flat plate collector – liquid heating type, Energy balance equation and efficiency, Evacuated tube collector, collector overall heat loss coefficient, Definitions of collector efficiency factor, collector heat-removal factor and collector flow factor, Testing of flat-plate collector, solar water heating system, natural and forced circulation types. Concentrating collectors, Solar cookers, Solar dryers, Solar desalinators.

**Unit - III: FUNDAMENTALS OF SOLAR CELLS** (10hrs)

Semiconductor interface, Types, homo junction, hetero junction and Schottky barrier, advantages and drawbacks, Photovoltaic cell, equivalent circuit, output parameters, conversion efficiency, quantum efficiency, Measurement of I-V characteristics, series and shunt resistance, their effect on efficiency, Effect of light intensity, inclination and temperature on efficiency

**Unit -IV: TYPES OF SOLAR CELLS AND MODULES** (10 hrs)

Types of solar cells, Crystalline silicon solar cells, I-V characteristics, poly-Si cells, Amorphous silicon cells, Thin film solar cells-CdTe/CdS and CuInGaSe<sub>2</sub>/CdS cell configurations, structures, advantages and limitations, Multi junction cells – Double and triple junction cells. Module fabrication steps, Modules in series and parallel, Bypass and blocking diodes

**Unit – V: SOLAR PHOTOVOLTAIC SYSTEMS** (10hrs)

Energy storage in PV systems, Energy storage modes, electrochemical storage, Batteries, Primary and secondary, Solid-state battery, Molten solvent battery, lead acid battery and dry batteries, Mechanical storage – Flywheel, Electrical storage – Super capacitor

### III. References:

1. Solar Energy Utilization by G. D. Rai, Khanna Publishers
2. Solar Energy- Fundamentals, design, modelling and applications by G.N. Tiwari, Narosa Publications, 2005.
3. Solar Energy-Principles of thermal energy collection & storage by S.P. Sukhatme, Tata Mc-Graw Hill Publishers, 1999.
4. Science and Technology of Photovoltaics, P. Jayarama Reddy, CRC Press (Taylor & Francis Group), Leiden & BS Publications, Hyderabad, 2009.
5. Solar Photovoltaics- Fundamentals, technologies and applications, Chetan Singh Solanki, PHI Learning Pvt. Ltd.,
6. Web sources suggested by the teacher concerned and the college librarian including reading material.
  - (a) [https://courses.edx.org/c4x/DelftX/ET.3034TU/asset/solar\\_energy\\_v1.1.pdf](https://courses.edx.org/c4x/DelftX/ET.3034TU/asset/solar_energy_v1.1.pdf)
  - (b) [https://www.sku.ac.ir/Datafiles/BookLibrary/45/John%20A.%20Duffie,%20William%20A.%20Beckman\(auth.\)-Solar%20Engineering%20of%20Thermal%20Processes,%20Fourth%20Edition%20\(2013\).pdf](https://www.sku.ac.ir/Datafiles/BookLibrary/45/John%20A.%20Duffie,%20William%20A.%20Beckman(auth.)-Solar%20Engineering%20of%20Thermal%20Processes,%20Fourth%20Edition%20(2013).pdf)

### Course 6B: Solar Energy and Applications – Practical (lab) work (30 hrs, Max Marks:50)

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

1. List out and identify various components of solar thermal collectors and systems, solar photovoltaic modules and systems.
2. Learn the procedures for measurement of direct, global and diffuse solar radiation, I - V characteristics and efficiency analysis of solar cells and modules.
3. Demonstrate skills acquired in evaluating the performance of solar cell / module in connecting them appropriately to get required power output.
4. Acquire skills in identification and elimination of the damaged panels without affecting the output power in a module / array.
5. Perform procedures and techniques related to general maintenance of solar thermal and photovoltaic modules.

### V. Practical (Laboratory) Syllabus: (30 hrs) (Max.50 Marks)

1. Measurement of direct radiation using pyrliometer.
2. Measurement of global and diffuse radiation using pyranometer.
3. Evaluation of performance of a flat plate collector
4. Evaluation of solar cell / module efficiency by studying the I – V measurements.
5. Determination of series and shunt resistance of a solar cell / module.
6. Determination of efficiency of two solar cells / modules connected in series.
7. Determination of efficiency of two solar cells / modules connected in parallel.
8. Study the effect of input intensity on the performance of solar cell / module.
9. Study the influence of cell / module temperature on the efficiency.
10. Study the effect of cell / module inclination on the efficiency.

### VI. Lab References:

1. Solar Photo voltaic- Alab training manual, C.S. Solanki et al., Foundation Books Publishers, 2012.
2. Laboratory Manual on Solar thermal experiments, HP Garg, TC Kandpal, Narosa Publishing House 2000.
3. Web sources suggested by the teacher concerned.  
<https://renewablelab.niu.edu/experiments/solarPanel>  
Development of simple solar hot water collector:  
<https://www.youtube.com/watch?v=WP8H5IOTwYU>  
<https://www.instructables.com/Solar-Water-Heater-From-Scratch/>

## **VII. Co-curricular Activities:**

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

1. **For Teacher:** Training of students by the teacher in the in the laboratory/field for not less than 15 hours on the field techniques/skills related to measurement of direct, diffused and global solar radiation; demonstration of procedures used in the performance evaluation of solar flat plate collectors, solar photovoltaic cells and modules measurement of different parameters in the calculation of efficiency.

2. **For Student:** Students shall visit to solar thermal and photovoltaic laboratories in universities/research organizations/ nearby industries to observe and understand the techniques and procedures used for evaluation of solar collector, solar cell and module efficiencies. They shall write their observations and submit to the teacher hand-written Fieldwork/Project work not exceeding 10 pages in the given format.

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

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

5. Unit tests (IE).

### **(b) Suggested Co-Curricular Activities**

1. Training of students by related industrial/ technical experts using guest lectures/ invited talks.

2. Assignments (including technical assignments like identifying components of a solar hot water and solar photovoltaic systems and their handling, operational techniques and maintenance procedures with safety and security)

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

4. Preparation of videos on thermal and photovoltaic systems and technical procedures.

5. Collection of brochures/figures/photos related to products and applications of solar energy and organizing them in a systematic way in a file.

6. Making a (i) solar panel (ii) solar light (iii) solar cooker (iv) solar oven (v) solar inverter at Home.

7. Visits to nearby solar thermal system as well as solar photovoltaic power stations, firms, research organizations etc.

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**A.P. STATE COUNCIL OF HIGHER EDUCATION**  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Sc. (Hons)  
Domain Subject: **PHYSICS**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100+50

**Course 6C: APPLICATIONS OF ELECTRICITY & ELECTRONICS**  
(Skill Enhancement Course (Elective), Credits: 05)

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

1. Identify various components present in Electricity & Electronics Laboratory.
2. Acquire a critical knowledge of each component and its utility (like resistors, capacitors, inductors, power sources etc.).
3. Demonstrate skills of constructing simple electronic circuits consisting of basic circuit elements.
4. Understand the need & Functionality of various DC & AC Power sources.
5. Comprehend the design, applications and practices of various electrical & Electronic devices and also their trouble shooting.

**II. Syllabus:** (Total Hours: 90 including Teaching, Lab, Field Training, Unit tests etc.)

**Unit-I INTRODUCTION TO PASSIVE ELEMENTS (10 hrs.)**

Passive and Active elements-Examples, **Resistor**-Types of Resistors, Color coding - Applications of a Resistor as a heating element in heaters and as a fuse element. **Capacitor**-Types of Capacitors, Color coding, Energy stored in a capacitor, Applications of Capacitor in power supplies, motors(Fans) etc., **Inductor**-Types of Inductors, EMF induced in an Inductor, Applications of Inductor, Application of choke in a fan and in a radio tuning circuit, Series resonance circuit as a Radio tuning circuit.

**Unit-II Power Sources (Batteries) (10 hrs.)**

Types of power sources-DC & AC sources, Different types of batteries, Rechargeable batteries –Lead acid batteries, Ni-MH batteries, Li-ion batteries- Li-PO batteries, Series, Parallel & Series-Parallel configuration of batteries, Constant Voltage source-Constant Current Source-Applications of Current sources & Voltage sources, SMPS used in computers.

**Unit-III Alternating Currents (10 hrs)**

A.C Power source-Generator, Construction and its working principle, Transformers-Construction and its working principle, Types of Transformers-Step-down and Step-up Transformers, Relation between primary turns and secondary turns of the transformer with emf., Use of a Transformer in a regulated Power supplies, Single phase motor –working principle, Applications of motors(like water pump, fan etc.).

**Unit-IV Power Supplies (Skill Based) (10 hrs.)**

Working of a DC regulated power supply, Construction of a 5 volts regulated power supply, Design of a step-down (ex: 220-12V) and step-up (ex: 120-240V) transformers-Simple Design of FM Radio circuit using LCR series resonance (tuning) circuit, Checking the output voltage of a battery eliminator using a MultiMate.(Trouble shooting), Design of a simple 5 volts DC charger, Power supply for computers(SMPS)

### **Unit-V Applications of Electromagnetic Induction (10 hrs.)**

DC motor –Construction and operating principle, Calculation of power, voltage and current in a DC motor, Design of a simple Motor (for example Fan) with suitable turns of coil-DC generator-Construction, operating principle and EMF equation, Construction of a simple DC generator, Difference between DC and AC generators

### **III. References:**

1. Grob's Basic Electronics by [Mitchel Schultz](#) , TMH or McGraw Hill
2. Electronic and Electrical Servicing by Ian Robertson Sinclair, John Dunton, Elsevier Publications
3. Troubleshooting Electronic Equipment by R.S.Khandapur , TMH
4. Web sources suggested by the teacher concerned and the college librarian including reading material.

### **Course 6C: Applications of Electricity & Electronics–**

#### **PRACTICAL SYLLABUS (30 hrs, Max Marks:50)**

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

1. List out, identify and handle various equipment in Electrical & Electronics laboratory.
2. Learn the procedures of designing simple electrical circuits.
3. Demonstrate skills on the utility of different electrical components and devices.
4. Acquire the skills regarding the operation, maintenance and troubleshooting of various Devices in the lab.
5. Understand the different applications of Electromagnetic induction.

**V. Practical (Laboratory) Syllabus: (30 hrs, Max marks:50)**

1. Acquainting with the soldering techniques
2. Design and Construction of a 5 Volts DC unregulated power supply
3. Construction of a Step down Transformer and measurement of its output voltage. And to compare it with the calculated value.
4. Connect two or three resistors or capacitors or inductors and measure the Series, Parallel Combination values using a Multimeter and compare the values with the Calculated values.
5. Use the Digital Multimeter and Analog Multimeter to measure the output voltage of an AC & DC power supply and also the voltage and frequency of a AC signal using CRO.
6. Use the Multimeter to check the functionality of a Diode and Transistor. Also test whether the given transistor is PNP or NPN.
7. Construct a series electric circuit with R, L and C having an AC source and study the frequency response of this circuit. Find the Resonance Frequency.
8. Construct a Parallel electric circuit with R, L & C having an AC source and study the frequency response of this circuit .Find the resonant frequency.
9. Test whether a circuit is a Open circuit or Short Circuit by measuring continuity with a Multimeter and record your readings.

### **VI. Lab References:**

1. Laboratory Manual for Introductory Electronics Experiments by Maheshwari, L.K. Anand, M.M.S., New Age International (P) Ltd.
2. Electricity-Electronics Fundamentals: A Text-lab Manual by [Paul B. Zbar](#), Joseph Sloop, & Joseph G. Sloop , McGraw-Hill Education
3. Laboratory Manual Basic Electrical Engineering by Umesh Agarwal, Notion Press
4. Basic Electrical and Electronics Engineering by [S.K. Bhattacharya](#) , Pearson Publishers.
5. Web sources suggested by the teacher concerned.

## VI. Co-Curricular Activities:

- (a) **Mandatory:** (*Training of students by teacher in field related skills: (lab: 10 + field: 05)*)
1. **For Teacher:** Training of students by the teacher (if necessary, by a local expert) in laboratory/field for not less than 15 hours on the understanding of various electronic & electrical components and devices. And also understand the functional knowledge of these components and devices so that the student can safely handle these electronic components.
  2. **For Student:** Students shall (individually) visit a local Radio, TV or Mobile repair shop to understand the testing and soldering techniques and different electronic components in the devices that we use daily life. And also to understand the troubleshooting and working of domestic appliances such as cell phone chargers, fan, electric iron, heater, inverter, micro oven, washing machine etc. (Or) Students shall also visit the Physics/Electronics or Instrumentation Labs of nearby local institutions and can get additional knowledge by interacting with the technical people working there. (Or) Students shall also visit the local motor winding shop to understand the motor winding and working of different types of motors. After the observations, a handwritten Fieldwork/Project work not exceeding 10 pages in the given format to be submitted to the teacher.
  3. Max marks for Fieldwork/Project work: 05.
  4. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, details of place visited, observations, findings and acknowledgements.*
  5. Unit tests (IE).

(b) **Suggested Co-Curricular Activities**

1. Training of students by related industrial experts.
2. Assignments (including technical assignments like identifying various electrical and electronic components & devices and their handling, operational techniques with safety and security)
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Preparation of videos on tools and techniques in Electrical & Electronic Appliances in daily life.
5. Collection of material/figures/photos related to Electrical products like Heaters, Motors, Fans etc. and writing and organizing them in a systematic way in a file.
6. Visits to nearby electrical or electronic industries or laboratories in universities, research organizations, private firms, etc.
7. Invited lectures and presentations on related topics by field/industrial experts

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**A.P. STATE COUNCIL OF HIGHER EDUCATION**  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four-year B.Sc. (Hons)  
Domain Subject: **PHYSICS**  
IV Year B. Sc.(Hons) – Semester – V

Max Marks: 100+50

**Course 7C: ELECTRONIC INSTRUMENTATION**

[Skill Enhancement Course (Elective), Credits: 05]

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

1. Identify various facilities required to set up a basic Instrumentation Laboratory.
2. Acquire a critical knowledge of various Electrical Instruments used in the Laboratory.
3. Demonstrate skills of using instruments like CRO, Function Generator, Multimeter etc. through hands on experience.
4. Understand the Principle and operation of different display devices used in the display systems and different transducers
5. Comprehend the applications of various biomedical instruments in daily life like B.P. meter, ECG, Pulse oxymeter etc. and know the handling procedures with safety and security.

**II. Syllabus:** (Total Hours: 90 including Teaching, Lab, Field Training, Unit tests etc.)

**UNIT-I INTRODUCTION TO INSTRUMENTS** (10 hrs)

Types of electronic Instruments- Analog instruments & Digital Instruments, DC Voltmeter and AC Voltmeter, Construction and working of an Analog Multimeter and Digital Multimeter (Block diagram approach), Sensitivity,  $3\frac{1}{2}$  display and  $4\frac{1}{2}$  display Digital multimeters, Basic ideas on Function generator

**UNIT-II OSCILLOSCOPE** (10 hrs)

Cathode Ray Oscilloscope-Introduction, Block diagram of basic CRO, Cathode ray tube, Electron gun assembly, Screen for CRT, Time base operation, Vertical deflection system, Horizontal deflection system, Use of CRO for the measurement of voltage (DC and DC), frequency, phase difference, Different types of oscilloscopes and their uses, Digital storage Oscilloscope

**UNIT-III TRANSDUCERS** (10 hrs)

Classification of transducers, Selection of transducers, Resistive, capacitive & inductive transducers, Resistive and capacitive touch screen transducer used in mobiles, Displacement transducer-LVDT, Piezoelectric transducer, Photo transducer, Digital transducer, Fibre optic sensors

**UNIT-IV DISPLAY INSTRUMENTS** (10 hrs)

Introduction to Display devices, LED Displays, Seven Segment Displays, Construction and operation (Display of numbers), Types of SSDs (Common Anode & Common Cathode type), Limitations of SSDs, Liquid Crystal Displays, Principle and working of  $2 \times 16$  display and  $4 \times 16$  LCD modules, Applications of LCD modules.

**UNIT-V BIOMEDICAL INSTRUMENTS** (10 hrs)

Basic operating principles and uses of (i) Clinical thermometer (ii) Stethoscope (iii) Sphygmomanometer (iv) ECG machine (v) Radiography (vi) Ophthalmoscope (vii) Ultrasound scanning (viii) Ventilator (ix) Pulse oxymeter (x) Glucometer, Basic ideas of CT scan and MRI scan

**III Reference Books:**

1. Electronic Instrumentation by H.S.Kalsi , TMH Publishers
2. Electronic Instrument Hand Book by Clyde F. Coombs , McGraw Hill
3. Introduction to Biomedical Instrumentation by Mandeep Singh, PHI Learning.

4. Biomedical Instrumentation and Measurements by Leslie Cromwell ,Prentice Hall India.
5. Electronic Measurements and Instrumentation by Kishor, K Lal, Pearson, New Delhi
6. Electrical and Electronic Measurements by Sahan, A.K., Dhanpat Rai, New Delhi
7. Electronic Instruments and Measurement Techniques by Cooper, W.D. Halfrick, A.B., PHI Learning, New Delhi
8. Web sources suggested by the teacher concerned and the college librarian including reading material.

### **Course 7C: Electronic Instrumentation– PRACTICAL SYLLABUS**

*(30 Hrs. Max Marks: 50)*

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

1. List out, identify and handle various equipment in Instrumentation Laboratory or Electronic Laboratory.
2. Learn the construction, operational principles of various instruments.
3. Demonstrate skills on handling, Maintenance & trouble shooting of different instruments used in the Labs.
4. Acquire skills in observing and measuring various electrical and electronic quantities.
5. Perform some techniques related to Biomedical Instrumentation and measurement of Certain physiological parameters like body temperature, B.P. and sugar levels etc.

**V. Practical (Laboratory) Syllabus:** *(30 hrs. Max marks: 50)*

1. Familiarisation of digital multimeter and its usage in the measurements of (i) resistance (ii) current, (iii) AC & DC voltages and for (i) continuity test (ii) diode test and (iii) transistor test
2. Measure the AC and DC voltages, frequency using a CRO and compare the values Measured with other instruments like Digital multimeter.
3. Formation of Sine, Square wave signals on the CRO using Function Generator and measure their frequencies. Compare the measured values with actual values.
4. Display the numbers from 0 to 9 on a single Seven Segment Display module by Applying voltages.
5. Display the letters **a** to **h** on a single Seven Segment Display module by applying voltages.
6. Measurement of body temperature using a digital thermometer and list out the error and corrections.
7. Measurement of Blood Pressure of a person using a B.P. meter and record your values and analyze them.
8. Get acquainted with an available ECG machine and study the ECG pattern to understand the meaning of various peaks
9. Observe and understand the operation of a Digital Pulse oxymeter and measure the pulse rate of different people and understand the working of the meter.

**VI. Lab References:**

1. Electronic Measurement and Instrumentation by J.P. Navani. ,S Chand & Co Ltd
2. Principles of Electronic Instrumentation by A De Sa, Elsevier Science Publ.
3. Electronic Measurements and Instrumentation by S.P.Bihari, YogitaKumari, Dr. Vinay Kakka, Vayu Education of India .
4. Laboratory Manual For Introductory Electronics Experiments by Maheshwari, New Age International (P) Ltd., Publishers.

5. Electricity-Electronics Fundamentals: A Text-lab Manual by Paul B. Zbar ,Joseph Sloop, & Joseph G. Sloop, McGraw-Hill Education.

6. Web sources suggested by the teacher concerned.

## VII. Co-Curricular Activities

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

1. **For Teacher:** Training of students by the teacher in the in the laboratory/field for not less than 15 hours on the field techniques/skills of understanding the operation, Maintenance and utility of various electrical and electronic instruments both in the Laboratory as well as in daily life.

**For Student:** Students shall (individually) visit a local electrical and electronics shop or small firm to familiarize with the various electrical and electronic instruments available in the market and also to understand their functionality, principle of operation and applications as well as the troubleshooting of these instruments. (Or) Student shall visit a diagnostic centre and observe the ECG machine and the ECG pattern (Or) Student shall visit a diagnostic centre and observe the CT scan and MRI scan. (Or) Student shall visit a mobile smart phone repair shop and observe the different components on the PCB (Motherboard), different ICs (chips) used in the motherboard and trouble shooting of touch screen in smart phones.

Observations shall be recorded in a hand-written Fieldwork/Project work not exceeding 10 pages in the given format to be submitted to the teacher.

2. Max marks for Fieldwork/Project work: 05.

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

4. Unit tests (IE)

## (b) Suggested Co-Curricular Activities

1. Training of students by related industrial / technical experts.
2. Assignments (including technical assignments like identifying different measuring instruments and tools and their handling, operational techniques with safety and security.
3. Seminars, Group discussions, Quiz, Debates etc. (on related topics).
4. Making your own stethoscope at home.
5. Making seven segment display at home.
6. Preparation of videos on tools and techniques in various branches of instrumentation.
7. Collection of material/figures/photos related to products of Measuring Instruments, Display Modules and Biomedical Instruments and arrange them in a systematic way in a file.
8. Visits to Instrumentation Laboratories of local Universities or Industries like Cement, Chemical or Sugar Plants etc. or any nearby research organizations, private firms, etc.
9. Invited lectures and presentations on related topics by Technical / industrial experts

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Draft syllabus prepared by,

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**ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION**

(A Statutory body of the Government of Andhra Pradesh)

REVISED UG SYLLABUS UNDER CBCS

(To Be Implemented from Academic Year - 2020-21)

PROGRAMME: FOUR YEAR B.A. (Hons)

Domain Subject: POLITICAL SCIENCE

*Skill Enhancement Courses for Semester V*

(Syllabus with Learning Outcomes, References, Co-curricular Activities & Model Q.P. Pattern)

**Structure of SECs for 5<sup>th</sup> Semester**

(To Choose One pair from the Four alternative pairs of SECs)

Uni Code	Course Number	Name of Course	Hours/Week	Credits	Marks	
					IA – 20 Filed Work 5	Sem End
	6 & 7					
	6A	Political Reporting	5	4	25	75
	7A	Legal Literacy-Rights Awareness	5	4	25	75
OR						
	6B	E-Governance	5	4	25	75
	7B	Local Administration	5	4	25	75
OR						
	6C	Office Management	5	4	25	75
	7C	Personnel Administration	5	4	25	75
OR						
	6D	Electoral Politics and Voting Behaviour	5	4	25	75
	7D	Legislative Procedures and Practices	5	4	25	75

Note-1: Note: For Semester-V, for the domain subject Political Science, any one of the four pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6B & 7B or 6C & 7C or 6D & 7D. The pair shall not be broken (ABCD allotment is random, not on any priority basis).

Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations.

A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four - Year B.A. (Hons)  
Domain Subject: **POLITICAL SCIENCE**  
IV Year B. A.(Hons) – Semester – V

Max Marks: 100

Course 6A: **POLITICAL REPORTING**  
(Skill Enhancement Course (Elective), 4 credits)

**I. Learning Outcomes:**

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

- 1) Understand the need, scope and concepts in Political Reporting.
- 2) Identify various sources for Political Reporting.
- 3) Provide an overview of interpreting the political phenomena from the grass roots level to the Parliament.
- 4) Develop insights and enhance skills in a professional manner in the age of mass media.
- 5) Learn skills related to reporting, enlarge job opportunities and make it as a career.

II. **Syllabus:**(Hours: Teaching: 60, Training: 10, Others incl. unit tests: 05)

**Unit: 1**

Introduction to Political Reporting-Nature-The role of Mass Media in Political Reporting-Press, Radio and Television-State Meaning, Nature and role in Developments-Political Issues and Dynamics.

**Unit: 2**

Organs of the Government-Union, State and Local Governments and Judiciary-Reporting on their working and assessment- Ethics for political reporter-Role and responsibilities of Press-Freedom of press and its limitations.

**Unit: 3**

Political News-Meaning, Nature and Forms of Political News-Sources of Political News and its Limitations-Working of Lobbies and Pressure Groups in Political Reporting.

**Unit: 4**

Writing Reports-Background Information-Framing and crafting Political Stories-Watchdog of enforcement of States' Laws, Rules and Regulations-Political Reporting in deadline situations-Reporting on Political Campaigns.

## Unit: 5

Political Reporting Skills-Interviewing-Types and Forms of Interviewing and Techniques- Questionnaire –Opinion Polls-Writing Blogs-Role in citizen’s civic engagement, political communication and political participation-Analyzing politician’s media strategy.

### III. References:

1. Raymond Kuhn, Political Journalism New Challenges, New York: New Practices, Rutledge, 2003
2. Gail Sedorkin and Judy Mc gregor, Interviewing – A Guide for Journalist and Writers, Crow’s Nest, NSW: Allen and Unwin, 2002
3. R.T.Jangam, Political Analysis, New Delhi: Oxford and IBH Publication, 1997
4. J.C.Johari, Comparative Politics, New Delhi, Sterling Publishers, 2002
5. Robert A. Dahl, Modern Political Analysis, New Delhi : Prentice Hall of India, 2001
6. Davis Merrit, Public Journalism and Public Life, London, 2014
7. Erik Albaek, Arjen Van Dalen, Neel Jebril& Claes H. de.Vreese, London, Cambridge University Press, 2014
8. Alok Mehta, Power, Press and Politics, 2021
9. Claes H. de.Vreese, Frank Esser& David Nicolas Hopmann (editors), Comparing Political Journalism (Communication and Society)
10. Web resources suggested by the Teacher concerned and the College Librarian including reading material.

### IV. Co-Curricular Activities(*Training of students by the teacher :Total 10 hours*):

#### a) Mandatory:

1. **FOR TEACHER:** Training of students by teacher in the classroom for a total of not less than 10 hours on techniques on understanding political establishment, observing of procedures and practices, identifying sources of political reporting, framing and crafting of political stories, application of ICT in political writings, discuss about the components involved in political writings such as real world consequences, disturbances or peace, high taxes, jobs or unemployment, health care, use of social media and its impact on citizens political participation in political process i.e. political campaigns and democracy.
2. **FOR STUDENT:** Students have to go to the field, observe activities related to political reporting such as news reporting, report on political meeting or incident and individually submit his / her observation as a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.
3. Suggested Fieldwork/Project work Format:  
Title Page, Student Details, Acknowledgements, Index page, Objectives, Step-wise process, Findings, Conclusion and References.

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

5. Unit Tests /Internal Examinations

**b) Suggested Co-Curricular Activities**

1. Training of students by a related field expert.
2. Reading Local Daily newspaper either print or online and visit political websites.
3. Reading Editorial pages, blogs and websites for various ideological perspectives.
4. Assignments (including technical assignments like identifying sources of political reporting).
5. A few minutes of each class period shall be devoted to the past week's major political stories and their coverage.
6. Seminars, Group discussions, Quiz, Debates etc.
7. Preparation of videos on Political popular personalities.
8. Collection of material/figures/photos related to political writings by experts covered in Dailies and magazines and organizing them in a systematic way in a file.
9. Visits to press, media houses, governmental offices etc.
10. Invited lectures and presentations on related topics by field experts such as political reporters, editors and professionals in political communication.

Course 7A: **LEGAL LITERACY- RIGHTS AWARENESS**  
(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 the legal system in India.
2. Understand of the laws related to rights applicable in India.
3. Provide an overview of access to courts and enforcement of rights.
4. Develop an understanding of the formal and Alternate Dispute Redressal (ADR) mechanism that exist in India.

**II. Syllabus:**(Hours: Teaching: 60, Training: 10, Others incl. unit tests: 05)

**Unit: 1**

Brief understanding of Legal Literacy-Rights and Duties of citizens-Indian Constitution - Fundamental Rights and other constitutional rights and enforcement of certain rights under Article 21 with emphasis on Public Interest Litigation.

**Unit: 2**

Laws relating to criminal jurisdiction-Provisions relates to FIR, Arrest, Bail, Search and Seizure-Important offences under Indian Penal Code-Offences against Women-Dowry, Sexual harassment and violence, Juvenile justice.

**Unit: 3**

Anti-terrorist laws-Implication of security and protection of Human Rights-Laws relating to Consumer rights and Cybercrimes.

**Unit: 4**

System of Courts and Tribunals and their jurisdiction in India-Civil and Criminal courts, Writ jurisdiction, specialized courts such as Juvenile courts, Mahila courts etc.

**Unit: 5**

Legal Services Authority Act, 1987 and Right to Free Legal Aid-Alternate Dispute Resolution Mechanism (ADR), Lok Adalats and Conduct of Legal Literacy camps-Role of NGOs in promoting legal awareness.

### III. References:

1. Basu, D.D, Introduction to Constitution of India, Nagpur, Lexis Nexis Butter worths, 2018.
2. Kashyap, S, Our Constitution: An Introduction to India's Constitution and Constitutional Laws, New Delhi, National Book Trust, 1994.
3. D.Srivastava, Sexual Harassment and Violence against Women in India : Constitutional and Legal Perspectives in C.Kumar and C.Chockalingam (eds) Human Rights, Justice and Constitutional Empowerment, Delhi, Oxford University Press, 2015.
4. B.L.Wadhera, Public Interest Litigation- A Handbook, Universal Publications, New Delhi, 2016.
5. Aggarwal, N., Women and Law in India, New Century Publishing House, New Delhi, 2019.
6. Kamala Sankaran and Ujwal Singh (eds), Creating Legal Awareness, Oxford University Press, New Delhi, 2017.
7. Indian Social Institute, New Delhi, Legal Literacy Booklets.
8. P.C.Rao and William Sheffiled, Alternate Dispute Resolution: What it is and How it works, Universal Law Books and Publishers, New Delhi, 2012.
9. Parmanand Singh, Access to Justice and the Indian Supreme Court, 10& 11, Delhi Law Review, 1981-82.
10. J.Kothari, Criminal Law on Domestic Violence, Economic and Political Weekly, 2005, Vol.40 (46), pp., .4843-4849.
11. Centre for Good Governance, Right to Information Act,2005 : A Citizen's Guide
12. A.Pandey, Rights of the Consumer, New Delhi, Indian Social Institute, 2004.
13. Pandey, Laws relating to Criminal Justice :Challenges and Prospects in K.Sankaran and U.Singh, Towards Legal Literacy, New Delhi, Oxford University Press, 2008, pp.61-77.
14. S.K.Garg, Guide to Lok Adalats and Free Legal Services under Legal Services Authorities Act, New Delhi, 2018.
15. Web resources suggested by the Teacher concerned and the College Librarian including reading material.

### IV. Co-Curricular Activities *(Training of students by the teacher: Total 10 hours):*

#### A). Mandatory:

1. **FOR TEACHER:** Training of students by teacher in the classroom for a total of not less than 10 hours on understanding various rights enshrined in the Constitution, preparation of FIR, conduct of moot court, identifying techniques of ADR mechanism (Negotiation, Arbitration and Conciliation), drafting of a Public Interest Litigation etc.,

2. **FOR STUDENT:** Visit to either a court or a legal services authority set up by the LSA Act, observe the proceedings, interact with persons who are seeking legal remedy and interact/interview the advocates if possible and record their experiences and individually submit his / her observation as a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.

3. Suggested Fieldwork/Project work Format:

Title Page, Student Details, Acknowledgements, Index page, Objectives, Step-wise process, Findings, Conclusion and References.

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

5. Unit Tests /Internal Examinations

### **b). Suggested Co-Curricular Activities**

1. Training of students by a related field expert.
2. Reading Local Daily newspaper either print or online.
3. Reading Editorial pages, blogs and websites for various ideological perspectives.
4. Assignments.
5. Discuss the debates around any recent Ordinance, Bill or Act in the Parliament or State Legislature.
6. Discuss any contemporary practice or event that violates the equality and protection against discrimination laws.
7. Seminars, Group discussions, Quiz, Debates etc.
8. Witness any incident occurred in surroundings that would be considered offensive under the penal code and make a class-room presentation on it. Example: Offenses relates to IPC, Consumer Protection Act, 1986, Filing a petition under RTI Act, 2005 etc.,
9. Invited lectures and presentations on related topics by experts in jurisprudence and ADR Mechanism.
10. Read the guidelines issued by Supreme Court in landmark cases relating to Child abuse, domestic violence, sexual harassment at work place.

A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four - Year B.A. (Hons)  
Domain Subject: **POLITICAL SCIENCE**  
IV Year B. A.(Hons) – Semester – V

Max Marks: 100

Course 6 B: **E GOVERNANCE**  
(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 introduction to good governance and how it can be achieved by information and communication technology.
2. Understand the growing needs of E-Governance, improving transparency in the system of governance
3. Have understanding of various government schemes and E-Governance projects and initiatives.
4. Provide the practical knowledge about the effective delivery of citizen services through online mode.
5. Realize the issues and challenges of E-Governance.

**II. Syllabus:**(Hours: Teaching: 60, Training: 10, Others incl. unit tests: 05)

**Unit: 1**

Brief Introduction to Governance-E-Governance –Meaning, Definition, Nature, Scope, Objectives and Significance-Domains of E-Governance- E-Governance and Good Governance-Global trends in the growth of E-Governance.

**Unit: 2**

E-Governance in India- - National E-Governance Plan (NeGP)-National Informatics Centre-Strategies for E-Governance-E-Governance Implementations: Required infrastructure of Network, Computing, Cloud Governance, Data system, Human resources, Legal and Technological infrastructure- Major E-Governance Projects and Initiatives:Gyandoot, E-choupal, E-Bhoomi, E-Seva, CARD, E-Panchayat, Real Time Governance (RTG) etc.

**Unit: 3**

Role of Information and Communication Technology in Administration, Effective delivery of services for public utilities through E-Governance-Online filing of complaints, application registration, issuance of certificates, issuance of land records, online payments of fees, dues etc, e-

tendering, easy access to information and E-Governance in Social security and welfare schemes: Direct transfer of benefits, Biometric authentication through Aadhar, etc.

#### **Unit: 4**

E-Governance under Information Technology Act-Legal status for digital transactions-Public Private Partnership and expansion of E-Governance.

#### **Unit: 5**

E-Governance-Transparency and Accountability at gross root level-Issues and Challenges: Digital Divide, Capacity Building, Cyber Security in Cyber Crimes, Socio-political implications, Issues of integration, Networking with NGOs.

### **III. References:**

1. B.Sreenivas Raj, E-Governance Techniques-Indian and Global Experiences, New Century Publications, New Delhi, 2008.
2. Subhash Bhatnagar, Unlocking E-Government Potential-Concepts, Cases and Practical Insights, Sage Publications, New Delhi, 2009.
3. Y.Parthasaradhi, E-Governance and Indian Society, Kanishka Publications, New Delhi, 2009.
4. R.P.Sinha, E-Governance in India, Initiatives and Issues in India, Centre for Public Policy, 2006.Anil Kumar Dhiman, E-Governance –Good Governance using ICTs, S.K.Book Agency, New Delhi, 2017.
5. Ashok Aggarwal, Governance-Case Studies, University Press India Pvt. Ltd, Hyderabad, 2017.
6. Web resources suggested by the Teacher concerned and the College Librarian including reading material.

### **IV. Co-Curricular Activities** (*Training of students by the teacher: Total 10 hours*):

#### **a) Mandatory:**

1. **FOR TEACHER:** Training of students by teacher in the classroom for a total of not less than 10 hours on techniques of application of ICT for getting services from the government departments, filing of grievances through online mode, making digital transactions for issuance of certificates or payment of fees, identifying components in e-governance and techniques to handle cyber security etc.,
2. **FOR STUDENT:** Students have to visit urban or local administration offices and have practical study and assess the implementation of E-Governance initiatives, models, citizen centric services, citizen charter and interact with the beneficiaries about the fulfillment of their needs in time or not and if any lapses they noticed or visit to nearby government

institution covering the various citizen centric services delivering through online mode and observe the citizen charter, mode of operation, time limitation, fees prescribed for services and observe the operation of Real Time Governance (RTG) in administration and record their experiences and individually submit his / her observation as a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.

**3. Suggested Fieldwork/Project work Format:**

Title Page, Student Details, Acknowledgements, Index page, Objectives, Step-wise process, Findings, Conclusion and References.

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

5. Unit Tests /Internal Examinations

**b) Suggested Co-Curricular Activities**

1. Training of students by a related field expert.
2. Reading Daily newspaper either print or online about the misuse of technology which leads to cybercrimes.
3. Reading articles, blogs and websites for various ideological perspectives.
4. Assignments.
5. Discuss the debates around any recent technological advancements.
6. Discuss the case laws and judgments reported on E-Governance initiatives.
7. Seminars, Group discussions, Quiz, Debates etc.
8. Invited lectures and presentations on related topics by experts in Cyber Security especially the Police personnel associated with the cases of IT Act.

A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four - Year B.A. (Hons)  
Domain Subject: **POLITICAL SCIENCE**  
IV Year B. A.(Hons) – Semester – V

Max Marks: 100

Course 7B: **LOCAL ADMINISTRATION**  
(Skill Enhancement Course (Elective), 4 credits)

**I. Learning Outcomes:**

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

1. Understand the existing context of Local Government Institutions in India.
2. Have knowledge on the need of empowerment and autonomy of LGIs.
3. Provide an overview on financial resources and constitutional provisions.
4. Analyse the issues, problems and conflicts in Local Administration.
5. Develop communication skills to interact with the elected members and officials.
6. Enhance skills for observation, organizing, networking, documentation.

II. **Syllabus:**(Hours: Teaching: 60, Training: 10, Others incl. unit tests: 05)

**Unit: 1**

Local Government: Meaning, Nature and Importance, Thoughts on Local Governments by M.K.Gandhi, Jawaharlal Nehru and Dr.B.R.Ambedkar, Important Committees: Balwant Rai Mehta (1957), Ashok Mehta (1978), L.M.Singhvi(1986).

**Unit: 2**

Decentralization of powers (Political, Administrative and Economic) from the States to Local Institutions- 73<sup>rd</sup> and 74<sup>th</sup>Constitutional Amendment Acts-Empowering Local Governments- Decision making powers during crisis and disasters-Relationship between local government authorities and Central and State Government service providers-Role of District Collector in strengthening LGIs.

**Unit: 3**

Revenue raising avenues for Local Governments-Grants, Aid and support from Centre and State Governments-Public Private Partnerships-Concept of Local Development-Village as a unit, SWOC analysis of a village, existing conditions, expected developmental opportunities, the gap, natural, government and private resources, year-wise planning, finances required -Role of Local Governments in implementation of welfare and developmental programmes i.e., (MGNREGS), (SGSY), (IAY) and (PURA).

#### **Unit: 4**

Challenges for Local Administration, Financial, administrative and Political Constraints-Public relations in Local Administration-Need for training for elected representatives and other stakeholders-Audit training and Participatory training.

#### **Unit: 5**

Preparation of Reports-Minutes and Documentation-Types of Reports, Content of Minutes-Methods of Documentation-Best practices of Reporting on functioning of Local Administration-Use of ICT in documentation.

### **III. References:**

1. Basu, D.D, Introduction to Constitution of India, Nagpur, Lexis Nexis Butterworths, 2018
2. Niraja Gopal Jayal, Representing India: Ethnic Diversity and Governance of Public Institutions, 2006, Palgrave Mc Millan Publications.
3. R Venkata Ravi, Empowering Rural India: Experiments and Experiences, Kanishka Publishers, New Delhi, 2006.
4. Sawalia Bihari Verma, Empowerment of the Panchayati Raj Institutions in India, Sarup and Sons, New Delhi, 2006.
5. World Bank, Empowerment in Practice: Analysis and Implementation, World Bank Institute, Washington D.C.
6. S.Chandrasekhar, Panchayati Raj and Financial Resources, Regal Publications, 2008, New Delhi.
7. Rajesh Tondon and Mohini Kak (Eds), Citizen Participation and Democratic Governance, New Delhi, 2016.
8. Anand Prakash, State and District Administration, Wisdom Press, New Delhi, 2008.
9. N.Lalitha, Rural Development in India: Emerging Issues and Trends, Dominant Publishers, New Delhi, 2014.
10. Web resources suggested by the Teacher concerned and the College Librarian including reading material.

### **IV. Co-Curricular Activities(Training of students by the teacher: Total 10 hours):**

#### **a) Mandatory:**

1. **FOR TEACHER:** Training of students by teacher in the classroom for a total of not less than 10 hours on techniques of identifying financial resources to local bodies, skilling on various components involved in auditing of accounts, analyzing the data of beneficiaries of welfare schemes by using statistical tools, preparation of minutes and reports, imparting

technical skills with regard to communication and procedures and practices in documentation.

2. **FOR STUDENT:** Students have to visit to a Rural Local Government Institution, understand its profile, sources of revenue and expenditure, identify major issues and challenges, analyse its development and welfare initiatives, record the experiences, collecting data on implementation of poverty alleviation, employment generation schemes sponsored by governments and interpretation of data and indicate suggestions for better functioning **(or)**

Participate in regular Gram Sabha meeting observe and record the proceedings and outcome of the meeting, indicate suggestions for better functioning of Gram Sabha

**(or)** students may take a village as a unit, make SWOC analysis and individually submit his / her observation as a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.

3. Suggested Fieldwork/Project work Format:

Title Page, Student Details, Acknowledgements, Index page, Objectives, Step-wise process, Findings, Conclusion and References.

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

5. Unit Tests /Internal Examinations

**b) Suggested Co-Curricular Activities**

1. Training of students by a related field expert.
2. Reading Local Daily newspaper either print or online.
3. Reading Editorial pages, blogs and websites for various ideological perspectives.
4. Assignments.
5. Discuss the debates around any recent Ordinance, Bill or Act in the Parliament or State Legislature.
6. Carry out a resource mapping of a selected area.
7. Plan and organize a capacity building session for the stakeholders
8. Seminars, Group discussions, Quiz, Debates etc.
9. Invited lectures and presentations on related topics by experts in Local Administration.
10. Make visit to a Self-Help Group or NGO, interact with its members and record their experiences.
11. Conduct an interview with an important person at the District Level using a structured schedule (District Panchayat Officer / CEO of Zilla Parishad / District Collector) and document their interventions in local administration and record their experiences.

Four - Year B.A. (Hons)  
Domain Subject: **POLITICAL SCIENCE**  
IV Year B. A.(Hons) – Semester – V  
Max Marks: 100  
Course 6C: **OFFICE MANAGEMENT**  
(Skill Enhancement Course (Elective), 4 credits)

**I. Learning Outcomes:**

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

1. Understand fundamental knowledge of Office Management that can be applied to a career.
2. Have knowledge on office administration and identify job competencies.
3. Understand the importance of record management and allied sections.
4. Comprehend the administrative process in office
5. Identify the challenges in the background of ICT.
6. Enhance skills, strategies and techniques to compete with the global competencies in office management.

**II. Syllabus:**(Hours: Teaching: 60, Training: 10, Others incl. unit tests: 05)

**Unit: 1**

Introduction to Office, Office structure-Office Management: Meaning, Nature, Importance, Elements and Functions of Office Management-Basic Principles of office management.

**Unit: 2**

Office organization: Definition, Characteristics-Office Planning, Accommodation, Layout and Office Environment.

**Unit: 3**

Office Record Management-Objectives and Importance-Filing System: Steps in filing, Essentials for filing, Classification and arrangements of files, Modern filing methods using Information and Communication Technology and devices-Indexing: Essentials of a good indexing and Records retention and Micro filing.

**Unit: 4**

Office Communication: Meaning and mailing, Barriers to communication -Correspondence and Report Writing-Types- Periodical reports.

**Unit: 5**

Form Letters: Meaning, Principles, Factors in designing office forms-Supervisory Skills-Importance of Motivation and Leadership-Issues in Office Management-Recent trends: e-office, use of modern appliances and application of IT in office management.

### III. References:

1. R.S.N.Pillai&Bagavathi, Office Management, S.Chand Publishers, New Delhi, 2014.
2. R.K.Chopra, Office Management, Himalaya Publishing House, New Delhi, 2016.
3. B.N.Tandon, Manual of Office Management and Correspondence, S.Chand Publications, New Delhi, 2014.
4. Sudhir Andrews, Front Office Management and Operations, Tata McGraw Hill Publishing Co. Ltd, India, New Delhi, 2008.
5. Balachandran V, Office Management, Tata McGraw Hill Publishing Co. Ltd, India, New Delhi, 2009.
6. Bhatia R.C, Principles of Office Management, Lotus Press, New Delhi, 2005.
7. Sharma, R.K & Others, Office Management, Kalyani Publishers, New Delhi, 1991.
8. Chopra, R.K, Modern Office and Its Management, Himalaya Publishing House, Hyderabad, 2008.
9. Niraj Kumar, Modern Office Management, New Royal Book Co, Lucknow, 2013.
10. Gopal Krishnan and Sundaresan, M, Material Management: An Integrated Approach, Prentice Hall of India, New Delhi, 2014.
11. Satyasarayana, J, E-Government, Prentice Hall of India, New Delhi, 2015.
12. Kooiman, J (ed), Modern Governance: New Government-Society Interactions, Sage Publications, London, 2014.
13. Bhatnagar, S.C, E-Government: From Vision to Implementation, Sage Publications, New Delhi, 2014.
14. Singhal. A and Evertt, Rogers, India's Information Revolution, Sage Publications, New York, 1990.
15. Srinivas Vallabhan, S.V, Computer Application in Business, Sultan Chand & Sons, New Delhi, 2014.
16. Web resources suggested by the Teacher concerned and the College Librarian including reading material.

### IV. Co-Curricular Activities(*Training of students by the teacher: Total 10 hours*):

#### a) Mandatory:

1. **FOR TEACHER:** Training of students by teacher in the classroom or in the field for a total of not less than 10 hours on application of ICT tools in Office Management, utilizing the modern tools through hands on experience, procedures and practices in filing, indexing and maintaining office records, imparting skills on office correspondence.
2. **FOR STUDENT:** Students have to visit to a Government office or industry or private organization and observe the filing system, records management, utilization of manuals

available, application of ICT, communication flow in the organizations, problems encountered by management in communication, record individual observations and individually submit his / her observation as a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.

3. Suggested Fieldwork/Project work Format:

Title Page, Student Details, Acknowledgements, Index page, Objectives, Step-wise process, Findings, Conclusion and References.

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

5. Unit Tests /Internal Examinations

**b) Suggested Co-Curricular Activities**

1. Training of students by a related field expert in Office Management.
2. Reading Local Daily newspaper either print or online.
3. Reading Editorial pages, blogs and websites for various ideological perspectives.
4. Assignments.
5. Discuss the debates around any recent trends, technological advancements and invention of new appliances that are to be used in modern officer management.
6. Plan and organize a capacity building session for the stakeholders.
7. Seminars, Group discussions, Quiz, Debates etc.
8. Invited lectures and presentations on recent global trends in office management.
9. Make visit to a Government office or reputed industry or private firm interact with its members and record their experiences and gain Hands on Experience of records maintenance, indexing and filing procedures.

A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four - Year B.A. (Hons)  
Domain Subject: **POLITICAL SCIENCE**  
IV Year B. A.(Hons) – Semester – V

Max Marks: 100

Course 7C: **PERSONNEL ADMINISTRATION**  
(Skill Enhancement Course (Elective), 4 credits)

**I. Learning Outcomes:**

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

1. Understand Personnel Administration that can be applied to a career.
2. Acquire knowledge on recruitment, selection and training and identify job competencies.
3. Understand the importance and role of civil services in Indian Governance.
4. Provide an overview on issues in administration.
5. Enhance skills, strategies and techniques for redressal of grievances in administration

**II. Syllabus:**(Hours: Teaching: 60, Training: 10, Others incl. unit tests: 05)

**Unit: 1**

Personnel Administration: Concept, Nature, Scope and Significance-Hierarchy in Personnel Administration-Roles and Responsibilities of Personnel Administrative Officers- Bureaucracy: Meaning, Characteristics, Nature, Importance and its role in modern state.

**Unit: 2**

Recruitment: Meaning and Importance, Types of Recruitment, Methods of recruitment with regard to All India, Central and State Services-Union Public Service Commission and State Public Service Commissions-Constitutional provisions and Composition, Functions and Role.

**Unit: 3**

Training: Meaning, Objectives, Types and Significance-Training Institutions in India-Promotion- Promotion procedure-Career Planning, Evaluation and Development-Motivation and Morale-Performance Appraisal.

**Unit: 4**

Administrative Ethics-Integrity in administration-Code of Conduct-Common Lapses and Disciplinary Procedure-Employee and Employer Relations-Rights of Civil Servants.

**Unit: 5**

Problems in Personnel Administration-Employees participation in administration-Grievances-Institutional arrangements for settlement of disputes-Change in work place, Counseling and Time Management.

### III. References:

1. Avasthi Maheswari, Public Administration, Lakshminarayan Agarwal, Agra, 2008.
2. Goel, S.L, Personnel Administration, Deep and Deep Publications, New Delhi, 2009.
3. Sharma, M.P, Public Administration Theory and Practice, Kitab Mahal, Allahabad, 2005.
4. Tripathi P.C, Human Resource Development, S.Chand Publications, New Delhi, 2016.
5. David E.Kalaingar, Public Personnel Management, IPMA, Prentice Hall Inc, Eaglewood Chiffs, New Jersy, 1986.
6. C.M.Jain, Public Personnel Administration, College Book Depot, Jaipur, 2003
7. K.Aswarthappa, Human Resource Management : Text and Cases, Tata McGraw Hill, New Delhi, 2008
8. V.S.P.Rao, Human Resource Management, Excel Books, New Delhi, 2007
9. O.GlennStanl, Public Personnel Administration, Oxford IBH Publication Co, New Delhi, 2008.
10. Chatterjee.Bhaskar, Human Resource Management, Sterling Publications, New Delhi, 2009.
11. Administrative Reforms Commission, 1969, Report on Personnel Administration.
12. Government of India, Second ARC, Tenth Report on Refurbishing of Personnel Administration.
13. Jain, R.B, Aspects of Personnel Administration, IIPA, New Delhi, 2008.
14. Maheswari Sriram, Public Administration in India: The Higher Civil Service, Oxford University Press, New Delhi, 2007.
15. Naff, Katherine C, Norma M, Riccucci, Personnel Management in Government, Politics and Process, Tayolr& Francis, New York, 2014.
16. Tead, Ordway, Personnel Administration, University of California Libraries.
17. Pundrik Ojha & Kiran Sharma, Personnel Administration, Raj Publishers, Agra, 2018.
18. Web resources suggested by the Teacher concerned and the College Librarian including reading material.

### IV. Co-Curricular Activities(*Training of students by the teacher: Total 15 hours*):

#### a) Mandatory:

1.**FOR TEACHER:** Training of students by teacher in the classroom for a total of not less than 10 hours on techniques of preparation of training schedules, training programmes, conducting interviews as part of selection, preparation of confidential reports, skilling on minutes reporting and maintaining service records, identifying the techniques for settlement of disputes in the organization.

2. **FOR STUDENT:** Students have to visit to a Government office or industry, observe the hierarchy of staff, recruitment and selection process, role and responsibilities, interact/interview the employer and employees in order to know how the strategies and techniques using for resolving disputes relating to personal or organizational issues and individually submit his / her observation as a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.

3. Suggested Fieldwork/Project work Format:

Title Page, Student Details, Acknowledgements, Index page, Objectives, Step-wise process, Findings, Conclusion and References.

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

5. Unit Tests /Internal Examinations

**b) Suggested Co-Curricular Activities**

1. Training of students by a related field expert in Personnel Administration.
2. Reading Local Daily newspaper either print or online.
3. Reading Editorial pages, blogs and websites for various ideological perspectives.
4. Assignments.
5. Discuss the debates around any recent Ordinance, Bill or Act in the Parliament or State Legislature with regard to service matters of civil servants.
6. Plan and organize a capacity building session for the stakeholders
7. Seminars, Group discussions, Quiz, Debates etc.
8. Invited lectures and presentations on recent global trends in Personnel Administration.
9. Make visit to a Government office or reputed industry, interact with its members and record their experiences on job satisfaction, promotions, motivation and institutional arrangements for grievances.

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.

**II. Syllabus:**(Hours: Teaching: 60, Training: 10, Others incl. unit tests: 05)

**Unit: 1**

Electoral Democracy-Electoral Politics in India-Pre and Post-Independence, Nature, Characteristics-Electoral Process: Nature and Significance.

**Unit: 2**

Election Commission of India: Composition, Powers and Functions-Merits and Demerits of Electoral system in India-Political Participation-General Elections in India since 1952-Elections to Local Bodies-State Election Commission.

**Unit: 3**

Issues in Electoral Politics: Corruption, Money power, rigging, booth capturing, undemocratic party system, politics of Political Defections and Reservations-Need of Reforms in present Electoral System-Reports of Tarkunde, Goswamy, Indrajeet Gupta Committees.

**Unit: 4**

Public Opinion: Meaning and its role in Democratic Politics-Voting Behaviour: Meaning, Nature and determinants of voting behavior: Caste, Religion, Language, Region etc.

**Unit: 5**

Management of Elections: Moral Code of Conduct, Filing Election Nominations and Affidavits - Use of new techniques and methods in election campaigns: Membership drive, Responsibility Management, Booth Management, New ways of generating funds, Polling research, Opinion

Polls, Predictions, Techniques of interpreting collected election data, use of print, electronic and social media in elections.

### **III. References:**

1. Basu, D.D, Introduction to Constitution of India, Nagpur, Lexis Nexis Butterworths, 2018.
2. P.R.Brass, The Politics of India since Independence, Cambridge, Cambridge University Press, 1974.
3. C.P.Bhambhari, Politics in India since Independence, Delhi, Shipra Publications, 1990.
4. J.C.Aggarwal&N.K.Choudari, Election in India, Shipra Publications, New Delhi, 1998.
5. R.Ali, Representative Democracy and Concept of Free and Fair Elections, Deep and Deep Publications, New Delhi, 2006.
6. D.Anand, Electoral Reforms-Curbing Role of Money Power, Indian Institute of Public Administration, New Delhi, 2005.
7. A.Bajpai, Indian Electoral System-An Analytical Study, Nardeen Book Centre, New Delhi, 2002.
8. A.K.Bhagat, Elections and Electoral Reforms in India, Vikas Publications, New Delhi, 2006.
9. R.P.Bhalla, The Electoral System, Its Operation, and Implications for Democracy in India, Teaching Politics, New Delhi, 1989.
10. R.Hegde, Electoral Reforms-Lack of Political Will, Bangalore, Karnataka State Janata Party, 1987.
11. P.N.Sharma, Elections and National Politics, Shipra Publications, New Delhi, 2004.
12. Eldersveld, S.J, Experimental Propaganda Techniques and Voting Behaviour, The American Political Science Review, New York, 1986.
13. Eldersveld, S.J, Theory and Method in Voting Behaviour Research, The American Political Science Review, New York, 1992.
14. Jain, S, State Funding of Elections and Political Parties in India Journal of the Indian Law Institute, Allahabad, 1999.
15. Sridharan, E, Toward State Funding of Elections in India : A Comparative Perspective on Possible Options, The Journal of Policy Reforms, 3:3, pp.229-254.
16. Rosenblum, N, Political Parties as Membership Groups, Columbia Law Review, 100(3), pp.813-844.
17. Web resources suggested by the Teacher concerned and the College Librarian including reading material.

#### IV. Co-Curricular Activities (*Training of students by the teacher: Total 10 hours*):

##### **A). Mandatory:**

1. **FOR TEACHER:** Training of students by teacher in the classroom for a total of not less than 10 hours on collection of data relating to General Elections to Lok Sabha/Assembly or elections to Local bodies for a particular period, analysis of data by using statistical tools, preparation of questionnaire on voting behavior, identifying techniques for interpretation of election data and imparting skills involved in political campaigning by using new media.

2. **FOR STUDENT:** Students have to visit to nearby residential colony or street or a village, collect data regarding their voting behavior, voter turnout by interviewing the voters using formal and informal questionnaire, interaction with the voters and individually submit his / her observation as a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.

3. Suggested Fieldwork/Project work Format:

Title Page, Student Details, Acknowledgements, Index page, Objectives, Step-wise process, Findings, Conclusion and References.

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

5. Unit Tests /Internal Examinations

##### **b). Suggested Co-Curricular Activities**

1. Training of students by a related field expert.
2. Reading Local Daily newspaper either print or online.
3. Reading Editorial pages, blogs and websites for various ideological perspectives.
4. Assignments.
5. Discuss the debates around any recent Ordinance, Bill or Act in the Parliament or State Legislature.
6. Discuss any contemporary practice or event that violates the true spirit of democracy and political equality.
7. Seminars, Group discussions, Quiz, Debates etc.
8. Witness any incident occurred in your surroundings that would be considered for obstacle for reforms in politics
9. Invited lectures and presentations on related topics by experts in Electoral Politics.
10. Read the guidelines issued by Supreme Court in landmark cases relating to Political Defections, Anti-democracy acts of political parties.
11. Arrange Guest Lectures inviting election authorities such as District Returning Officer /Observers / Experts in Election Management.

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;

6. Make familiar with legislative procedures and practices.
7. Equip the students with the adequate skills of participation in deliberative processes and democratic decision making.
8. Understand complex policy issues, draft new legislation, analyze ongoing bills, make speeches and floor statements.
9. Provide skills to be part of a legislative support team and expose them to real life legislative work.
10. Enhance understanding of procedures, practices, different committees and motions in the House.

**II. Syllabus:**(Hours: Teaching: 60, Training: 10, Others incl. unit tests: 05)

**Unit: 1**

Brief Introduction on Legislative bodies, roles and responsibilities-Constitutional Provisions of Legislative Procedures: Articles 107-122, Kinds of Bills: Ordinary Bills, Money Bills, Finance Bills, Constitution Amendment Bills and Private Member Bills.

**Unit: 2**

Powers and Functions of People's Representatives in Legislative Process: Members of Parliament, Members of State Legislatures, Political Heads of Rural and Urban Local Governments.

**Unit: 3**

Drafting of the Bill-First Reading and Departmental Standing Committee-Second and Third Reading-Framing rules and regulations, Passage of the Bill, Consent by the President of India and Gazette Notifications.

**Unit: 4**

Legislative Committees in India: Role in reviewing government policies, finances, programmes and legislation, Types of Committees: Department Standing Committees, Select Committees, Joint Parliamentary Committees, Public Accounts Committee, Estimates Committee, Business Advisory Committee, Ethics Committee etc.

## Unit: 5

Budget process: Reviewing the Union Budget, Examination of Demands for Grants of Ministries, Working of Ministries-Motions and Hours in the House: Question Hour : Rules of putting questions, Types of Questions-Rules relating to Calling Attention Motion, Adjournment Motion, Privilege Motion, Censure Motion, No-Confidence Motion, Cut Motion including Resolutions, Discussion and Short Discussion

### III. References:

1. Basu, D.D, Introduction to Constitution of India, Nagpur, Lexis Nexis Butterworths, 2018.
2. Jayal, N.G., and Mehta, P. (eds), The Oxford Companion to Politics in India, Oxford University Press, New Delhi, 2007.
3. Bhambri, P.C., Parliamentary Control over State Enterprise in India, Delhi Metropolitan Book Dept, New Delhi, 1998.
4. H.Karla, Public Engagement with the Legislature Process, PRS Centre for Policy Research, New Delhi, 2011 available at <http://www.prsindia.org>.
5. Kaul, M.N. &S.L.Shakdher, Practice and Procedure of Parliament, New Delhi, Lok Sabha Secretariat, 2016.
6. Mehra, A.K, The Indian Parliament and Democratic Transformation, New Delhi, Routledge, 2017.
7. Pai, Sudha & Kumar, A, (eds), The Indian Parliament : A Critical Appraisal, Orient Black Swan, New Delhi, 2014.
8. Shankar, B. & Rodriguez V, The Indian Parliament : A Democracy at Work, Oxford University Press, New Delhi, 2011.
9. Singh, D, The Indian Parliament : Beyond the Seal and Signature of Democracy, Universal Law Publishing, Gurgaon, 2016.
10. Kapur, D and P.Mehta (eds), Public Institutions in India: Performance and Design, Oxford University Press, New Delhi, 2005.
11. Kapur, D., Mehta, P. &Vaishnab, M (eds), Rethinking Public Institutions in India, Oxford University Press, New Delhi, 2017.
12. Kashyap, S. Reviewing the Constitution, Shipra Publications, New Delhi, 2000.
13. Kashyap, S.Our Parliament, National Book Trust, New Delhi, 2015.
14. Web resources suggested by the Teacher concerned and the College Librarian including reading material.

#### **IV. Co-Curricular Activities** (*Training of students by the teacher: Total 10 hours*):

##### **A). Mandatory:**

1. **FOR TEACHER:** Training of students by teacher in the classroom for a total of not less than 10 hours on conducting of a Mock Parliament, Conduct of Sessions, preparation of budget, formulation of policy, Collection and analysis of data for legislation, Imparting skills on asking questions and identifying communication skills.

2. **FOR STUDENT:** Students have to visit to a legislative/ local body unit nearby, observe legislative/ local body meetings, interact with stakeholders, monitor media and press releases, understanding political process and individually submit his / her observation as a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format to the teacher.

3. Suggested Fieldwork/Project work Format:

Title Page, Student Details, Acknowledgements, Index page, Objectives, Step-wise process, Findings, Conclusion and References.

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

5. Unit Tests /Internal Examinations

##### **b). Suggested Co-Curricular Activities**

1. Training of students by a related field expert.
2. Reading Local Daily newspaper either print or online.
3. Watching live stream of sessions of Parliament or State Legislature.
4. Reading Editorial pages, blogs and websites for various ideological perspectives.
5. Assignments.
6. Discuss the debates around any recent Ordinance, Bill or Act in the Parliament or State Legislature.
7. Discuss any contemporary practice or event that violates the true spirit of democracy and political equality.
8. Seminars, Group discussions, Quiz, Debates etc.
9. Invited lectures and presentations on related topics by experts in Legislative Procedures.
10. Read the guidelines issued by Supreme Court in landmark cases relating to Political Defections, Anti-democracy acts of political parties.

**MODEL QUESTION PAPER PATTERN**

Time: 3 Hours

Max. Marks: 75

**Section - A (Total 5 x 5 Marks = 25 Marks)**

**Answer any five of the following. Each answer carries 5 Marks**

**(At least one question should be given from each unit)**

1	
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**Section - B (Total 5 x 10 Marks = 50 Marks)**

**Answer any five of the following. Each answer carries 10 Marks**

**(At least one question should be given from each unit)**

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**ఆంధ్రప్రదేశ్ రాష్ట్ర ఉన్నతవిద్యామండలి**

బి.ఎ తదితర ప్రోగ్రాములు (మూడు సంవత్సరాల వ్యవధి)

సి.బి.సి.ఎస్. పద్ధతిలో సవరించబడిన పాఠ్యప్రణాళిక

2020-21 విద్యా సంవత్సరం నుంచి అమలు

**ప్రధాన విషయం: ప్రత్యేక తెలుగు (Special Telugu)**

ఐదవ సెమిస్టర్ కు సంబంధించిన నైపుణ్యాభివృద్ధి కోర్సులు (2022-23 విద్యా సంవత్సరం నుంచి) అభ్యసన ఫలితాలు, ఆధార గ్రంథాలు/వ్యాసాలు, సహపాఠ్యకార్యక్రమాలు, ప్రశ్నాపత్ర నిర్మాణం, మాదిరి ప్రశ్నాపత్రంతో కూడిన పాఠ్యప్రణాళిక

**ఐదవ సెమిస్టర్-ఐచ్ఛికాంశాలు**

(విద్యార్థులు క్రింద సూచించిన నాలుగు జతల్లో ఒక జతను పాఠ్యప్రణాళికగా ఎంపిక చేసుకోవలసి ఉంటుంది)

యూనివర్సిటీ కోడ్	కోర్సు సంఖ్య 6 & 7	కోర్సు పేరు	పీరియడ్స్ వారానికి	క్రెడిట్లు	మార్కులు	
					అంతర్గత మార్కులు <b>I.A-20</b> Field Work-5	Semester End Exam
	<b>6A</b>	తెలుగు భాషాస్వరూపం	5	4	25	75
	<b>7A</b>	తెలుగు రచనారీతులు	5	4	25	75
	<b>6B</b>	లలితకళలు	(లేదా) 5	4	25	75
	<b>7B</b>	జానపదకళలు	5	4	25	75
	<b>6C</b>	మాధ్యమాలకు రచన	(లేదా) 5	4	25	75
	<b>7C</b>	అనువాదం	5	4	25	75
	<b>6D</b>	తెలుగు-బోధన పద్ధతులు	(లేదా) 5	4	25	75
	<b>7D</b>	వాచికాభివృద్ధి	5	4	25	75

ఐదో సెమిస్టర్ లో స్పెషల్ తెలుగుకు సంబంధించి, పైన పట్టికలో సూచించిన నాలుగు జతల పాఠ్యాంశాల్లో (6&7), విద్యార్థులు ఏదో ఒక జతను ఎంపిక చేసుకొని చదవవలసి వుంటుంది. అవి-6A మరియు 7A / 6B మరియు 7B / 6C మరియు 7C / 6D మరియు 7D - వీటిలో ఏదో ఒక జత ఎంపిక చేసుకోవాలి. ఈ జతలోని పాఠ్యాంశాలు విడగొట్టకుండా, కలిపే ఎంచుకోవాలి ఉంటుంది. ABCD అనే శీర్షిక విభజనకోసం చేసిందే కానీ, ప్రాధాన్యతాక్రమంలో చేసింది కాదు.

ఈ నైపుణ్యాభివృద్ధి కోర్సు (SECs) లకు సంబంధించిన ప్రధాన లక్ష్యాల్లో ఒకటి - 'ఆ ప్రత్యేకాంశానికి సంబంధించిన నైపుణ్యాలను అందించడం.' ఈ పాఠ్యప్రణాళిక కూడా పాక్షికంగా నైపుణ్యాభివృద్ధి కేంద్రంగా తయారుచేయబడింది. కాబట్టి, అధ్యాపకులు పాఠ్యప్రణాళికలో ఉద్దేశించిన నైపుణ్యశిక్షణను క్షేత్రస్థాయిలో విద్యార్థులకు అందించే దృష్టితో బోధన చేయాల్సి ఉంటుంది.

**బి.ఏ., తదితర ప్రోగ్రాములు**  
**అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5**  
**6-A తెలుగు భాషా స్వరూపం**

పీరియడ్లు : 75

క్రెడిట్లు : 4

మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. తెలుగు వ్యాకరణ ప్రయోజనాలు
2. తెలుగు వ్యాకరణపరిభాష పట్ల అవగాహన
3. ప్రాచీన, ఆధునిక తెలుగులోని సంధులను, సమాసాలను తెలుసుకోవడం ద్వారా రచనానైపుణ్యాల అభివృద్ధి
4. క్రియావిజ్ఞానాన్ని అవగాహన చేసుకోవడం ద్వారా తెలుగు క్రియారూపాల వైవిధ్యాన్ని గమనించడం
5. వాక్యవిజ్ఞానం ద్వారా మహాకవుల, రచయితల వాక్యనిర్మాణ రీతులను తెలుసుకోవడం.

◆ **పాఠ్యప్రణాళిక**

(మొత్తం పీరియడ్లు 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు : 15)

**యూనిట్: I** తెలుగు వ్యాకరణ పరిచయం

15 పీరియడ్లు

వ్యాకరణం- పరిచయం, ప్రయోజనాలు

వ్యాకరణ సంజ్ఞలు: అచ్చు, హల్లు, తత్సమము, తద్భవము, దేశ్యము, ఆచ్ఛికము, గ్రామ్యము  
 అన్యదేశ్యం, వర్ణం-సవర్ణం, పదాంశం-సపదాంశం.

**యూనిట్-II** సంధి, సమాసం

15 పీరియడ్లు

తెలుగులో 'సంధి' స్వరూపం: ఆగమ, ఆదేశ, లోప సంధులు (బాలవ్యాకరణం సంధిపరిచ్ఛేదం)

ఆధునికభాషలో సంధి స్వరూపం

సమాసం: నిర్వచనం, సమాసం-స్వరూపం : సాంస్కృతికం, ఆచ్ఛికం, మిశ్రం

సమాసం-రకాలు: అవ్యయిభావ, తత్పురుష, కర్మధారయ, బహువ్రీహి, ద్వంద్వం (బాలవ్యాకరణం-సమాస పరిచ్ఛేదం);

ఆధునిక భాషలో సమాస స్వరూపం

**యూనిట్-III** క్రియావిజ్ఞానం

10 పీరియడ్లు

తెలుగు 'క్రియా' రూపాలు-వైవిధ్యం; సకర్మక, ఆకర్మక, ప్రేరణార్థక క్రియలు;

సమాపక, అసమాపక క్రియలు, సంయుక్త క్రియలు;

ధాతువులకు క్రియారూపాలు నిర్మించడం: 'పాడు, పంచు, చేయు, అను, ఉండు'

**యూనిట్: IV** వాక్య విజ్ఞానం

10 పీరియడ్లు

వాక్యం-కారకం: నిర్వచనాలు; తెలుగు వాక్యస్వరూపం: సామాన్య, సంశ్లిష్ట, సంయుక్తవాక్యాలు;

వాక్య భేదాలు: నిశ్చయార్థక, ప్రశ్నార్థక, విధ్యర్థక, నిర్బంధార్థక, నిషేధార్థక, అనుమత్యర్థక,

సంభావనార్థక, సందేహార్థక, ప్రేరణార్థక, ప్రార్థనార్థక, ఆశీర్వాదార్థక క్రియలు.

సమాన సన్నివేశంలో వివిధ కవుల వాక్యప్రయోగశైలులు : భేదసామ్యాలు

### I. ప్రాతఃకాల, సంధ్యావర్ణనలు: ధూర్జటి-తిలక్

ధూర్జటి: శ్రీకాళహస్తిమాహాత్మ్యము: ద్వితీయాశ్వాసం

ప్రాతఃకాల వర్ణన : నిర్ణిద్ర పూర్వాద్రి .... అరుణ శోణాంశురాజి (138వ పద్యం)

సంధ్యావర్ణన : ప్రాగ్మధూమణి .... భానుబింబంబు గ్రుంకె. (128వ పద్యం)

తిలక్: 'అమృతం కురిసిన రాత్రి'

ప్రాతఃకాలవర్ణన: 'ప్రాతఃకాలం' (4,5 పేజీలు)

సంధ్యావర్ణన : 'సంధ్య' (6వ పేజీ)

### II. సామాన్యని వర్ణన: విశ్వనాథ- రావిశాస్త్రి

విశ్వనాథ సత్యనారాయణ - పులుల సత్యాగ్రహం-పుటలు 20-22

(ఇట్లా ఉండగా ఆ ఊరికి పట్టేలు వచ్చినప్పుడు పట్వారీ రాడు... ఎలాగౌతుంది?)

రాచకొండ విశ్వనాథశాస్త్రి - అల్పజీవి - పుటలు 5-8

(సుబ్బయ్య సుందరుడు కాడు..... తర్వాత ఏమి జరిగిందో సుబ్బయ్యకు జ్ఞప్తి లేదు)

#### ◆ ఆధారగ్రంథాలు/ వ్యాసాలు

1. బాలవ్యాకరణము - చిన్నయసూరి
2. ప్రౌఢ వ్యాకరణం - బహుజనపల్లి, సీతారామాచార్యులు
3. సంధి - కోరాడ రామకృష్ణయ్య
4. ఆంధ్రభాషా వికాసము - ఆచార్య గంటి జోగిసోమయాజి.
5. తెలుగుభాషాచరిత్ర - సం. భద్రరాజు కృష్ణమూర్తి
6. ఆధునిక తెలుగుభాష: సంగ్రహవర్ణన - చేకూరి రామారావు, తెలుగుభాషాచరిత్ర-సం. భద్రరాజు కృష్ణమూర్తి
7. తెలుగువాక్యం - చేకూరి రామారావు
8. అమృతం కురిసిన రాత్రి (మూడో కూర్పు) - దేవరకొండ బాలగంగాధర తిలక్, విశాలాంధ్ర ప్రచురణ
9. అంతర్జాలం లోని సంబంధిత ఆధారాలు

#### ◆ సహపాఠ్య కార్యక్రమాలు

10 పీరియడ్లు

అధ్యాపకులు, విద్యార్థులు తప్పనిసరిగా చేయాల్సిన పనులు :

1. అధ్యాపకులు :- విద్యార్థులకు తరగతిగదిలో ( అవసరమైతే ప్రత్యేక నిపుణుల ద్వారా) తెలుగు వ్యాకరణాంశాలపై అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి. తెలుగుభాషపై సంస్కృతభాషా ప్రభావాన్ని తెలియజేస్తూ, వ్యాకరణంలోని సంజ్ఞ, సంధి, సమాస, క్రియ, వాక్యాది భేదాలపై శిక్షణ ఇవ్వాలి.
2. విద్యార్థులు:- విద్యార్థులు పై యూనిట్లలోని 'సంజ్ఞ, సంధి, సమాస, క్రియ, వాక్యాది విషయాలలో ఏదో ఒక అంశం మీద క్షేత్రస్థాయిలో/ అంతర్జాలం ద్వారా వాడుకలో ఉన్న వాటిని పరిశీలించాలి. వాటిపై తమపరిశీలనను క్రోడీకరిస్తూ, స్వీయ దస్తూరీలో, పది పేజీలకు మించని ఒక 'నివేదిక'ను తయారుచేసి, అధ్యాపకుడికి సమర్పించాలి. ఉదా: 'పాడు, పంచు, చేయు, అను, ఉండు' ధాతువులకు క్రియారూపాలు నిర్మించడం-మొదలైనవి.

3. ఈ క్షేత్ర పరిశీలనా నివేదిక (Filedwork Report) కు 5 అంతర్గత మార్కులు.
4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా:- ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు / తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు , విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ సూచించబడిన కార్యక్రమాలు

- (1) సంబంధిత రంగంలో నిపుణులచేత శిక్షణ ఇప్పించడం
- (2) అసైన్మెంట్లు, సెమినార్ల నిర్వహణ
- (3) బృందచర్చల ద్వారా వ్యాకరణరీతులపై ఆసక్తిని పెంపొందించడం

◆ ప్రశ్నాపత్రనిర్మాణం

- I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.
- II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ మాదిరి ప్రశ్నాపత్రం

**I. క్రింది వానిలో ఐదింటికి సంగ్రహసమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 5 మార్కులు**

- |                          |                                  |                    |
|--------------------------|----------------------------------|--------------------|
| 1. తత్పరుష               | 2. అన్యదేశ్యాలు                  | 3. వర్ణం-సవర్ణం    |
| 4. ఆచ్ఛికము              | 5. వ్యాకరణం                      | 6. సంయుక్త క్రియలు |
| 7. విద్యర్థకం            | 8. విశ్వనాథవారి వాక్యప్రయోగ శైలి |                    |
| 9. తిలక్ ప్రాతఃకాల వర్ణన | 10. కారకం.                       |                    |

**II. ఈ క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు**

11. 'పదాంశం - సపదాంశాలను' విశ్లేషించండి.  
(లేదా)  
'తత్సమ-తద్భవ-దేశ్యాలను' గురించి వ్రాయండి.
12. ఆదేశసంధులను గూర్చి వ్యాసం రాయండి.  
(లేదా)  
ఆధునికభాషలో సంధి స్వరూపాన్ని వివరించండి.
13. తెలుగు క్రియారూపాల వైవిధ్యాన్ని గురించి రాయండి.  
(లేదా)  
'ఉండు', 'చేయు' ధాతువులకు క్రియారూపాలను గుర్తించండి.
14. తెలుగు వాక్యస్వరూపాన్ని గూర్చి విశ్లేషణాత్మక వ్యాసం రాయండి.  
(లేదా)  
వాక్యభేదాలను గురించి రాయండి.
15. 'ధూర్జటి-తిలక్' కవుల వాక్యశైలుల మధ్య భేదసామ్యాలను గురించి వివరించండి.  
(లేదా)  
సామాన్యని వర్ణనలో 'విశ్వనాథ-రావిశాస్త్రి' చూపించిన వాక్యప్రయోగవైవిధ్యాన్ని తెలపండి.

**బి.ఏ., తదితర ప్రోగ్రాములు**  
**అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5**  
**7-A తెలుగు రచనారీతులు**

పీరియడ్లు : 75

క్రెడిట్లు : 4

మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. వివిధ రంగాలలోని తెలుగు రచనారీతులపై ప్రాథమిక అవగాహన
2. అనువాద రంగంలో, ముద్రణా మాధ్యమరంగంలోని రచనారీతులను తెలుసుకోవడం
3. ప్రసార మాధ్యమాలు, సామాజిక మాధ్యమాల లోని రచనావిధానాలను అవగాహన
4. భాషలోని అర్థపరిణామ, ధ్వనిపరిణామాలు, అన్యదేశ్యాలపై అవగాహన
5. సృజనరంగంలోని ప్రధాన ప్రక్రియల రచనావిధానాలను తెలుసుకోవడం.

◆ **పాఠ్యప్రణాళిక**

(మొత్తం పీరియడ్లు 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు : 15)

**యూనిట్-I తెలుగు రచనారీతులు-పరిచయం**

10 పీరియడ్లు

తెలుగు రచనారీతులు- అనువాదరంగం, ముద్రణ-ప్రసార-సామాజిక మాధ్యమ రంగాలు: ప్రాథమిక అవగాహన  
 అనువాదరంగం: నిఘంటువులు, పారిభాషిక పదకోశాలు, అనువాద రచనావిధానాలు  
 ముద్రాణామాధ్యమరంగం: వార్తా రచన, శీర్షికారచన, సంపాదకీయాలు, సమీక్షలు, పత్రికారచనా విధానాలు

**యూనిట్-II తెలుగు-రచనారీతులు-ప్రసార, సామాజిక మాధ్యమాలు**

15 పీరియడ్లు

ప్రసారమాధ్యమరంగం: రేడియో రచన, టెలివిజన్ రచన, సినిమా రచనా విధానాలు  
 సామాజిక మాధ్యమరంగం: వెబ్సైట్, ఫేస్బుక్, యూట్యూబ్, ట్విట్టర్, వాట్సాప్, బ్లాగ్-రచనావిధానాలు

**యూనిట్-III అర్థపరిణామ, ధ్వనిపరిణామ రీతులు**

10 పీరియడ్లు

అర్థపరిణామం: కారణాలు, రకాలు; తెలుగులో అర్థపరిణామం  
 ధ్వని పరిణామం: కారణాలు, రకాలు, తెలుగులో ధ్వనుల మార్పులు

**యూనిట్-IV మాండలిక విజ్ఞానం**

10 పీరియడ్లు

మాండలికం: నిర్వచనం, స్వరూపం, భేదాలు; మాండలికాలు-కారణాలు, ప్రయోజనాలు, రకాలు;  
 తెలుగు మాండలికాల గుర్తింపు; శిష్టభాష-ప్రామాణిక భాష.

**యూనిట్-V సృజనరంగంలో తెలుగు**

15 పీరియడ్లు

‘కవిత, కథ, వ్యాసం, ‘నాటకం-నాటిక-ఏకాంకిక’, ప్రకటన, పాట- పరిచయం  
 ‘ప్రకటన: ముద్రణ రంగం, ప్రసార మాధ్యమాలు; ప్రకటన రచన, విషయసేకరణ-కూర్పు, కంపోజింగ్,  
 వ్యాఖ్యానం (యాంకరింగ్), పాట (సినిమా, లలితసంగీతం; జానపద, మాండలిక గేయాలు) - రచనా  
 విధానం: పరిచయం

◆ ఆధారగ్రంథాలు వ్యాసాలు

1. తెలుగు మాండలికాలు: ప్రమాణ భాష (వ్యాసం) - ఆచార్య భద్రరాజుకృష్ణమూర్తి సం. తెలుగుభాషా చరిత్ర
2. ఆంధ్రభాషా వికాసము - ఆచార్య గంటి జోగిసోమయాజి
3. తెలుగు భాషా వికాసం - డా.బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
4. అనువాద పాఠాలు - బూదరాజు రాధాకృష్ణ
5. తెలుగు మౌలికాంశాలు: భాషా నైపుణ్యాలు - డా.బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
6. మాధ్యమాల రచన - డా.బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
7. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ సహపాఠ్య కార్యక్రమాలు

10 పీరియడ్లు

అధ్యాపకులు, విద్యార్థులు తప్పనసరిగా చేయాల్సిన పనులు :

1. అధ్యాపకులు:- తరగతిగదిలో (అవసరమైతే ప్రత్యేకనిపుణుల ద్వారా) అధ్యాపకులు విద్యార్థులకు తెలుగు రచనారీతులను గురించి నైపుణ్యశిక్షణ ఇవ్వాలి. ఉదా. అనువాదరంగం, ముద్రణా మాధ్యమరంగం, ప్రసార మాధ్యమ, సామాజిక మాధ్యమ రంగాలు-రచనా విధానాలు; సృజన రంగంలోని ప్రక్రియల్లో రచనావిధానాలు.
2. విద్యార్థులు:- విద్యార్థులు పైన తెలిపిన 'అనువాదరంగం, ముద్రణా మాధ్యమరంగం, ప్రసార మాధ్యమ, సామాజిక మాధ్యమ రంగాలు-రచనా విధానాల నుండి గానీ, సృజనరంగంలోని ప్రక్రియల్లో రచనావిధానాల నుండి గాని ఏదోఒక అంశాన్ని ఎన్నుకొని, పరిశీలించాలి. తమ విశ్లేషణను క్రోడీకరిస్తూ, స్వీయ దస్తూరీలో, పదిపేజీలకు మించకుండా 'పరిశీలనా నివేదిక' రూపొందించి అధ్యాపకుడికి సమర్పించాలి.
3. ఈ క్షేత్రపరిశీలనా నివేదికకు (Filedwork Report) 5 అంతర్గతమార్కులు.
4. క్షేత్రపరిశీలనా నివేదిక (Fieldwork Report) నమూనా:- ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు / తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు , విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ సూచించబడిన సహపాఠ్య కార్యక్రమాలు

1. సంబంధితరంగంలో రచనా నిపుణులచేత శిక్షణ ఇప్పించడం.
2. అసైన్మెంట్లు సెమినార్ల నిర్వహణ
3. బృందచర్చల ద్వారా విద్యార్థులను రచనారీతులపై అభిరుచిని కలిగించడం.
4. అంతర్జాల వేదికల ద్వారా రచనా రీతుల పరిశీలన

◆ ప్రశ్నాపత్రనిర్మాణం

- I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.
- II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. 5×10=50 మా.  
(అంతర్గత ఛాయిస్)

◆ మాదిరి ప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహ సమాధానాలు రాయండి.

5×5=25 మా.

- |                      |                                |
|----------------------|--------------------------------|
| 1. తెలుగు మాండలికాలు | 2. ప్రమాణ భాష                  |
| 3. అర్థపరిణామం       | 4. శిష్ట భాష                   |
| 5. అనువాద రచన        | 6. సంపాదకీయాలు                 |
| 7. టెలివిజన్ రచన     | 8. వీడియో నేపథ్య రచన           |
| 9. కవితా రచనావిధానం  | 10. వ్యాఖ్యాన (యాంకరింగ్) రచన. |

II. క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు.

11. అనువాదరంగ ప్రాధాన్యాన్ని వివరిస్తూ, అనువాద రచనావిధానాన్ని గూర్చి రాయండి.

(లేదా)

పత్రికా రచనా విధానాలను సమీక్షించండి.

12. ప్రసారమాధ్యమ రచనారీతులను గురించి వ్రాయండి.

(లేదా)

సామాజిక మాధ్యమ రచనా విధానాన్ని వివరించండి.

13. అర్థపరిణామరీతులను విశ్లేషించండి.

(లేదా)

తెలుగులో ధ్వనుల మార్పులను గురించి రాయండి.

14. మాండలిక స్వరూప స్వభావాలను వివరించండి.

(లేదా)

మాండలికాలకు కారణాలను వివరిస్తూ, తెలుగు మాండలికాలను గూర్చి రాయండి.

15. 'నాటకం-నాటిక-ఏకాంకిక' రచనా విధానాలను సమీక్షించండి.

(లేదా)

'ప్రకటన, విషయసేకరణ-కూర్పు, పాట'-రచనా విధానాలను గురించి రాయండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5

6-B లలితకళలు

పీరియడ్లు : 75

క్రెడిట్లు : 4

మొత్తం మార్కులు : 75

◆ అభ్యసన ఫలితాలు

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. కళల ప్రాధాన్యాన్ని, లలిత కళల్లోని సౌందర్యాన్ని గ్రహించడం
2. తెలుగు పాలకుల కళాభిరుచిని తెలుసుకోవడం; భారతీయ శిల్పకళల పట్ల, చిత్రకళల పట్ల అవగాహన
3. భారతీయ సంగీత రీతుల విశిష్టతను తెలుసుకోవడం; నాట్య-నృత్య-నృత్యాంశాలపై అభిరుచిని వృద్ధి చేసుకోవడం
4. లలితకళల్లో కవిత్వ ప్రాధాన్యాన్ని గుర్తించి, సృజనరీతులపట్ల అభిరుచి పెంచుకోవడం
5. తెలుగు వాగ్గేయకారుల గేయాల ప్రాధాన్యాల గుర్తింపు ; 'సంకీర్తన-పద-కృతుల' పై అవగాహన.

◆ పాఠ్యప్రణాళిక

(మొత్తం పీరియడ్లు 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు : 15)

యూనిట్-I కళలు

10 పీరియడ్లు

కళలు-నిర్వచనం, ఉత్పత్తి వికాసాలు; కళలు-వర్గీకరణ; లలితకళలు-ప్రత్యేకత

యూనిట్-II శిల్పం, చిత్రలేఖనం

15 పీరియడ్లు

భారతీయ శిల్పకళ, చిత్రకళలు-ప్రాథమిక అవగాహన;

తెలుగువారి శిల్పకళారీతులు:

రామప్పదేవాలయం (కాకతీయులు) లేపాక్షి ఆలయాలు, హంపీ హజారా రామాలయం(విజయనగర రాజులు);

తెలుగు వారి ఆధునిక కళారీతులు - దామెర్ల రామారావు, బాపు, పి.టి.రెడ్డి.

యూనిట్-III సంగీతం, నాట్యం

15 పీరియడ్లు

భారతీయ సంగీత సంప్రదాయాలు - హిందూస్థానీ, కర్ణాటక

తెలుగులో లలితగీతాలు, సంకీర్తనలు

నాట్యం-సమాహార కళ, తెలుగు నాట్య రీతులు-కూచిపూడి, ఆంధ్రనాట్యం, పేరిణి.

యూనిట్-IV సాహిత్యం-కవిత్వం

10 పీరియడ్లు

సాహిత్య రూపాలు- కవిత్వం; కవిత్వం-ప్రాచ్య, పాశ్చాత్యుల నిర్వచనాలు; లలితకళల్లో కవిత్వ స్థానం

కవిత్వం-భేదాలు: పద్యకవిత్వం, వచనకవిత్వం

యూనిట్-V సంప్రదాయ గేయసాహిత్యం-వాగ్గేయకారులు

10 పీరియడ్లు

సంప్రదాయ గేయసాహిత్యం-పరిచయం, విభాగాలు

వాగ్గేయకారుల సాహిత్యం-అవగాహన: 'అన్నమయ్య త్యాగయ్య, క్షేత్రయ్య, రామదాసు'

“సంకీర్తన - కీర్తన-పదం-కృతి” - ప్రక్రియలు: అవగాహన

◆ ఆధారగ్రంథాలు/వ్యాసాలు

1. మన ప్రాచీన కళలు, పుట్టుపూర్వోత్తరాలు - ఎల్లోరా
2. లలిత కళలు, వికసన చరిత్ర - తెలుగు విశ్వవిద్యాలయం ప్రచురణ
3. సంగీత, వాద్య నిర్మాణ కేంద్రం (వ్యాసం) - మనవి మాటలు : తిరుమల రామచంద్ర
4. త్యాగయ్య కీర్తన సంపద (వ్యాసం) - మనవి మాటలు : తిరుమల రామచంద్ర
5. ఆధునిక చిత్రకళ-ప్రజాసామాన్యం (వ్యాసం)- మనవి మాటలు : తిరుమల రామచంద్ర
6. తెలుగు సాహిత్య సమీక్ష (రెండవ సంపుటం)- ఆచార్య జి.నాగయ్య
7. లలితకళా విలాసం - డా॥ మూల మల్లికార్జునరెడ్డి
8. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ సహపాఠ్య కార్యక్రమాలు

10 పీరియడ్లు

అధ్యాపకులు, విద్యార్థులు తప్పనిసరిగా చేయాల్సిన పనులు:

1. అధ్యాపకులు:- విద్యార్థులకు తరగతిగదిలో (అవసరమైతే సంస్థల సందర్శన ద్వారా) 'కళాకారుల, కళల, కళారంగాల' లోని అంశాలపై అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి. ఉదా. శిల్పకళ, చిత్రకళ, లలితగీతాలు, కవిత్వం, గేయసాహిత్యం-అనే అంశాలలోని విశేషాలు, రకాలు, స్థలకాలాలు, పరిణామవికాసాలు, మేటి కళాకారులు తదితర విషయాల్లో నైపుణ్య శిక్షణ ఇవ్వాలి.
2. విద్యార్థులు:- విద్యార్థులు లలితకళల్లోని 'శిల్పకళ, చిత్రకళ, లలితగీతాలు, కవిత్వం, గేయసాహిత్యం' మొదలైన ఐదు అంశాల్లో ఏదో ఒక అంశానికి సంబంధించిన విషయాన్ని, 'క్షేత్ర/అంతర్జాల పరిశీలన'కు ఎంచుకోవాలి. తమ పరిశీలనలను క్రోడీకరిస్తూ, స్వీయదస్తూరితో ఒక నివేదిక తయారుచేసి, అధ్యాపకుడికి సమర్పించాలి.
3. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) కు విద్యార్థికి 5 అంతర్గత మార్కులు
4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా:- ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు/తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు, విషయప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ సూచించబడిన కార్యక్రమాలు

1. సంబంధిత రంగాల్లో నిపుణులచేత శిక్షణ ఇప్పించడం.
2. అసైన్మెంట్లు, సెమినార్లు, నిర్వహణ
3. బృందచర్చలు నిర్వహించడం ద్వారా విద్యార్థులను ప్రోత్సహించడం
4. సంబంధిత అంశాలను అంతర్జాల వేదిక ద్వారా ప్రదర్శించడం.

◆ ప్రశ్నాపత్రనిర్మాణం

- I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.
- II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ మాదిరి ప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహ సమాధానాలు రాయండి

5×5=25 మా.

- |                        |                         |
|------------------------|-------------------------|
| 1. కళలు-నిర్వచనం       | 2. లలితకళలు - ప్రత్యేకత |
| 3. చిత్రకళలు           | 4. బాపు                 |
| 5. లలితగీతాలు          | 6. కూచిపూడి నృత్యం.     |
| 7. వచన కవిత్వం         | 8. కవిత్వం              |
| 9. అన్నమయ్య సంకీర్తనలు | 10. 'కృతి'-విశిష్టత     |

II. క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. కళల ఉత్పత్తి, వికాసాలను సమీక్షించండి.

(లేదా)

కళలను వర్గీకరించి, వివరించండి.

12. తెలుగు వారి శిల్పకళా వైభవాన్ని గూర్చి రాయండి.

(లేదా)

ఆధునిక తెలుగు కళారీతులను వివరిస్తూ బాపు, పి.టి.రెడ్డిల గురించి రాయండి.

13. భారతీయ సంగీత సాంప్రదాయాలను గూర్చి వివరించండి.

(లేదా)

నాట్యాన్ని నిర్వచిస్తూ, తెలుగు వారి నాట్యరీతులను గురించి రాయండి.

14. కవిత్వాన్ని నిర్వచిస్తూ, లలితకళల్లో కవిత్వస్థానాన్ని నిర్ణయించండి.

(లేదా)

కవిత్వ ప్రక్రియలోని ప్రధాన భేదాలను గురించి విశ్లేషించండి.

15. క్షేత్రయ్య-త్యాగయ్య -రామదాసు ల ప్రదిద్ధ గేయసాహిత్యాన్ని పరిశీలించండి.

(లేదా)

'సంకీర్తన-కీర్తన పదం- కృతి' - ప్రక్రియల భేదసాధ్యులను వివరించండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5

7-B జానపద కళలు

పీరియడ్లు : 75

కెడిట్లు : 4

మొత్తం మార్కులు : 75

◆ అభ్యసన ఫలితాలు

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. విద్యార్థులు జానపదవిజ్ఞానం పట్ల ప్రాథమిక అవగాహన
2. జానపద సాహిత్యాన్ని, దాని ప్రాధాన్యాన్ని, విశిష్టతను తెలుసుకోవడం
3. జానపద భాషాసంస్కృతుల వైవిధ్యాన్ని గూర్చి అవగాహన చేసుకోవడం
4. జానపద ప్రదర్శనకళలైన యక్షగానం, బుర్రకథ మొదలైన ప్రక్రియలను గూర్చి అవగాహన
5. మన గ్రామాల జాతీయ సంపదగా జానపదగేయాలను గుర్తిస్తూ, వాటిని పాడే విధానాన్ని గమనించడం

◆ పాఠ్యప్రణాళిక

మొత్తం పీరియడ్లు - 75; బోధన: 60; శిక్షణ/ఇతరాలు:15

యూనిట్-I జానపద విజ్ఞానం: పరిచయం

10 పీరియడ్లు

జానపదవిజ్ఞానం: పరిచయం, వర్గీకరణ (శాఖలు), ప్రయోజనాలు, ఆవశ్యకత

జానపద విజ్ఞానం పై ప్రాచ్య,పాశ్చాత్యుల కృషి

యూనిట్-II జానపద సాహిత్యం: పరిచయం

15 పీరియడ్లు

జానపద గేయం, కథాగేయాలు: లక్షణాలు-పరిచయం

జానపద గద్యం: కథలు, పురాణాలు, ఐతిహ్యాలు : పరిచయం

యూనిట్-III జానపదుల భాష, సంస్కృతి

10 పీరియడ్లు

జానపదుల భాష సంస్కృతి: ఆహారం, దుస్తులు, వేషభాషలు, నమ్మకాలు, పండుగలు, వైద్యం.

యూనిట్-IV జానపద కళలు

15 పీరియడ్లు

జానపద కళలు - పరిచయం

తెలుగు వారి కళారూపాలు: తోలుబొమ్మలాటలు, యక్షగానం, బుర్రకథ, హరికథ, ఒగ్గుకథ,

జానపదనాటకం (పద్యనాటకం-రంగస్థల పద్యాలు: పరిచయం)

జానపద నృత్యాలు : కోలాటం, భజనలు, థింసా-గొరవ నృత్యాలు, చిందుభాగవతం

యూనిట్-V జానపద గేయాలు

10 పీరియడ్లు

జానపద గేయం: నిర్వచనం, లక్షణాలు, వైశిష్ట్యం

గేయం-గీతం,పాట,పదం,జావళీలు; జానపద గేయాలు-విభజన; జానపద బాణీలు, పాడే విధానం

జానపద గాయకులు - రకాలు:

పిచ్చుకకుంట్లు, శారదకాండ్రు, బైండ్లవారు, వీరముష్టివారు, గొల్లసుద్దులు, జంగములు, దాసరివారు

◆ ఆధార గ్రంథాలు/ వ్యాసాలు

1. ఆంధ్రుల జానపద విజ్ఞానం - ఆచార్య ఆర్.వి.యస్. సుందరం
2. తెలుగు జానపద గేయసాహిత్యం - ఆచార్య బిరుదురాజు రామరాజు
3. జానపద విజ్ఞానాధ్యయనం - ఆచార్య జి.యస్.మోహన్
4. తెలుగు జానపద గేయగాధలు - ఆచార్య నాయని కృష్ణకుమారి
5. 'జానపదుల భాషా సారస్వతములు' వ్యాసం - డా॥ పాలెం వేణుగోపాల్ (భావవీణ ప్రచురణ, జూన్ 2020)
6. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ సహపాఠ్య కార్యక్రమాలు

10 పీరియడ్లు

అధ్యాపకులు, విద్యార్థులు కలిసి తప్పనిసరిగా చేయాల్సిన పనులు:

1. అధ్యాపకులు: - విద్యార్థులకు తరగతిగదిలో (అవసరమైతే క్షేత్రపర్యటన ద్వారా) 'జానపద సాహిత్యం, భాష, సంస్కృతి, జానపదకళలు, జానపదగేయాలు-అందులోని రకాలు, పరిణామ వికాసాలు, జానపద కళాకారులు-తదితర అంశాల్లో అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి. స్థానిక పల్లెపాటలను, పండుగ పాటలను విద్యార్థులచేత సేకరింపజేసి, పాడించవచ్చు.
2. విద్యార్థులు: - విద్యార్థులు పైన తెలిపిన 'జానపద సాహిత్యం, భాష, సంస్కృతి, జానపదకళలు, జానపదగేయాలు-అందులోని రకాలు, పరిణామ వికాసాలు, జానపద కళాకారులు-తదితర అంశాల్లో ఏదైనా ఒక విషయాన్ని క్షేత్ర పరిశీలనకు ఎంచుకోవాలి. తమ విశ్లేషణను క్రోడీకరిస్తూ, స్వీయదస్తూరిలో, పది పేజీలకు మించని ఒక నివేదికను తయారుచేసి, అధ్యాపకునికి సమర్పించాలి.
3. క్షేత్రపరిశీలనా నివేదిక (Fieldwork Report) విద్యార్థికి 5 అంతర్గత మార్కులు
4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా: - ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు / తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు , విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ సూచించబడిన కార్యక్రమాలు

1. సంబంధిత కళారూపాల్లోని నిపుణులచేత ప్రదర్శనలు ఇప్పించడం.
2. అసైన్మెంట్లు, సెమినార్ల నిర్వహణ
3. బృందచర్చల ద్వారా విద్యార్థులను జానపద కళారంగాల వైపు ప్రోత్సహించడం
4. సంబంధిత అంశాలను అంతర్జాల వేదిక ద్వారా ప్రదర్శించడం.

◆ ప్రశ్నోత్తరనిర్మాణం

- I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.
- II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ మాదిరి ప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహ సమాధానాలు రాయండి

5×5=25 మా.

- |                        |                     |
|------------------------|---------------------|
| 1. జానపదవిజ్ఞానం       | 2. జె.ఎ.బోయల్       |
| 3. కథా గేయాలు లక్షణాలు | 4. ఐతిహ్యాలు        |
| 5. జానపదుల సంస్కృతి    | 6. జానపదుల వేషభాషలు |
| 7. యక్షగానం            | 8. చిందుభాగవతం      |
| 9. జానపద గేయం నిర్వచనం | 10. పిచ్చుకకుంట్లు  |

II. క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. జానపద విజ్ఞానాన్ని వర్గీకరించి, వివరించండి.

(లేదా)

జానపద విజ్ఞానంపై ప్రాచ్యపాశ్చాత్యుల కృషిని గురించి రాయండి.

12. జానపద సాహిత్యాన్ని పరిచయం చేస్తూ, కథాగేయాల ప్రాధాన్యాన్ని గురించి చర్చించండి.

(లేదా)

జానపద గద్యకథనాలపై విమర్శనాత్మక వ్యాసం రాయండి.

13. జానపదుల భాష పై విమర్శనాత్మక వ్యాసం రాయండి.

(లేదా)

జానపదసంస్కృతి పై ప్రత్యేక వ్యాసం రాయండి.

14. జానపద కళలను పరిచయం చేస్తూ, బుర్రకథ, ఒగ్గు కథలను గురించి రాయండి.

(లేదా)

జానపద నృత్యాలను వివరిస్తూ కోలాటం గురించి రాయండి.

15. జానపదగేయాల విశిష్టతను వివరించండి.

(లేదా)

జానపద గాయకులను గూర్చి ప్రత్యేక వ్యాసం రాయండి.

**బి.ఏ., తదితర ప్రోగ్రాములు**  
**అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5**  
**6-C మాధ్యమాలకు రచన**

పీరియడ్లు : 75

క్రెడిట్లు : 4

మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. మాధ్యమాల్లోని విస్తృతి, ప్రయోజనాలపై అవగాహన
2. పత్రికా సంపాదకులుగా వివిధ రకాల రచనాంశాల్లో రాణించగలగడం
3. ముద్రణ, ప్రసారమాధ్యమ రంగాల్లోని అవకాశాలను, ప్రాధాన్యాన్ని గమనించడం
4. ప్రసార మాధ్యమాల్లోని రచనల తీరుతెన్నులను గుర్తించడం
5. ప్రసారమాధ్యమాలకు రచనలు చేసే నైపుణ్యాన్ని సంపాదించగలగడం.

◆ **పాఠ్యప్రణాళిక**

(మొత్తం పీరియడ్లు 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు:15)

**యూనిట్-I:** 'మాధ్యమాలు'-పరిచయం

10 పీరియడ్లు

'మాధ్యమాలు'-నిర్వచనం, రకాలు; మాధ్యమాల్లో భాషా ప్రయోగం

మాధ్యమాల విస్తృతి, ప్రాధాన్యత; మాధ్యమాలు-చట్టాలు; మాధ్యమాలు-ఉపాధి అవకాశాలు

**యూనిట్-II:** ముద్రణమాధ్యమం-పరిచయం

10 పీరియడ్లు

వివిధ రకాల పత్రికలు - పరిశీలన

పత్రికా భాష-శైలి, వైవిధ్యం; పత్రికారచన- భాషాపరమైన మెళకువలు

**యూనిట్-III:** ముద్రణా మాధ్యమం-నైపుణ్యాభివృద్ధి

15 పీరియడ్లు

పత్రికలు: వార్తా రచన; శీర్షికా రచన; వార్తల సంక్షిప్తీకరణ, విపులీకరణ; సంపాదకీయాలు;

పుస్తక సమీక్షలు, ఇంటర్వ్యూలు, నివేదికలు, ప్రకటనలు, కరపత్రాల రచన; విరామ చిహ్నాలు-అవగాహన,

**యూనిట్-IV:** ప్రసార మాధ్యమం -పరిచయం

10 పీరియడ్లు

ప్రసార మాధ్యమాలు-విస్తృతి, ప్రయోజనాలు

ప్రసారమాధ్యమాల్లో కార్యక్రమాల నిర్వహణ-తీరుతెన్నులు

ప్రసార మాధ్యమాల్లోని వివిధ రచనలు- పరిశీలన, అవగాహన

**యూనిట్-V** ప్రసార మాధ్యమం-నైపుణ్యాభివృద్ధి

15 పీరియడ్లు

స్క్రిప్ట్ రచన, కెమెరా రచన, డ్రాఫ్టు రచన, వార్తా రచనా విధానాలు

వాణిజ్య ప్రకటనలు, ఇంటర్వ్యూలు, ప్రత్యక్షప్రసారాలు, డాక్యుమెంటరీలు-రచనా విధానాలు

రేడియో రచన, టెలివిజన్ రచన, డిజిటల్ వేదికలు -రచనా విధానం

◆ ఆధార గ్రంథాలు/ వ్యాసాలు

1. తెలుగు జర్నలిజం - బూదరాజు రాధాకృష్ణ
2. తెలుగు జర్నలిజం - దుర్గం రవీందర్
3. తెలుగు-మౌలిక భావనలు - డా॥బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
4. మాధ్యమాలకు రచన - డా॥ బి.ఆర్ అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
5. కమ్యూనికేషన్ సిద్ధాంత పరిచయం, పత్రికల చరిత్ర-పొట్టిశ్రీరాములు తెలుగువిశ్వవిద్యాలయం ప్రచురణ
6. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ సహపాఠ్య కార్యక్రమాలు

10 పీరియడ్లు

అధ్యాపకులు, విద్యార్థులు కలసి తప్పనిసరిగా చేయాల్సిన పనులు:

1. అధ్యాపకులు:- విద్యార్థులకు తరగతిగదిలో (అవసరమైతే క్షేత్రపర్యటన ద్వారా) మాధ్యమాలకు సంబంధించిన అంశాల రచనావిధానాలపై అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి.  
ఉదా. పత్రికా రచన, రేడియో రచన, టెలివిజన్ రచన, డిజిటల్ వేదికలకు రచన-మొదలైనవి.
2. విద్యార్థులు:- విద్యార్థులు పైన తెలిపిన ‘పత్రికా రచన, రేడియో రచన, టెలివిజన్ రచన, డిజిటల్ వేదికలకు రచన’ మొదలైన అంశాల్లో ఒక అంశాన్ని ఎంచుకొని, పరిశీలించాలి. తమ పరిశీలనలను క్రోడీకరిస్తూ, స్వీయదస్తూరిలో, పదిపేజీలకు మించకుండా ‘నివేదిక’ను తయారుచేసి, అధ్యాపకునికి సమర్పించాలి.
3. క్షేత్రపరిశీలనా నివేదికకు (Fieldwork Report) 5 అంతర్గత మార్కులు
4. క్షేత్రపరిశీలనా నివేదిక (Fieldwork Report) నమూనా:- ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు/ తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు, విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ సూచించబడిన కార్యక్రమాలు

1. సంబంధిత రంగంలో నిపుణులను రప్పించి, వారిచేత శిక్షణ ఇప్పించడం / అతిథి ఉపన్యాసాలు.
2. సెమినార్లు, అసైన్మెంట్లు నిర్వహణ
3. బృందచర్చల ద్వారా విద్యార్థుల్లో ఆసక్తి కలిగిన వారిని గుర్తించి వారిచేత కార్యక్రమాలను నిర్వహించడం.
4. సంబంధిత అంశాలను అంతర్జాల వేదికల ద్వారా ప్రదర్శించజేయడం

◆ ప్రశ్నాపత్ర నిర్మాణం

- I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.
- II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. 5×10=50 మా.  
(అంతర్గత ఛాయిస్)

◆ మాదిరి ప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహ సమాధానాలు రాయండి ప్రతి ప్రశ్నకు 5 మార్కులు. 5×5= 25 మా.

- |                             |                                 |
|-----------------------------|---------------------------------|
| 1. మాధ్యమాలు-నిర్వచనం       | 2. మాధ్యమాలు-ఉపాధి అవకాశాలు     |
| 3. పత్రికాభాష               | 4. ప్రసిద్ధ తెలుగు పత్రికలు     |
| 5. వార్తా రచన               | 6. కరపత్ర రచన                   |
| 7. ప్రసారమాధ్యమాలు          | 8. ప్రసారమాధ్యమాలు- ప్రయోజనాలు  |
| 9. డాక్యుమెంటరీ రచనా విధానం | 10. డిజిటల్ వేదికలు-రచనా విధానం |

II. ఈ క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. మాధ్యమాల విస్తృతిని వివరిస్తూ, వాటి ప్రాధాన్యతను గురించి రాయండి.

(లేదా)

మాధ్యమాల్లోని భాషా ప్రయోగాన్ని వివరిస్తూ, మాధ్యమాల చట్టాలను గురించి రాయండి.

12. పత్రికా భాష శైలి, వైవిధ్యాలను గురించి రాయండి.

(లేదా)

పత్రికా రచనను వివరిస్తూ, అందులోని భాషాపరమైన మెళకువలను వివరించండి.

13. వార్తారచనలోని మెళకువలను వివరిస్తూ, సంపాదకీయాలను గురించి వ్యాసం రాయండి.

(లేదా)

“ఇంటర్వ్యూలు, నివేదికలు, ప్రకటనలు”-రచనా విధానాన్ని వివరించండి.

14. ప్రసారమాధ్యమాల విస్తృతిని, ప్రయోజనాలను సమీక్షించండి.

(లేదా)

ప్రసారమాధ్యమాల్లోని ఏవేని రెండు కార్యక్రమాల నిర్వహణ తీరుతెన్నులను వివరించండి.

15. డిజిటల్ వేదికల రచనావిధానాన్ని గురించి ఒక వ్యాసం రాయండి.

(లేదా)

స్క్రిప్ట్ మరియు కెమెరా రచనను గురించి వివరించండి.

**బి.ఏ., తదితర ప్రోగ్రాములు**  
**అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5**  
**7-C అనువాదం**

పీరియడ్లు : 75

క్రెడిట్లు : 4

మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. భాషాతత్వాన్ని, ప్రాధాన్యాన్ని గుర్తిస్తూ, అనువాద అవసరాన్ని తెలుసుకోవడం
2. అనువాదకుని లక్షణాలను గూర్చి అవగాహన
3. అనువాదరంగంలో నైపుణ్యాన్ని సంపాదించగలగడం
4. భాషాసామర్థ్యాన్ని పెంపొందించుకునే మార్గాలను తెలుసుకోగలగడం
5. అనువాదవృత్తిలో స్థిరపడడానికి అవసరమయ్యే నైపుణ్యాలను, సృజన-ప్రసారమాధ్యమరంగాల్లో ఉపాధి అవకాశాలను గురించి తెలుసుకోగలగడం.

◆ **పాఠ్యప్రణాళిక**

(మొత్తం పీరియడ్లు 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు:15)

**యూనిట్-I అనువాదం**

10 పీరియడ్లు

అనువాదం-నిర్వచనం, స్వరూప స్వభావాలు; అనువాదం-ఆవశ్యకత

అనువాద ప్రమాణాలు; అనువాదం శాస్త్రమా? కళా?

వివిధ రకాల అనువాదాలు (మూలవిధేయానువాదం, స్వేచ్ఛానువాదం, నుడికారపు అనువాదం, యాంత్రిక అనువాదం)

**యూనిట్-II అనువాదకుడు**

10 పీరియడ్లు

అనువాదకుడు-లక్షణాలు, రకాలు; అనువాద సమస్యలు, వాటి పరిష్కార మార్గాలు

తెలుగులో ప్రసిద్ధ అనువాద గ్రంథాలు, వాటి అనువాదకులు-సమీక్ష.

**యూనిట్-III వ్యావహారిక భాషలో అనువాద ప్రాధాన్యం**

15 పీరియడ్లు

గ్రాంథిక, వ్యావహారిక భాషోద్యమాలు-నేపథ్యం

వ్యావహారిక భాషోద్యమానికి గిడుగు, గురజాడల కృషి

అనువాదంలో వ్యావహారిక భాష-వ్యక్తీకరణ విధానాలు

**యూనిట్-IV అధికారభాషగా తెలుగు-అనువాద ప్రాధాన్యం**

15 పీరియడ్లు

మాతృభాష, పాలనాభాష, అధికారభాషగా తెలుగు-రాష్ట్ర పాలనా యంత్రాంగంలో జరిగిన, జరుగుతున్న కృషి

తెలుగు అనువాదం-“అధికారపత్రాలు, ఉత్తర్వులు, మార్గదర్శకాలు, ఉత్తరాలు”

**యూనిట్-V అనువాద రచన-ఆవశ్యకత**

10 పీరియడ్లు

ప్రపంచీకరణ నేపథ్యంలో అనువాదాల ప్రాధాన్యం

విద్యార్థులను వివిధ రంగాల్లో అనువాదకులుగా రాణించడానికి అవసరమయ్యే సూచనలు

భాషాసామర్థ్యాన్ని పెంపొందించుకునే మార్గాలు.

◆ ఆధార గ్రంథాలు/వ్యాసాలు

1. అనువాద సమస్యలు - రాచమల్లు రామచంద్రరెడ్డి
2. అనువాద పద్ధతులు, ఆచరణ సమస్యలు - చేకూరి రామారావు 'భాషాంతరంగం',  
పుటలు 130-146, తెలుగు విశ్వవిద్యాలయ ప్రచురణ
3. అనువాద సిద్ధాంతాలు - డా॥ ఎస్.అక్కిరెడ్డి
4. అనువాద పాఠాలు - బూదరాజు రాధాకృష్ణ
5. అధికార భాషగా తెలుగు - సి.ధర్మారావు
6. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ సహపాఠ్యకార్యక్రమాలు

10 పీరియడ్లు

అధ్యాపక, విద్యార్థులు చేయవలసిన తప్పనిసరి పనులు

1. అధ్యాపకులు:- విద్యార్థులకు తరగతి గదిలో (అవసరమైతే సంస్థాగత సందర్భనల ద్వారా) అనువాదం చేయడంలో అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి. ఉదా. చిన్నవ్యాసాలు, ప్రకటనలు, ఉత్తర్వులు, వార్తలు, మార్గదర్శకాలు, ఉత్తరాలు మొదలైనవి.
2. విద్యార్థులు:-విద్యార్థులు ఏవైనా వార్తాపత్రికలు/అంతర్జాలం/అనువాద గ్రంథాలలోని అనువాదాలను పరిశీలించాలి. తమ పరిశీలనలను క్రోడీకరిస్తూ, పదిపేజీలకు మించని ఒక 'నివేదిక'ను స్వీయదస్తూరీలో తయారుచేసి, అధ్యాపకుడికి సమర్పించాలి.
3. 'క్షేత్ర పరిశీలనా నివేదిక' (Fieldwork Report) కు 5 అంతర్గత మార్కులు
4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా:- ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు/తరగతి/క్రమసంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు, విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ సూచించబడిన కార్యక్రమాలు

1. సంబంధిత రంగంలో నిపుణులచేత శిక్షణ ఇప్పించడం
2. అసైన్మెంట్లు, సెమినార్ల నిర్వహణ
3. బృంద చర్చలు నిర్వహిస్తూ, విద్యార్థులను ప్రోత్సహించడం
4. సంబంధిత అంశాలను అంతర్జాల వేదిక ద్వారా ప్రదర్శించడం

◆ ప్రశ్నాపత్ర నిర్మాణం

- I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.
- II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ మాదిరి ప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహ సమాధానాలు రాయండి.

పదవ ప్రశ్నకు తప్పనిసరిగా సమాధానం రాయాలి. ప్రతి ప్రశ్నకు 5 మార్కులు.

1. అనువాదం-అవశ్యకత
2. అనువాద ప్రమాణాలు
3. అనువాదం-భాషా సమస్యలు
4. అనువాదకుడు-లక్షణాలు
5. గ్రాంథిక భాషావాదం
6. వ్యావహారిక భాషావాదం
7. అధికార భాషగా తెలుగు
8. అనువాద పద్ధతులు
9. అనువాదాలు-ప్రాధాన్యం
10. క్రింది అంశాన్ని తెలుగులోకి అనువదించండి

Inscription of Chalukyas of Kalyana king Vikramaditya VI

This office received photograph of this inscription engrave on a slab found in the field of Kurnool District, Andhra Pradesh. It is written in Kannada Language and characters, dated in Chalukya Vikrama year 27. It seems to register the gift of some taxes and one oil crusher to the god Billesvara by Dandanayaka. Further it seem to record that a official named Raviya gifted a village to the deity.

II. ఈ క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. అనువాద స్వరూప స్వభావాలను వివరించండి

(లేదా)

అనువాదం శాస్త్రమా? కళా? విశ్లేషించండి

12. అనువాదకుడి లక్షణాలను రాయండి.

(లేదా)

అనువాద సమస్యలను ప్రస్తావిస్తూ పరిష్కార మార్గాలు సూచించండి.

13. వ్యావహారిక భాషోద్యమనేపథ్యాన్ని వివరించండి

(లేదా)

వ్యావహారిక భాషోద్యమానికి గిడుగు వారి కృషిని వివరించండి.

14. అధికారభాషగా తెలుగు అమలును గురించి చర్చించండి

(లేదా)

అధికారభాషను నిర్వచించి, అధికారభాష అవసరాన్ని తెలియజేయండి.

15. ప్రపంచీకరణ నేపథ్యంలో అనువాదాల ప్రాధాన్యాన్ని విశ్లేషించండి.

(లేదా)

అనువాదరంగంలో రాణించడంకోసం విద్యార్థులకవసరమయ్యే భాషానైపుణ్యాల గురించి రాయండి.

**బి.ఏ., తదితర ప్రోగ్రాములు**  
**అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5**  
**6-D తెలుగు-బోధన పద్ధతులు**

పీరియడ్లు : 75

క్రెడిట్లు : 4

మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు:-**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. భాషానైపుణ్యాలను గూర్చి తెలుసుకోవడం ద్వారా భాషాభివృద్ధి
2. మాతృభాషాబోధన ప్రాధాన్యాన్ని తెలుసుకోవడం
3. తెలుగు సాహిత్య బోధనాపద్ధతులైన పద్య-గద్య-వ్యాకరణాది బోధనల ద్వారా భాషాపాఠ్యాలుగా రాణించగలగడం.
4. పాఠశాల, కళాశాల స్థాయిల్లో ప్రథమభాషగా, ద్వితీయభాషగా తెలుగు బోధనాప్రాధాన్యాన్ని తెలుసుకోగలగడం.
5. సాహిత్య ప్రక్రియల బోధనాపద్ధతులను తెలుసుకోవడం ద్వారా భాషాసాహిత్యాల పట్ల అభిరుచిని పెంచుకోగలగడం,

◆ **పాఠ్య ప్రణాళిక**

(మొత్తం పీరియడ్లు - 75; బోధన: 60; శిక్షణ/ఇతరాలు:15)

**యూనిట్-I** భాషానైపుణ్యాలు

10 పీరియడ్లు

భాష-నిర్వచనం, స్వరూప స్వభావాలు; భాషానైపుణ్యాలు-శ్రవణం, భాషణం, పఠనం, లేఖనం;

భాష నైపుణ్యాల ఆచరణలు లక్షణాలు - ప్రాథమిక, మాధ్యమికస్థాయి

**యూనిట్-II** మాతృభాషా బోధన

10 పీరియడ్లు

మాతృభాష భావన, నిర్వచనాలు; మాతృభాషగా తెలుగు బోధన-ఉద్దేశాలు

మాతృభాష బోధన-విలువలు; విషయ ప్రణాళికలు-మాతృభాషగా 'తెలుగు'స్థానం

**యూనిట్-III** మాతృభాషగా తెలుగు-బోధన పద్ధతులు

10 పీరియడ్లు

పద్య బోధనా పద్ధతులు; గద్య బోధనాపద్ధతులు; వ్యాకరణ బోధనాపద్ధతులు; నాటక బోధనా పద్ధతులు

**యూనిట్-IV** మాతృభాషా బోధన-ఆధునిక ధోరణులు

15 పీరియడ్లు

మాతృభాషాబోధన-ఆధునిక ధోరణులు

ద్వితీయభాషాబోధన-ద్వితీయభాష, భావనలు, అధ్యయనసామగ్రి, బోధనా లక్ష్యాలు, బోధనా పద్ధతులు

**యూనిట్-V** తెలుగులోని వివిధ సాహిత్యప్రక్రియలు-బోధనా లక్ష్యాలు

15 పీరియడ్లు

సాహిత్యం: నిర్వచనం, ప్రయోజనం

సృజనాత్మక సాహిత్యభాష-బోధనా లక్ష్యాలు:

ప్రాచీన కవిత్వ ప్రక్రియలు: పురాణం; ఇతిహాసం, ప్రబంధం, ద్విపద, ఉదాహరణ

ఆధునిక కవిత్వ ప్రక్రియలు: ఖండకావ్యం, వచనకవిత, దీర్ఘకవిత, గజల్, హైకూ-బోధనా లక్ష్యాలు.

◆ ఆధారగ్రంథాలు/వ్యాసాలు

1. తెలుగు-బోధన పద్ధతులు - తెలుగు అకాడమీ ప్రచురణ
2. తెలుగు బోధన పద్ధతులు - బి.ఎడ్ పాఠ్యపుస్తకం, తెలుగు అకాడమీ ప్రచురణ
3. తెలుగు భాషా సాహిత్య బోధనాపద్ధతులు- డా॥ బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
4. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ సహపాఠ్యకార్యక్రమాలు

(మొత్తం పీరియడ్లు 75, బోధన:60, శిక్షణ/ఇతరాలు:15)

అధ్యాపకులు విద్యార్థులు తప్పనిసరిగా చేయాల్సిన పనులు 10 పీరియడ్లు

1. అధ్యాపకులు:- విద్యార్థులకు తరగతిగదిలో (అవసరమైతే పాఠశాలను, విద్యాసంస్థలను సందర్శించడం ద్వారా) తెలుగు భాషాసాహిత్య బోధనాపద్ధతులలో అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి. ఉదా. పద్య బోధన, గద్య బోధన, వ్యాకరణ బోధన, నాటక బోధన, సాహిత్య ప్రక్రియల బోధన మొదలైనవి. విద్యార్థులచేత మాదిరిపాఠ్యాంశాలను బోధించే ప్రయత్నం చేయవచ్చు.
2. విద్యార్థులు:-విద్యార్థులు పైన తెలిపిన భాషాసాహిత్య బోధనాపద్ధతులలో ఏదో ఒక అంశాన్ని, లేదా ఏదైనా ఒక సాహిత్యప్రక్రియను ఎంచుకొని పరిశీలించాలి. ఆ అంశాన్ని బోధించే విధానాన్ని, పాఠ్యాంశబోధనగా తరగతిగదిలో బోధించే పద్ధతిని పేర్కొంటూ, తమ పరిశీలనలను పదిపేజీలకు మించకుండా, స్వీయ దస్తూరిలో, నివేదికను తయారుచేసి, అధ్యాపకుడికి సమర్పించాలి.
3. ఈ క్షేత్రపరిశీలనా నివేదిక (Fieldwork Report) కు 5 అంతర్గత మార్కులు
4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా:- ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు / తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు, విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ సూచించబడిన కార్యక్రమాలు

- (1) సంబంధిత రంగంలో నిపుణులచేత శిక్షణ ఇప్పించడం
- (2) అసైన్మెంట్లు, సెమినార్ల నిర్వహణ
- (3) బృందచర్చల ద్వారా వ్యాకరణరీతులపై ఆసక్తిని పెంపొందించడం

◆ ప్రశ్నాపత్రనిర్మాణం

- I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.
- II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

మాదిరిప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహసమాధానాలు రాయండి ప్రతి ప్రశ్నకు 5 మార్కులు.

5×5=25 మా.

- |                        |                               |
|------------------------|-------------------------------|
| 1. భాషానైపుణ్యాలు      | 2. భాషణం                      |
| 3. మాతృభాషా బోధన       | 4. మాతృభాష-ప్రాధాన్యం         |
| 5. వ్యాకరణ బోధన        | 6. నాటక బోధన                  |
| 7. ద్వితీయభాషగా తెలుగు | 8. మాతృభాషాబోధన-ఆధునిక దృష్టి |
| 9. సాహిత్యం            | 10. అలంకారం                   |

II. ఈ క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. భాషను నిర్వచించి, భాష స్వరూప స్వభావాలను వివరించండి

(లేదా)

భాషానైపుణ్యాలను గురించి వివరించండి.

12. మాతృభాషగా తెలుగు బోధన ఉద్దేశాలను వివరించండి.

(లేదా)

విషయ ప్రణాళిక ప్రాధాన్యాన్ని పేర్కొంటూ, అందులో మాతృభాష 'తెలుగు' స్థానాన్ని నిర్ణయించండి.

13. పద్యబోధన పద్ధతులను వివరించండి

(లేదా)

గద్యబోధనా పద్ధతులను వివరించండి

14. మాతృభాషాబోధనలోని ఆధునిక ధోరణులను గురించి రాయండి.

(లేదా)

ద్వితీయభాషగా తెలుగు బోధనా లక్ష్యాలను వివరించండి.

15. ప్రాచీన తెలుగు కవిత్వ ప్రక్రియల బోధనాలక్ష్యాలను వివరించండి.

(లేదా)

ఆధునిక తెలుగు కవిత్వ ప్రక్రియల బోధనాలక్ష్యాలను వివరించండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5

7-D వాచికాభివృద్ధి

పీరియడ్లు : 75

క్రెడిట్లు : 4

మొత్తం మార్కులు : 75

◆ అభ్యసన ఫలితాలు:-

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. భాషానైపుణ్యంలో భాషణానికి (వాచికానికి) ఉండే ప్రాధాన్యాన్ని తెలుసుకోవడం
2. భాషా వినియోగ నైపుణ్యరంగాలను గుర్తించడం ద్వారా వాచిక ప్రాధాన్యాన్ని తెలుసుకోగలగడం
3. వాచికాభివృద్ధి ప్రక్రియలను గుర్తించడం ద్వారా వాచికాభివృద్ధి నైపుణ్యాలు పొందడం
4. మాధ్యమాల్లో వాచికాభివృద్ధి నైపుణ్యాన్ని మెరుగుపరచుకోగలగడం
5. ప్రాచీన, ఆధునిక కావ్యపఠనం ద్వారా సాహిత్యాభిరుచిని పొందుతూ, వాచికాభివృద్ధి నైపుణ్యాలను అందుకోగలగడం.

◆ పాఠ్యప్రణాళిక

(మొత్తం పీరియడ్లు: 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు:15)

యూనిట్ I భాషానైపుణ్యాలు-‘వాచిక’ ప్రాధాన్యత

15 పీరియడ్లు

వాచికం (భాషణం)-లక్షణాలు, స్వరూపం, ప్రయోజనాలు

భాషావినియోగ నైపుణ్యాలు: వాచికరంగం-దైనందిన వ్యవహారాలు; రేడియో, టీవీ, సినిమా, పరిపాలన-ఇతరరంగాలు

యూనిట్ II వాచికాభివృద్ధి ప్రక్రియలు

10 పీరియడ్లు

శిశుగేయాలు/అభినయగేయాలు, పద్య పఠనం, కథాకథనం, నాటకీకరణ, ఉక్తరచన (వక్రత్వశిక్షణ), భాషాక్రీడలు, సారస్వత సమావేశాలు, భాషా విహారయాత్రలు

యూనిట్ III వాచికాభివృద్ధి చర్యలు

10 పీరియడ్లు

వాచికాభివృద్ధి: జాతీయాలు, సామెతలు, లోకోక్తుల వినియోగం

వాచికదోషాలు : భావదోషాలు, భాషాదోషాలు, ఉచ్చారణాదోషాలు-నివారణోపాయాలు

యూనిట్ IV మాధ్యమాలు-వాచికాభివృద్ధి చర్యలు

15 పీరియడ్లు

ప్రసారమాధ్యమరంగం : రేడియో, టెలివిజన్ సినిమా ‘మాధ్యమాల్లో ‘వాచికం’-ప్రయోగాలు

సామాజిక మాధ్యమరంగం: ప్రసంగాలు, వీడియోనేపథ్య కథనాలు, వ్యాఖ్యానం(యాంకరింగ్) లలో ‘వాచికం’- ప్రయోగాలు

యూనిట్ V వాచికం-నైపుణ్యాభివృద్ధి

10 పీరియడ్లు

ఆధునిక కావ్యపఠనం: గుర్రం జాషువా కావ్యశైలి-పాపాయి పద్యాలు (4 పద్యాలు)

(నవమాసములు...., బొటవ్రేల ముల్లోకముల...., గానమాలింపక..., ఊయేల తొట్టి...,)

ఆధునిక గేయ పఠనం: శ్రీశ్రీ రచనాశైలి-ప్రతిజ్ఞ (మహాప్రస్థానం)

సరళ గ్రాంథిక పఠనం: పానుగంటి ‘సాక్షి సంఘనిర్మాణము’

ఆధునికవచన పఠనం: అనువాదమంటే? (64వ పుట) రారా ‘అనువాద సమస్యలు’- గ్రంథం నుండి

(అనువాదమంటే... సూపును వాళ్ళూ అంతే.)

◆ ఆధారగ్రంథాలు/వ్యాసాలు

- |                                     |  |
|-------------------------------------|--|
| 1. తెలుగు-బోధన పద్ధతులు             | - తెలుగు ఆకాడమీ ప్రచురణ                                |
| 2. తెలుగు భాషాసాహిత్య బోధనాపద్ధతులు | - డా.బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ |
| 3. మాధ్యమాలకు రచన                   | - డా.బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ |
| 4. వసుచరిత్ర (గిరిక బాల్యం)         | - రామరాజభూషణుడు  |
| 5. ఖండకావ్యములు                     | - గుర్రం జాషువా  |
| 6. ప్రతిజ్ఞ                         | - మహాప్రస్థానం - శ్రీరంగం శ్రీనివాసరావు                |
| 7. నీతిచంద్రిక (మిత్రలాభము)         | - చిన్నయసూరి   |
| 7. అంతర్జాలం లోని సంబంధిత ఆధారాలు   |  |

◆ సహపాఠ్యకార్యక్రమాలు

10 పీరియడ్లు

అధ్యాపకులు విద్యార్థులు తప్పనిసరిగా చేయాల్సిన పనులు:

1. అధ్యాపకులు:- విద్యార్థులకు తరగతిగదిలో (అవసరమైతే నిపుణులచేత శిక్షణ ద్వారా) అధ్యాపకులు వాచికాభివృద్ధికి సంబంధించిన నైపుణ్యశిక్షణ ఇవ్వాలి. ఉదా. అభినయగేయాలు, నాటకీకరణ, సారస్వత సమావేశాలు, ప్రసార-సామాజిక మాధ్యమాల్లో వాచికం-లక్షణాలు, వివిధ సాహిత్య ప్రక్రియల్లో వాచికం-లక్షణాలు మొదలైనవి.
2. విద్యార్థులు:- విద్యార్థులు పైన తెలిపిన 'అభినయగేయాలు, నాటకీకరణ, సారస్వత సమావేశాలు, ప్రసార-సామాజిక మాధ్యమాల్లో వాచికం-లక్షణాలు, వివిధ సాహిత్య ప్రక్రియల్లో వాచికం-లక్షణాలు' మొదలైన అంశాల్లో ఏదో ఒక అంశాన్ని అంతర్జాలం ద్వారా ఎన్నుకొని, అందులోని వాచికాన్ని పరిశీలించాలి. తమ పరిశీలనలను క్రోడీకరిస్తూ, వాచికాభివృద్ధి అంశంపై ఒక నివేదికను తయారుచేసి, అధ్యాపకుడికి సమర్పించాలి.
3. ఈ పరిశీలనా నివేదికకు (Fieldwork Report) 5 అంతర్గత మార్కులు ఇవ్వాలి.
4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా:- ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు/తరగతి/క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు, విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ సూచించబడిన కార్యక్రమాలు:

- (1) సంబంధిత రంగంలో నిపుణులచేత శిక్షణ ఇప్పించడం
- (2) అసైన్మెంట్లు, సెమినార్ల నిర్వహణ
- (3) బృందచర్చల ద్వారా వ్యాకరణరీతులపై ఆసక్తిని పెంపొందించడం

◆ ప్రశ్నాపత్రనిర్మాణం

- I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.
- II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ మాదిరి ప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహసమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 5 మార్కులు. 5×5=25 మా

1. వాచికం-లక్షణాలు
2. వాచికరంగం-భాషావినియోగం
3. భాషాక్రీడలు
4. సారస్వత సమావేశాలు
5. జాతీయాలు-వాచికాభివృద్ధి
6. ఉచ్చారణ దోషాలు-నివారణ
7. టెలివిజన్ లో వాచికం
8. వ్యాఖ్యానం (యాంకరింగ్) లో వాచికం
9. శ్రీశ్రీ
10. రామరాజభూషణుడు

II. ఈ క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. వాచిక స్వరూపాన్ని వివరిస్తూ, వాచిక ప్రాధాన్యాన్ని గురించి రాయండి.

(లేదా)

వాచికం ఉపయోగించే రంగాలను పేర్కొని, వాటిలో భాషావినియోగ నైపుణ్యాలను ఎలా మెరుగుపరచుకోవాలో తెలపండి.

12. వాచికాభివృద్ధికి ఉపయోగపడే ప్రక్రియలను మూడింటిని వివరించండి.

(లేదా)

'భాషాక్రీడలు, సారస్వతసమావేశాలు, ఉత్తరచన'ల గురించి రాయండి.

13. జాతీయాలు లోలోక్తులు, సామెతల వినియోగంలో వాచికాభివృద్ధి చర్యలను వివరించండి.

(లేదా)

వాచికదోషాలను వివరిస్తూ, నివారణ మార్గాలను తెలపండి.

14. ప్రసారమాధ్యమ రంగాల్లో వాచికాభివృద్ధి క్రమాన్ని వివరించండి.

(లేదా)

సామాజిక మాధ్యమాల్లో వాచికాభివృద్ధి మార్గాలను పేర్కొనండి.

15. పానుగంటి వారి భాషా శైలిని వివరించండి.

(లేదా)

మహాప్రస్థానంలో శ్రీశ్రీ రచనాశైలిని గురించి రాయండి.

## **SUBJECT EXPERTS**

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ANDHRAPRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

REVISED UG SYLLABUS UNDER CBCS

(Implemented from Academic Year - 2020-21)

PROGRAMME: FOUR YEAR B.SC. (Hons)

Domain Subject: ZOOLOGY

**Skill Enhancement Courses (SECs) for Semester V, from 2022-23**

(Syllabus with Learning Outcomes, References, Co-curricular Activities & Model Q.P. Pattern)

Structure of SECs for Semester-V

(To choose one pair from the four alternate pairs of SECs)

Univ Code	Course Number	Name of Course	Hours/Week Theory +Practical	Credits Theory+ Practical	Marks	
					IA-20 FW- 05	Sem End T+P
	6A	SUSTAINABLE AQUACULTURE MANAGEMENT	3+3	3+2	25	75+50
	7A	POST HARVEST TECHNOLOGY OF FISH AND FISHERIES	3+3	3+2	25	75+50

OR

	6B	LIVE STOCK MANAGEMENT-I (BIOLOGY OF DAIRY ANIMALS)	3+3	3+2	25	75+50
	7B	LIVE STOCK MANAGEMENT -II (DAIRY PRODUCTION AND MANAGEMENT)	3+3	3+2	25	75+50

OR

	6C	POULTRY MANAGEMENT- I (POULTRY FARMING)	3+3	3+2	25	75+50
	7C	POULTRY MANAGEMENT- II (POULTRY PRODUCTION AND MANGEMENT)	3+3	3+2	25	75+50

OR

	6D	SERI CULTURE -I****	3+3	3+2	25	75+50
	7D	SERI CULTURE -II	3+3	3+2	25	75+50

\*\*\* To be taught by Zoology Teachers

Note: For Semester-V, for the domain subject Zoology, any one of the four pairs of SECs shall be chosen as courses 6 and 7, i.e., 6A & 7A or 6B & 7B or 6C & 7C or 6D & 7D. The pair shall not be broken (ABCD allotment is random, not on any priority basis).

Note-2: One of the main objectives of Skill Enhancement Courses (SEC) is to inculcate skills related to the domain subject in students. The syllabus of SEC will be partially skill oriented. Hence, teachers shall also impart practical training to students on the skills embedded in syllabus citing related real field situations.

Four – year B.Sc. (Hons)  
Domain Subject: **ZOOLOGY**  
IV Year B. Sc.(Hons)–Semester –V

Max. Marks: 100+50

Course6 A: **SUSTAINABLE AQUACULTURE MANAGEMENT**  
(Skill Enhancement Course (Elective), -Credits: 05)

I. Learning Outcomes:

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

- Evaluate the present status of aquaculture at the Global level and National level
- Classify different types of ponds used in aquaculture
- Demonstrate induced breeding of carps
- Acquire critical knowledge on commercial importance of shrimps
- Identify fin and shell fish diseases

II. **Syllabus:** (*Total Hours: 90 including Teaching, Lab, Field Skills Training, Unit tests etc.*)

Unit: 1

- 1.1 Present status of Aquaculture – Global and National scenario
- 1.2 Major cultivable species for aquaculture: freshwater, brackish water and marine.
- 1.3 Traditional, extensive, modified extensive, semi-intensive and intensive cultures of fish and shrimp.
- 1.4 Design and construction of fish and shrimp farms

Unit: 2

- 2.1 Functional classification of ponds – head pond, hatchery, nursery ponds
- 2.2 Functional classification of ponds -rearing, production, stocking and quarantine ponds
- 2.3 Need of fertilizer and manure application in culture ponds
- 2.4 Physio-chemical conditions of soil and water optimum for culture (Temperature, depth, turbidity, light, water, PH, BOD, CO<sub>2</sub> and nutrients)

Unit: 3

- 3.1. Induced breeding in fishes
- 3.2. Culture of Indian major carps: Pre-stocking management (Dewatering, drying, ploughing/desilting; Predators, weeds and algal blooms and their control, Liming and fertilization)
- 3.3. Culture of Indian major carps - Stocking management
- 3.4. Culture of Indian major carps - post-stocking management

Unit: 4

- 4.1 Commercial importance of shrimp & prawn
- 4.2 *Macrobrachium rosenbergii*- biology, seed production.
- 4.3 Culture of *L. vannamei* – hatchery technology and culture practices
- 4.4 Mixed culture of fish and prawns

Unit: 5

- 5.1 Viral diseases of Fin Fish & shell fish
- 5.2 Fungal diseases of Fin & Shell fish
- 5.3 Bacterial diseases of Finfish & Shell fish
- 5.4 Prophylaxis in aquaculture

### III. References:

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

### Web Links:

1. [http://www.fao.org/fishery/docs/CDrom/FAO\\_Training/FAO\\_Training/General/x6708e/x6708e06.htm](http://www.fao.org/fishery/docs/CDrom/FAO_Training/FAO_Training/General/x6708e/x6708e06.htm)
2. [http://aquaticcommons.org/1666/1/Better-Practice3\\_opt.pdf](http://aquaticcommons.org/1666/1/Better-Practice3_opt.pdf)
3. <https://www.notesonzoology.com/india/fishery/fish-diseases-symptoms-and-control-fishery/871>

## **Course6 A: SUSTAINABLE AQUACULTURE MANAGEMENT PRACTICAL SYLLABUS**

### IV. Learning Outcomes:

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

- Identify the characters of Fresh water cultivable species
- Estimate physico chemical characteristics of water used for aquaculture
- Examine the diseases of fin and shell fish
- Suggest measures to prevent diseases in aquaculture

### V. Practical (Laboratory) Syllabus: (30hrs) (Max.50Marks)

1. Fresh water Cultivable species any (Fin & Shell Fish Specimens – Observation of morphological characters by observation and drawings)-5
2. Brackish water cultivable species (Fin & Shell fish- Specimens- Observation of Morphological Character by observing drawing) -5
3. Hands on training on the use of kits for determination of water quality in aquaculture (DO, Salinity, pH, Turbidity- Testing kits to be used for the estimation of various parameters/ Standard procedure can be demonstrated for the same)
4. Demonstration of Hypophysation(Procedure of hypophysation to be demonstrated in the practical lab with any edible fish as model)
5. Viral diseases of Fin & Shell Fish (Observation of his to pathological slides / Charts/ Models of viral pathogens in fin/ shell fish – one edible specimen can be used for observation of same in the laboratory)
6. Bacterial diseases of Fin & Shell Fish (Observation of his to pathological slides / Charts/ Models of Bacterial pathogens in fin/ shell fish – One edible specimen can be used for observation of same in the laboratory)
7. Fungal diseases of Fin & Shell Fish (Observation of his to pathological slides / Charts/ Models of Bacterial pathogens in fin/ shell fish – One edible specimen can be used for observation of same in the laboratory)

## VI. Lab References

1. Boyd CE 1982. Water Quality Management for Pond Fish Culture. Elsevier Scientific Publishing Company
2. [http://www.fao.org/fishery/docs/CDrom/FAO\\_Training/FAO\\_Training/General/x6708e/x6708e06.htm](http://www.fao.org/fishery/docs/CDrom/FAO_Training/FAO_Training/General/x6708e/x6708e06.htm)
3. [http://aquaticcommons.org/1666/1/Better-Practice3\\_opt.pdf](http://aquaticcommons.org/1666/1/Better-Practice3_opt.pdf)
4. <https://www.notesonzooology.com/india/fishery/fish-diseases-symptoms-and-control-fishery/871>

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

## VII. Co-Curricular Activities

- a) **Mandatory:** (*Student training by teacher in field skills: Total 15 hrs., Lab:10 + field 05*)
  1. For Teacher: Training of students by the teacher in laboratory/field for not less than 15 hours on Breeding- Induced breeding in carps -hatchery technology of *L. Vennami*- Farming techniques- disease diagnostic techniques—concepts –Demonstration @ any aqua laboratory
  2. For Student: Students shall (individually) visit a Hatchery/Farm/ Aqua diagnostic center and make careful observations of the process method and implements- protocols and report on the same in 10 pages hand written Fieldwork/Project work Report.
  3. Max marks for Fieldwork/Project work Report: 05.
  4. Suggested Format for Fieldwork/Project work: Title page, student details, index page, details of place visited, observations made, findings and acknowledgements.
  5. (IE).Unit tests.
- b) **Suggested Co-Curricular Activities**
  1. Preparation of Model/Charts of Cultivable species of fin fish shell fish
  2. Preparation of Model/Chart of Ideal fish Pond- with the standards prescribed.
  3. Observation of aquaculture activities in their area (Observation of any activity related to aquaculture in the vicinity of the college/village)
  4. Preparation of Model – charts of Fin /Shell fish Diseases with eco-friendly material.
  5. Assignments, Group discussion, Seminar, Quiz, Collection of Material, Video preparation etc., Invited lecture

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Four – year B.Sc. (Hons)  
Domain Subject: ZOOLOGY  
IV Year B. Sc.(Hons)–Semester –V

Max Marks: 100+50

Course 7 A: **POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES**  
(Skill Enhancement Course (Elective), - Credits: 05)

I. Learning Outcomes:

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

- Identify the types of preservation methods employed in aquaculture
- Choose the suitable Processing methods in aquaculture
- Maintain the standard quality control protocols laid down in aqua industry
- Identify the best Seafood quality assurance system

II. **Syllabus:** *Total Hours: 90 including Teaching, Lab, Field Skills Training, Unit tests etc.)*

Unit – I Handling and Principles of fish Preservation

- 1.1 Handling of fresh fish, storage and transport of fresh fish, post mortem changes (rigor mortis and spoilage), spoilage in marine fish and freshwater fish.
- 1.2 Principles of preservation – cleaning, lowering of temperature, rising of temperature, denudation, use of salt, use of fish preservatives, exposure to low radiation of gamma rays.

Unit – II Methods of fish Preservation

- 2.1 Traditional methods - sun drying, salt curing, pickling and smoking.
- 2.2. Advanced methods – chilling or icing, refrigerated sea water, freezing, canning, irradiation and Accelerated Freeze drying (AFD).

Unit – III Processing and preservation of fish and fish by-products

- 3.1 Fish products – fish minced meat, fish meal, fish oil, fish liquid (ensilage), fish protein concentrate, fish chowder, fish cake, fish sauce, fish salads, fish powder, pet food from trash fish, fish manure.
- 3.2 Fish by-products – fish glue, Using glass, chitosan, pearl essence, shark fins, fish Leather and fish maws.

Unit – IV Sanitation and Quality control

- 4.1 Sanitation in processing plants - Environmental hygiene and Personal hygiene in processing plants.
- 4.2 Quality Control of fish and fishery products – pre-processing control, control during processing and control after processing.

Unit – V Quality Assurance, Management and Certification

- 5.1. Seafood Quality Assurance and Systems: Good Manufacturing Practices (GMPs); Good Laboratory Practices (GLPs); Standard Operating Procedures (SOPs); Concept of Hazard Analysis and Critical Control Points (HACCP) in seafood safety.
- 5.2 National and International standards – ISO 9000: 2000 Series of Quality Assurance System, *Codex Alimentarius*.

### III. References:

1. Santharam R, N Sukumaran and P Natarajan 1987. A manual of aquaculture, Oxford- IBH, NewDelhi
2. Lakshmi Prasad's, Fish Processing Technology 2012, Arjun Publishing House
3. Dr Sunitha Rai, Fish Processing Technology, 2015, Random Publications
4. Safety and Quality Issues in Fish Processing (Woodhead Publishing Series in Food Science, Technology and Nutrition) by H A Bremner
5. K.A Mahanthy, Innovations in Fishing and Fish Processing Technologies, January 2021

### Web Resources:

1. <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=145743>
2. [https://ecourses.icar.gov.in/e-Learningdownload3\\_new.aspx?Degree\\_Id=03](https://ecourses.icar.gov.in/e-Learningdownload3_new.aspx?Degree_Id=03)

## Course 7 A: POSTHARVEST TECHNOLOGY OF FISH AND FISHERIES PRACICAL SYLLABUS

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

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

### V. **Practical(Laboratory) Syllabus:**

1. Evaluation of fish/ fishery products for organo leptic, chemical and microbial quality.
2. Preparation of dried, cured and fermented fish products  
For detailed procedure method visit sites:
3. Examination of salt, protein, moisture in dried / cured products
4. Examination of spoilage of dried / cured fish products, marinades, pickles, sauce.
5. Preparation of isinglass, collagen and chitosan from shrimp and crab shell.
6. Developing flow charts and exercises in identification of hazards – preparation of hazard analysis worksheet
7. Corrective action procedures in processing of fish- flow chart- work sheet preparation (\*\* Refer the following web sites for complete procedure method and estimations of above listed practicals)

### VI. References:

1. Dr Sunitha Rai, Fish Processing Technology, 2015, Random Publications
2. [https://ecourses.icar.gov.in/e-Learningdownload3\\_new.aspx?Degree\\_Id=03](https://ecourses.icar.gov.in/e-Learningdownload3_new.aspx?Degree_Id=03)
3. <https://vikaspedia.in/agriculture/fisheries/post-harvest-and-marketing/processing-in-fisheries/fermented-products>
4. <https://krishi.icar.gov.in/jspui/bitstream/123456789/20500/1/Fermentation%20technology%20for%20fish.pdf>
5. <http://jebas.org/00200620122014/Abujam%20et%20al%20JEBAS.pdf>
6. [https://krishi.icar.gov.in/jspui/bitstream/123456789/20770/1/Training%20Manual\\_Hygienic%20drying%20and%20packing%20of%20fish.pdf](https://krishi.icar.gov.in/jspui/bitstream/123456789/20770/1/Training%20Manual_Hygienic%20drying%20and%20packing%20of%20fish.pdf)
7. [https://krishi.icar.gov.in/jspui/bitstream/123456789/20770/1/Training%20Manual\\_Hygienic%20drying%20and%20packing%20of%20fish.pdf](https://krishi.icar.gov.in/jspui/bitstream/123456789/20770/1/Training%20Manual_Hygienic%20drying%20and%20packing%20of%20fish.pdf)
8. [https://agritech.tnau.ac.in/fishery/fish\\_byproducts.html](https://agritech.tnau.ac.in/fishery/fish_byproducts.html)
9. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5352841/>
10. <http://www.fao.org/3/i1136e/i1136e.pdf>
11. <http://www.fao.org/3/x5989e/X5989e01.htm#What%20is%20sensory%20assessment>

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

## VII. Co-Curricular Activities

### a) **Mandatory:** (*Lab/field training of students by teacher (lab 10 + field 05):*)

1. For Teacher: Training of students by the teacher in laboratory/field for not less than 15 hours on various steps of post-harvest techniques of fishes, on the advanced techniques in post-harvest technology – Training of students on other employability skills in the Post-harvest sector of Aquaculture Industry- like Processing, Packing, marketing of processed aqua products.
2. For Student: Students shall (individually) visit - Any fish/shrimp Processing Plant/Packing industry and make observations on post harvesting techniques and submit a brief handwritten Fieldwork/Project work Report with pictures and data /survey in 10 pages.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, details of place visited, observations made, findings and acknowledgements*
5. (IE): Unit tests,

### b) Suggested Co-Curricular Activities

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

Max Marks: 100+50

Course6 B: **LIVE STOCK MANAGEMENT-I**  
**(BIOLOGY OF DAIRY ANIMALS)**  
(Skill Enhancement Course (Elective), - Credits: 05)

**I. Learning Outcomes:**

- Students at the successful completion of the course will be able to
- Select the suitable breeds of livestock for rearing
- Relate the anatomy of udder with letdown of milk
- Identify and manipulate the reproductive behavior of cattle
- Inspect the economics of dairy farming
- Apprise the various breeding techniques employed in live stock

**II. Syllabus:** *(Total Hours: 90 including Teaching, Lab, Field Skills Training, Unit tests etc.)*

Unit 1: Livestock census; Breeds of Dairy cattle, Buffaloes and Goats. Indigenous, Exotic and Crossbred Cattle breeds

Unit 2: Anatomy of Udder; Development of udder; Lacto genesis and Galactopoises; Letdown of milk.

Unit 3: Artificial insemination; Oestrous cycle; Symptoms of heat in cows and buffaloes. Conception, Pregnancy diagnosis in cattle. Multi ovulation and embryo transfer technique. Cloning.

Unit4: Economic traits of Dairy cattle. Methods of selection of dairy animals.

Unit5: Systems of Dairy cattle breeding. Inbreeding, out breeding, Cross breeding, Grading up. Breeding systems (Cross breeding of cattle and Grading up of buffaloes).

**III. References:**

1. Textbook of Animal Husbandry-GC Benarjee
2. Handbook of Animal Husbandry –ICAR Edition
3. Principles and practices of Dairy Farm–Jagdish Prasad

Web resources:

1. <http://ecoursesonline.iasri.res.in/course/index.php?categoryid=42>
2. <https://vetsebooks.blogspot.com/p/e-books.html>
3. <https://www.basu.org.in/study-materials/veterinary-science/>
4. <https://vikaspedia.in/agriculture/livestock/cattle-buffalo/breeds-of-cattle-buffalo>

## Course 6 B: LIVE STOCK MANAGEMENT-I-PRACTICAL SYLLABUS (BIOLOGY OF DAIRY ANIMALS)

### IV. Learning Outcomes:

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

1. Examine the points of dairy cow
2. Understand the behavioral changes of cow during the reproductive period
3. Differentiate the merits and demerits of cross breeds in cattle

### V. Practical(Laboratory) Syllabus:(30hrs) (Max.50Marks)

1. Points dairy cow. (Explanation with observation of charts- Model evaluation to be performed by the student in the laboratory )
2. Identification of different breeds of dairy cattle and buffaloes.( Observation of Charts of breeds in the laboratory- at least 3 breeds should be identified by the students in their locality with video, photo )
3. Male and female reproductive systems of cow – Model/ Chart (Student has to draw a labeled diagram of the male and female reproductive systems of cow – acquire skill to identify the parts).
4. Symptoms of heat in cow (Study and Understanding the physiological symptoms during heat).
5. Artificial in semi nation (Flow chart of implements – Procedure- precautions)
6. Pregnancy diagnosis in cattle.
7. Study comparative merits of cows and buffaloes; zebu and cross bred cows (Examination of merits)

### VI. Lab References:

1. Principles and practices of Dairy Farm–Jadish Prasad
2. Dairy cow points: <https://www.icar.org/Guidelines/05-Conformation-Recording.pdf>
3. Pregnancy test protocol:  
<https://cgspace.cgiar.org/bitstream/handle/10568/109408/Milk%20testing%20lab%20protocol.pdf?sequence=1&isAllowed=y>

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

### VII. Co-Curricular Activities

a) **Mandatory:**(Lab/ field training of students by teacher :(lab:10 + filed: 05):

1. For Teacher: Training of students by the teacher in laboratory/field for not less than 15 hours on principles and practices of dairy industry- breeds –artificial insemination- reproductive behavior of cows etc. as per the syllabus above.
2. For Student: Students shall individually visit to any of the nearby cattle rearing centers/ veterinary hospital/Raithu Bharosa Kendra and make observations of the procedure and quality enhancement activities and submit a handwritten Fieldwork/Project work Report in 10 pages.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work Report: *Title page, student details, index page, details of place visited, observations made, findings and acknowledgements*
5. (IE)Unit tests,

### b) Suggested Co-Curricular Activities

1. Collection of various cattle breed images from the web to prepare a album
2. Visit the sites of Veterinary colleges in India and preparation of brief report on the videos and content/ employment details
3. Sketch a model dairy farm with details
4. Invited lecture and presentation on related topics by experts
5. Seminar, Assignment, Group discussion. Quiz, Collection of Material, Invited lecture, Video preparation etc.

Four – year B.Sc. (Hons)  
Domain Subject: ZOOLOGY  
IV Year B. Sc.(Hons)–Semester –VY

Max Marks: 100+50

**Course 7B: LIVE STOCK MANAGEMENT -II**  
**(DAIRY PRODUCTION AND MANAGEMENT)**  
(Skill Enhancement Course (Elective), - Credits: 05)

I. Learning Outcomes:

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

- Identify and suggest the suitable housing system for the dairy farming
- Understand management practices for the dairy farming
- Learn the process of milk pasteurization
- Prepare cream from milk

II. Syllabus: *(Total Hours: 90 including Teaching, Lab, Field Skills Training, Unit tests etc.)*

Unit1: Systems of Housing of Dairy cattle- Loose Housing and Conventional Dairy Barns. Drawing of layouts for dairy cattle dwellings; Criteria for selecting site for establishing Dairy farm buildings; Water requirement of dairy animals.

Unit2: Management of different classes of Dairy animals- Milk producing animals, pregnant animals dry animals, heifers and calves. Management practices for Dairy farm; Identification, Dehorning, Castration, Deworming, Vaccination, Disinfection, and Milking.

Unit 3: (a) Pasteurization of milk: Definition, objects of pasteurization, objections to pasteurization, Principles of heat exchange. Methods of pasteurization: LTLT, HTST and Uperization.  
(b) Sterilization of milk. Homogenization: Factors influencing homogenization

Unit 4: Market milk: Toned milk, double toned milk, Reconstituted milk, Standardized milk and full cream milk–Standards and methods of manufacture.

Unit 5: Cream: Types of cream, composition, methods of cream separation, gravity and centrifugal methods, types of cream separators, factors affecting fat losses in skim milk and fat percentage in cream.

III. References:

1. Textbook of Animal Husbandry-G C Benarjee
2. Handbook of Animal Husbandry –ICAR Edition
3. Principles and practices of Dairy Farm–Jagdish Prasad
4. <http://ecoursesonline.iasri.res.in/course/index.php?categoryid=42>
5. <https://vetsebooks.blogspot.com/p/e-books.html>
6. <https://www.basu.org.in/study-materials/veterinary-science/>
7. <https://vikaspedia.in/agriculture/livestock/cattle-buffalo/breeds-of-cattle-buffalo>

Course 7 B: LIVE STOCK MANAGEMENT -II – **PRACTICAL SYLLABUS**  
(DAIRY PRODUCTION AND MANAGEMENT)

IV. Learning Outcomes:

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

- Design a model dairy farm layout
- Understand procedure of milk pasteurization at milk processing centers
- Identify various important management practices in dairy farming

V. **Practical (Laboratory) Syllabus:**(30hrs) (Max.50Marks)

1. Dairy Farm layout ( In the laboratory student has to sketch a dairy farm with all its components )
2. Identification of cows (students have to identify the breeds of cows from the images/charts – have to identify any two breeds in the vicinity of the college/ their locality).
3. Dehorning of calves : (Method - protocol- precautions)
4. Castration of bulls (Method – Apparatus- Time-importance)
5. Deworming of dairy cattle : (Schedule – method- benefits )
6. Pasteurization of milk (Batch Method- procedure- Observation)
7. Sterilization of milk ( In bottle sterilization- procedure – protocol)
8. Cream separation (By gravity method- procedure- hands on experiment)

VI. Lab References

1. Handbook of Animal Husbandry –ICAR Edition
2. Dairy farm layout : <https://www.youtube.com/watch?v=dmukHUEUvKc>
3. Dehorning procedure : <http://www.omafra.gov.on.ca/english/livestock/dairy/facts/09-003.htm>
4. Castration of bulls: <https://vikaspedia.in/agriculture/livestock/general-management-practices-of-livestock/castration-of-ruminants>
5. Deworming: [https://kvk.icar.gov.in/API/Content/PPupload/k0347\\_10.pdf](https://kvk.icar.gov.in/API/Content/PPupload/k0347_10.pdf)
6. Pasteurization of milk : <http://www.jnkvv.org/PDF/08042020170652part%203.pdf>
7. <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=1690>
8. Cream separation: <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=147910>

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

**VII. Co-Curricular Activities**

a) **Mandatory:** (*Lab/field training of students by teacher; lab 10+ field :05*)

1. For Teacher: Training of students by the teacher in laboratory and filed for not less than 15 hours on skills of dairy management – housing-management of dairy animals of various stages- procedure of preparation of marketable milk with procedures like sterilization, pasteurization and other techniques)
2. For Student: Student shall (individually) visit a nearby dairy farm- house hold cattle rearing – make observations on aspects like housing – management – feed- milk- revenue- breed selection- qualities of breed –etc. A handwritten Fieldwork/Project work Report to be submitted in the given format.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work Report: *Title page, student details, index page, details of place visited, observations made, findings and acknowledgements.*
5. (IE)Unit tests.

b) **Suggested Co-Curricular Activities**

1. Sketch model dairy house with details
  2. Web resources on Protocols in the management of stages of cattle
  3. Properties of varieties of milk from the market observation
  4. Assignment, Seminar, Invited lecture, Group discussion. Quiz, Collection of Material, Video preparation etc.
-

Course6 C: **POULTRY MANAGEMENT- I (POULTRY FARMING)**  
(Skill Enhancement Course (Elective), - Credits: 05 (3+2))

I. Learning Outcomes:

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

- Evaluate the status of Indian Poultry Industry
- Explain the Scientific Poultry keeping
- Compare the diversified Poultry practices
- Inspect the different breeds of chicken

II. **Syllabus:** (Total Hours: 90 including Teaching, Lab, Field Skills Training, Unit tests etc.)

Unit 1 Indian poultry Industry

- 1.1 Importance of poultry farming and poultry development in India.
- 1.2 Present status and future prospectus of poultry Industry
- 1.3 Classification of poultry based on genetics Utility

Unit -2Scientific Poultry Keeping

- 2.1 Modern breeds of Chicken
- 2.2 Present day egg production lines- meat production lines
- 2.3 Mini breeds- dwarfism in mini-Leghorns

Unit-3Diversified Poultry

- 3.1 Ducks and Geese-classification- rearing system-classification-advantages
- 3.2 Guinea fowls - guinea fowl farming in India-Production-varieties
- 3.3 Emu-rearing- Economical aspects-commercial products

Unit-4Desi Chickens:

- 4.1 Indigenous breeds and economical aspects of desi chicken
- 4.2 Indigenous breeds-Aseel-Chittagong-Kadaknath-Bursa
- 4.3 Improved varieties in India – Giriraja-Vanaraja-Girirani-Kalinga brown, Gramapriya, Swarnandhra

Unit -5 Breeds from Central Avian Research Institute – Izatnagar

- 5.1 CARI Nirbheek - CARI- Shyama-HITCARI (Naked Neck Cross)
- 5.2 CARI- Priya Layer, CARI- Sonali Layer,
- 5.3 CARIBRO-VISHAL, CARI-RAINBRO,
- 5.4 Nandanam chicken-I, Nandanam Chicken-II, Nandanm-Quail

III. References:

1. Text Book of Poultry Science, P V Sreenivasaiyah, Write and Print Publications, ISBN No. 9788192970592, 8192970590
  2. Poultry Science Practices, Nilothpal Ghosh, CBS Publication & Distributions, 2015
  3. Principles of Poultry Science, 1996, CAB Publishers, ISBN 9780851991221
  4. A Text Book of Animal Husbandry, C. C. Banerjee, Oxford and IBH, Publish Co, ISBN: 9788120412606
- Web sources

1. <https://www.drvet.in/p/e-books.html>

2. <https://byjus.com/biology/animal-husbandry-poultry-farming/>
3. [https://www.helpforag.app/2018/02/livestock-production-and-management-lpm\\_14.html?m=1](https://www.helpforag.app/2018/02/livestock-production-and-management-lpm_14.html?m=1)

Course6 C: POULTRY MANAGEMENT- I (POULTRY FARMING)  
**PRACTICAL SYLLABUS**

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

- Identify different types of Poultry rearing practices
- Evaluate the efficacy of different types of poultry practices in maximizing yield
- Understand the importance of different hybrid breeds in poultry

V. Practical(Laboratory) Syllabus:(30hrs) (Max.50Marks)

1. Different types of Poultry rearing (Students has to observe and draw the different types of poultry rearing systems)
2. Different types of poultry Housing - Models / Images/charts
3. Different layer breeds images/charts/ Models (Observation of characters)
4. Types of broilers images/charts/ Models (Identification of important Characters)
5. CARI breeds characters –images/charts
6. Nandanam breeds- images/charts (Identification of characters)

\*\*\* (This practical is 70 % (Web based /virtual) 30% physical: student and teachers must browse the web for the specimens models – write down the important characters based on the web resources)

VI. Lab references

1. A Text Book of Animal Husbandry, C. C. Banerjee, Oxford and IBH, Publish Co, ISBN: 9788120412606

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

VII. **Co-Curricular Activities:**

a) **Mandatory:**(*Student training by teacher in field skills: total15hours (lab:10, field 05)*)

1. For Teacher: Training of students by the teacher in laboratory and field for notlessthan15hours on the techniques of identification of layers, broilers and management practices **in** poultry.
2. For Student: Students shall Individually visit a Poultry farm, make observations and report on the Rearing, Housing, Brooding, Feeding and water management activities. The student shall submit a handwritten Fieldwork/Project work Report on the observations along with pictures in the given format not exceeding 10 pages to teacher.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, details of place visited, observations made, findings and acknowledgements.*
5. Unit tests. (IE)

b) Suggested Co-Curricular Activities

1. Web resources – visiting the web sites of CARI-IZATNAGAR-<https://cari.icar.gov.in>procuring additional information on the poultry breeds
2. Web resources- visiting the web site of NANADANAM [http://www.tanuvas.ac.in/ippmmadhavaram\\_tech.html](http://www.tanuvas.ac.in/ippmmadhavaram_tech.html)
3. Collection of additional data on different types of Poultry breeds
4. Seminar, Assignment, Group discussion. Quiz, Collection of Material, Invited Lecture, Video preparation etc.

Four – year B.Sc. (Hons)  
Domain Subject: ZOOLOGY  
IV Year B. Sc–Semester –VY

Max. Marks: 100+50

**Course 7 C: POULTRY MANAGEMENT -II**  
**(POULTRY PRODUCTION AND MANGEMENT)**  
(Skill Enhancement Course (Elective), - Credits: 05)

I. Learning Outcomes:

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

- Suggest measure for Health care in Poultry
- Evaluate the economics of poultry production
- Elaborate the poultry Breeder flock management
- Differentiate the poultry hatchery practices

II. **Syllabus:** *(Total Hours: 90 including Teaching, Lab, Field Skills Training, Unit tests etc.)*

Unit-1 HEALTH CARE

1.1 Common poultry diseases: bacterial, viral, fungal, parasitic and nutritional deficiencies.

1.2 Vaccination schedule for commercial layers and broilers: factors that govern vaccination schedule; vaccination principles type, methods, pre and post vaccination care.

1.3 Disinfection: Types of disinfectants; mode of action; recommended procedure; precaution and handling.

Unit-2 ECONOMICS

2.1 Economics of layer and broiler production

2.2 Projects reports in different systems of rearing for layer & broilers.

2.3 Feasibility studies on poultry rearing- in context of small units and their profitability.

2.4 Export/import of poultry and poultry products.

Unit-3 BREEDER FLOCK MANAGEMENT

3.1 Layer and broiler breeder flock management housing & space requirements.

3.2 Different stage of management during life cycle; Light management during growing and laying period, Artificial insemination.

3.3 Feeding: Feed restriction, separate male feeding. Nutrient requirement of layer and broiler breeders of different age groups.

Unit-4 BREEDER HEALTHCARE

4.1 Vaccination of breeder flock; difference between vaccination schedule of broilers and commercial birds.

4.2 Common diseases of breeders (Infectious and metabolic disorders)-prevention.

4.3 Fertility disorder- etiology, diagnosis and corrective measures. Selection and culling of breeder flocks

Unit-5 HATCHERY PRACTICES

5.1 Management principles of incubation.

5.2 Factors affecting fertility and hatchability. Selection, care and incubation of hatching eggs. Fumigation; sanitation and hatchery hygiene.

5.3 Importance of hatchery records, break even analysis of unhatched eggs.

5.4 Computer applications for hatchery management

III. References:

1. HVS Chauhan, S. Roy, Poultry Diseases, Diagnosis and Treatment, New Age International

Publishers-2018

2. <https://www.drivet.in/p/e-books.html>
3. <https://byjus.com/biology/animal-husbandry-poultry-farming/>
4. [https://www.helpforag.app/2018/02/livestock-production-and-management-lpm\\_14.html?m=1](https://www.helpforag.app/2018/02/livestock-production-and-management-lpm_14.html?m=1)

Course 7C: POULTRY MANAGEMENT –II- **PRACTICAL SYLLABUS**  
(POULTRY PRODUCTION AND MANGEMENT)

IV. Learning Outcomes:

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

- Identify Poultry diseases by observation
- Analyze Poultry establishment feasibility
- Understand the Poultry Records

V. Practical(Laboratory) Syllabus:(30hrs) (Max.50Marks)

1. Poultry Viral diseases – Observation of histopathological slides
2. Poultry Fungal Diseases- Observation of histopathological slides
3. Poultry Bacterial Diseases-Observation of histopathological slides
4. Feasibility study of Poultry establishment: (Preparation of feasibility study report with given parameters )
5. Rearing of Layers – (Preparation of Flow chart
6. Rearing of broiler- Flow chart
7. Hatchery records- Model study/analysis- Report with modified data

VI. Lab references :

1. HVS Chauhan, S. Roy, Poultry Diseases, Diagnosis and Treatment, New Age International Publishers-2018
2. Flow chart hatchery : <http://lms.tanuv.ac.in/mod/resource/view.php?id=45106>
3. Feasibility report:  
<https://www.manage.gov.in/stry&fcac/content/19.%20Project%20Report%20on%20Layer%20Poultry.pdf>

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

VII. **Co-Curricular Activities**

a) **Mandatory:***(Lab/filed training of students by teacher: (lab10+ field 05)*

1. For Teacher: Training of students by the teacher laboratory and field for not less than 15 hours on skills in different practices employed in poultry with regard to the disease management – analysis of poultry project- preparation of flow chart – Observation of Poultry records – computerization activities
2. For Student: students shall (individually) visit a Layer/ Broiler Poultry farming places (small scale/corporate), make observations on practices- resources – management and marketing - analysis and submit a handwritten Fieldwork/Project work Report of 10 pages with necessary images.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, details of place visited, observations made, findings and acknowledgements.*
6. (IE): Unit tests.

b) **Suggested Co-Curricular Activities**

1. Preparation of Poultry diseases charts
2. Preparation of feasibility report poultry establishment with different variables
3. Seminar, Assignment, Group discussion. Quiz, Collection of Material, Invited Lecture, Video preparation etc.

A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four – year B.Sc. (Hons)  
Domain Subject: ZOOLOGY  
IV Year B. Sc.(Hons)–Semester –VY

Max. Marks: 100+50

Course6 D: **SERI CULTURE -I\***  
**(BIOLOGY AND CULTIVATION OF MULBERRY)**  
(Skill Enhancement Course (Elective), Credits: 05)

I. Learning Outcomes:

- Students at the successful completion of this course will be able to
- Evaluate the general status of Sericulture in India
- Understand the development of sericulture Botany
- Evaluate the use of Silk worm breeds
- Differentiate among various silkworm breeds
- Apprise the economics of silk rearing

II. Syllabus: (*Total Hours: 90 including Teaching, Lab, Field Skills Training, Unit tests etc.*)

Unit-1A general introduction to Sericulture

1.1 Sericulture map of India: Components of Sericulture.

1.2 Textile fibers: Types- natural and synthetic fibers- types of silk produced in India; Importance of mulberry silk:

1.3 Sericulture organization in India; role of state departments of Sericulture, Central Silk Board and NGOs in Sericulture development

Unit-2Sericultural Botany.

2.1Taxonomy of mulberry and food plants of silkworms: Study of salient features of the families-Marceau.

2.2 Morphology of mulberry: different varieties of mulberry.

2.3 Anatomy of mulberry: internal structure of stem, root and leaf; secondary growth in root and stem.

Unit 3Floral biology of mulberry

3.1 Floral biology of mulberry: Sexual behavior, different types of anthers and ovule in mulberry; micro- and megaspore genesis.

3.2 Development of male and female gametophytes; pollination, fertilization

3.3 Development of endosperm, embryo and seed; polyembryony and parthenocarpy in mulberry.

Unit-4 Silkworm Biology.

4.1 Characteristic features of the order Lepidoptera; detailed study of the families- Saturnidae and Bombycid. Classification of sericigenous insects.

4.2 Classification of silkworms based on moultnism, voltinism and geographical distribution; popular silkworm breeds and hybrids of Karnataka; their economic traits

Unit-5 Morphology and anatomy of reproductive systems of silk moth.

5.1 Life cycle of *Bombyx Mori*; morphology of egg, larva, pupa and adult.

**\* This course shall be completely taught by Zoology faculty.**

### III. References:

1. Hortmann and Kesler (1993) Plant Propagation, principles and practices. Prentice Hall, Hemel Nemstead.
2. Krishna Murthy, N.(1981)Plant growth substances including application in Agriculture. Tata McGraw Hill Pub. Co. Ltd. New Delhi.
3. Shankar, M.A (1998) Handbook on mulberry Nutrition, Multiplex, Bangalore.
4. Subbarao, N.S (1998) Bio fertilizers in Agriculture. Oxford & IBH Pub. Co, Pvt. Ltd, New Delhi.
5. A text Book on Mulberry Crop Protection. Govindaiah, V.P Gupta, D.D Sharma, S. Rajadurai and V. Nishitha Naik, Published by Central Silk Board, Bangalore-68, India.2005.
6. Rajanna L, Das P.K, Ravindra S, Bhogeshha K , Mishra R.K, Singhvi N.R, Katigar R.S and Jayaram H. Mulberry Cultivation and Physiology Central Silk Board, Bangalore, Dec.2005

### Web resources:

1. <http://www.fao.org/3/ad108e/ad108e0a.htm>
2. [https://onlinecourses.swayam2.ac.in/cec19\\_bt05/preview](https://onlinecourses.swayam2.ac.in/cec19_bt05/preview)
3. <https://www.skuastkashmir.ac.in/DisplaySInformation.aspx?id=16&pid=20592>
4. <http://www.fao.org/3/x9895E/x9895e04.htm>
5. <https://www.notesonzoology.com/sericulture/moriculture/common-indian-mulberry-plants-and-their-morphological-characteristics/347>

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

## Course6 D: SERI CULTURE -I – PRACTICAL SYLLABUS

### IV. Learning Outcomes:

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

- Develop sericulture map of India
- Develop charts on production of silk
- Examine the popular varieties of mulberry
- Display the silk glands of silk worm

### V. Practical(Laboratory) Syllabus:(30hrs) (Max.50Marks)

1. Sericulture map of India and Karnataka.
2. Preparation of histograms and pie charts on:
3. Production of textile fibers in India.
4. Pie chart on mulberry and non-mulberry silk production in India.
5. Life cycle of *Bombyx mori*- Morphology of egg, larva, pupa and adult of *Bombyx mori*.
6. Sex separation in larva, pupa and adult of the silkworm *Bombyx mori*.
7. Dissection and display of: Digestive system of larva. Silk glands.

VI. Lab References :

1. Rajanna L, Das P.K, Ravindra S, Bhogsha K , Mishra R.K, Singhvi N.R, Katigar R.S and Jayaram H. Mulberry Cultivation and Physiology Central Silk Board, Bangalore, Dec.2005

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

VII. **Co-Curricular Activities :**

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

1. For Teacher: Training of students by the teacher in the laboratory and field for not less than 15 hours on the skills of preparation of Sericulture Map of India – identification of Mulberry plants – plantation- observation of Silk worm reproductive biology- observation of silk glands
2. **For Student:** Students shall (individually) visit any local Mulberry Plantation area and Silk worm Rearing center – make observations on plants, procedures and yield. Observations and outcomes shall be submitted as Fieldwork/Project work Report not exceeding 10 pages to teacher in the given format.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work: *Title page, student details, index page, details of place visited, observations made, findings and acknowledgements*
5. (IE) Unit tests.

6. **b) Suggested Co-Curricular Activities**

1. **Webbased :** Collection of additional information of mulberry plants
2. Charts /Models preparation of silkworm developmental stages
7. Seminar, Invited lecture, .Assignment, Group discussion. Quiz, Collection of Material, Video preparation etc.

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A.P. State Council of Higher Education  
Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four – year B.Sc.(Hons)  
Domain Subject: ZOOLOGY  
IV Year B. Sc.(Hons)–Semester –VY

Max Marks: 100+50

Course 7 -D: **SERICULTURE -II**  
**(BIOLOGY AND REARING OF SILKWORM)**  
(Skill Enhancement Course (Elective), - Credits: 05)

I. Learning Outcomes:

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

- Design low cost rearing house preparation for silk worm rearing
- Formulate procedure of sanitation of rearing house
- Make use of Chawki rearing practice
- Decide and suggest the correct time for harvest
- Develop and Maintain the records related to sericulture

II. Syllabus: *(Total Hours: 90 including Teaching, Lab, Field Skills Training, Unit tests etc.)*

Unit-1

1.1 Rearing house: Location, orientation, plan and utilities; model rearing house; low-cost rearing house.

1.2 Rearing appliances-shelf and shoot rearing; requirements of rearing appliances (per unit rearing of 100dfIs).

Unit-2

2.1 Disinfection of rearing house and rearing appliances; (disinfectants formalin, bleaching powder, chlorine dioxide, slaked lime and iodine compounds);

2.2 Rearing and personal hygiene.

Unit-3

3.1 Incubation- definition, requirement of environmental conditions, incubation devices; identification of stages of development; black boxing and its importance.

3.2 Chawki rearing: Preparation; brushing and its methods; types of chawki rearing - traditional and improved method; optimum environmental conditions; methods and frequency of feeding; methods of bed cleaning; spacing; moulting and care during moult.

Unit -4

4.1 Late age silkworm rearing: Methods; optimum environmental conditions; feeding quantity and frequency; methods of bed cleaning; spacing; moulting and care during moult.

4.2. Identification of spinning larva; spinning; mounting and mounting density; types of mountages, their advantages and disadvantages; environmental requirements during spinning.

Unit -5

5.1 Harvesting: Time of harvesting; sorting, storage/ preservation

5.2 Packaging and transport of cocoons; leaf-cocoon ratio; Maintenance of rearing records.

### III. References:

1. Charley, S.R. (1982). Culture and Sericulture. Academic Press Inc., New York, U.S.A
2. Chowdhury, S.N. (1998) Muga Culture. Central Silk Board, Bangalore, India
3. Dokuhon, Z.S. (1998). Illustrated Textbook on Sericulture. Oxford & IBH publishing Co., Pvt. Ltd. Calcutta.
4. Hamamura, Y. (2001). Silkworm rearing on Artificial Diet. Oxford & IBH publishing Co., Pvt. Ltd. New Delhi.
5. Hasao Aruga (1994). Principles of Sericulture (Translated from Japanese) Oxford & IBH publishing Co., Pvt. Ltd. New Delhi.

### Web Resources:

1. <http://www.fao.org/3/ad108e/ad108e0a.htm>
2. [https://onlinecourses.swayam2.ac.in/cec19\\_bt05/preview](https://onlinecourses.swayam2.ac.in/cec19_bt05/preview)
3. <https://www.skuastkashmir.ac.in/DisplaySInformation.aspx?id=16&pid=20592>

### Course 7 -D: SERICULTURE –II-PRACTICAL SYLLABUS (BIOLOGY AND REARING OF SILKWORM)

### IV. Learning Outcomes:

- On successful completion of this practical course, student shall be able to :
- Appreciate the morphology of silkworm
- Realize the importance of and initiate measures to disinfect the importance of disinfection of rearing houses and rearing appliances
- Differentiate the methods of incubation of silkworm eggs
- Prioritize the records in silkworm rearing

### V. **Practical(Laboratory) Syllabus:(30hrs)(Max.50Marks)**

1. Morphology and structure of silkworm egg, fertilization, Diapause development
2. Rearing house: Location, orientation, plan and utilities; model rearing house; low-cost rearing house.
3. Disinfection of rearing house and rearing appliances;
4. Incubation of silkworm eggs- Methods; black boxing; maintenance of temperature and humidity; Brushing: Methods; chawki rearing; use of paraffin paper and blue polythene sheet.
5. Bed cleaning: use of bed cleaning net and disposal of bed refuses and silkworm litter.
6. Moulting: Identification of moulting larva, care during moulting; mounting and mounting density; harvesting of cocoons; assessment of cocoons; types of mountages;
7. Study the mulberry leaf by graph paper method : ( for calculating the leaf area)

### VI. Lab References

1. HasaoAruga (1994). Principles of Sericulture (Translated from Japanese) Oxford & IBH publishing Co., Pvt. Ltd. New Delhi.

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

**VII. Co-Curricular Activities**

a) **Mandatory:** (*Lab/field training of students by teacher ( lab10+filed5)*)

1. For Teacher: Training of students by the teacher in laboratory and field for notlessthan15hourson the skills/techniques of Rearing of Silk moth
2. For Student: Students shall (individually) visit to Silk worm rearing center and observe all the procedures. He/she shall prepare a Fieldwork/Project work Report on the observations made in the given format not exceeding 10 pages and submit to teacher.
3. Max marks for Fieldwork/Project work Report: 05.
4. Suggested Format for Fieldwork/Project work Report: *Title page, student details, index page, details of place visited, observations made, findings and acknowledgements.*
5. (IE). Unit tests.

b) Suggested Co-Curricular Activities

1. Model Chart preparation of chawki rearing
2. Cocoon collection and observation of characteristics
3. Mountage images / charts preparation
4. Seminar, Invited Lecture, Assignment, Seminar, Group discussion. Quiz, Seminar, Quiz, Collection of Material, Video preparation etc.

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**Suggested Question Paper Pattern**

Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code:

Four – year B.Sc.(Hons)  
Domain Subject: ZOOLOGY  
IV Year B. Sc.(Hons)–Semester –V

Max.Marks:75

Time:3 hrs

**SECTION - A**(Total: 10 Marks)

Very Short Answer Questions (10 Marks: 5x2)

1. ....
2. ....
3. ....
4. ....
5. ....

**SECTION - B** (Total: 5x5=25Marks)

(Answer any Five questions. Each answer carries 5 marks)

(At least 1 question should be given from each Unit)

- 6. ....
- 7. ....
- 8. ....
- 9. ....
- 10. ....
- 11. ....
- 12. ....
- 13. ....

**SECTION C**

(Total: 4x10 = 40 Marks)(Answer any four questions. Each answer carries 10 marks)

(At least 1 question should be given from each Unit)

- 14. ....
- 15. ....
- 16. ....
- 17. ....
- 18. ....
- 19. ....

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Draft Syllabus Prepared by;

- 1. Dr.N. Srinivas, Associate Professor, PR (A) Govt. College, Kakinada.
- 2. Sri G. Srirangam Mathew, Academic Officer, APSICHE, Guntur and
- 3. Prof. K. Veeraiah, Professor in Zoology, Acharya Nagarjuna University, Guntur.

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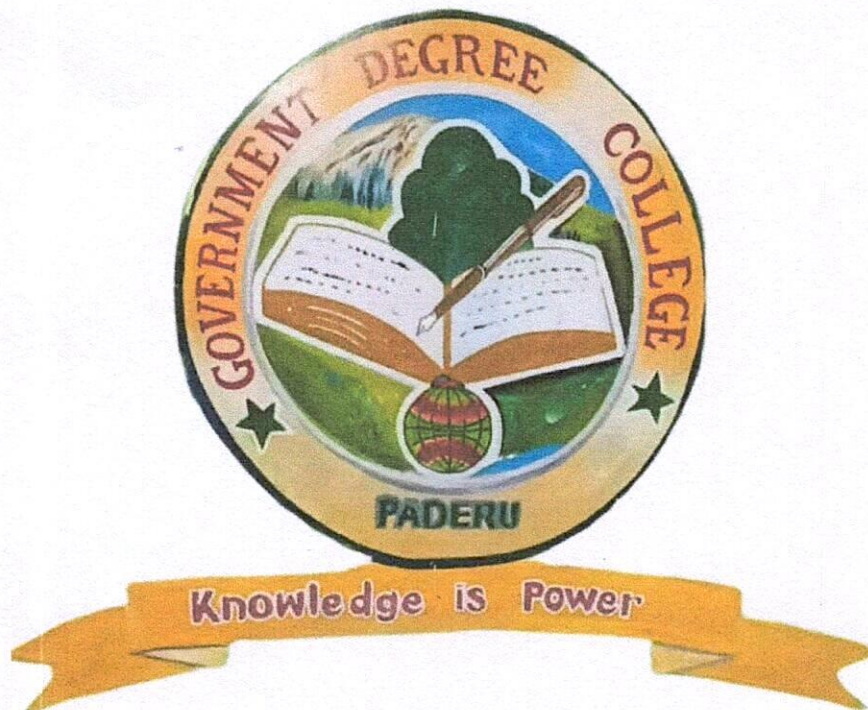
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**CO – PO MAPPINGFOR**

**B.Sc (MATHEMATICS)**

**(W. E. F 2020-21)**



**DEPARTMENT OF MATHEMATICS**

**GOVT. DEGREE COLLEGE , PADERU.**



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## GOVT DEGREE COLLEGE, PADERU.

### Vision

To become a centre of educational excellence for empowering women in different fields of life by realising their capabilities so that they can take their rightful place in the society.

### Mission

- To inculcate the spirit of quality in higher education.
- To trigger skills related to education and life.
- To enhance physical wellbeing.
- To promote social awareness and community service.
- To enlighten women empowerment.
- To Inculcate values for betterment of women.
- To train the students for academic competition.



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## DEPARTMENT OF MATHEMATICS

### B. SC (MATHEMATICS)

#### VISION

1. To enable the rural and urban students strong in doing mathematics.
2. Encouraging them for further higher studies and to write competitive exams.
3. Instill analytical and logical thinking among students and promote mathematical thought as an important area of human thought.

#### MISSION

1. To develop the mathematical thinking of the students.
2. To learn mathematical software knowledge for further higher education.
3. To create an environment that supports to solve rural problems and give its usages to ground level by mathematical modelling etc.
4. To conduct seminar, group discussion, workshop etc. for the students.



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## DEPARTMENT OF MATHEMATICS

### B. SC (MATHEMATICS)

#### 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 skillfully with diverse stakeholders, nurture meaningful dialogues, build strong professional bonds in and beyond college.
4. Exhibit proficiency in ethically using information from diverse sources, analyzing 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.



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## PROGRAM SPECIFIC OUTCOMES:

### MATHS PHYSICS COMPUTER SCIENCE

- PSO1. Understand the concepts of vector spaces, group theory, quantum mechanics, optical, thermal, electrical, mechanical properties of a materials, probability, algorithm design, data base.
- PSO2. Analyze the concepts of mathematics, physics and computers science able to relatethem in numerical programming of models of physical systems.
- PSO3. To impart knowledge of a broad range of Computer Science skills, tools, and mathematical techniques, and the capability of applying them to analyze and design complex systems.
- PSO4. Acquire logical and analytical skills to apply the concepts to model and solve real life problems in related areas.
- PSO5. Engage in professional development in the fields of Information Technology and Computer Science.

### MATHS CLOUD COMPUTING COMPUTER SCIENCE

- PSO1. Acquire good knowledge and understanding in advanced areas of mathematics and statistics, chosen by the student from the given courses.
- PSO2. Design, implements, test, and evaluate a computer system, component, or algorithm to meet desired needs and to solve a computational problem
- PSO3. Demonstrate understanding of the principles and working of the hardware and software aspects of computer systems
- PSO4. Acquire the fundamental ideas behind Cloud Computing, the evolution of the paradigm, its applicability; benefits, as well as current and future challenges
- PSO5 Understand the key security and compliance challenges of cloud computing



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### COURSE 1: DIFFERENTIAL EQUATIONS

CO1. Demonstrate the fundamental concepts, principles, and techniques related to first-order and higher-order differential equations.

- ☐ Knowledge: Recall the fundamental concepts and principles of first-order and higher-order differential equations.
- ☐ Understanding: Explain the differences between first-order and higher-order differential equations and their significance in various applications.

CO2. Understand various methods and apply the methods to solve differential equations

- ☐ Understand: Explain the general principles behind each method, such as separation of variables and integrating factors, and how they relate to different types of differential equations.
- ☐ Application: Utilize the method of undetermined coefficients to solve a second-order linear homogeneous ordinary differential equation with constant coefficients.

CO3. Critically analyze and evaluate the solutions obtained for differential equations

- ☐ Analysis: Examine and identify the strengths and limitations of the solutions obtained for differential equations in different contexts.
- ☐ Evaluation: Assess the accuracy, validity, and applicability of the solutions, considering factors such as initial conditions and real-world implications.



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### COURSE: THREE DIMENTIONAL ANALYTICAL GEOMETRY

CO1. Acquire the basic knowledge of planes, lines, spheres, and cones

- ☐ Remembering: Acquire fundamental knowledge about the properties, equations, and characteristics of planes, lines, spheres, and cones.

CO2. Demonstrate a basic idea of lines, spheres, and cones

- ☐ Understanding: Demonstrate a foundational understanding of the concepts of lines, spheres, and cones.
- ☐ Application: Apply the basic understanding of lines, spheres, and cones to solve problems involving these geometric shapes.

CO3. Understand the properties of planes, lines, spheres, and cones and apply them to solve problems

- ☐ Understanding: Understand the inherent properties of planes, lines, spheres, and cones and how they relate to geometric problem-solving.
- ☐ Applying : Apply the understanding of properties to solve problems involving planes, lines, spheres, and cones.

CO4. Demonstrating critical thinking to choose the most suitable geometric approach for a given problem.

- ☐ Applying: Apply critical thinking to analyze given problems and choose appropriate geometric approaches.
- ☐ Analyzing: Analyze problem characteristics and select the most suitable geometric approach, showcasing higher-order thinking skills



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### COURSE 3: ABSTRACT ALGEBRA

CO1. Acquire the basic knowledge and structure of groups, subgroups, cyclic groups, and the significance of the notation of normal subgroups.

- ☐ Remembering: Recall the fundamental concepts of groups, subgroups, cyclic groups, and the significance of notation for normal subgroups.
- ☐ Understanding: Understand the structure and properties of groups, subgroups, cyclic groups, and the importance of normal subgroups.

CO2. Study the behavior of permutations and operations on them.

- ☐ Understanding: Understand the behavior of permutations and the operations applied to them.

CO3. Evaluate and analyze the concepts of homomorphisms, isomorphisms, and permutations, along with their properties and applications, including Cayley's theorem.

- ☐ Analyzing: Analyze the concepts of homomorphisms, isomorphisms, permutations, and their properties, including their applications such as Cayley's theorem.
- ☐ Evaluating: Evaluate the significance and practical applications of homomorphisms, isomorphisms, and permutations, including their role in Cayley's theorem.

CO4. Understand the concepts of ring theory, including its connection with group theory, and be able to prove relevant theorems. Also, comprehend the applications of ring theory in various fields.

- ☐ Understanding: Understand the foundational concepts of ring theory, its connection with group theory, and its relevance in various fields.
- ☐ Applying: Apply the understanding of ring theory to prove relevant theorems and demonstrate its applications in different contexts.



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#### COURSE 4 : REAL ANALYSIS

CO1. Get a clear idea about the real numbers and real-valued functions

- ☐ Remembering: Obtain a foundational understanding of real numbers and real-valued functions.
- ☐ Understand: Understand the properties of real numbers, including algebraic and order properties, and apply them in analyzing sequences and intervals.

CO2. Obtain the skills to analyze and evaluate the convergence of a sequence/series.

- ☐ Analyzing: Analyze and evaluate the convergence of sequences and series.
- ☐ Evaluating: Apply higher-order evaluation skills to assess the convergence of sequences and series.

CO3. Test the continuity and differentiability of a function and apply Riemann integration.

- ☐ Understand: Grasp the definitions of continuity and differentiability of functions.
- ☐ Application: Apply tests to determine the continuity and differentiability of functions and utilize Riemann integration techniques.

CO4. Understand the geometrical interpretation of mean value theorems.

- ☐ Understand: Grasp the geometrical interpretation of mean value theorems in the context of real-valued functions.
- ☐ Application: Apply the conditions of continuity and differentiability to verify the applicability of Mean value theorems.



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### COURSE 5: LINEAR ALGEBRA

CO1. Develop a foundational understanding of vector spaces, subspaces, bases, and dimensions.

- ☐ Knowledge: Define vector spaces, subspaces, bases, and dimensions.
- ☐ Understanding: Explain the relationships between these concepts and their significance in linear algebra.

CO2. Analyze the properties of vector spaces and subspaces through mathematical proofs.

- ☐ Application: Apply mathematical proofs to demonstrate properties of vector spaces and subspaces.
- ☐ Analysis: Analyze how these properties hold true and what they imply about the nature of vector spaces and their subsets.

CO3. Apply the concepts of linear transformations to solve problems in various contexts.

- ☐ Application: Apply linear transformations to solve problems in different fields.
  - ☐ Analysis: Analyze the effects of linear transformations on vectors and matrices in

CO4. Utilize the Cayley-Hamilton theorem to find the inverse of a matrix and calculate higher powers of matrices without using routine methods

- ☐ Evaluation: Evaluate the practical benefits and implications of utilizing the theorem for matrix calculations.
- ☐ Creative: Combine the knowledge of the Cayley-Hamilton theorem with matrix manipulation techniques to find inverses and compute higher powers of matrices.



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Course-6A: Numerical Analysis(Skill Enhancement Course (Elective), 5 credits)

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

1. understand the subject of various numerical methods that are used to obtain approximate solutions
2. Understand various finite difference concepts and interpolation methods.
3. Work out numerical differentiation and integration whenever and wherever routine methods are not applicable.
4. Find numerical solutions of ordinary differential equations by using various numerical methods.
5. Analyze and evaluate the accuracy of numerical methods.

**Unit – 1: ERRORS IN NUMERICAL COMPUTATIONS**

Errors and their accuracy , mathematical preliminaries ,errors and their analysis ,absolute , relative and percentage errors , general errors formula ,errors in series approximation .

Unit -2 :solution of algebraic and transcendental equations

The bisection method ,the iteration method ,the method of false position method ,newtons –Rapsonsons method ,generalized Newton –rapshson method ,mullers method .

Unit -3 : interpolation -1

Interpolation : errors in polynomials interpolation ,finite differences , Forward differences, Backward differences, Central Differences, Symbolic relations, nth Detection of errors by use of differences tables , Difference of polynomials,

Unit -4 : interpolation -2

3. Newton's formulae for interpolation. Central Difference Interpolation Formulae ,gauss central difference formulae ,stirlings central difference formula , Bessel's formula ,Everett's formula .

**Unit – 5: interpolation -3**

Interpolation with unevenly spaced points ,Lagrange's formula ,errors in lag ranges formula .divided differences and their properties ,relation between divided differences and forward differences ,relation between divided difference s and backward differences ,relation between divided difference and central differences ,Newton general interpolation formula ,inverse interpolation .



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**COURSE : ADVANCED NUMERICAL ANALYSIS**

**Unit -1:**

**Curve fitting :**

Least-squares curves fitting procedures, fitting a straight line ,non linear curve fitting ,curve fitting by a sum of exponentials .

**Unit -2 :**

Numerical differentiation : derivatives using Newton's forward difference formula.

Newton's backward difference formula , derivatives using central difference formula .

Stirling's interpolation formula , Newton's divided difference formula ,maximum and minimum values of a tabulated function .

**Unit-3 :**

Numerical integration : general Quadrature formula on errors, trapezoidal rule ,Simpson's 1/3 rule ,Simpson's 3/8 rule ,Weddle's rule ,Euler's Maclaurin's formula of summation and quadrature , the Euler's transformation .

**Unit -4**

Solution of simultaneous linear systems of equations :

Solution of linear systems direct method ,matrix inversion method ,Gaussian elimination method ,Gauss-Jordan method ,method of factorization ,solution of tridiagonal systems ,iterative methods ,Jacobi's method ,Gauss-Seidel method .

**Unit -5 :**

Numerical solution of ordinary differential equations : introduction ,solution of Taylor's series ,Picard's method of successive approximations ,Euler's method , modified Euler's method ,Runge-Kutta methods .



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## Course 8A: Integral Transforms

CO1. Understand the evaluation of Laplace transforms of specific functions and find Laplace transforms of derivatives and integrals.

- ☐ Knowledge (L1): Recall the definition of the Laplace transform and memorize the Laplace transforms of common functions like exponential, unit step, etc.
- ☐ Understanding (L2): Explain the concept of the Laplace transform and its purpose in solving differential equations.
- ☐ Applying (L3): Apply the Laplace transform to find the transformed version of specific functions.

UNIT -1 : Application of Laplace transformations of differential equations

Solution of ordinary differential equations .

Solution of differential equations with constant coefficient

Solution of differential equations with variable coefficient

Unit -2 : application of Laplace transformation

Solution of simultaneous ordinary differential equations .

Solution of partial differential equations .

Unit -3 :application of Laplace transforms to integral equations .

Integral equations –ables ,integral equation- integral equation of convolution type ,integro differential equations .application of l.t to integral equations .

Unit -4 : fourier transform -1

fourier transform - fourier transform - fourier cosine transform - line propriety of fourier transform –change of scale property for fourier transform - sine transform and cosine transform  
shifting property – modulation theorem .

Unit -5 : fourier transform -2

convolution theorem for fourier transform – parseval's identity – relationship between fourier



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### Course-7A: Mathematical Special Functions (Skill Enhancement Course (Elective), 5 credits)

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

1. Understand the Beta and Gamma functions, their properties and relation between these two functions, understand the orthogonal properties of Chebyshev polynomials and recurrence relations.
2. Find power series solutions of ordinary differential equations.
3. solve Hermite equation and write the Hermite Polynomial of order (degree)  $n$ , also find the generating function for Hermite Polynomials, study the orthogonal properties of Hermite Polynomials and recurrence relations.
4. Solve Legendre equation and write the Legendre equation of first kind, also find the generating function for Legendre Polynomials, understand the orthogonal properties of Legendre Polynomials.
5. Solve Bessel equation and write the Bessel equation of first kind of order  $n$ , also find the generating function for Bessel function understand the orthogonal properties of Bessel function.

**CO – 1:** Beta and Gamma functions, Chebyshev polynomials (15h)

1. Euler's Integrals-Beta and Gamma Functions, Elementary properties of Gamma Functions, Transformation of Gamma Functions.
2. Another form of Beta Function, Relation between Beta and Gamma Functions.
3. Chebyshev polynomials, orthogonal properties of Chebyshev polynomials, recurrence relations, generating functions for Chebyshev polynomials.

**CO – 2:** Power series and Power series solutions of ordinary differential equations (15h)

1. Introduction, summary of useful results, power series, radius of convergence, theorems on Power series
2. Introduction of power series solutions of ordinary differential equation
3. Ordinary and singular points, regular and irregular singular points, power series solution.

**CO – 3:** Hermite polynomials (15h)

1. Hermite Differential Equations, Solution of Hermite Equation, Hermite polynomials, generating function for Hermite polynomials.
2. Other forms for Hermite Polynomials, Rodrigues formula for Hermite Polynomials, to find first few Hermite Polynomials.
3. Orthogonal properties of Hermite Polynomials, Recurrence formulae for Hermite Polynomials.

**CO – 4:** Legendre polynomials (15h)

1. Definition, Solution of Legendre's equation, Legendre polynomial of degree  $n$ , generating function of Legendre polynomials. , General solution of Legendre's Equation (derivations not required)  $P_n(x)$  and  $Q_n(x)$  (2. Definition of  $P_n$  is the coefficient of  $x^n$  (required) to show that  $P_n$  is orthogonal to  $P_m$  for  $m < n$ , in the expansion of  $(1 - 2xh + h^2)^{-1/2}$  3. Orthogonal properties of Legendre's polynomials, Recurrence formulas for Legendre's Polynomials.

**CO-5:** Bessel's equation (15h)

1. Definition, Solution of Bessel's equation, Bessel's function of the first kind of order  $n$ , Bessel's function of the second kind of order  $n$ .
2. Integration of Bessel's equation in series form  $x=0$ , Definition of  $J_n(x)$  (recurrence formulae for  $J_n(x)$ ),  $J_n(x)$ , orthogonally of Bessel functions. (3. Generating function for  $J_n(x)$



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### Course-7A: Mathematical Special Functions (Skill Enhancement Course (Elective), 5 credits)

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

1. Understand the Beta and Gamma functions, their properties and relation between these two functions, understand the orthogonal properties of Chebyshev polynomials and recurrence relations.
2. Find power series solutions of ordinary differential equations.
3. solve Hermite equation and write the Hermite Polynomial of order (degree)  $n$ , also find the generating function for Hermite Polynomials, study the orthogonal properties of Hermite Polynomials and recurrence relations.
4. Solve Legendre equation and write the Legendre equation of first kind, also find the generating function for Legendre Polynomials, understand the orthogonal properties of Legendre Polynomials.
5. Solve Bessel equation and write the Bessel equation of first kind of order  $n$ , also find the generating function for Bessel function understand the orthogonal properties of Bessel function.

**CO – 1:** Beta and Gamma functions, Chebyshev polynomials (15h)

1. Euler's Integrals-Beta and Gamma Functions, Elementary properties of Gamma Functions, Transformation of Gamma Functions.
2. Another form of Beta Function, Relation between Beta and Gamma Functions.
3. Chebyshev polynomials, orthogonal properties of Chebyshev polynomials, recurrence relations, generating functions for Chebyshev polynomials.

**CO – 2:** Power series and Power series solutions of ordinary differential equations (15h)

1. Introduction, summary of useful results, power series, radius of convergence, theorems on Power series
2. Introduction of power series solutions of ordinary differential equation
3. Ordinary and singular points, regular and irregular singular points, power series solution.

**CO – 3:** Hermite polynomials (15h)

1. Hermite Differential Equations, Solution of Hermite Equation, Hermite polynomials, generating function for Hermite polynomials.
2. Other forms for Hermite Polynomials, Rodrigues formula for Hermite Polynomials, to find first few Hermite Polynomials.
3. Orthogonal properties of Hermite Polynomials, Recurrence formulae for Hermite Polynomials.

**CO – 4:** Legendre polynomials (15h)

1. Definition, Solution of Legendre's equation, Legendre polynomial of degree  $n$ , generating function of Legendre polynomials. , General solution of Legendre's Equation (derivations not required) (2. Definition of  $P_n$  is the coefficient of  $x^n$  (required) to show that  $P_n$  is the coefficient of  $x^n$  in the expansion of  $(1 - 2xh + h^2)^{-1/2}$  3. Orthogonal properties of Legendre's polynomials, Recurrence formulas for Legendre's Polynomials.

**CO-5:** Bessel's equation (15h)

1. Definition, Solution of Bessel's equation, Bessel's function of the first kind of order  $n$ , Bessel's function of the second kind of order  $n$ .
2. Integration of Bessel's equation in series form  $x=0$ , Definition of  $J_n$  (recurrence formulae for  $J_n$ ),  $J_n$ , orthogonally of Bessel functions. (3. Generating function for  $J_n$

GOVERNMENT DEGREE COLLEG,PADERU

DEPARTMENT OF HISTORY

B.A (HISTORY COURSE)

COS AND POS

# Department of History

## **Vision:**

To contribute to a just and equitable society through quality education.

## **Mission:**

1. To empower youth through a transformative education to form intellectually competent, morally upright, socially committed with the values of humanism in the service of the society.
2. To develop better citizenship, inculcate civic sense and political consciousness among students to promote peace, unity, solidarity and integrity of the nation.
3. To equip students with knowledge and understanding to achieve high Academic standards.

GOVERNMENT DEGREE COLLEGE, PADERU

DEPARTMENT OF HISTORY

## Title: Vision and Mission

### • Content

- Vision:
  - To improve strength and results gradually
- Mission
  - Enrich students' knowledge and employment prospects
  - Enhance student satisfaction survey skills
  - Provide future life stability skills

GOVERNMENT DEGREE COLLEGE

PADERU

DEPARTMENT OF HISTORY

## PROGRAMME OUT COMES

PS01	History students in general will be able to pinpoint and understand the past, present historical conditions of the country. They will also be able to anticipate the future course of changes and development through their knowledge of policies and program set by the governments and other development agencies. They are equipped with the techniques to find solution of the problems like mobilization of manpower and materials available in the country.
PS02	As the Under Graduate Course (UGC) contains the fields like Political, Archaeological and Philosophical principles, it enhances them to compute and assess the real situation of the history including the size and changes of historical pattern, nature of an extend of employment, rate of historical development with pattern of policies in relation to other countries, and social thinking measures adopted in the country.
PS03	Basically History graduates are familiar with the knowledge and application of their knowledge for the formulation of policies and planning of writing history. They are equipped with all the relevant tools/ knowledge based on historical principles including archaeological survey, projects and structures in manpower and need of modern history initiating and accelerating projects.
PS04	Though the syllabi do not contain research methodology, students are taught the techniques to collect and disseminate information like primary and secondary data, preparation of questionnaire. Students are deployed to do survey and on the spot interaction with the personnel of the case under study. Students who graduated from this institution are directly involved and effectively participate in the discussions and final presentation of the findings of the projects undertaken.
PS05	Graduates from our department are effectively taught and explained the cause with the help of visual aids like white board and PowerPoint presentation. They will be able to visualize the real world situation and enhance them to initiate the programmers for pursuing studies and be alert with the importance of entrepreneurial skills for their self employment, to improve the general attitudes and living conditions of the masses.

## SEMISTER –I (PAPER –I)

### ANCIENT INDIAN HISTORY & CULTURE

#### Learning Outcomes:

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

- Identify and define various kinds of sources and understand how history books are shaped
- Compare and contrast various stages of progress from IVC to Vedic age and analyse the Jain, Buddhist and Vedic faiths
- Increase the awareness and appreciation of Transition from Territorial States to Emergence of Empires
- Analyze the emergence of the Mauryan and Gupta empires during the —classical age in India
- Evaluate the key facets of ancient society, polity and culture in South India—the feudalism, and the rise of technology and commerce.
- Critically examine the nature of monarchic rule and develop an comprehensive understanding of cultural evolution during ancient period
- Visualize where places are in relation to one another through map pointing

Co -1:	Identify and define various kinds of sources and understand how history books are shaped	POs	Cognigent Level
Co – 2:	Compare and contrast Various stages of progress from IVC to Vedic age and analyze the Jain, Buddhist and Vedic faiths	Po1, po2	L1& L2

Co – 3:	Increase the awareness and appreciation of Transition from territorial states to emergence of Empires	Po1, po2 & Po 3	L2 & L3
Co – 4:	Analyze the Emergence of the Mouryan and Gupta Empires during the – Classical age in India.	Po1, po2 & Po 4	L3 & L4

cos	po1	po2	po3	po4	po5	po 6	po7	po 8
co1	3	3						1
co2	3	3				2	2	
co3		3					2	
co4	3	3						1

## SEMISTER –II (PAPER –2)

### MEDIEVAL INDIAN HISTORY & CULTURE

#### 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

Co -1:	Understand the socie, economic and cultural conditions of medieval India	P1 &P4	L2
Co - 2:	Describe the advent of Islam in India and study the traces of Political and Cultural expansion of Turks & Afghans	Po1, po2 &P5	L1, L2 & L3

Co - 3:	Explain the Administration and art and architecture of Vijayanagar Rules, Mughals and also analyses the rise of the Marathas and the contribution of Shivaji.	po2 & Po 6	L2
Co - 4:	Evaluate the establishment of the British rules in India  and understand the Dangerous consequences disunity at all levels.	Po1, po2 & Po 8	L3

cos	po1	po2	po3	po4	po5	po6	po7	po8
Co1	3	3						1
Co2	3	3		2				
Co3	3			2		1		

## SEMISTER –III (PAPER –3)

### MODERN INDIAN HISTORY & CULTURE

#### 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

Co -1:	Unearth the true nature of the British rules and its disastrous impact on Indian economy and Society	P1 &P6	L1&L4
Co - 2:	Gauge the disillusionment of people against the company's rule even during the early 19 <sup>th</sup> century	P02, po6 &P8	L2 & L5
Co - 3:	Assess the causes and effects or Reformation movements and also	Po4 & L4	L3 &L3

	inspire the public to overthrow inequalities of the present ay society.		
Co - 4:	Rise above petty parochial issues after understanding the sacrificial saga of freedom struggle.	po2 & Po 7	L2 &L1

cos	po1	po2	po3	po4	po5	po6	po7	po8
Co1	3	3						1
Co2		3						
Co3				2			1	
Co4	3	3						

## SEMISTER –IV (PAPER –43)

### HISTORY & CULTURE OF ANDHRA

#### 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

Co -1:	Interpret social and political and cultural transformation from medieval to modern Andhra	P1 &P3	L1
Co – 2:	Relate key historical developments during medieval period	P02	L2

Co - 3:	Understand gradual change, or change in certain aspects of society in Andhra, rather than rapid or fundamental changes	P3, p7	L3, L6
Co - 4:	Explain how the English East India company became the most dominant power and outline the impact of colonial policies on different aspects in Andhra	P1 &P2	L2

cos	po1	po2	po3	po4	po5	po6	po7	po8
Co1	3			2				
Co2		3						
Co3	3	3					1	
Co4	3							

## **HISTORY OF MODERN WORLD**

### **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

Co -1:	Demonstrate advanced factual knowledge of world histories, politics, and cultures	P3 &P6	L2&L4
Co - 2:	Assess and appraise the development 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 Abrode.	PO2, po5 &P7	L2 & L4
Co - 3:	Evaluate the causes for the Glorious REVOLUTION AND American Revolution and identify the background for the evolution of human rights movement	Po4 & L2	L5 &L3
Co - 4:	Understand the main events of the French Revolution and its significance in the shift in European culture from Enlightenment to Romanticism.	po2	L5 &L6

cos	po1	po2	po3	po4	po5	po6	po7	po8
Co1	3	3						
Co2		3					1	
Co3								
Co4		3		1				1

## **TOURISM AND HOSPITALITY SERVICE**

### **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

Co - 1:	Understand hospitality as a career	P1, P2	L1 &L2
Co - 2:	Inculcate interpersonal skills	P2, P5	L2 &L5
Co - 3:	Develop the ability for multitasking a crisis management	P3	L3
Co - 4:	Understands the4 spirit of teamwork	P1 & P6	L2

cos	po1	po2	po3	po4	po5	po6	po7	po8
Co1	3	3						1
Co2	3	3						
Co3	3			2				
Co4				2		1		

## TOURSIM GUIDANCE AND OPERATING SKILLS

### **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

Co - 1:	Acquire tour guiding, operating and soft skills	P1, P2	L1 &L2
Co - 2:	Understand different situations under which one has to work	P2, P5	L2 &L5
Co - 3:	Cultivate cultural awareness and flexibility	P3	L3
Co - 4:	Understand and apply team spirit	P1 & P6	L2

cos	po1	po2	po3	po4	po5	po6	po7	po8
Co1	3	3						1
Co2	3	3		2				
Co3	3			2		1		

## TOURSIM GUIDANCE

### **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

Co -1:	Understand the basic tourism aspects	P1, P2	L1 &L2
Co - 2:	Comprehend the requirements, role and responsibilities of profession of the Tourist Guide	P2, P5	L2 &L5
Co - 3:	Apply the knowledge acquire din managing different groups and guiding in a tour	P3	L3
Co - 4:	Explain basic values related to tourism and heritage	P1 & P6	L2

cos	po1	po2	po3	po4	po5	po6	po7	po8
Co1	3	3						1
Co2	3	3		2				
Co3	3			2		1		



# Government Degree College

**Paderu, Visakhapatnam -District,AP.**

**Affiliated to Andhra University**

**(Upgraded to Model Degree College under RUSA 2.0)**

**Est:1985 NAAC "C"Grade phone no: 08935 250013 Email.ID :Paderu.jkc@gmail.com.**

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## DEPARTMENT OF TELUGU

**Course outcomes**

**&**

**Programme outcomes**



# Government Degree College

Paderu, Visakhapatnam -District,AP.

Affiliated to Andhra University

(Upgraded to Model Degree College under RUSA 2.0)

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## Department of Telugu Special Telugu Course outcomes

### Semester II special Telugu

సెమిస్టర్ - II

### 3. ప్రాచీన కవితా పరిచయం

#### అభ్యసన లక్ష్యాలు

1. ప్రాచీన తెలుగు కవితా సాందర్యాన్ని, విశిష్టతను గుర్తించడం, భక్తి కవిత్వ విశిష్టతను, భక్తితత్వాన్ని అర్థం చేసుకునేలా చేయడం, మార్గకవిత్వకు వ్యతిరేకంగా తలెత్తిన దేశికవిత్వోద్యమాన్ని అవగాహన చేయించడం, శివకవుల కాలనాటి మత, ధార్మిక పరిస్థితులను, భాషావిశేషాలను గ్రహింపజేయడం
2. తెలుగుజాతి సంప్రదాయాలను గ్రహిస్తూ, తెలుగువారి సంస్కృతిలో ఒక భాగమైన పద్యకవిత్వం వికాసం చెందిన విధానాన్ని, మహాభారత రచనా విశిష్టతను గ్రహిస్తూ అందులోని కావ్యశిల్పాన్ని తెలుసుకునేలా చేయడం
3. పురాణ వైశిష్ట్యాన్ని గమనించడంతోపాటు భాగవత రచనా విధానాన్ని, పోతన కవిత్వ లక్షణాలను, శబ్దాలంకారాల విశిష్టతను తెలియజేయడం
4. కావ్యం ప్రబంధ ప్రక్రియలోకి పరిణమించిన వైనాన్ని, ప్రబంధయుగ విశిష్టతను అర్థం చేసుకోవడం, కావ్యవస్తువులో కాలానుగుణంగా వచ్చిన మార్పులు, కావ్య చామత్కారాలు పరిచయం చేయడం
5. కావ్య రచనా శైలిని అర్థం చేసుకోవడం, రామాయణ కావ్య విశేషాలను పరిచయం చేయడం

## Programme outputs

### అభ్యసన ఫలితాలు

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. మార్గకవిత్వకు వ్యతిరేకంగా తలెత్తిన దేశికవిత్వోద్యమాన్ని అవగాహన చేసుకుంటారు. శివకవుల కాలంనాటి మత, ధార్మిక పరిస్థితులను, భాషావిశేషాలను గ్రహిస్తారు.
2. తిక్కన మహాభారత రచనా విశిష్టతను గ్రహిస్తూ, అందులోని కావ్యశిల్పం ద్వారా రసానుభూతిని పొందగలరు. ఉపాఖ్యానాలలోని సందేశాన్ని గ్రహించగలరు.
3. పోతన భాగవత విశిష్టతను, భక్తితత్వాన్ని అర్థం చేసుకోగలరు.
4. కావ్యం ప్రబంధ ప్రక్రియలోకి పరిణమించిన వైనాన్ని తెలుసుకుంటారు. ప్రబంధయుగ విశిష్టతను, అల్లసాని కవితలోని జగీబగీని అస్సాదించగలరు. కావ్యవస్తువులో కాలానుగుణంగా వచ్చిన మార్పులు గ్రహించగలరు.
5. ప్రాచీన తెలుగు కవితా సాందర్యాన్ని, విశిష్టతను గుర్తిస్తారు. తెలుగుజాతి సంప్రదాయాలను గ్రహిస్తూ, తెలుగువారి సంస్కృతిలో ఒక భాగమైన తెలుగు పద్యకవిత్వం వికాసం చెందిన విధానాన్ని, మొల్ల కవితా శైలిని విశ్లేషణాత్మకంగా అవగాహన చేసుకోగలరు.

## Paper II Programme outcomes

### 4. ఆధునిక కవిత్వ పరిచయం

#### అభ్యసన లక్ష్యాలు

1. వర్తమాన తెలుగు జీవనంలో ఒక భాగమైన ఆధునిక తెలుగుకవిత్వం తీరు తెన్నులను, సాందర్యాన్ని విశ్లేషణాత్మకంగా అవగాహన చేసుకోవడం, దేశభక్తి, సామాజిక అసమానతల నివారణ, మానవతావాదం మొదలైన భావాలను పెంపొందించడం
2. నున్నతమైన భాషను ఉపయోగిస్తూ, ఉత్తమభావాలను ప్రకటించే సామర్థ్యాన్ని అందుకునేలా చేయడం, సమాజంలోని అసమానతలను కవిత్వం ద్వారా ఖండించడం, విభిన్న కవిత్వ వస్తువులతో కవిత్వాన్ని రాయించడం
3. వ్యవహారికభాషలో సామాజిక చైతన్యాన్ని ప్రోత్సహించే కవిత్వం రాయడానికి ప్రేరణ పొందడం, ఆధునికకాలంలో కవిత్వంలోను, వస్తువులోను, భావంలోను వచ్చిన మార్పులను గ్రహించడం
4. దీర్ఘ కావ్య ప్రక్రియను, రచనా విధానాన్ని అర్థం చేసుకోవడం, శిల్పంలో స్వేచ్ఛను, భావప్రకటనలో వచ్చిన మార్పులను, సమాజానికి భాష దగ్గర కావడాన్ని అవగాహన కలిగించడం
5. కవిత్వ రచనా విధానంలో అలంకారం, ప్రతీక, భావ చిత్రం ఉపయోగించేలా చేయడం, కవిత్వంలో ఉన్న వివిధ రకాల వాదాలను, భావ వ్యక్తీకరణను పరిచయం చేయడం

## Programme outputs

#### అభ్యసన ఫలితాలు

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. వర్తమాన తెలుగు జీవనంలో ఒక భాగమైన ఆధునిక తెలుగు కవిత్వం తీరు తెన్నులను, సాందర్యాన్ని విశ్లేషణాత్మకంగా అవగాహన చేసుకుంటారు. దేశభక్తి, సామాజిక అసమానతల నివారణ, మానవతావాదం మొదలైన భావాలు పెంపొందుతాయి.
2. నున్నతమైన భాషను ఉపయోగిస్తూ, ఉత్తమభావాలను ప్రకటించే సామర్థ్యాన్ని అందుకుంటారు. సమాజంలోని అసమానతలను కవిత్వం ద్వారా ఖండించడం, విభిన్న కవిత్వ వస్తువులతో కవిత్వాన్ని రాయడం నేర్చు కుంటారు.
3. వ్యవహారికభాషలో సామాజిక చైతన్యాన్ని ప్రోత్సహించే కవిత్వం రాయడానికి ప్రేరణ పొందుతారు. ఆధునికకాలంలో కవిత్వంలోను, వస్తువులోను, భావంలోను వచ్చిన మార్పులను గ్రహించడం వల్ల కవిత్వ రచనా విధానం తెలుస్తుంది.
4. దీర్ఘ కావ్య ప్రక్రియను, రచనా విధానాన్ని అర్థం చేసుకుంటారు. శిల్పంలో స్వేచ్ఛను, భావప్రకటనలో వచ్చిన మార్పులను, సమాజానికి కావ్యభాష దగ్గర కావడాన్ని అవగాహన చేసుకుంటారు.
5. కవిత్వ రచనా విధానంలో అలంకారం, ప్రతీక, భావ చిత్రం ఉపయోగాన్ని తెలుసుకుంటారు. కవిత్వంలో ఉన్న వివిధ రకాల వాదాలను, భావ వ్యక్తీకరణను గ్రహిస్తారు.

## Special Telugu Semester III

### Course outcomes

#### 5. ప్రాచీన తెలుగు సాహిత్య చరిత్ర

##### అభ్యసన లక్ష్యాలు

1. తెలుగువారి చరిత్రకు తెలుగు సాహిత్యచరిత్రకు ఉన్న సంబంధం తెలియజేయడం  
తెలుగు సాహిత్య క్రమపరిణామాన్ని గురించిన స్థూలమైన అవగాహనను పెంపొందించడం  
తెలుగులో ఉన్న రెండు సాహిత్య సంప్రదాయాలైన మౌఖిక, లిఖిత రూపాలను గుర్తింప జేయడం
2. వివిధ సాహిత్య ప్రక్రియల వికాసాన్ని అవగాహన చేయించడం  
నన్నయ మహాభారత రచన, నన్నయ కవితారీతులు, నన్నయ భారతాంధ్రీకరణ విధానాన్ని తెలియ జేయడం
3. సృజనాత్మక పద్య సాహిత్యాన్ని బోధించడం ద్వారా విద్యార్థుల్లో సాహిత్యం పట్ల సంవేదనను, అభిరుచిని, విమర్శనాత్మక విశ్లేషణాశక్తిని పెంపొందించజేయడం
4. ఆయా శాస్త్రాల్లో కృషిచేసే వారికి ఆ రంగంలో విషయజ్ఞానం ఎలా అవసరమో తెలుగు సాహిత్యంలో కృషి చేసే వారికి తెలుగులో పాండిత్యం అవసరం కనుక ప్రబంధ ప్రక్రియను పరిచయం చేయడం
5. దక్షిణాంధ్రయుగ వైశిష్ట్యం, రఘునాథనాయకుని సాహిత్య పోషణతో పాటు ఆ యుగ సాహిత్యాన్ని పరిచయం చేయడం ద్వారా కావ్యాల పట్ల అభిరుచిని పెంచడం

### Course outputs

1. తెలుగువారి చరిత్రకు తెలుగు సాహిత్యచరిత్రకు ఉన్న సంబంధం తెలుసుకుంటారు. తెలుగు సాహిత్య క్రమపరిణామాన్ని గురించిన స్థూలమైన అవగాహనను పొందడంతో పాటు తెలుగులో ఉన్న మౌఖిక, లిఖిత సాహిత్య రూపాలను గుర్తిస్తారు.
2. వివిధ సాహిత్య ప్రక్రియల వికాసాన్ని అవగాహన చేసుకోవడమే కాకుండా నన్నయ మహాభారత రచనా విధానం, నన్నయ కవితారీతులు, నన్నయ భారతాంధ్రీకరణ విధానాన్ని అర్థం చేసుకుంటారు.
3. తిక్కన, ఎఱ్ఱన, శ్రీనాథుని సృజనాత్మక సాహిత్యాన్ని బోధించడం ద్వారా విద్యార్థులు సాహిత్యం పట్ల సంవేదనను, అభిరుచిని విమర్శనాత్మక విశ్లేషణాశక్తిని పొందుతారు.
4. ప్రబంధ ప్రక్రియా లక్షణాలను, కావ్య రచనలో అష్టాదశ వర్ణనల ప్రాముఖ్యతను, పద్య నిర్మాణం పట్ల అభిరుచిని సొంతం చేసుకుంటారు.
5. దక్షిణాంధ్రయుగ వైశిష్ట్యం, రఘునాథనాయకుని సాహిత్య పోషణతో పాటు ఆ యుగ సాహిత్యాన్ని పరిచయం చేయడం ద్వారా కావ్యాల పట్ల అభిరుచి పెరుగుతుంది.

## Sem III

### Course out comes

#### 6. ఆధునిక తెలుగు సాహిత్య చరిత్ర

##### అభ్యసన లక్ష్యాలు

1. ఆంగ్లభాషా ప్రభావం వల్ల వచ్చిన పరిణామాల ఫలితంగా ఏర్పడిన ఆధునిక తెలుగు సాహిత్య స్వరూప స్వభావాలను తెలియజేయడం  
ఆధునిక కవిత్వంలో ఏ విధమైన ఉద్యమాలు, వాదాలు, ధోరణులు ఎందుకు తలెత్తాయో తెలియజేయడం వల్ల సాహిత్యం పట్ల అవగాహన పెంపొందించడం
2. సామాజిక మార్పులు సాహిత్యంలో ఎలా ప్రతిబింబించాయో గ్రహించ జేయడం  
భావకవితా శాఖలను అధ్యయనం చేయడం ద్వారా కవిత్వం పట్ల అవగాహన పెంపొందించడం
3. ఆధునిక సాహితీ ప్రక్రియలను అవగాహన చేసుకోవడం ద్వారా, సమాజంపై సాహిత్య ప్రభావాన్ని అర్థం చేసుకునేలా చేయడం  
మూర్ఖజం కారణంగా ప్రపంచవ్యాప్తంగా వచ్చిన భావవిప్లవ అవగాహన పెంపొందించడం
4. భిన్న కవితా శాఖలను, ఒకే కాలంలో వచ్చిన భిన్న సాహిత్య వస్తు వైవిధ్యాన్ని తెలియజేయడం
5. సమకాలీన ఆధునిక కవితాధోరణుల పట్ల అవగాహన కలిగించడం  
అస్తిత్వవాదాల పట్ల తమదైన వైఖరిని ఏర్పరచుకునేలా చేయడం

### Course outputs

##### అభ్యసన ఫలితాలు

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. ఆంగ్లభాషా ప్రభావం వల్ల వచ్చిన పరిణామాల ఫలితంగా ఏర్పడిన ఆధునిక తెలుగు సాహిత్య స్వరూప స్వభావాలను తెలుసుకుంటారు. ఆధునిక కవిత్వంలో ఏ విధమైన ఉద్యమాలు, వాదాలు, ధోరణులు ఎందుకు తలెత్తాయో తెలుసుకుంటారు.
2. భావకవితా శాఖలను అధ్యయనం చేయడం ద్వారా సామాజిక మార్పులు సాహిత్యంలో ఎలా ప్రతిబింబించాయో గ్రహిస్తారు. 3. ఆధునిక సాహితీ ప్రక్రియలను అవగాహన చేసుకోవడం ద్వారా సమాజంపై సాహిత్య ప్రభావాన్ని అర్థం చేసుకుంటారు. మూర్ఖజం కారణంగా ప్రపంచవ్యాప్తంగా వచ్చిన భావవిప్లవాన్ని అర్థం చేసుకుంటారు.
4. భిన్న కవితా శాఖలను, ఒకే కాలంలో వచ్చిన భిన్న సాహిత్య వస్తు వైవిధ్యాన్ని అర్థం చేసుకుంటారు.
5. సమకాలీన ఆధునిక కవితాధోరణులను అవగాహన చేసుకోవడం వల్ల అస్తిత్వవాదాల పట్ల తమదైన వైఖరిని ఏర్పరచుకుంటారు.

# Special Telugu Semester IV

## Course outcomes

### 8. ఆధునిక కావ్యం

#### అభ్యసన లక్ష్యాలు

1. అభ్యుదయ కవిత్వ నాయకునిగా శ్రీశ్రీ గురించి తెలియజేయడం
2. అభ్యుదయ కవిత్వం పట్ల అవగాహన పెంపొందింపు జేయడం
3. ఈ పాఠ్యాంశం ద్వారా మహాప్రస్థాన కావ్య వైశిష్ట్యాన్ని గ్రహింపు జేయడం
4. మహాప్రస్థానంలోని మార్క్సిజం ప్రభావాన్ని గుర్తింపు జేయడం
5. ఈ ఖండికల ద్వారా శ్రీశ్రీ భావజాలాన్ని, అభ్యుదయ కవితా ధోరణిని పరిచయం చేయడం

## Course outputs

#### అభ్యసన ఫలితాలు

1. అభ్యుదయ కవిత్వ ఉద్యమ నాయకునిగా శ్రీశ్రీ ఎందుకు గుర్తించబడ్డాడో తెలుసుకోగలరు.
2. తెలుగు సాహిత్యంలో అభ్యుదయ సాహిత్య ప్రత్యేకతను తెలుసుకుంటారు.
3. ఈ కవితా ఖండికల ద్వారా అభ్యుదయ కవిత్వ తాత్విక భూమికను, మార్క్సిజం ప్రభావాన్ని అర్థం చేసుకుంటారు.
4. మహాప్రస్థానంలోని సామాజిక తాత్విక దృష్టిని గమనించగలరు.
5. అభ్యుదయ కవిత్వ అభ్యాసం వల్ల కవితా నిర్మాణ శక్తి పెంపొందుతుంది.

# Special Telugu Semester V

## Course outcomes

### 9. ప్రాచీన తెలుగు సాహిత్య విమర్శ

#### అభ్యసన లక్ష్యాలు

1. కవి, కావ్యం, నిర్వచనాలు, ప్రాముఖ్యం, కావ్య హేతువులు, కావ్య ప్రయోజనాలను పరిచయం చేయడం
2. అలంకార శాస్త్ర పరిచయం, సిద్ధాంతాలు, ప్రసిద్ధ అలంకారికుల గురించి తెలియ జేయడం
3. అలంకార శాస్త్ర సిద్ధాంతాలైన రసము, ధ్వనిని స్థూలంగా పరిచయం చేయడం
4. తెలుగు సాహిత్య విమర్శ పుట్టుక, వికాసం, విమర్శకుల లక్షణాలు, రకాలు, విమర్శ మౌలిక లక్షణాలను తెలియజేయడం
5. ప్రాచీన తెలుగు సాహిత్యంలో విమర్శనాంశాలను అవగతం చేయడం

## Course outputs

#### అభ్యసన ఫలితాలు

1. కవి, కావ్యం, కావ్య హేతువులు, కావ్య ప్రయోజనాలపై సంపూర్ణ అవగాహన ఏర్పడుతుంది.
2. సాహిత్య విమర్శలో అలంకార శాస్త్ర ప్రాముఖ్యతను గుర్తిస్తారు.
3. అలంకార శాస్త్ర సిద్ధాంతాల పరిచయం కావ్యాన్ని సరిగ్గా అంచనా వేయడానికి తోడ్పడుతుంది.
4. తెలుగు సాహిత్య విమర్శ పుట్టుక, వికాసాల అభ్యసనం సాహిత్యాన్ని సరిగ్గా గ్రహించేలా చేయడంతో పాటు సాహిత్యాన్ని విద్యార్థులకు సన్నిహితం చేస్తుంది.
5. ప్రాచీన విమర్శనాంశాల అధ్యయనం నేటి సాహిత్య విమర్శకు తద్వారా విమర్శకు దిశా నిర్దేశం చేయగలదు.

# Special Telugu Semester V

## Course outcomes

### 10. తెలుగు నాటకం

#### అభ్యసన లక్ష్యాలు

1. తెలుగు నాటక సాహిత్య వైశిష్ట్యాన్ని తెలియ జేయడం
2. జానపద సాహిత్యంలో వీర గాథల ప్రాముఖ్యతను గ్రహింప జేయడం
3. సత్యహరిశ్చంద్ర నాటకం ద్వారా పౌరాణిక నాటక సాహిత్య ప్రత్యేకతలను గమనింప జేయడం
4. ప్రతాపరుద్రీయ నాటకం ద్వారా చరిత్ర, సంస్కృతుల ప్రాధాన్యాన్ని గుర్తించేలా చేయడం
5. సామాజిక సమస్యలను ప్రతిబింబించడానికి సాంఘిక నాటకం ఒక బలమైన ప్రక్రియని తెలియ జేయడం

## Course outputs

#### అభ్యసన ఫలితాలు

1. నాటక సాహిత్య ప్రాధాన్యతను అర్థం చేసుకోవడంతో పాటు ప్రముఖ నాటక కర్తల గురించి తెలుసుకుంటారు.
2. వీరగాథల పరిచయం ద్వారా స్థానిక వీరుల త్యాగాలను గుర్తిస్తారు.
3. ఈ పాఠ్యాంశం ద్వారా సత్య వైశిష్ట్యాన్ని కూడా గమనించగలరు.
4. చరిత్రను నాటకంగా ఎలా మలచాలో తెలుసుకుంటారు.
5. సమాజంలోని సమస్యలను అవగాహన చేసుకుంటారు. సమాజ లోపాల పూరణకు నాటకం దోహదపడే విధానాన్ని తెలుసుకుంటారు.

# Special Telugu Semester VI

## Course outcomes

### 11. తెలుగులో బాల సాహిత్యం

#### అభ్యసన లక్ష్యాలు

1. తెలుగులో బాల సాహిత్యం గురించి, బాల సాహితీవేత్తల గురించి పరిచయం చేయడం
2. పాట ప్రత్యేకతను, ప్రక్రియా విశిష్టతను గుర్తింప జేయడం
3. బాలల కథల ప్రక్రియా వైవిధ్యాన్ని, ప్రాధాన్యతని తెలియ జేయడం
4. బాలల సాహిత్యంలో నవల పోషించిన పాత్ర గురించి అర్థం చేసుకునేలా చేయడం
5. తెలుగులో శతక సాహిత్య ప్రాధాన్యతను గురించి, తెలుగు బాల శతక వైశిష్ట్యాన్ని గురించి అవగాహన పెంచడం

## Course outputs

#### అభ్యసన ఫలితాలు

1. బాలసాహిత్యం గురించి బాల సాహితీవేత్తల గురించి తెలుసుకోగలరు.
2. తెలుగులో ప్రసిద్ధ బాలగేయాలను తెలుసుకొని నేర్చుకోగలరు.
3. బాల కథా సాహిత్యాన్ని అవగాహన చేసుకోగలరు.
4. బుడుగు పాత్ర పరిచయం ద్వారా విశిష్ట బాల పాత్రలతో రచనలు చేసే సామర్థ్యం పెంపొందుతుంది.
5. శతక లక్షణాలను నేర్చుకోవడం ద్వారా శతక రచనా నైపుణ్యాన్ని పొందగలరు.

## Course outcomes

### 12. తెలుగు రచనా లీతులు

#### అభ్యసన లక్ష్యాలు

1. వివిధ రంగాలలోని తెలుగు రచనాలీతులపై ప్రాథమిక అవగాహన కల్పించడం
2. ముద్రణా మాధ్యమరంగంలోని రచనాలీతులను తెలియ జేయడం  
ప్రసార మాధ్యమాలు, సామాజిక మాధ్యమాలలోని రచనావిధానాలను పరిచయం చేయడం
3. భాషలోని అర్థపరిణామం, అన్యదేశ్యాలపై అవగాహన పెంచడం
4. మాండలిక విజ్ఞానం గురించిన అవగాహన పెంపొందించడం
5. సృజనరంగంలోని ప్రధాన ప్రక్రియల, రచనావిధానాలను తెలియ జేయడం

## Course outputs

2. ముద్రణా మాధ్యమరంగంలోని రచనాలీతులను తెలుసుకుంటారు. ప్రసార మాధ్యమాలు, సామాజిక మాధ్యమాలలోని రచనావిధానాలను అవగాహన చేసుకుంటారు.
3. భాషలోని అర్థపరిణామం, అన్యదేశ్యాలపై అవగాహన పెరుగుతుంది.
4. మాండలిక విజ్ఞానం గురించిన అవగాహన పెంపొందుతుంది.
5. సృజనరంగంలోని ప్రధాన ప్రక్రియల రచనావిధానాలను తెలుసుకుంటారు.

# Special Telugu Semester VII

## Course outcomes

### 13. జానపద కళలు

#### అభ్యసన లక్ష్యాలు

1. జానపదవిజ్ఞానం పట్ల ప్రాథమిక అవగాహన కల్పించడం
2. జానపద సాహిత్యాన్ని, దాని ప్రాధాన్యాన్ని, విశిష్టతను తెలియ జేయడం
3. జానపద భాష, సంస్కృతుల వైవిధ్యాన్ని గూర్చి అవగాహన పెంచడం
4. జానపద ప్రదర్శనాకళలైన యక్షగానం, బుర్రకథ, తోలుబొమ్మలాటలు, బుర్రకథ, హలకథ, ఒగ్గుకథ, మొదలైన ప్రక్రియలను గూర్చి అవగాహన కలగజేయడం
5. మన గ్రామాల జాతీయ సంపదగా జానపదగేయాలను గుర్తించేలా చేయడం  
జానపద గేయాల రచనా విధానాన్ని తెలుసుకునేలా చేయడం  
జానపద గేయాలను పాడే విధానాన్ని గమనించేలా చేయడం

## Course outputs

#### అభ్యసన ఫలితాలు

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. విద్యార్థులకు జానపదవిజ్ఞానం పట్ల ప్రాథమిక అవగాహన కలుగుతుంది.
2. జానపద సాహిత్యాన్ని, దాని ప్రాధాన్యాన్ని, విశిష్టతను తెలుసుకుంటారు.
3. జానపద భాషాసంస్కృతుల వైవిధ్యాన్ని గూర్చి అవగాహన కలుగుతుంది.
4. జానపద ప్రదర్శనాకళలైన హలకథ, బుర్రకథ మొదలైన ప్రక్రియలను గూర్చి అవగాహన ఏర్పడుతుంది.
5. మన గ్రామాల జాతీయ సంపదగా జానపదగేయాలను గుర్తిస్తూ, వాటిని రాసి విధానాన్ని, పాడే విధానాన్ని నేర్చుకుంటారు.

## Special Telugu Semester VII

### Course outcomes

#### 14. A. మాధ్యమాలకు రచన

##### అభ్యసన లక్ష్యాలు

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. మాధ్యమాలలోని విస్తృతి, ప్రయోజనాలపై అవగాహన పెంచడం
2. పత్రికా సంపాదకులుగా వివిధ రకాల రచనాంశాల్లో రాణించేలా చేయడం
3. ముద్రణ, ప్రసారమాధ్యమ రంగాల్లోని అవకాశాలను, ప్రాధాన్యాన్ని గమనింప జేయడం
4. ప్రసార మాధ్యమాలలోని రచనల తీరుతెన్నులను గుర్తింప జేయడం
5. ప్రసారమాధ్యమాలకు రచనలు చేసే నైపుణ్యాన్ని సంపాదించేలా చేయడం

### Course outputs

3. సంబంధిత రంగంలో నిపుణులను రప్పించి, వారిచేత శిక్షణ ఇప్పించడం / అతిథి ఉపన్యాసాలు ఏర్పాటు చేయడం
4. సెమినార్లు, అసెస్మెంట్లు, బృందచర్చల నిర్వహణ
5. ద్వారా విద్యార్థుల్లో ఆసక్తి కలిగిన వారిని గుర్తించి వారిచేత కార్యక్రమాలను నిర్వహించడం

##### అభ్యసన ఫలితాలు

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. మాధ్యమాలలోని విస్తృతి, ప్రయోజనాలపై అవగాహన పొందుతారు.
2. పత్రికా సంపాదకులుగా వివిధ రకాల రచనాంశాల్లో రాణించగలరు.

## Course outcomes

### 14. B. అనువాద రచన

#### అభ్యసన లక్ష్యాలు

1. భాషాతత్వాన్ని, ప్రాధాన్యాన్ని గుర్తిస్తూ, అనువాద అవసరాన్ని తెలియ జేయడం
2. అనువాదకుని లక్షణాలను గూర్చి అవగాహన కలగజేయడం
3. అనువాదరంగంలో నైపుణ్యాన్ని పెంపొందించడం
4. భాషాసామర్థ్యాన్ని పెంపొందించుకునే మార్గాలను తెలియజేయడం
5. అనువాదవృత్తిలో స్థిరపడడానికి అవసరమయ్యే నైపుణ్యాలను, సృజన, ప్రసారమాధ్యమరంగాల్లో ఉపాధి అవకాశాలను గురించి అవగాహన ఏర్పరచడం

## Course outputs

#### అభ్యసన ఫలితాలు

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. భాషాతత్వాన్ని, ప్రాధాన్యాన్ని గుర్తిస్తూ అనువాద అవసరాన్ని తెలుసుకుంటారు.
2. అనువాదకుని లక్షణాలను గూర్చి అవగాహన పెంపొందుతుంది.
3. అనువాదరంగంలో నైపుణ్యాన్ని **స**పొందించగలరు.
4. భాషాసామర్థ్యాన్ని పెంపొందించుకునే మార్గాలను తెలుసుకుంటారు.
5. అనువాదవృత్తిలో స్థిరపడడానికి అవసరమయ్యే నైపుణ్యాలు పెంపొందుతాయి.
6. సృజన, ప్రసారమాధ్యమరంగాల్లో ఉపాధి అవకాశాలను గురించి తెలుసుకొని వాటిని అందిస్తున్నట్లుంటారు.

## Special Telugu Semester VIII

### Course outcomes

#### 15.A. తెలుగు బోధనా పద్ధతులు

##### అభ్యసన లక్ష్యాలు

1. భాషానైపుణ్యాలను గూర్చి తెలుసుకోవడం ద్వారా భాషాభివృద్ధి
2. మాతృభాషాబోధన ప్రాధాన్యాన్ని తెలియ జేయడం
3. తెలుగు సాహిత్య బోధనా పద్ధతులైన పద్య, గద్య - వ్యాకరణాది బోధనల ద్వారా భాషాపాఠ్యాయులుగా రాణించేలా చేయడం
4. పాఠశాల, కళాశాల స్థాయిల్లో ప్రథమభాషగా, ద్వితీయభాషగా తెలుగు బోధనాప్రాధాన్యాన్ని తెలియ జేయడం
5. సాహిత్య ప్రక్రియల బోధనాపద్ధతులను తెలియ జేయడం ద్వారా భాషాసాహిత్యాల పట్ల అభిరుచిని పెంపొందించడం

### Course outputs

4. బృందచర్చల ద్వారా వ్యాకరణలితులపై ఆసక్తిని పెంపొందించడం
5. వివిధ రకాల పాఠ్య ప్రణాళికలు తయారు చేయించడం

##### బోధనా ఫలితాలు

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. భాషానైపుణ్యాలను గూర్చి తెలుసుకోవడం ద్వారా భాషాభివృద్ధి
2. మాతృభాషాబోధన ప్రాధాన్యాన్ని తెలుసుకోవడం
3. తెలుగు సాహిత్య బోధనా పద్ధతులైన పద్య గద్య - వ్యాకరణాది బోధనల ద్వారా భాషాపాఠ్యాయులుగా రాణించగలగడం.

# course outcomes

## 15.B. వాచికాభివృద్ధి

### అభ్యసన లక్ష్యాలు

1. భాషానైపుణ్యంలో భాషానికీ (వాచికానికీ) ఉండే ప్రాధాన్య్యాన్ని తెలియ పరచడం
2. భాషా వినియోగ నైపుణ్యరంగాలను గుర్తించడం ద్వారా వాచిక ప్రాధాన్య్యాన్ని తెలుసుకునేలా చేయడం
3. వాచికాభివృద్ధి ప్రక్రియలను గుర్తించడం ద్వారా వాచికాభివృద్ధి నైపుణ్యాలను పెంపొందించడం
4. మాధ్యమాల్లో వాచికాభివృద్ధి నైపుణ్యాన్ని మెరుగు పరచడం
5. ప్రాచీన, ఆధునిక కావ్యపరసం ద్వారా సాహిత్యాభిరుచిని పెంచుతూ వాచికాభివృద్ధి నైపుణ్యాలను అందుకునేలా చేయడం

## Course outputs

3. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) సమూహా:- ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు/తరగతి/క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు, విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.
4. అసైన్మెంట్లు, సెమినార్ల నిర్వహణ
5. బృంద చర్చల ద్వారా వ్యాకరణలీతులపై ఆసక్తిని పెంపొందించడం

### బోధనా ఫలితాలు

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. భాషానైపుణ్యంలో భాషానికీ (వాచికానికీ) ఉండే ప్రాధాన్య్యాన్ని తెలుసుకుంటారు.
2. భాషా వినియోగ నైపుణ్యరంగాలను గుర్తించడం ద్వారా వాచిక ప్రాధాన్య్యాన్ని అర్థం చేసుకుంటారు.



# Government Degree College

Paderu, Visakhapatnam -District,AP.

Affiliated to Andhra University

(Upgraded to Model Degree College under RUSA 2.0)

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## Department of Telugu

### General Telugu Course out comes

#### ▪ అభ్యసన లక్ష్యాలు

యూనిట్ల సంఖ్య 5

పీరియడ్ల సంఖ్య: 60

1. తెలుగు సాహిత్యం యొక్క ప్రాచీనతను, విశిష్టతను గుర్తించడం  
ఆదికవి నన్నయ కాలనాటి భాషా, సంస్కృతులను పరిచయం చేయడం
2. జాషువా కాలనాటి మతపరిస్థితులు, గద్దీలం కావ్య విశేషాలు తెలియజేయడం ద్వారా సమాజం పట్ల  
అవగాహన పెంపొందింపజేయడం
3. సంపన్న కుటుంబాలలోని పరిస్థితులు, ప్రేమ, పరువు వంటివి మనిషిని ఎలా నడిపిస్తాయో అవగాహన  
కల్పించడం
4. జమీందారీ వ్యవస్థ ఎలా బీటలు వారుతుందో, మన సమాజంలో పెట్టుబడిదారీ బీజాలు ఎలా నాటుకున్నాయో  
అర్థం చేసుకోవడంతో పాటు మన పల్లెటూళ్లు, మానవ సంబంధాలు, ఆస్తి అంతస్తులు వికృత రూపంలో ఎలా  
సాక్షాత్కరిస్తాయో తెలియజేయడం
5. జీవిత చరిత్ర ప్రక్రియను, దాని విశిష్టతను పరిచయం చేయడం
6. ప్రాచీన కావ్యభాషలోని వ్యాకరణాంశాలను అధ్యయనం చేయడం  
వ్యాకరణాంశాల ద్వారా భాషాసామర్థ్యాన్ని పెంపొందింపజేయడం

## Course outputs

నామాజక దృష్టత పునర్మూల్యాంకనం చేయించడం.

4. దారిత్రిక, సాంస్కృతిక అంశాలకు సంబంధించిన పర్యాటక ప్రదేశాలను సందర్శించడం.
5. వ్యక్తిగత/బృంద ప్రాజెక్టులు చేయించడం.

### ▪ అభ్యసన ఫలితాలు

ఈ కోర్సు విజయవంతంగా ముగిందాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. తెలుగు సాహిత్యం యొక్క ప్రాచీనతను, విశిష్టతను గుర్తిస్తారు. ఆదికవి నన్నయ కాలనాటి భాషాసంస్కృతులను, ఇతిహాసకాలం నాటి రాజనీతి విషయాలపట్ల పరిజ్ఞానాన్ని సంపాదించగలరు. ప్రాచీన కావ్యభాషలోని వ్యాకరణాంశాలను అధ్యయనం చేయడం ద్వారా భాషాసామర్థ్యాన్ని, రచనలు మెళకువలను గ్రహించగలరు.
2. జాషువా కాలనాటి మతపరిస్థితులను, గద్దెలం కావ్య విశేషాలను గ్రహిస్తారు. తెలుగు నుడికారం,

వంటివి మనిషిని ఎలా నడిపిస్తాయో అవగాహన చేసుకోవడంతో పాటు కథా రచన ఎలా చేయాలో తెలుసుకుంటారు.

4. అసమర్థుని జీవయాత్ర రచనలో అప్పటి మన పల్లెటూళ్లు, మానవ సంబంధాలు, ఆస్తి అంతస్తులు వికృత రూపంలో ఎలా సాక్షాత్కరిస్తాయో, జమీందారీ వ్యవస్థ ఎలా బీటలు వారుతుందో, మన సమాజంలో పెట్టుబడిదారీ బీజాలు ఎలా నాటుకున్నాయో విద్యార్థి తెలుసుకుంటాడు. ఒక తరం జీవితాన్ని కళ్లకు కట్టే మనోవైజ్ఞానిక నవలగా పేరు పొందిన అసమర్థుని జీవయాత్ర విద్యార్థి వ్యక్తిత్వ వికాసానికి దోహదం చేస్తుంది.

5. వేటూరి ప్రభాకర శాస్త్రి, నిడదవోలు వేంకటరావు, మానవల్లి రామకృష్ణ కవి వంటి ప్రముఖుల జీవిత చరిత్రలను తిరుమల రామచంద్ర ఎలా రాశారో అధ్యయనం చేయడంతోపాటు జీవిత చరిత్ర ప్రక్రియను ఎలా రచించాలో తెలుసుకుంటారు.

6. ప్రాచీన కావ్యభాషలోని వ్యాకరణాంశాలను అధ్యయనం చేయడం ద్వారా భాషాసామర్థ్యం



## Semester II

### Course outcomes

#### ▪ అభ్యసన లక్ష్యాలు

1. తెలుగు సాహిత్య అభ్యసన నైపుణ్యాలను, సృజనాత్మక నైపుణ్యాలుగా మార్చడం  
విద్యార్థులు భాషాతత్వాన్ని, భాష యొక్క ఆవశ్యకతను, భాష యొక్క ప్రాధాన్యాన్ని గుర్తింపజేయడం  
మనిషి వ్యక్తిగత జీవనానికి, సామాజిక వ్యవస్థ పటిష్ఠతకు భాష ప్రధానమని తెలుసుకునేలా జేయడం  
తెలుగుభాషలోని కీలకాంశాలైన వర్ణం, పదం, వాక్యాల ప్రాధాన్యాన్ని అవగాహన చేసుకోవడం
2. అనువాద రంగంలో నైపుణ్య సంపాదనను కలగజేయడం
3. సృజన రంగం, ప్రసార మాధ్యమ రంగాల్లో ఉపాధి అవకాశాలను అందిస్తున్నట్లుగా జేయడం
4. వ్యాస రచన ఎలా చేయాలో నేర్పించడం
5. సాంకేతికత రంగంలో తెలుగు ప్రాధాన్యతను గుర్తించేలా జేయడం

### Course outputs

1. తెలుగు సాహిత్య అభ్యసన ద్వారా నేర్చుకున్న నైపుణ్యాలను, సృజనాత్మక నైపుణ్యాలుగా మార్చుకోగలరు.  
విద్యార్థులు భాషాతత్వాన్ని, భాష యొక్క ఆవశ్యకతను, భాష యొక్క ప్రాధాన్యాన్ని గుర్తిస్తారు. మనిషి వ్యక్తిగత  
జీవనానికి, సామాజిక వ్యవస్థ పటిష్ఠతకు భాష ప్రధానమని తెలుసుకుంటారు. తెలుగుభాషలోని కీలకాంశాలైన వర్ణం,  
పదం, వాక్యాల ప్రాధాన్యాన్ని గుర్తిస్తూ వాగ్రూప, లిఖితరూప వ్యక్తీకరణ ద్వారా భాషానైపుణ్యాలను  
మెరుగుపరచుకోగలరు.
2. అనువాద ఆవశ్యకతను తెలుసుకుంటారు. అనువాద రంగంలో నైపుణ్యం పెరుగుతుంది.
3. సృజన రంగం, ప్రసార మాధ్యమ రంగాల్లో ఉపాధి అవకాశాలను అందిస్తున్నట్లుగా జేయగలరు.
4. భాషానైపుణ్యాలను అలవరచుకోవడంతోపాటు వినియోగించడం నేర్చుకుంటారు. భాషానైపుణ్యాలను సృజనాత్మక  
రూపంలో వ్యక్తీకరించగలరు. మంచి వ్యాస రచనా నైపుణ్యాలను పెంపొందించుకోగలరు.
5. సాంకేతికత రంగంలో తెలుగు ప్రాధాన్యత గురించి అవగాహన పొందగలరు.

## Department of ENGLISH - Course Outcomes

S.No	Semester	Course Code	Course Title	COURSE OUTCOMES (CO's)
1	I	1*01ENG20	Course in Communicative and Soft Skills	By the completion of the course the graduate should able to –
				CO 1 Use grammar effectively in writing and speaking
				CO 2 Demonstrate the use of good vocabulary
				CO 3 Display the understanding of writing skills when needed
				CO 4 Acquire the ability to use Soft Skills in professional and daily life
				CO 5 Use the tools of communication skills with ease
				CO 6 Correct the errors in language when found
2	II	2*01ENG16	Course in Reading and Writing Skills	By the completion of the course the graduate should able to –
				CO1 Use reading skills effectively
				CO2 Comprehend different texts
				CO3 Interpret different types of texts
				CO4 Analyse what is being read
				CO5 Build up a repository of active vocabulary
				CO6 Use good writing strategies
3	III	3*01ENG15	Course in Conversational Skills	By the completion of the course the graduate should able to –
				CO 1 To acquire the comprehensive understanding of the Language Functions
				CO 2 Acquire the ability of conversation
				CO 3 Improve the capability of using language non consciously
				CO 4 To train themselves speak in different contexts
				CO 5 To have the knowledge of speaking in groups and public gatherings