B.Com	Semester: III	Credits: 4
Course: 3A	ADVANCED ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the concept of Non-profit organizations and its accounting process.
- Comprehend the concept of single-entry system and preparation of statement of affairs.
- Familiarize with the legal formalities at the time of dissolution of the firm .
- Prepare financial statements for partnership firm on dissolution of the firm.
- Employ critical thinking skills to understand the difference between the dissolution of the firm and dissolution of partnership.

UNIT I:

Accounting for Non Profit Organizations: Non Profit Entities- Meaning - Features of Non-Profit Entities – Provisions as per Sec 8 - Accounting Process- Preparation of Accounting Records - Receipts and Payments Account- Income and Expenditure Account - Preparation of Balance Sheet (including simple problems).

UNIT II:

Single Entry System: Features – Differences between Single Entry and Double Entry – Disadvantages of Single Entry- Ascertainment of Profit and Preparation of Statement of Affairs (including Problems).

UNIT III:

Hire Purchase System: Features –Difference between Hire Purchase and Instalment Purchase Systems - Accounting Treatment in the Books of Hire Purchaser and Hire Vendor - Default and Repossession (including Problems).

UNIT IV:

Partnership Accounts-I: Meaning – Partnership Deed - Fixed and Fluctuating Capitals-Accounting Treatment of Goodwill - Admission and Retirement of a Partner (including problems).

UNIT V:

Partnership Accounts-II: Dissolution of a Partnership Firm – Application of Garner v/s Murray Rule in India – Insolvency of one or more Partners (including).

REFERENCES BOOKS:

1. Financial Accounting: SN Maheswari& SK Maheswari by Vikas Publications.
2. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta, Sultan Chand & Sons.
3. Advanced Accountancy: R.L.Gupta&Radhaswamy, Sultan Chand &Sons..
4. Advanced Accountancy (Vol-II): S.N.Maheshwari&V.L.Maheswari, Vikas publishers.
5. Accountancy–III: S.P. Jain & K.L Narang, Kalyani Publishers.
6. Advanced Accounting (IPCC): D. G. Sharma, Tax Mann Publications.
7. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.

B.Com	Semester: III	Credits: 4
Course: 3B	BUSINESS STATISTICS	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the importance of Statistics in real life.
- Formulate complete, concise, and correct mathematical proofs.
- Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques.
- Build and assess data-based models.
- Learn and apply the statistical tools in day life.
- Create quantitative models to solve real world problems in appropriate contexts.

UNIT I:

Introduction to Statistics: Definition – Importance, Characteristics and Limitations of Statistics - Classification and Tabulation – Frequency Distribution Table -Diagrams and Graphic Presentation of Data (including problems)

UNIT II:

Measures of Central Tendency: Types of Averages – Qualities of Good Average - Mean, Median, Mode, and Median based Averages-Geometric Mean – Harmonic Mean(including problems)

UNIT III:

Measures of Dispersion: Meaning and Properties of Dispersion – Absolute and Relative Measures - Types of Dispersion-Range - Quartile Deviation (Semi – Inter Quartile Range) -Mean Deviation - Standard Deviation - Coefficient of Variation. (including problems)

UNIT IV:

Skewness and Kurtosis: Measures of Skewness: Absolute and Relative Measures- Co-efficient of Skewness: Karl Pearson's, Bowley's and Kelly's - Kurtosis: Meso kurtosis, Platy kurtosis and Leptokurtosis (including problems in Karl Pearson's, Bowley's and Kelly's)

UNIT V:

Measures of Relation: Meaning and use of Correlation – Types of Correlation - Karlpearson's Correlation Coefficient - Probable Error-Spearman's Rank-Correlation (including problems)

TEXT BOOKS:

1. Business Statistics, Reddy C.R., Deep Publications.
2. Statistical Methods: Gupta S.P.Sultan Chand & Sons.
3. Business Statistics, LS Agarwal, Kalyani Publications.
4. Fundamentals of Statistics: Gupta S.C. Sultan Chand &Sons.
5. Business Statistics: S.L.Aggarval, S.L.Bhardwaj and K.Raghuveer, Kalyani Publishers.

B.Com	Semester: III	Credits: 4
Course: 3C	MARKETING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Develop an idea about marketing and marketing environment.
- Understand the consumer behaviour and market segmentation process.
- Comprehend the product life cycle and product line decisions.
- Know the process of packaging and labeling to attract the customers.
- Formulate new marketing strategies for a specific new product.
- Develop new product line and sales promotion techniques for a given product.
- Design and develop new advertisements to given products.

UNITI:

Introduction: Concepts of Marketing: Need, Wants and Demand - Marketing Concepts – Marketing Mix - 4 P's of Marketing – Marketing Environment.

UNIT II:

Consumer Behaviour and Market Segmentation: Buying Decision Process – Stages – Buying Behaviour – Market Segmentation –Bases of Segmentation - Selecting Segments – Advantages of Segmentation.

UNIT III:

Product Management: Product Classification – Levels of Product - Product Life Cycle - New Products, Product Mix and Product Line Decisions - Design, Branding, Packaging and Labelling.

UNIT IV:

Pricing Decision: Factors Influencing Price – Determination of Price - Pricing Strategies: Skimming and Penetration Pricing.

UNIT V:

Promotion and Distribution: Promotion Mix - Advertising - Sales promotion - Publicity – Public Relations - Personal Selling and Direct Marketing - Distribution Channels – Online Marketing

REFERENCE BOOKS:

1. Philip Kotler, Marketing Management, Prentice Hall of India.
2. Philip Kotler & Gary Armstrong, Principles of Marketing, Pearson Prentice Hall.
3. V.S. Ramaswamy S. Nama Kumari, Marketing Management – Planning, McMillan.
4. The Consumer Protection Act 1986 and Consumer Protection Act 2019.
5. Dhruv Grewal and Michael Levy, Marketing, McGraw Hill Education.
6. Dr M Venkataramanaiah, Marketing, Seven Hill International Publishers.
7. C N Sonanki, Marketing, Kalyani Publications.

SB.Comgested Co-Curricular Activities:

- Quiz programs and Seminars .
- Practice of Terminology of Marketing.
- Guest lectures on various topics by marketing agents.
- Observing consumer behaviour on field trips to local markets.
- Visit a manufacturing industry/firm for product manufacturing process.
- Showing Graphs on Pricing decisions.
- Analyse the advertisements.
- Product demonstration by the student.
- Conducting the survey on middle man in marketing process and Making a advertisement.
- Examinations (Scheduled and surprise tests) .

B.Com	Semester: IV	Credits: 4
Course: 4C	INCOME TAX	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning.
- Understand the provisions and compute income tax for various sources.
- Grasp amendments made from time to time in Finance Act.
- Compute total income and define tax complicacies and structure.
- Prepare and File IT returns of individual at his own.

UNIT I:

Introduction: Income Tax Act-1961 - Basic Concepts: Income, Person, Assessee - Assessment Year, Previous Year, Rates of Tax, Agricultural Income, Residential Status of Individual -Incidence of Tax – Incomes Exempt from Tax (theory only).

UNIT II:

Income from Salaries: Basis of Charge, Tax Treatment of Different Types of Salaries Allowances, Perquisites, Profits in Lieu of Salary, Deductions from Salary Income, Computation of Salary Income (simple problems).

UNIT III:

Income from House Property and Profits and Gains from Business: Annual Value, Let-out/Self Occupied/Deemed to be Let-out house -Deductions from Annual Value - Computation of Income from House Property, Definition of Business and Profession – Procedure for Computation of Income from Business – Revenue and Capital Nature of Incomes and Expenses – Allowable Expenses – Expenses Expressly Disallowed – Computation (simple problems).

UNIT IV:

Income from Capital Gains - Income from Other Sources: Meaning of Capital Asset – Types – Procedure for Computation of Long-term and Short-term Capital Gains/Losses

Meaning of Other Sources - General Incomes – Specific Incomes – Computation (simple problems).

UNIT V: Computation of Total Income of an Individual: Deductions under Section 80 - Computationof Total Income (Simple problems).

REFERENCE BOOKS:

1. Dr. Vinod; K. Singhania; Direct Taxes – Law and Practice, Taxman Publications
2. T. S. Reddy and Dr. Y. Hari Prasad Reddy - Taxation , by Margham Publications
3. Premraj and Sreedhar, Income Tax, Hamsrala Publications
4. B.B. Lal - Direct Taxes; Konark Publications
5. Dr. Mehrotra and Dr. Goyal -Direct Taxes, Law and Practice, Sahitya Bhavan Publication.
6. Balachandran&Thothadri- Taxation Law and Practice, PHI Learning.
7. V.P. Gaur and D.B. Narang - Income Tax, Kalyani Publications
8. Dr Y Kiranmayi - Taxation, Jai Bharath Publishers
9. Income Tax, Seven Lecture Series, Himalaya Publications

B.Com	Semester: IV	Credits: 4
Course: 4E	AUDITING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

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

UNIT I:

Introduction: Meaning – Objectives – Importance of Auditing – Characteristics - Book Keeping vs Auditing - Accounting vs Auditing – Role of Auditor in Checking Corporate Frauds.

UNIT II:

Types of Audit: Based on Ownership, Time and Objective - Independent, Financial, Internal, Cost,Tax, Government, Secretarial Audits

UNIT III:

Planning of Audit: Steps to be taken at the Commencement of a New Audit – Audit Programme - Audit Note Book– Audit Working Courses - Audit Evidence - Internal Check, Internal Audit and Internal Control.

UNIT IV:

Vouching and Investigation: Definition and Importance of Vouching – Objectives of Vouching - Vouching of Cash and Trading Transactions – Investigation - Auditing vs. Investigation

UNIT V:

Company Audit and Auditors Report: Auditor's Qualifications – Appointment andReappointment – Rights, Duties, Liabilities and Disqualifications - Audit Report: Contents –Preparation - Relevant Provisions of Companies Act, 2013.

REFERENCESBOOKS:

1. S.Vengadamani, “Practical Auditing”, Margham Publications, Chennai.
2. Ghatalia, “Principles of Auditing”, Allied Publishers Pvt. Ltd., New Delhi.
3. Pradeesh Kumar, BaldevSachdeva&Jagwant Singh,

B.Com	Semester: IV	Credits: 4
Course: 4D	BUSINESS LAW	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the legal environment of business and laws of business.
- Highlight the security aspects in the present cyber-crime scenario.
- Apply basic legal knowledge to business transactions.
- Understand the various provisions of Company Law.
- Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to business associations and legal issues.
- Integrate concept of business law with foreign trade.

UNIT I:

Contract: Meaning and Definition of Contract - Essential Elements of Valid Contract -Valid, Void and Voidable Contracts - Indian Contract Act, 1872

UNIT II:

Offer, Acceptance and Consideration: Definition of Valid Offer, Acceptance and Consideration - Essential Elements of a Valid Offer, Acceptance and Consideration.

UNIT III:

Capacity of the Parties and Contingent Contract:

Rules Regarding to Minors Contracts - Rules Relating to Contingent Contracts - Different Modes of Discharge of Contracts - Rules Relating to Remedies to Breach of Contract.

UNIT IV:

Sale of Goods Act 1930 and Consumer Protection Act 2019:

Contract of Sale - Sale and Agreement to Sell - Implied Conditions and Warranties - Rights of Unpaid Vendor- Definition of Consumer - Person - Goods - Service - Consumer Dispute - Consumer Protection Councils - Consumer Dispute Redressal Mechanism.

UNIT V:

Cyber Law: Overview and Need for Cyber Law - Contract Procedures - Digital Signature-Safety Mechanisms.

REFERENCES BOOKS:

1. J. Jaysankar, Business Laws, Margham Publication. Chennai.
2. ND Kapoor, Business Laws, S Chand Publications.
3. Balachandram V, Business law, Tata McGraw Hill.
4. Tulsian, Business Law, Tata McGraw Hill.
5. Pillai Bhagavathi, Business Law,SChand Publications.
6. Business Law, Seven Hills Publishers, Hyderabad.
7. K C Garg, Business Law, Kalyani Publishers.

SB.Comgested Co-Curricular Activities:

- Seminar on Basics of Indian Contract Act,1872.
- Quiz programs.
- Co-operative learning.
- Seminar on Cyber Law.
- Group Discussions.
- Debate on Offer, Agreement, and Contract.
- Creation of Contract by abiding rules of Indian Contract Act,1872.
- Making a sale by abiding rules of Sale of Goods Act,1930.
- Guest lecture by a Lawyer/Police officer.
- Celebrating consumers day by creating awareness among the students.
- Examinations (Scheduled and surprise tests) .
- Any similar activities with imaginative thinking beyond the prescribed syllabus

B.Com	Semester: IV	Credits: 4
Course: 4A	CORPORATE ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand the Accounting treatment of Share Capital and aware of process of book building.
- Demonstrate the procedure for issue of bonus shares and buyback of shares.
- Comprehend the important provisions of Companies Act, 2013 and prepare final accounts of a company with Adjustments.
- Participate in the preparation of consolidated accounts for a corporate group.
- Understand analysis of complex issues, formulation of well-reasoned arguments and reaching better conclusions.
- Communicate accounting policy choices with reference to relevant laws and accounting standards.

UNIT I:

Accounting for Share Capital: Kinds of Shares – Types of Preference Shares – Issue of Shares at Par, Discount and Premium - Forfeiture and Reissue of Shares (including problems).

UNIT II:

Issue and Redemption of Debentures and Issue of Bonus Shares: Accounting Treatment for Debentures Issued and Repayable at Par, Discount and Premium -Issue of Bonus Shares , Buyback of Shares (theory only) - (including problems).

UNIT III:

Valuation of Goodwill: Need and Methods - Average Profit Method, Super Profits Method – Capitalization Method and Annuity Method (Including problems).

UNIT IV:

Valuation Shares: Need for Valuation - Methods of Valuation - Net Assets Method, Yield Basis Method, Fair Value Method (simple problems).

UNIT V:

Company Final Accounts: Provisions of the Companies Act, 2013 - Preparation of Final Accounts – Adjustments Relating to Preparation of Final Accounts – Profit and Loss Account and Balance Sheet – (including problems with simple adjustments).

REFERENCE BOOKS:

1. Corporate Accounting – T.S Reddy and Murthy, MarghamPublications, Chennai.
2. Advanced Accounts: M C Shukla, T S Grewal and S C Gupta, S Chand Publications
3. Corporate Accounting – Haneef & Mukherji, Tata McGraw Hill Publications.
4. Corporate Accounting – RL Gupta & Radha Swami,Sultan Chand & sons
5. Corporate Accounting – P.C. Tulsian, S.Chand Publishers
6. Advanced Accountancy: Jain and Narang,,Kalyani Publishers
7. Advanced Accountancy: R.L. Gupta and M.Radhaswamy, S Chand.

B.Com	Semester: IV	Credits: 4
Course: 4B	COST AND MANAGEMENT ACCOUNTING	Hrs/Wk: 5

Learning Outcomes:

At the end of the course, the student will able to:

- Understand various costing methods and management techniques.
- Apply Cost and Management accounting methods for both manufacturing and service industry.
- Prepare cost sheet, quotations, and tenders to organization for different works.
- Analyze cost-volume-profit techniques to determine optimal managerial decisions.
- Compare and contrast the financial statements of firms and interpret the results.
- Prepare analysis of various special decisions, using relevant management techniques.

UNIT I:

Introduction: Cost Accounting: Definition – Features – Objectives – Functions – Scope – Advantages and Limitations - Management Accounting: Features – Objectives – Functions –

Elements of Cost - Preparation of Cost Sheet (including problems)

UNIT II:

Material and Labour Cost: Techniques of Inventory Control – Valuation of Material Issues: FIFO - LIFO - Simple and Weighted Average Methods. Labour: Direct and Indirect Labour Cost – Methods of Payment of Wages- Incentive Schemes -Time Rate Method, Piece Rate Method, Halsey, Rowan Methods and Taylor Methods only(including problems)

UNIT III:

Job Costing and Batch Costing: Definition and Features of Job Costing – Economic Batch Quantity (EBQ) – Preparation of Job Cost Sheet – Problems on Job Cost Sheet

UNIT IV:

Financial Statement Analysis and Interpretation: Financial Statements - Features, Limitations. Need, Meaning, Objectives, and Process of Financial Statement Analysis- Comparative Analysis – Common Size Analysis and Trend Analysis (including problems)

UNIT V:

Marginal Costing: Meaning and Features of Marginal Costing – Contribution –Profit Volume Ratio- Break Even Point – Margin of Safety – Estimation of Profit and Estimation of Sales(including problems).

REFERENCES BOOKS:

1. S.P. Jain and K.L. Narang – Advanced Cost Accounting, Kalyani Publishers.
2. M.N. Arora – A test book of Cost Accounting, Vikas Publishing House Pvt. Ltd.
3. S.P. Iyengar – Cost Accounting, Sultan Chand & Sons.
4. Nigam & Sharma – Cost Accounting Principles and Applications, S.Chand& Sons.
5. S.N. Maheswari– Principles of Management Accounting, Sultan Chand & Sons.
6. I.M.Pandey – Management Accounting, Vikas Publishing House Pvt. Ltd.
7. Sharma & Shashi Gupta – Management Accounting, Kalyani Publishers.

B.Com	Semester: IV	Credits: 4
Course: 4F	GOODS AND SERVICES TAXES	Hrs/Wk: 5

Learning Outcomes:

- At the end of the course, the student will able to:
- Understand the basic principles underlying the Indirect Taxation Statutes.
- Examine the method of tax credit. Input and Output Tax credit and Cross Utilisation of InputTax Credit.
- Identify and analyze the procedural aspects under different applicable statutes related to GST.
- Compute the assessable value of transactions related to goods and services for levy anddetermination of duty liability.
- Develop various GST Returns and reports for business transactions in Tally.

UNIT I: Introduction: Overview of GST - Concepts –Taxes Subsumed under GST – Components of GST- GST Council- Advantages of GST-GST Registration.

UNIT II: GST Principles –Vijay Kelkar Sha Committee Recommendations - Comprehensive Structure of GST Model in India: Single, Dual GST – GST Rates - Taxes Exempted from GST- Taxes and Duties outside the purview of GST- Taxation of Services

UNIT III: Tax Invoice- Bill of Supply-Transactions Covered under GST-Composition Scheme- Reverse Charge Mechanism- Composite Supply -Mixed Supply.

UNIT IV: Time of Supply of Goods & Services: Value of Supply - Input Tax Credit - Distribution of Credit -Matching of Input Tax Credit - Availability of Credit in Special Circumstances- Cross utilization of ITC between the Central GST and the State GST.

UNIT V: GST Returns: Regular Monthly Filing Returns-Composition Quarterly Filing Returns-GSTR-1, GSTR-2, GSTR 2A, GSTR-3, GSTR 3B -Annual Returns GSTR-9, GSTR 9A, GSTR 9B& GSTR 9C - Records to be Maintained under GST.

REFERENCES BOOKS:

1. T. S. Reddy and Dr. Y. Hari Prasad Reddy, Business Taxation (Goods and Services Taxes),Margham Publications.
2. Taxmann's Basics of GST.
3. Taxmann's GST: A practical Approach.
4. Theory & Practice of GST, Srivathsala, Himalaya Publishing House.
5. Goods and Services Tax in India - Notifications on different dates. GST Bill 2012.
6. Background Material on Model GST Law, Sahitya Bhawan Publications.
7. The Central Goods and Services Tax Act, 2017, No. 12 of 2017 Published by Authority.
8. Ministry of Law and Justice, New Delhi, the 12thApril, 2017.
9. Theory & Practice of GST: Dr. Ravi M.N, BPB Publications.

Syllabus of

ONLINE BUSINESS

Total 30 hrs (02h/wk), 02 Credits & Max 50 Marks

Learning Outcomes:

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

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

SYLLABUS:

Section-I: 06 Hrs

Introduction to Online-business-Definition-Characteristics-Advantages of Online Business-Challenges- Differences between off-line business, e-commerce and Online Business.

Section-II: 10 Hrs

Online-business Strategies-Strategic Planning Process- Procurement -Logistics & Supply Chain Management- Customer Relationship management.

Section-III: 10 Hrs

Designing Online Business Website – Policies - Security & Legal Issues - Online Advertisements - Payment Gateways - Case Study

Co-curricular Activities Suggested: (4 hrs)

1. Assignments, Group discussion, Quiz etc.
2. Short practical training in computer lab
3. Identifying online business firms the through internet

A.S.D GOVT.DEGREE COLLEGE FOR WOMEN (A)

(Re-Accredited NAAC with "B" Grade) KAKINADA, EAST GODAVARI, A.P - 533002.

AQUACULTURE TECHNOLOGY

Semester: III

FISH NUTRITION & FEED TECHNOLOGY

Course: 4 **Credits: 4** **Hrs/Week: 4**

Course Outcomes: By the completion of the course the graduate should able

- to – Describe the nutritional requirements of cultivable fishes
- Explain the different types of feed and feeding methods of fish
- Describe the techniques of fish feed manufacturing and storage
- methods Explain the concept of fish feed additives, non-nutrient
- ingredients.

  Describe the different nutritional deficiency symptoms of fish

Learning objectives

- To understand the nutritional requirements of cultivable fishes.
- To understand the different types of feed and feeding methods of fish.
- To understand the techniques of fish feed manufacturing and storage
- methods. To understand the concept of fish feed additives, non-nutrient
- ingredients.

  To understand the different nutritional deficiency symptoms of fish.

UNIT I: Nutritional Requirements of Cultivable Fish:-

1.1 Requirements for energy, proteins, carbohydrates, lipids, fiber, micronutrients for different stages of cultivable fish and prawns

1.2 Essential amino acids and fatty acids, protein to energy ratio, nutrient interactions and protein sparing effect

1.3 Dietary sources of energy, effect of ration on growth, determination of feeding rate, check tray

1.4 Factors affecting energy partitioning and feeding

UNIT II: Forms of Feeds & Feeding Methods:

2.1 Feed conversion efficiency, feed conversion ratio and protein efficiency ratio

2.2 Wet feeds, moist feeds, dry feeds, mashes, pelleted feeds, floating and sinking pellets, advantages of pelletization

2.3 Manual feeding, demand feeders, automatic feeders, surface spraying, bag feeding and tray feeding - Skill Development

2.4 Frequency of feeding

UNIT III: Feed Manufacture & Storage:

3.1 Feed ingredients and their selection, nutrient composition and nutrient availability of feed ingredients

3.2 Feed formulation – extrusion processing and steam pelleting, grinding, mixing and drying, pelletization, and packing

3.3 Water stability of feeds, farm made aqua feeds, micro-coated feeds, micro-encapsulated feeds and micro-bound diets

3.4 Microbial, insect and rodent damage of feed, chemical spoilage during storage period and proper storage methods

UNIT IV: Feed Additives & Non-Nutrient Ingredients:

4.1 Binders, anti-oxidants, probiotics
4.2 Feed attractants and feed stimulants
4.3 Enzymes, hormones, growth promoters and pigments
4.4 Anti-metabolites, aflatoxins and fiber

UNIT V: Nutritional Deficiency in Cultivable Fish:

5.1 Protein deficiency, vitamin and mineral deficiency symptoms
5.2 Nutritional pathology and anti-nutrients
5.3 Importance of natural and supplementary feeds,
5.4 Importance of balanced diet

PRACTICALS:

1. Estimation of protein content in aquaculture feeds
2. Estimation of carbohydrate content in aquaculture feeds
3. Estimation of lipid content in aquaculture feeds
4. Estimation of ash in aquaculture feed
5. Study of water stability of pellet feeds
6. Feed formulation and preparation in the lab
7. Study of binders used in aquaculture feeds
8. Study of feed packing materials
9. Study of physical and chemical change during storage
10. Study on physical characteristics of floating and sinking feeds
11. Visit to a aqua-feed production unit
12. Visit to a farm for studying feeding practices

A.S.D GOVT.DEGREE COLLEGE FOR WOMEN (A)

(Re-Accredited NAAC With "B" Grade) KAKINADA, EAST GODAVARI, A.P - 533002.

AQUACULTURE TECHNOLOGY BOARD OF STUDIES: 2021-2022

SEMESTER: IV

FRESH WATER & BRACKISHWATER AQUACULTURE

Course: 4 **Credits: 4** **Hrs/Wk:4**

UNIT I: Introduction to Freshwater Aquaculture

1.1 Status, scope and prospects of fresh water aquaculture in the world, India and AP

1.2 Different fresh water aquaculture systems

UNIT II: CARP Culture

2.1 Major cultivable Indian carps – *Labeo, Catla and Cirrhinus* & Minor carps

2.2 Exotic fish species introduced to India – *Tilapia, Pangassius and Clariussp.*

2.3 Composite fish culture system of Indian and exotic carps

2.4 Impact of exotic fish, Compatibility of Indian and exotic carps and competition among them

UNIT III: Culture of Air-Breathing and Cold Water Fish

3.1 Recent developments in the culture of *Clarius, Anabas, Murrels,*

3.2 Advantages and constraints in the culture of air-breathing and cold water fishes- seed resources, feeding, management and production

3.3 Special systems of Aquaculture- brief study of culture in running water, re- circulatory systems, cages and pens, sewage-fed fish culture

UNIT IV: Culture of Prawn-Fresh water prawns of India - commercial value

4.1 *Macrobrachium rosenbergii* and *M. Malcomsonii* – biology, seed production,

4.2 Pond preparation, stocking, management of nursery and grow-out ponds, feeding, and harvesting

UNIT V: Culture of Brackishwater Species-

5.1 Culture of P.mondon – Hatchery technology and Culture practices including feed and disease management

5.2 Culture of L. vannamei – hatchery technology and culture practices including feed and disease management.

Mixed culture of fish and prawns

PRACTICALS:

1. Identification of important cultivable carps
2. Identification of important cultivable air-breathingfishes
3. Identification of important cultivable fresh waterprawns
4. Identification of different life history stages of fish
5. Identification of different life history stages of fresh water prawn
6. Collection and study of weed fish
7. Identification of commercially viable crabs – Scylla cerrata, Portunus pelagicus, P.sanguinolentus, Neptunus pelagicus, N. Sanguinolentus
8. Identification of lobsters – Panulirus polyphagus, P.ornatus, P.homarus, P.sewelli, *P.penicillatus*
9. Identification of oysters of nutritional significance

   Crossostrea madrasensis, C.gryphoides, C. cucullata,

   C.rivularis , Picnodanta
10. Identification of mussels and clams
11. Identification of developmental stages of oysters
12. Field visit to aqua farm and study of different components like dykes etc.

A.S.D GOVT.DEGREE COLLEGE FOR WOMEN (A)

(Re-Accredited NAAC With "B" Grade) KAKINADA, EAST GODAVARI, A.P - 533002.

AQUACULTURE TECHNOLOGY BOARD OF STUDIES: 2021-2022

SEMESTER: IV

FISH HEALTH MANGEMENT & FISHERIES ECONOMICS

Course: 5 **Credits: 4** **Hrs/Wk: 4**

UNIT I: Diseases of Fin Fish -

1.1 -Fungal diseases– Saprolegniosis, brachiomycosis, ichthyophorus diseases – Lagenidium diseases – Fusarium disease, prevention and therapy

1.2 Viral diseases – Emerging viral diseases in fish, haemorrhagic scepticemia, spring viremia of carps, infectious hematopoietic necrosis in trout, infectious pancreatic necrosis in salmonids, swim-bladder inflammation in cyprinids, channel cat fish viral disease, prevention and therapy

1.3 Baterial diseases – Emerging bacterial diseases, Aermonas, Pseudomonas and vibrio infections, columnaris, furunculosis, epizootic ulcerative syndrome, infectious abdominal dropsy, bacterial gill disease, enteric red mouth, bacterial kidney disease, proliferative kidney disease, prevention and therapy

UNIT II: Diseases of Shell Fish

2.1 Major shrimp viral diseases – Bacculovirus penaeii, Monodon Bacculovirus, Bacculoviral midgut necrosis, Infectious hypodermal and haematopoietic necrosis virus, Hepatopancreatic parvo like virus, Yellow head bacculovirus, white spot bacculovirus.

2.2 Bacterial diseases of shell fish – aeromonas, pseudomonas and vibrio infections, luminous bacterial disease, filamentous bacterial disease. Prevention and therapy

2.3 Protozoan diseases- Ichthyophthiriasis, Costiasis, whirling diseases, trypanosomiasis. Prevention and therapy

UNIT III : Fish Health Management -

3.1 Diagnostic tools – immune detection- DNA/RNA techniques, General preventive methods and prophylaxis. Application and development of vaccines.

3.2 Quarantine – Significance, methods and regulations for transplants.

3.3 Good Feed management for healthy organisms, Zero water exchange, Probiotics in health management, Issues of biosecurity- Skill development.

UNIT IV: Fisheries Economics- I

4.1 Methods of economic analysis of business organizations

4.2 Aquaculture economics- application of economics principles to aquaculture operations Various inputs and production function laws of variable proportions

4.3 Cost and earnings of aquaculture systems – carp culture, shrimp farming systems,

UNIT V: Fisheries Economics- II

5.1 Socio-economic conditions of fishermen in Andhra Pradesh

5.2 Role of Matsya fed and NABARD in uplifting fishermen's conditions, fishermen cooperatives

Contribution of fisheries to the national economy

5.3 Economic analysis preparation of project and project appraisal

PRACTICALS:

1. Enumeration of Bacteria by TPC Method
2. Enumeration of total Coliforms
3. Observation of gross pathology and external lesions of fish and prawn with reference to the common diseases in aquaculture
4. Examination of pathological changes in gills and gut lumen, lymphoid organ, muscles and nerves of fish
5. Examination of pathological changes in gut lumen, hepatopncreas, lymphoid organ, muscles and nerves of prawn and shrimp
6. Collection, processing and analysis of data for epedemeiological investigations of viral diseases
7. Bacterial pathogens – isolation, culture and characterization
8. Identification of parasites in fishes: Protozoan, Helmiths, Crustaceans
9. Antibiograms – preparation and evaluation
10. Molecular and immunological techniques; Biochemical tests; PCR; ELISA; Agglutination test; Challenge tests; Purification of virus for development of vaccines (Demonstration at institutes/labs)
11. Estimation of dose, calculation of concentration, methods of administration of various chemotherapeutics to fish and shell fish
12. Estimation of antibiotics used in aquaculture practices
13. Estimation of probiotics used in aquaculture
14. Field visit to farm for health monitoring and disease diagnosis

15. Cost benefit analysis calculations

A.S.D GOVT DEGREE COLLEGE FOR WOMEN (A)

(Re-Accredited by NAAC with'B')
KAKINADA 533002 EASTGODAVARI, ANDHRA PRADESH

II B.SC BOTANY SYLLABUS III Semester – Paper – III
For the Academic Year 2021-2022

Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity

Theory:

UNIT – I: ANATOMY OF ANGIOSPERMS (12 hrs)

1. Organization of apical meristems: Tunica-carpus theory and Histogen theory.
2. Tissue systems–Epidermal, ground and vascular.
3. Anomalous secondary growth in *Boerhaavia* and *Dracaena.*
4. Study of timbers of economic importance - Teak, Red sanders and Rosewood.

UNIT – II: EMBRYOLOGY OF ANGIOSPERMS
(12 hrs)

1. Structure of anther, anther wall, types of tapetum. Microsporogenesis and development of male gametophyte.
2. Structure of ovule, megasporogenesis; monosporic (*Polygonum*), bisporic (*Allium*) and tetrasporic (*Peperomia*) types of embryo sacs.
3. Outlines of pollination, pollen – pistil interaction and fertilization.
4. Endosperm - Types and biological importance - Free nuclear, cellular,helobialand ruminate.
   Development of Dicot (*Capsella bursa-pastoris*) embryo

UNIT –III: BASICS OF ECOLOGY (12hrs)

1. Ecology: definition, branches and significance of ecology.
2. Ecosystem: Concept and components, energy flow, food chain, food web,ecological pyramids.
4. Plants and environment: Climatic (light and temperature), edaphic and bioticfactors.
5. Ecological succession: Hydrosere and Xerosere.

UNIT – IV: POPULATION, COMMUNITY AND PRODUCTION ECOLOGY (12hrs)

1. Population ecology: Natality, mortality, growth curves, ecotypes, ecads
2. Community ecology: Frequency, density, cover, life forms, biological spectrum
3. Concepts of productivity: GPP, NPP and Community Respiration
4. Secondary production, P/R ratio and Ecosystems.

UNIT – V: BASICS OF BIODIVERSITY (12hrs)

1. Biodiversity: Basic concepts, Convention on Biodiversity - Earth Summit.
2. Value of Biodiversity; types and levels of biodiversity and Threats to biodiversity
3. Biodiversity Hot spots in India. Biodiversity in North Eastern Himalayas and Western Ghats.
4. Principles of conservation: IUCN threat-categories, RED data book
5. Role of NBPGR and NBA in the conservation of Biodiversity.

A.S.D GOVT DEGREE COLLEGE FOR WOMEN (A)

(Re-Accredited by NAAC with'B')

KAKINADA 533002 EASTGODAVARI, ANDHRA PRADESH

II B.Sc – SEMESTER – III BOTANY PRACTICAL – III

Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity

Course Outcomes:

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

1. Get familiarized with techniques of section making, staining and microscopic study of vegetative, anatomical and reproductive structure of plants.
2. Observe externally and under microscope, identify and draw exact diagrams of thematerial in the lab.
3. Demonstrate application of methods in plant ecology and conservation of biodiversity and qualitative and quantitative aspects related to populations and communities of plants.

Practical Syllabus

1. Tissue organization in root and shoot apices using permanent slides.
2. Anomalous secondary growth in stems of *Boerhavia* and *Dracaena*.
3. Study of anther and ovule using permanent slides/photographs.
4. Study of pollen germination and pollen viability.
5. Dissection and observation of Embryo sac haustoria in *Santalum* or *Argemone.*
6. Structure of endosperm (nuclear and cellular) using permanent slides /Photographs.
7. Dissection and observation of Endosperm haustoria in *Crotalaria* or *Coccinia*.
8. Developmental stages of dicot and monocot embryos using permanent slides /photographs.
9. Study of instruments used to measure microclimatic variables; soil thermometer, maximum and minimum thermometer, anemometer, rain gauze, and lux meter. (visit to the nearest/local meteorology station where the data is being collected regularly and record the field visit summary for the submission in the practical).
10. Study of morphological and anatomical adaptations of hydrophytes andxerophytes (02 each).
11. Quantitative analysis of herbaceous vegetation in the college campusfor frequency, density and abundance.
12. Identification of vegetation/various plants in college campus and comparison with Raunkiaer's frequency distribution law.
13. Find out the alpha-diversity of plants in the area
14. Mapping of biodiversity hotspots of the world and India.

A.S.D GOVT DEGREE COLLEGE FOR WOMEN(A)

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KAKINADA 533002 EASTGODAVARI, ANDHRA PRADESH

II B.Sc. BOTANY SYLLABUS

IV Semester – For the Academic Year 2021-2022

PAPER –IV : PLANT PHYSIOLOGY AND METABOLISM

Unit – 1: Plant-Water relations 10 Hrs.

1. Importance of water to plant life, physical properties of water, diffusion, imbibition, osmosis. water potential, osmotic potential, pressure potential.
2. Absorption and lateral transport of water; Ascent of sap
3. Transpiration: stomata structure and mechanism of stomatal movements (K^+ ion flux).
4. Mechanism of phloem transport; source-sink relationships.

Unit – 2: Mineral nutrition, Enzymes and Respiration 14 Hrs.

1. Essential macro and micro mineral nutrients and their role in plants; symptoms of mineral deficiency
2. Absorption of mineral ions; passive and active processes.
3. Characteristics, nomenclature and classification of Enzymes. Mechanism ofenzyme action, enzyme kinetics.
4. Respiration: Aerobic and Anaerobic; Glycolysis, Krebs cycle; electron transportsystem, mechanism of oxidative phosphorylation, Pentose Phosphate Pathway (HMP shunt).

Unit – 3: Photosynthesis and Photorespiration 12Hrs.

1. Photosynthesis: Photosynthetic pigments, absorption and action spectra; Red drop and Emerson enhancement effect
2. Concept of two photosystems; mechanism of photosynthetic electron transport and evolution of oxygen; photophosphorylation
3. Carbon assimilation pathways (C3,C4 and CAM);
4. Photorespiration - C2 pathway

Unit – 4: Nitrogen and lipid metabolism 12 Hrs.

1. Nitrogen metabolism: Biological nitrogen fixation – asymbiotic and symbiotic nitrogen fixing organisms. Nitrogenase enzyme system.
2. Lipid metabolism: Classification of Plant lipids, saturated and unsaturated fatty acids.
3. Anabolism of triglycerides, β-oxidation of fatty acids, Glyoxylate cycle

Unit – 5: Plant growth - development and stress physiology 12Hrs.

1. Growth and Development: Definition, phases and kinetics of growth.
2. Physiological effects of Plant Growth Regulators (PGRs) - auxins, gibberellins, cytokinins, ABA, ethylene and brassinosteroids.
3. Physiology of flowering:Photoperiodism, role of phytochrome in flowering.
4. Seed germination and senescence; physiological changes.

A.S.D GOVT DEGREE COLLEGE FOR WOMEN (A)

(Re-Accredited by NAAC with'B')
KAKINADA 533002 EASTGODAVARI, ANDHRA PRADESH

II B.Sc. Semester IV BOTANY PRACTIVAL - IV
Plant Physiology and Metabolism

Course outcomes: On successful completion of this practical course, students shall beable to:

1. Conduct lab and field experiments pertaining to Plant Physiology, that is, biophysical and biochemical processes using related glassware, equipment,chemicals and plant material.
2. Estimate the quantities and qualitative expressions using experimental results andcalculations
3. Demonstrate the factors responsible for growth and development in plants.

Practical Syllabus

1. Determination of osmotic potential of plant cell sap by plasmolytic method using *Rhoeo*/ *Tradescantia* leaves.
2. Calculation of stomatal index and stomatal frequency of a mesophyte and axerophyte.
3. Determination of rate of transpiration using Cobalt chloride method / Ganong'spotometer (at least for a dicot and a monocot).
4. Effect of Temperature on membrane permeability by colorimetric method.
5. Study of mineral deficiency symptoms using plant material/photographs.
6. Demonstration of amylase enzyme activity and study the effect of substrate andEnzyme concentration.
7. Separation of chloroplast pigments using paper chromatography technique.
8. Demonstration of Polyphenol oxidase enzyme activity (Potato tuber or Apple fruit)
9. Anatomy of C3, C4 and CAM leaves
10. Estimation of protein by biuret method/Lowry method
11. Minor experiments – Osmosis, Arc-auxonometer, ascent of sap through xylem,cytoplasmic streaming.

A.S.D GOVT DEGREE COLLEGE FOR WOMEN(A)

(Re-Accredited by NAAC with'B')

KAKINADA 533002 EASTGODAVARI, ANDHRA PRADESH

II B.Sc. DEGREE EXAMINATION 2021-2022

(At the End of IV Semester)

Botany Syllabus Paper - V

CELL BIOLOGY, GENETICS AND PLANT BREEDING

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Unit – 1: The Cell 12 Hrs.

1. Cell theory; prokaryotic vs eukaryotic cell; animal vs plant cell; a brief account on ultra-structure of a plant cell.
2. Ultra-structure of cell wall.
3. Ultra-structure of plasma membrane and various theories on its organization.
4. Polymorphic cell organelles (Plastids); Ultra structure of chloroplast. Plastid DNA.

Unit – 2: Chromosomes 12 Hrs.

1. Prokaryotic vs eukaryotic chromosome. Morphology of a eukayotic chromosome.
2. Euchromatin and Heterochromatin; Karyotype and ideogram.
3. Brief account of chromosomal aberrations - structural and numerical changes
4. Organization of DNA in a chromosome (solenoid and nucleosome models).

Unit – 3: Mendelian and Non-Mendelian genetics 14Hrs.

1. Mendel's laws of inheritance. Incomplete dominance and co-dominance; Multiple allelism.
2. Complementary, supplementary and duplicate gene interactions (plant basedexamples are to be dealt).
3. A brief account of linkage and crossing over; Chromosomal mapping - 2 pointand 3 point test cross.
4. Concept of maternal inheritance (Corren's experiment on *Mirabilis jalapa*); Mitochondrial DNA.

Unit – 4:Structure and functions of DNA 12 Hrs.

1. Watson and Crick model of DNA. Brief account on DNA Replication (Semi-conservative method).
2. Brief account on Transcription, types and functions of RNA. Gene concept and genetic code and Translation.
3. Regulation of gene expression in prokaryotes - Lac Operon.

Unit – 5:Plant Breeding 12 Hrs.

1. Plant Breeding and its scope; Genetic basis for plant breeding. Plant Introductionand acclimatization.
2. Definition, procedure; applications and uses; advantages and limitations of :(a) Mass selection, (b) Pure line selection and (c) Clonal selection.
3. Hybridization – schemes, and technique; Heterosis(hybrid vigour).
4. A brief account on Molecular breeding – DNA markers in plant breeding. RAPD,RFLP.

A.S.D GOVT DEGREE COLLEGE FOR WOMEN (AUTONOMOUS)
(Re-Accredited by NAAC with'B')
KAKINADA 533002 EASTGODAVARI, ANDHRA PRADESH

II B.Sc. DEGREE EXAMINATION 2021-2022

Practical Syllabus of Botany Paper

IV Semester Cell Biology, Genetics and Plant Breeding

(Total hours of laboratory exercises 30 Hrs. @ 02 Hrs. /Week)

Course Outcomes: After successful completion of this practical course the student shallbe able to:

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

Practical Syllabus:

1. Study of ultra structure of plant cell and its organelles using Electron microscopic Photographs/models.
2. Demonstration of Mitosis in *Allium cepa*/*Aloe vera* roots using squashtechnique;observation of various stages of mitosis in permanent slides.
3. Demonstration of Meiosis in P.M.C.s of *Allium cepa* flower buds using squash technique; observation of various stages of meiosis in permanent slides.
4. Study of structure of DNA and RNA molecules using models.
5. Solving problems monohybrid, dihybrid, back and test crosses.
6. Solving problems on gene interactions (atleast one problem for each of the geneinteractions in the syllabus).
7. Chromosome mapping using 3- point test cross data.
8. Demonstration of emasculation, bagging, artificial pollination techniques for hybridization.

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN (A), KAKINADA
DEPARTMENT OF CHEMISTRY
BOARD OF STUDIES: 2021-22
SECOND YEAR, SEMESTER– III
Paper III (ORGANIC CHEMISTRY &SPECTROSCOPY) 60 h (4 h / w)

ORGANIC CHEMISTRY 30 h (2h / w)

UNIT –I

Chemistry of Halogenated Hydrocarbons: Alkyl Halides: Methods of preparation and properties, nucleophilic substitution reactions– SN1, SN2 and SNi mechanisms with stereo chemical aspects and effect of solvent etc.; nucleophilic substitution vs. elimination, Williamson's synthesis. Aryl Halides: Preparation (including preparation from diazonium salts) and properties, nucleophilic aromatic substitution; SN Ar, Benzyne mechanism. Relative reactivity of alkyl, allyl, benzyl, vinyl and aryl halides towards nucleophilic substitution reactions.

1. Alcohols & Phenols

Alcohols: preparation, properties and relative reactivity of 1°, 2°, 3° alcohols, Bouvet Blanc Reduction; Oxidation Of Diols By Periodic Acid and lead Tetraacetate, Pinacol-Pinacolone Rearrangement;

Phenols: Preparation and Properties; Acidity and Factors Affecting It, Ring substitution reactions, Reimer–Tieman and Kolbe's–Schmidt Reactions, Fries and Claisen Rearrangement with mechanism.

UNIT II:

Carbonyl Compounds: Structure, reactivity, preparation and properties; Nucleophilic Addition, Nucleophilic Addition-elimination reactions with ammonia derivatives Mechanisms of Aldol and Benzoin Condensation, Claisan-Schmidt, Perkin, Cannizzaro and Wittig reaction, Beckmann Haloform Reaction And Baeyer Villiger oxidation, α-substitution reactions, oxidations and reductions (Clemmensen, wolf –kishner, with LiAlH4 &NaBH4). Addition Reactions Of α, β-unsaturated carbonyl compounds: Michael Addition. Active Methylene Compounds: Keto-enol tautomerism. Preparation and Synthetic Applications Diethyl malonate and ethyl acetoacetate.

UNIT III:

Carboxylic Acids and their Derivatives: General methods of preparation, physical properties and reactions of monocarboxylic acids, effect of substituent acidic strength. Typical reactions of carboxylic acids, hydroxy acids and unsaturated acids. Preparation And Reactions Of Acid Chlorides, anhydrides, esters and amides; Comparative study of nucleophilic substitution at acyl group-Mechanism of acidic and alkaline hydrolysis of esters, Claisen Condensation, Reformatsky reactions and Curtius Rearrangement Reactions involving H, OH and COOH groups- salt formation, anhydride formation, acid chloride formation, amide formation and esterification (mechanism). Degradation of carboxylic acids by Huns-Diecker reaction, decarboxylation by Schmidt reaction, Arndt- Eistert synthesis, halogenation by Hell- Volhard- Zelensky reaction.

SPECTROSCOPY **30 h (2h / w)**

UNIT –IV (Employability)

Molecular Spectroscopy: Interaction of electromagnetic radiation with molecules and various types of spectra;

Rotation spectroscopy: Selection rules, intensities of spectral lines, determination of bond lengths of diatomic and linear triatomic molecules, isotopic substitution.

Vibrational Spectroscopy: Classical Equation of Vibration, computation of force constant, Harmonic and anharmonic oscillator, Morse Potential curve, vibrational degrees of freedom for polyatomic molecules, modes of vibration. Selection rules for vibrational transitions, Fundamental Frequencies, overtones and hot bands.

Electronic spectroscopy: Energy levels of molecular orbitals (σ, π, n). Selection rules for electronic spectra. Types of electronic transitions in molecules, effect of conjugation. Concept of chromophore. bathochromic and hypsochromic shifts. Beer-Lambert's law and its limitations.

Nuclear Magnetic Resonance (NMR) spectroscopy: Principles of nuclear magnetic resonance, equivalent and non-equivalent protons, position of signals. Chemical shift, NMR splitting of signals - spin-spin coupling, coupling constants. Applications of NMR with suitable examples - ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromo ethane, ethyl acetate, toluene and acetophenone.

UNIT-V (Skill Development)

Application of Spectroscopy to Simple Organic Molecules

Application of visible, ultraviolet and Infrared spectroscopy in organic molecules. Application of electronic spectroscopy and Woodward rules for calculating λmax of conjugated dienes and α, β – unsaturated compounds.

Infrared radiation and types of molecular vibrations, functional group and fingerprint region. IR spectra of alkanes, alkenes and simple alcohols (inter and intramolecular hydrogen bonding), aldehydes, ketones, carboxylic acids and their derivatives (effect of substitution on >C=O stretching absorptions).

REFERENCE BOOKS:

1. A TextBook of Organic Chemistry by Bahl and Arunbahl
2. A Textbook of Organic chemistry by I L FinarVol I
3. Organic chemistry by Bruice
4. Organic chemistry by Clayden
5. Spectroscopy by William Kemp
6. Spectroscopy by Pavia
7. Organic Spectroscopy by J. R. Dyer
8. Elementary organic spectroscopy by Y.R. Sharma
9. Spectroscopy by P.S.Kalsi
10. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)
11. Spectrometric Identification of Organic Compounds by Robert M Silverstein, Francis X Webster
12. Furniss, B.S., Hannaford, A.J., Smith, P.W.G. & Tatchell, A.R. Practical Organic Chemistry,5th Ed. Pearson (2012)
13. Ahluwalia, V.K. & Aggarwal, R. Comprehensive Practical Organic Chemistry:Preparation and Quantitative Analysis,

LABORATORY COURSE -III **30hrs (2 h / w)**

Practical Paper-III (At the end of Semester-III)

Organic Preparations and IR Spectral Analysis Lab : 50 Marks

Course Outcomes

1. How to use glassware, equipment and chemicals and follow experimental procedures in the laboratory

2. how to calculate limiting reagent, theoretical yield, and percent yield

3. how to engage in safe laboratory practices by handling laboratory glassware, equipment, and chemical reagents appropriately

4. how to dispose of chemicals in a safe and responsible manner

5. how to perform common laboratory techniques including reflux, distillation, recrystallization, vacuum filtration.

6. how to create and carry out work up and separation procedures

7. how to critically evaluate data collected to determine the identity, purity, and percent yield of products and to summarize findings in writing in a clear and concise manner

Organic preparations: 40M (Skill Development)

i. Acetylation of one of the following compounds:

amines (aniline, o-, m-, p- toluidine and o-, m-, p-anisidine) and phenols (β-naphthol, vanillin, salicylic acid) by any one method:

a. Using conventional method.

b. Using green approach

ii. Benzoylation of one of the following amines

(aniline, o-, m-, p- toluidine and o-, m-, p-anisidine)

a. Nitration of any one of the following: Acetanilide/nitrobenzene by conventional method

b. Salicylic acid by green approach (using ceric ammonium nitrate).

IR Spectral Analysis: 10M

IR Spectral Analysis of the following functional groups with examples

a) Hydroxyl groups

b) Carbonyl groups

c) Amino groups

d) Aromatic groups

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN (A), KAKINADA
DEPARTMENT OF CHEMISTRY
BOARD OF STUDIES: 2022-23
SECOND YEAR, SEMESTER– IV
Paper IV (Course 4) INORGANIC, ORGANIC & PHYSICAL CHEMISTRY
60 h (4 h / w)

Course Outcomes:

1. To understand the concept of hapticity and classification of organometallic compounds.
2. To learn constitution, configuration, ring structures, inter conversions of monosaccharaides
3. To learn classification and preparation of amino acids and understand concept of isoelectric point and Zwitter ion.
4. To understand the aromatic character of 5 and 6 membered heterocyclic compounds
5. To learn concept of tautomerism and mechanisms of various named reactions in nitrogen containing compounds
6. To understand the three laws of thermodynamics and concept entropy, enthalpy and Gibbs free energy functions
7. To learn about the laws of absorption of light energy by molecules and subsequent photochemical reactions.
8. To understand the concept of quantum efficiency and mechanisms of photochemical reactions.

UNIT I:

Organometallic Compounds: Definition and classification of organometallic compounds on the basis of bond type, Concept of hapticity of organic ligands. Metal Carbonyls: 18electronrule, electron count of mononuclear, polynuclear and substituted metal carbonyls of 3d series. General methods of preparation of mono and binuclear carbonyls of 3d series. P-acceptor behaviour of carbon monoxide. Synergic effects (VB approach) - (MO diagram of CO can be referred to for synergic effect to IR frequencies).

UNIT II:

Carbohydrates: Occurrence, classification and their biological importance, Monosaccharides: Constitution and absolute configuration glucose and fructose, epimers and anomers, mutarotation, determination of ring size of glucose and fructose,

Haworth Projection And Conformational Structures; Interconversions of aldoses and ketoses; Killiani-Fischer synthesis and Ruff degradation; Disaccharides– Elementary Treatment Of Maltose, lactose and sucrose. Polysaccharides–Elementary Treatment Of starch.

UNIT III:

Amino acids and proteins: Introduction: Definition of Amino acids, classification of Amino acids into alpha, beta, and gamma amino acids. Natural and essential amino acids - definition and examples, classification of alpha amino acids into acidic, basic and neutral amino acids with examples. Methods of synthesis: General methods of synthesis of alpha amino acids (specific examples - Glycine, Alanine, valine and leucine) by following methods: a) from halogenated carboxylic acid b) Gabriel Phthalimide synthesis c) strecker's synthesis.

Physical properties: Zwitter ion structure - salt like character - solubility, melting points, amphoteric character, definition of isoelectric point.

Chemical properties: General reactions due to amino and carboxyl groups - lactams from gamma and delta amino acids by heating- peptide bond (amide linkage). Structure and nomenclature of peptides and proteins.

Heterocyclic Compounds: Introduction and definition: Simple five membered ring compounds with one hetero atom Ex. Furan. Thiophene and pyrrole - Aromatic character – Preparation from 1, 4, -dicarbonyl compounds, Paul-Knorr synthesis. Properties: Acidic character of pyrrole - electrophilic substitution at 2 or 5 position, Halogenation, Nitration and Sulphonation under mild conditions - Diels Alder reaction in furan. Pyridine – Structure - Basicity - Aromaticity- Comparison with pyrrole- one method of preparation and properties - Reactivity towards Nucleophilic substitution reaction.

UNIT IV:

Nitrogen Containing Functional Groups: Preparation, properties and important reactions of nitro compounds, amines and diazonium salts.

1. Nitro hydrocarbons

Nomenclature and classification-nitro hydrocarbons, structure -Tautomerism of nitroalkanes leading to aci and keto form, Preparation of Nitroalkanes, reactivity - halogenation, reaction with HONO (Nitrous acid), Nef reaction and Mannich reaction leading to Micheal addition and reduction.

2.Amines:

Introduction, classification, chirality in amines (pyramidal inversion), importance and general methods of preparation.

Properties: Physical properties, Basicity of amines: Effect of substituent, solvent and steric effects. Distinction between Primary, secondary and tertiary amines using Heinsberg's Method and Nitrous Acid. Discussion of the following reactions with emphasis on the mechanistic pathway: Gabriel Phthalimide synthesis, Hoffmann-Bromamide Reaction, Carbylamine Reaction, Mannich reaction, Hoffmann's exhaustive methylation, Hofmann-elimination reaction and Cope elimination.

Diazonium Salts: Preparation and synthetic applications of diazonium salts including preparation of arenes, haloarenes, phenols, amino and nitro compounds. Coupling Reactions of Diazonium Salts (preparation of azo dyes).

UNIT V:

Photochemistry: Difference between thermal and photochemical processes, Laws of photochemistry- Grothus- Draper's law and Stark-Einstein's law of photochemical equivalence, Quantum yield- Photochemical reaction mechanism- hydrogen- chlorine and hydrogen- bromine reaction. Qualitative description of fluorescence, phosphorescence, Jablonski diagram, Photosensitized reactions- energy transfer processes (simple example).

Thermodynamics: The first law of thermodynamics-statement, definition of internal energy and enthalpy, Heat capacities and their relationship, Joule-Thomson effect-coefficient, Calculation of work for the expansion of perfect gas under isothermal and adiabatic conditions for reversible processes, State function. Temperature dependence of enthalpy of formation- Kirchhoff's equation, Second law of thermodynamics Different Statements of the law, Carnot cycle and its efficiency, Carnot theorem, Concept of entropy, entropy as a state function, entropy changes in reversible and irreversible processes. Entropy changes in spontaneous and equilibrium processes. Third law of thermodynamics, Nernst heat theorem, Spontaneous and non- spontaneous processes, Helmholtz and Gibbs Energies-Criteria for spontaneity.

Continuous Evaluation: Monitoring the progress of student's learning Class Tests, Worksheets and Quizzes Presentations, Projects and Assignments Group Discussions: Enhances Critical Thinking Skills And personality

REFERENCE BOOKS:

1. Concise coordination chemistry by Gopalan and Ramalingam
2. Coordination Chemistry by Basalo and Johnson
3. Organic Chemistry by G.Mareloudan, Purdue Univ
4. Text book of physical chemistry by S Glasstone
6. Concise Inorganic Chemistry by J.D.Lee
7. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu and Madan
8. A Text Book of Organic Chemistry by Bahl and Arunbahl
9. A Text Book of Organic chemistry by I L FinarVol I
10. A Text Book of Organic chemistry by I L FinarVol II

LABORATORY COURSE -IV **30hrs (2 h / w)**

Practical Paper-IV (At the end of Semester-IV)

(Course-4L) Organic Qualitative analysis Lab: 50 Marks

Course Outcomes:

1.Use glassware, equipment and chemicals and follow experimental procedures in the laboratory

2. Determine melting and boiling points of organic compounds

3. Understand Application of concepts of different organic reactions studied in theory part of organic chemistry

Organic Qualitative analysis (Skill Development) 50 M

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

Alcohols, Phenols, Aldehydes, Ketones, Carboxylic acids, Aromatic primary amines, amides and simple sugars

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN (A), KAKINADA
DEPARTMENT OF CHEMISTRY
BOARD OF STUDIES: 2022-23
SECOND YEAR, SEMESTER– IV
Paper IV (Course 5) (INORGANIC&PHYSICAL CHEMISTRY) 60 h (4 h / w)

INORGANIC CHEMISTRY

UNIT I:

Coordinator Chemistry: IUPAC nomenclature of coordination compounds, Structural and stereoisomerism in complexes with coordination numbers 4 and 6. Valence Bond Theory (VBT): Inner and outer orbital complexes. Limitations of VBT, Crystal field effect, octahedral symmetry. Crystal field stabilization energy (CFSE), Crystal field effects for weak and strong fields. Tetrahedral symmetry, Factors affecting the magnitude of crystal field splitting energy, Spectrochemical series, Comparison of CFSE for Octahedral and Tetrahedral complexes, Tetragonal distortion of octahedral geometry, Jahn-Teller distortion, square planar coordination.

UNIT II:

1. Inorganic Reaction Mechanism:

Introduction to inorganic reaction mechanisms. Concept of reaction pathways, transition state, intermediate and activated complex. Labile and inert complexes, ligand substitution reactions -SN1 and SN2, Substitution reactions in square planar complexes, Trans-effect, theories of trans effect and its applications

2. Stability of metal complexes:

Thermodynamic stability and kinetic stability, factors affecting the stability of metal complexes, chelate effect, determination of composition of complex by Job's method and mole ratio method.

Bioinorganic Chemistry:

Metal ions present in biological systems, classification of elements according to their action in biological system. Geochemical effect on the distribution of metals, Sodium / K - pump, carbonic anhydrase and carboxypeptidase. Excess and deficiency of some trace metals. Toxicity of metal ions (Hg, Pb, Cd and As), reasons for toxicity, Use of chelating agents in medicine, Cis-platin as an anti-cancer drug. Iron and its application in bio-systems, Haemoglobin, Myoglobin. Storage and transfer of iron.

PHYSICAL CHEMISTRY

UNIT-III:

1 .Phase rule: Concept of phase, components, degrees of freedom. Thermodynamic derivation of Gibbs phase rule. Phase diagram of one component system - water system, Study of Phase diagrams of Simple eutectic systems i) Pb-Ag system, desilverisation of lead ii) NaCl-Water system, Congruent and incongruent melting point- Definition and examples for systems having congruent and incongruent melting point , freezing mixtures.

UNIT IV:

Electrochemistry: Specific conductance, equivalent conductance and molar conductance- Definition and effect of dilution. Cell constant. Strong and weak electrolytes, Kohlrausch's law and its applications, Definition of transport number, determination of transport number by Hittorf's method. Debye-Huckel-Onsager's equation for strong electrolytes (elementary treatment only), Application of conductivity measurements- conductometric titrations. Electrochemical Cells- Single electrode potential, Types of electrodes with examples: Metal- metal ion, Gas electrode, Inert electrode, Redox electrode, Metal-metal insoluble salt- salt anion. Determination of EMF of a cell, Nernst equation, Applications of EMF measurements - Potentiometric titrations. Fuel cells- Basic concepts, examples and applications

UNIT V:

Chemical Kinetics:

The concept of reaction rates. Effect of temperature, pressure, catalyst and other factors on reaction rates. Order and molecularity of a reaction, Derivation of integrated rate equations for zero, first and second order reactions (both for equal and unequal concentrations of reactants). Half–life of a reaction. General methods for determination of order of a reaction. Concept of activation energy and its calculation from Arrhenius equation. Theories of Reaction Rates: Collision theory and Activated Complex theory of bimolecular reactions. Comparison of the two theories (qualitative treatment only). Enzyme catalysis- Specificity, factors affecting enzyme catalysis, Inhibitors and Lock

& key model. Michaels- Menten equation- derivation, significance of Michaelis-Menten constant.

REFERENCE BOOKS:

1. Text book of physical chemistry by S Glasstone
2. Concise Inorganic Chemistry by J.D.Lee
3. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu and Madan
4. Advanced physical chemistry by Gurudeep Raj
5. Principles of physical chemistry by Prutton and Marron
6. Advanced physical chemistry by Bahl and Tuli
7. Inorganic Chemistry by J.E.Huheey
8. Basic Inorganic Chemistry by Cotton and Wilkinson
9. A textbook of qualitative inorganic analysis by A.I. Vogel
10. Atkins, P.W. & Paula, J.de Atkin's Physical Chemistry Ed., Oxford UniversityPress 10thEd(2014)
11. Castellan, G.W.PhysicalChemistry, 4thEd.Narosa(2004)
12. Mortimer,R. G.PhysicalChemistry3rdEd. Elsevier:NOIDA,UP(2009).

LABORATORY COURSE -IV **30hrs (2 h / w)**

Practical Paper-IV (At the end of Semester-IV)

(Course-5L) Conductometric and Potentiometric Titrimetry Lab : 50 Marks

Course Outcomes:

1.Use glassware, equipment and chemicals and follow experimental procedures in the laboratory

2. Apply concepts of electrochemistry in experiments

3. Be familiar with electroanalytical methods and techniques in analytical chemistry which study an analyte by measuring the potential (volts) and/or current (amperes) in an electrochemical cell containing the analyte

Conductometric and Potentiometric Titrimetry (Employability & Skill Development) 50 M

1. **Conductometric titration**- Determination of concentration of HCl solution using standard NaOH solution.

2. **Conductometric titration**- Determination of concentration of CH_3COOH Solution using standard NaOH solution.

3. **Conductometric titration**- Determination of concentration of CH_3COOH and HCl in a mixture using standard NaOH solution.

4. **Potentiometric titration**- Determination of Fe (II) using standard $K_2Cr_2O_7$ solution.

5. Determination of rate constant for acid catalyzed ester hydrolysis.

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
II B.Com(C.A.) – III Semester

Course: Programming with C & C++

Course Code: **No. of Hours/Week: 3**
Paper : III

Course Objective:

To impart basic knowledge of C Programming language so that Students will be able to develop logics and applications to solve real time problems using C and To impart knowledge on fundamentals of Object Oriented Programming.

Course Outcomes:

At the end of the course, the student is expected to demonstrate the following abilities (thinking skill) and psychomotor skills.

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

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

B. Explains (Understanding)

6. Understanding a functional hierarchical code organization
7. Understanding a concept of object thinking within the framework of functional model
8. Write program on a computer, edit, compile, debug, correct, recompile and run it
9. Choose the right data representation formats based on the requirements of the problem
10. Analyze how C++ improves C with object-oriented features
11. Evaluate comparisons and limitations of the various programming constructs andchoose correct one for the task in hand.

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

D. Working in 'Outside Syllabus Area' under a Co-curricular Activity(Creativity) Planning of structure and content, writing, updating and modifying computer programs for user solutions

E. Exploring C programming and Design C++ classes for code reuse (Practical skills***)

Unit I: Introduction and Control Structures

History of 'C' - Structure of C program – C character set, Tokens, Constants, Variables, Keywords, Identifiers – C data types - C operators - Standard I/O in C - Applying if and Switch Statements.

Unit-II: Loops And Arrays

Use of While, Do While and For Loops - Use of Break and Continue Statements -Array Notation and Representation - Manipulating Array Elements - Using Multi-Dimensional Arrays.

Unit-III: Strings and Functions

Declaration and Initialization of String Variables - String Handling Functions - Defining Functions- Function Call - Call By Value, Recursion

Unit-IV: Principles of Object Oriented Programming

Procedure Oriented Programming, Object Oriented Programming, Basic concepts of Object Oriented Programming, Applications of C++, A simple C++ Program, An example with Class, Structure of C++ Program, Creating sourcefile, Compiling and Linking.

Unit V: Classes and Objects:

Tokens, Keywords, Declaration of Variables, Dynamic initialization of variables,Specifying a Class, Defining member functions, Function overloading, Operator overloading, Constructors and Destructors, Inheritance and types of Inheritance.

References:

1. E. Balagurusamy "Object oriented programming with C++
2. R.Ravichandran "Programming with C++"
3. Mastering C by K R Venugopal and Sudeep R Prasad, McGraw Hill
4. Expert C Programming: Deep Secrets Kindle Edition Peter van der Linden
5. Let Us C YashavantKanetkar
6. The C++ Programming Language Bjarne Stroustrup
7. C++ Primer Stanley B. Lippman, Josée Lajoie, Barbara E. Moo

Online Resources:

https://www.tutorialspoint.com/cprogramming/index.html
https://www.learn-c.org/
https://www.programiz.com/c-programming
https://www.w3schools.in/c-tutorial/
https://www.cprogramming.com/tutorial/c-tutorial.html
https://www.tutorialspoint.com/cplusplus/index.html
https://www.programiz.com/cpp-programminghttp://www.cplusplus.com/doc/tutorial/
https://www.learn-cpp.org/
https://www.javatpoint.com/cpp-tutorial

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
II B.Com(C.A.) – IV Semester

Course: Database Management Systems

Course Code: **No. of Hours/Week: 3**
Paper : III

Course Objective:
To present an introduction to database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS.

Course Outcomes:
At the end of the course, the students is expected to demonstrate the following abilities (thinking skill) and psychomotor skills.

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

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

B. Explains (Understanding)

5. To design and build a simple database system and demonstrate competence with thefundamental tasks involved with modeling, designing, and implementing a DBMS.
6. Perform PL/SQL programming using concept of Cursor Management, ErrorHandling, Packages

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

7. Apply various Normalization techniques
8. Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model

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

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

Unit I: Overview of Database Management System

Introduction, Data and Information, Database, Database Management System, Objectives of DBMS, Evolution of Database Management System, Classification of Database Management System.

Unit-II: File-Based System

File Based System. Drawbacks of File-Based System, DBMS Approach, Advantage of DBMS, Data Models, Components of Database System, Database Architecture, DBMS Vendors and their products.

Unit-III: Entity-Relationship Model

Introduction, The Building Blocks of an Entity-Relationship, Classification of Entity Set, Attribute Classification, Relationship Degree, Relationship Classification, Generalization and Specialization, Aggregation and Composition, CODD's Rules, Relational Data Model, Concept of Relational Integrity.

Unit-IV: Structured Query Language

Introduction, History of SQL Standards, Commands in SQL, Data types in SQL, Data Definition Language (DDL),Selection Operation Projection Operation, Aggregate Functions, Data Manipulation Language, Table Modification, Table Truncation, Imposition of Constraints, Set Operations

Unit V:PL/SQL

Introduction, Structure of PL/SQL,PL/SQL Language Elements, Data Types, Control Structure, Steps to Create a PL/SQL Program, Iterative Control Cursors, Steps to Create a Cursor, Exceptions Handling, Database Triggers, Types of triggers.

References:

1. Paneerselvam:Database Management system,PHI.
2.David Kuklinski, Osborne, Data management system McGraw Hill Publication.
3.Shgirley Neal And Kenneth LC Trunik Database management system in Business-PHI.
4.Godeon C. EVEREST, Database Management-McGraw Hill Book Company.
5.MARTIN,Database Management-Prentice Hall of India, New Delhi.
6.Bipin C.Desai ,`An Introduction to Database System`,Galgotia Publications
7.Korth, Database Management System.
8.Navathe, Database Management System.
9.S. Sumathi, S. Esakkirajan,Fundamentals of Relational Database Management System

Online resources:

http:// www.onlinegdb.com/ http:// www.tutorialspoint.com/
http://learnsql.com
https://www.codecademy.com/learn/learn-sql/
https://www.w3schools.com/sql/default.asp

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE

II B.Com(C.A.) – IV Semester

Course: Object Oriented Programming with Java

Course Code: **No. of Hours/Week: 3**
Paper V

Learning Outcomes:

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

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

SYLLABUS:

Unit I: Introduction to OOPs: Problems in Procedure Oriented Approach, Features of Object Oriented Programming

Introduction to Java: Features of Java, The Java Virtual Machine (JVM), Parts of Java program, Naming Conventions in Java, Data Types in Java, Operators in Java, Reading Input using scanner Class, Displaying Output using System. out.println (), Command Line Arguments.

Unit II: Control Statements in Java: if... else, do... while Loop, while Loop, For loop, Switch Statement, break Statement, continue Statement

Arrays: Types of Arrays, array name, length,

Strings: Creating Strings, String Class Methods, String Comparison, Immutability of Strings.

Unit III: Classes and Objects: Object Creation, Initializing the Instance Variables, Access Specifiers, Constructors

Inheritance: Inheritance, Types of Inheritance

Polymorphism: Method overloading, Operator overloading

Abstract Classes: Abstract Method and Abstract Class

Unit IV: Packages: Package, Different Types of Packages, Creating Package and Accessing a Package

Streams: Stream classes, Creating a File using File Output Stream, Reading Data from a File using File Input Stream, Creating a File using File Writer, Reading a File using File Reader

Unit V: Exception Handling: Errors in Java Program, Exceptions, throws Clause, throw Clause, Types of Exceptions

Threads: Single Tasking, Multi-Tasking, Uses of Threads, Creating a Thread and Running it, Terminating the Thread, Thread Class Methods.

References:

1. The Complete Reference JAVA Seventh Edition Herbert Schildt. Tata McGraw Hill Edition.
2. Core Java: An Integrated Approach, Dr. R. Nageswara Rao & Kogent Learning Solutions Inc.
3. E. Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGrawHill Company

Online Resources:

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

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

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

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

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
II B.Sc. – III Semester

Course: DATA BASE MANAGEMENT SYSTEM

Course Code : **No. of Hours/Week: 4**
Paper : III

Course Objective:
To present an introduction to database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS.

Course Outcomes:
At the end of the course the student will be able to

1. Understand DBMS concepts, data models and Architecture.
2. Understand ER concepts and ER mapping to relational model
3. Improve the database design by normalization.
4. Make use of SQL to retrieve and maintain relational database.
5. Illustrate various constructs in PL/SQL.

UNIT - I
Overview of Database Management System: Introduction to data, information, database, database management systems, file-based system, Drawbacks of file-Based System, database approach, Classification of Database Management Systems, advantages of database approach, Various Data Models, Components of Database Management System, three schema architecture of data base, costs and risks of database approach.

UNIT - II
Entity-Relationship Model: Introduction, the building blocks of an entity relationship diagram, classification of entity sets, attribute classification, relationship degree, relationship classification, reducing ER diagram to tables, enhanced entity-relationship model (EER model), generalization and specialization, **IS A** relationship and attribute inheritance, multiple inheritance, constraints on specialization and generalization, advantages of ER modelling.

UNIT III
Relational Model: Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra, relational calculus, tuple relational calculus, domain relational Calculus (DRC), Functional dependencies and normal forms upto 3rd normal form.

UNIT IV

Structured Query Language: Introduction, History of SQL Standard, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language, Table Modification Commands, Join Operation, Set Operations, View, Sub Query.

UNIT V

PL/SQL: Introduction, Shortcomings of SQL, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a PL/SQL, Program, Iterative Control, Procedure, Function, Database Triggers, Types of Triggers.

Additional Inputs:

Transaction Management and Concurrency Control: What is transaction, Concurrency control, Concurrency control with locking Methods, Concurrency control with time stamping methods.

Note: Concepts from Additional inputs must be excluded from Examinations

Text Books:

1. Database System Concepts by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGrawhill, 2010.
2. Database Management Systems by Raghu Ramakrishnan, McGrawhill, 2002.
3. Fundamentals of Relational Database Management Systems by S. Sumathi, S. Esakkirajan, Springer Publications.
4. SQL: The Ultimate Beginners Guide by Steve Tale.

Reference Books:

1. An Introduction to Database Systems by Bipin C Desai
2. Principles of Database Systems by J. D. Ullman
3. Fundamentals of Database System by R. Elmasri and S. Navathe
4. Database Systems Design, Implementation and Management by Peter Rob, Carlos CoronelSeventh Edition, Thomson , 2007.

DEPARTMENT OF COMPUTER SCIENCE
II B.Sc. – IV Semester

Course: OBJECT ORIENTED PROGRAMMING THROUGH JAVA

Course Code: **No. of Hours/Week: 4**
Paper : IV

Course Objective:

To impart knowledge on fundamentals of Object Oriented Programming, classes, inheritance, interfaces and packages and to make the students understand the concept of exception handling and multithreading.

Course Outcomes:
At the end of the course the student will be able to

1. Understand and Apply Object Oriented features and understand the basics of Java.
2. Develop problem-solving and programming skills using OOP concepts.
3. Apply the concepts of inheritance and to create arrays, strings.
4. Able to demonstrate Exception Handling and Multithreading.
5. Develop efficient Java applets and applications using OOP concepts.

UNIT- I

Introduction to Java: Features of Java, The Java virtual Machine, Parts of Java
Naming Conventions and Data Types: Naming Conventions in Java, Data Types in Java, Literals
Operators in Java: Operators, Priority of Operators
Control Statements in Java: if... else Statement, do... while Statement, while Loop, for Loop, switch Statement, break Statement, continue Statement, return Statement
Input and Output: Accepting Input from the Keyboard, Reading Input with Java.util.Scanner Class, Displaying Output with System.out.printf(), Displaying Formatted Output with String.format()
Arrays: Types of Arrays, Three Dimensional Arrays (3D array), arrayname.length, Command Line Arguments

UNIT-II

Strings: Creating Strings, String Class Methods, String Comparison, Immutability of Strings
Introduction to OOPs: Problems in Procedure Oriented Approach, Features of Object-Oriented Programming System (OOPS)
Classes and Objects: Object Creation, Initializing the Instance Variables, Access Specifiers, Constructors
Methods in Java: Method Header or Method Prototype, Method Body, Understanding Methods, Static Methods, Static Block, The keyword ‘this’, Instance Methods, Passing Primitive Data

Types to Methods, Passing Objects to Methods, Passing Arrays to Methods, Recursion, Factory Methods

Inheritance: Inheritance, The keyword 'super', The Protected Specifier, Types of Inheritance

UNIT-III

Polymorphism: Polymorphism with Variables, Polymorphism using Methods, Polymorphism with Static Methods, Polymorphism with Private Methods, Polymorphism with Final Methods, final Class

Type Casting: Types of Data Types, Casting Primitive Data Types, Casting Referenced Data Types, The Object Class , **Abstract Classes:** Abstract Method and Abstract Class

Interfaces: Interface, Multiple Inheritance using Interfaces

Packages: Package, Different Types of Packages, The JAR Files, Interfaces in a Package, Creating Sub Package in a Package, Access Specifiers in Java, Creating API Document

Exception Handling: Errors in Java Program, Exceptions, throws Clause, throw Clause, Types of Exceptions, Re – throwing an Exception

UNIT-IV

Streams: Stream, Creating a File using FileOutputStream, Reading Data from a File uingFileInputStream, Creating a File using FileWriter, Reading a File using FileReader, **Threads:** Single Tasking, Multi Tasking, Uses of Threads, Creating a Thread and Running it, Terminating the Thread, Single Tasking Using a Thread, Multi Tasking Using Threads, Multiple Threads Acting on Single Object, Thread Class Methods, Deadlock of Threads,

Thread Communication, Thread Priorities, thread Group, Daemon Threads, Applications of Threads, Thread Life Cycle

UNIT-V

Applets: Creating an Applet, Uses of Applets, <APPLET> tag, A Simple Applet, An Applet with Swing Components, Animation in Applets, A Simple Game with an Applet, Applet Parameters

Java Database Connectivity: Database Servers, Database Clients, JDBC (Java Database Connectivity), Working with Oracle Database, Working with MySQL Database, Stages in a JDBC Program, Registering the Driver, Connecting to a Database, Preparing SQL Statements,

Text Books:

1. Java - The Complete Reference by Herbert Schildt,9th Edition, Oreilly Publications.
2. Introduction to Java Programming, by Y Daniel Liang, Seventh Edition, Pearson, 2017.

Reference Books:

1. Programming with JAVA, A primer by E.Balaguruswamy, 3e, TATA McGraw-HillCompany.
2. Programming with Java by John R. Hubbard, Second Edition, Schaum's outline Series, TATA McGraw-Hill.
3. Java TM: How to Program by Deitel&Deitel, PHI (2007).
4. Java Programming: From Problem Analysis to Program Design by D.S Mallik.
5. Core Java: An Integrated Approach, Authored by Dr. R. Nageswara Rao &Kogent Learning Solutions Inc.

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)
DEPARTMENT OF COMPUTER SCIENCE
II B.Sc. – IV Semester

Course: OPERATING SYSTEMS

Course Code: **No. of Hours/Week: 4**
Paper : V

Course Objective:

To provide knowledge about the services and functions rendered by operating systems and inculcate knowledge on Process Scheduling and Memory Management.

Course Outcomes:

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

1. Interpret the basic structure of OS and architectural components.
2. Compare and contrast various Process scheduling algorithms.
3. Analyze various mechanisms of Synchronization and the principles of deadlock.
4. Make use of paging and segmentation in Memory management.
5. Discuss the issues related to file system interface, implementation and disk management.

UNIT - I

What is Operating System? History and Evolution of OS, Basic OS functions, Resource Abstraction, Types of Operating Systems– Multiprogramming Systems, Batch Systems, Time Sharing Systems; Operating Systems for Personal Computers, Workstations and Hand-held Devices, Process Control & Real time Systems.

UNIT - II

Processor and User Modes, Kernels, System Calls and System Programs, System View of the Process and Resources, Process Abstraction, Process Hierarchy, Threads, Threading Issues, Thread Libraries; Process Scheduling, Non-Preemptive and Preemptive Scheduling Algorithms.

UNIT - III

Process Management: Deadlock, Deadlock Characterization, Necessary and Sufficient Conditions for Deadlock, Deadlock Handling Approaches: Deadlock Prevention, Deadlock Avoidance and Deadlock Detection and Recovery.

Concurrent and Dependent Processes, Critical Section, Semaphores, Methods for Inter-process Communication; Process Synchronization, Classical Process Synchronization Problems: Producer-Consumer, Reader-Writer.

UNIT - IV

Memory Management: Physical and Virtual Address Space; Memory Allocation Strategies– Fixed and -Variable Partitions, Paging, Segmentation, Virtual Memory.

UNIT - V

File and I/O Management, OS Security : Directory Structure, File Operations, File Allocation Methods, Disk Scheduling: SCAN and CSCAN, Pipes, Protection, Authentication and Internal Access Authorization, Security Policy Mechanism.

Introduction to Android Operating System, Android Development Framework, Android Application Architecture,

Text Books:

1. Operating System Concepts - Abraham Silberschatz, Peter Baer Galvin and Greg Gagne,9thEdition, John Wiley and Sons Inc., 2012.
2. Operating Systems - Internals and Design Principles, William Stallings, 7th Edition,Prentice Hall, 2011.

Reference Books:

1. Modern Operating Systems, Andrew S. Tanenbaum, Second Edition, Addison Wesley, 2001.
2. Operating Systems: A Design-Oriented Approach, Charles Crowley, Tata McGraw Hill Education", 1996.
3. Operating Systems: A Concept-Based Approach, D M Dhamdhere, Second Edition, Tata McGraw-Hill Education, 2007.
4. Operating Systems by J. Archer Harris (Author), Jyoti Singh (Author) (TMH)
5. Online Resources for UNIT V

A.S.D.GOVT. DEGREE COLLEGE FOR WOMEN (A),

KAKINADA

I B.A., B. Com., B.Sc. Second Language-Hindi

SEMESTER-III -SYLLABUS General Hindi Paper –II

(Old & Modern Poetry, History of Hindi Literature, Essays, Translation and Official Letters)

1.**काव्यदीप :** साखी – कबीर दास १-१०

सूरदास – विनय - बाल लीला वर्णन - Empolyability

आगे बढ़, आगे – मैथिलीशरण गुप्त

चरण चले, ईमान अचल हो ! - माखनलाल चतुर्वेदी

2. हिन्दी साहित्य का इतिहास :

भक्तिकाल : भक्तिकाल : स्वर्ण युग

ज्ञानाश्रयी शाखा- कबीर

प्रेमाश्रयी शाखा – जायसी - Employability

राम भक्ति शाखा – तुलसी दास

कृष्ण भक्ति शाखा – सूर दास

3.साधारण निबंध : विश्व भाषा के रूप में हिन्दी

मेरा प्रिय कवि / साहित्यकार

समाज में नारी की भूमिका

भारत की वर्तमान समस्याएँ

4.अनुवाद : अंग्रेजी से हिन्दी **(** 3-4 lines), **तेलुगु से हिन्दी** (3-4 lines)

5.प्रयोजन मूलक हिन्दी : सरकारी पत्र (Official letters)ज्ञापन**,** परिपत्र**,** सूचना - Skill Development & Employability.

A.S.D.GOVT. DEGREE COLLEGE FORWOMEN(A)KAKINADA

DEPARTMENT OF SANSKRIT
II B.A. /B.com. / B. SC
UG- SKILL DEVELOPMENT COURSE

Course: DISASTER MANAGEMENT

Course Code : No. of Hours/Week: 2

Paper : 1

Course Objective:

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

 Understand the nature, cause and effects of disasters

 Comprehend the importance of Disaster Management and the need of awareness

 Acquire knowledge on disaster preparedness, recovery remedial measures and personal

precautions

 Volunteer in pre and post disaster management service activities

UNIT-I: (06 hrs.)

Introduction of Disaster - Different types of disasters- Natural- (flood, cyclone, earthquake,

famine and pandemic) - Accidental- (Fire, Blasting, Chemical leakage, Rail, Aviation, Road boat

tragedies and nuclear pollution) - Disaster Management Act 2005

UNIT-II: (09hrs)

Causes and immediate effects of Disasters - Preparedness of disasters – Precautions –

Dissemination of information - Nature and concepts - Role of National Disaster Management

Authority and Role of Government and non-governmental organizations in protecting human

livestock and natural resources.- Use of technology -Role of Citizens and Youth in the

prevention.

UNIT-III: (09 hrs)

Post disaster effects - short term - Procedures for Rehabilitation and Recovery - Role of

volunteers and Safety Precautions - Long term remedial and preventive measures – Collection,

filing and storage of information - Case studies Suggested co curriculum

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Text Books:

Disaster management

Course content &employability

In India, both government and private organizations offer good employment opportunities in the

Disaster Management discipline. In government agencies, disaster management jobs are offered

in departments such as drought management departments, fire departments, law enforcement,

relief agencies, insurance companies, and industries in high-risk areas like mining, petroleum

and chemicals.

Jobs in the public sector, too, are plentiful in the fields of research, teaching, consultancy,

documentation, field training, mock drill expert, social work, engineering, rehabilitation work.

One may also choose to work with top NGOs and international organizations, including the

Asian Development Bank, United Nations Organizations, Red Cross, World Bank, and

UNESCO.

Required Skillset for Disaster management

The field of Disaster Management is built around the idea of an emergency. Without a solid

foundation of education, training, and experience, it can be very difficult for certain people to

settle into a lifetime of dealing with crises.

Critical thinking, sound decision-making skills and flexibility in dynamic environments are

essential skills in this discipline. Theoretical principles may extensively be taught with education

and training, but these principles are only the tip of the iceberg that is an expert Disaster

Management professional.

Candidates must attempt to inculcate soft skills like communication, time management and

organizational skills as well. In times of emergency, good communication skills can prove very

useful in preventing mass panic and establishing priorities and information on an ongoing basis.

Time management and organizational skills become important when the job at hand requires you

to shift gears promptly to tackle another task on a priority basis, and managing said priorities

when the work seems overwhelming.

Finally, imbibing the spirit of teamwork is paramount to becoming a Disaster Management

professional. No individual is equipped to tackle everything alone, and help is always required.

Knowing how to work well with a team, effectively coordinating work among teammates and

executing the work together can shave off valuable seconds when dealing with an enormous

crisis.

Of the many subjects covered under various levels of Disaster Management courses, some of the

common and important course subjects include:

- Hazards, Risks and Disasters
- Field Skills
- Disaster Theory, Statistics and Logistics

SEMESTER III

HSC-301 – COMMUNITY NUTRITION

THEORY

Unit-I Meal Planning – Nutrition during Adulthood, Pregnancy and Lactation

- Dietary guidelines for Indians, Principles of meal Planning, Balanced Diet.
- Nutrition for Adults – Food and Nutritional requirements for adult man and woman of different physical activities (Sedentary, Moderate and Heavy work).
- Pregnancy – Nutritional and Food requirements, Physiological changes and complications.
- Lactation – Food and Nutritional requirements

Unit-II Nutrition during Childhood

- Infancy – Nutritional requirements – Breast feeding and its advantages; Artificial/bottle feeding;
- Supplementary foods (definition and types). – Entrepreneur Skills
- Early childhood – Food and Nutritional requirements – healthy eating habits among pre-schoolers
- School going children – Food and Nutritional requirements, packed lunch.

Unit-III Nutrition during Adolescence and Old age

- **Adolescence-** Food and Nutritional requirements, Nutritional problems and Eating Disorders- Anorexia and Bulimia.
- **Geriatric Nutrition**- Physiological changes in elderly, Food and Nutrient Requirements, Nutrition related problems

Unit-IV Nutritional Status Assessment

- Importance of Nutritional Status Assessment of the Community
- Direct methods – Nutritional Anthropometry, Clinical and Biochemical Assessment – Employability skill
- Indirect methods – Diet Surveys, Vital Health Statistics (Infant mortality rate, Measurement of morbidity) – Employability skill

Unit –V Nutritional Programs

- Supplementary Feeding Programmes – ICDS, Mid Day Meal Programme (MDMP).
- Prophylactic Programmes to prevent Vitamin A, Iron, Iodine deficiencies
- Role of National and International Organizations in combating malnutrition –
  (a)International Organizations - WHO, FAO and UNICEF
  (b) National Organizations - NIN, CFTRI, NNMB.

PRACTICALS

1. Planning and preparation of a balanced diet for Adult man and women – Skill Development
2. Planning and preparation of a balanced diet for Pregnant and Nursing mother – Skill Development
3. Planning and preparation of a balanced diet for a Pre Schol Child – Skill Development
4. Planning and preparation of a balanced diet for School child and an Adolescent – Skill Development
5. Planning and preparation of low cost Nutritious recipes – Skill Development
6. Planning and preparation of diets for PEM and Anaemia – Skill Development
7. Use of Anthropometric measurements in assessing the Nutritional Status – Skill Development
8. Visit to Anganwadi Center – Observation of feeding programme at Anganwadi Center. – Employability and Skill Development
9. Visit to government school – Observation of School Lunch Programme – Employability and Skill Development

HSC – 302 - PRINCIPLES OF GARMENT CONSTRUCTION

Theory: 4 Hours/week
Practicals: 2Hours/week

THEORY

Unit-I Equipment in Garment Construction-Skill Development

- Equipment- Measuring, Drafting, marking, sewing and finishing equipment.
- Types of sewing machine- Mechanical , Electronic , Computerized or Automated , Embroidery Machine , Over lock Sewing Machine

Unit – II Body Measurements and Pattern Making-Skill Development

- Recording of body measurements- Importance- Types of measurements – vertical, Horizontal and Girth measurements. Care to be taken in body measurements.
- Pattern making- Methods of pattern making -Drafting, draping and flat pattern making,
- Drafting – Tools for drafting- Information to be recorded on the draft – Points to be kept in mind while drafting and advantage of drafting
- Paper Patterns – Advantages, and content of paper patterns

Unit – III Estimation and Preparation of the Fabric and Pattern Layout-Skill Development

- Estimation of fabric for different garments.
- Importance of grain in fabric for cutting and garment construction.
- Steps in Preparation of fabric for cutting
- Pattern Layout – Importance, precautions, guidelines and care to be taken in pattern lay out for asymmetric, bold, striped checked designs etc.,
- Fabric Cutting – Guidelines to cut out pattern pieces,

UNIT –IV Garment Components-Skill Development

- Necklines – Types of necklines.
- Collars-Factors in designing collar styles, shapes and kinds of collars.
- Sleeves – Categories and styles of sleeves.
- Yokes – Factors for selection of yokes design and types of yokes.

Unit-V Garment Fitting-Skill Development

- Elements of fit – grain, set, line, balance and ease
- Characteristics of well finished garment
- Readymade garments – Selection and examination for quality, fitting and shape
- Tailor made and Homemade garments – examination for fitting and shape
- Comparison of readymade, tailor and homemade garments
- Common fitting problems and remedies for garments

PRACTICALS-Skill Development

1. Basic Stitches – Temporary, permanent and neat ending finishes.
2. Seam and seam finishes.
3. Neckline finishes – Bias, Binding and shaped finishing.
4. Plackets – Continuous bound and two piece plackets.

5. Sleeves – Plain, Puff and bell sleeve.
6. Introducing fullness - Darts, tucks, gathers and pleats.
7. Fasteners – Hook and Eye, press buttons, button and button hole.
8. Drafting and construction of saree petti coat
9. Drafting and construction of frock.

HSC-303 CHILD DEVELOPMENT

Unit I Introduction to Growth and Development

- Understanding the terms Child, Growth, Development, Child Development, Human Development, and Developmental tasks
- Principles of Growth and Development and Factors influencing growth and Development of Children.
- Determinants of Development - Heredity Vs Environment - Maturation Vs Learning
- Stages of Development across life span

Unit II Pre-natal and Early Years of Development

- Stages of Pre-natal development - Physical and Psychological care during pregnancy- - Complications during pregnancy.
- Stages of birth and Types of Birth
- Infancy – Characteristics -Physical proportions, Physiological functions, Motor activities.
- Babyhood – Developmental Tasks and Characteristics, Physical-motor development, Cognitive development – Piaget's Sensory motor stage, Language, Socio-emotional development.

Unit III Development during Early and Late Childhood

- Early Childhood Period –Characteristics -Physical, Emotional, Social and Cognitive development - Piaget's Pre-operational stage - Social stages in play.
- Late Childhood Period – Characteristics, Physical, Emotional, Social and Cognitive development- Piaget's Concrete-operational stage.

Unit IV Children with Special Needs

- Definition of childhood disabilities – General Causative factors
- Classification of childhood disabilities – Definition and characteristics of Auditory Challenge, Intellectual Challenge, Developmental Challenge and Learning Disability among children
- Gifted Children –Definition and characteristics
- Importance of Early Identification and special education

Unit V Child Rearing Practices and Behaviour Problems among Children

- Parenting Styles – Authoritarian, Authoritative and Permissive styles, Influence of child rearing practices on child's Behaviour.
- Behavioral Problems – Definition, Common Behaviour problems - Thumb sucking, enuresis, temper tantrums, destructiveness - Early identification and Referral.
  Juvenile delinquency – Definition and Causative factors

PRACTICALS

1. Observation of characteristics of an infant
2. Observation of different Developments of pre-school children – Physical, language, Concept development
3. Assessment of social Development among elementary school children
4. Visit to local Special schools for children with disabilities - Taking Case studies
5. Identification of Children with Behaviour problems using a Check List (Skill oriented)

SEMESTER - IV

HSC-401 - THERAPEUTIC NUTRITION

THEORY

Unit -I Introduction to Therapeutic Nutrition

- Therapeutic Nutrition – Purpose of Diet Therapy, Therapeutic adaptation of normal diets – liquid, soft and
- special feeding methods - **Skill Development**
- Dietitian – Roles and responsibilities,
- Diet counselling – **Skill Development**
- IDA – Indian Dietetic Association

Unit -II Malnutrition and Fevers

- Fevers – Acute and Chronic fevers – Typhoid, T.B. – Causes, symptoms and dietary management
- Under weight – Causes, assessment and dietary management
- Overweight and Obesity – Causes,
- Overweight and Obesity Assessment - **Skill Development**
- Dietary management and complications of over weight and Obesity

Unit -III Gastrointestinal and Liver Diseases

- Gastrointestinal Diseases – Peptic ulcer, Diarrhoea, Constipation- causes, symptoms and dietary management
- Liver diseases – Hepatitis, Cirrhosis of liver - Causes, symptoms and dietary management

Unit -IV Cardio-vascular and Renal Diseases

- Cardio-Vascular Diseases – Dietary modifications, Role of fat in the development of Atherosclerosis,
- Hypertension - Causes, symptoms and dietary management
- Kidney disease – Glomerulonephritis, Nephrosis, Chronic Renal Failure - Causes, symptoms and dietary management

Unit -V Diabetes and Cancer

a. Diabetes Mellitus – Classification, causes, symptoms, Diagnosis, Dietary management and complications
b. Cancer – Classification, dietary modifications

PRACTICALS

Planning and preparation of the following diets

1. Preparation of modified diets-Liquid and Soft diets. – Skill Development
2. Planning and preparation of diet in fevers – Typhoid and T.B. – Skill Development
3. Planning and preparation of diets for Underweight and Obesity. – Skill Development.
4. Planning and preparation of diet in diseases of Gastrointestinal System – Peptic Ulcer, Viral Hepatitis – Skill Development
5. Planning and preparation of diet in Cardio-Vascular diseases – Atherosclerosis and Hypertension– Skill Development
6. Planning and preparation of diet in Kidney diseases – Nephritis– Skill Development

Planning and preparation of diet in Diabetes Mellitus – Skill Development

HSC - 402 FABRIC CONSTRUCTION AND APPAREL CARE

Theory: 4 Hours/week
Practicals: 2Hours/week

THEORY

Unit I Fabric Construction

- Weaving – Introduction, parts of the loom, Steps in weaving.
- Types of weaves – Basic and Decorative weaves.
- Concept of Grain, fabric count / Thread count, balance, selvedge.

Unit II Knitting and Non-woven fabrics

- Knitting – Definition, classification (weft and warp) - Types of knitting,
- Comparison of Knitting with Weaving – Properties of Knits – Use and Care of Knits
- Non – woven Fabrics – Felting, Bonding, Braiding, Knotting and bonding. Properties of Non-woven fabrics. Applications of non woven fabrics.

Unit III Finishes - Chemical, Mechanical and functional finishes

- Introduction to finishes – Importance, Kinds of finishing processes, Classification
- Chemical finishes. – Bleaching, mercerizing, shrinking, degumming, weighting.
- Mechanical finishes – Tentering, Decating, Calendering, Schreinerizing, Moireing, napping, flocking, Crepe and wrinkled effect, beetling and embossing
- Functional finishes – water repellence, flame proofing, mildew proofing, moth proofing, antiseptic and antistatic finishes

Unit IV Clothing Selection and Wardrobe Planning

- Factors affecting selection of clothing.
- Clothing selection – Clothing for specific groups – Infants, children and teenagers.
- Selection of common household linen – Towel, table linen and bed sheets.
- Wardrobe planning – Definition, Importance, Factors and Steps for planning wardrobe

Unit V Laundering-Skill development and Entrepreneur Skills

- Manual Laundry Equipment – Washing, Drying and Ironing.
- Machine Laundry – Procedure in use of washing machines – Precautions.

  Reagents/ supplies used in Laundry – Soap, detergent, bleaching agents etc.
- Laundering procedure for cotton and linen, woollens, silk and synthetics,
- Process of Dry cleaning
- Stain removal – Classification of stains and ways of stain removal

PRACTICALS

1. Identification and preparation of different weaves
2. Identification of thread count of a fabrics
3. Samples of different knits
4. Classify stains and identify the methods of removing stains.
5. Drafting and stitching of salwar.
6. Drafting and stitching of Kameez.

SEMESTER IV

HSC - 406 HOME SCIENCE EXTENSION AND COMMUNITY DEVELOPMENT

Theory: 4Hours/Week
Practicals: 2 Hours/Week

THEORY

Unit 1 Program Planning

- Definition, Objectives and Principles of Program Planning in Extension
- Steps in Program Planning
- Evaluation – Principles, methods of evaluating individual and group performances.
- Methods to find out felt and unfelt needs of the community.

Unit-II Lesson Planning-Skill Development

- Characteristics of good lesson plan – Pre-requisites and components of lesson planning.
- Planning lessons for a specific groups – Women and Children
- Different topics for lesson plans – Swatcha Bharath, Nutrition and health education.

Unit-III Community Types and Their Characteristics

- Features of Rural community
- Features of Urban community
- Features of Tribal community

Unit-IV Community Development

- Community Development – Definition , Scope objectives – Role of Functionaries
  - Panchayat Raj Systems in India (brief) – Meaning, Definition, Democratic Decentralization
  - Five tier system of Panchayat Raj – Village Panchayath –Functions
- Mandal Parishath – Seven Committees (Planning, Production etc.,) Functions
- ZillaParishath – Commitees, Functions- District, State and central level
- Extension organization in Panchayath raj set-up

- Concept of Welfare State, Directive Principles

Unit- V Government and Non-Governmental Organizations

- Government and Non- Governmental Organizations-Meaning and definition
- Role of organizations (Government and Voluntary) for the development of people
- International Agencies – WHO, CARE, UNICEF,
- National and Voluntary Agencies – ICDS, RASS, KVK, DWCRA, MEPMA
- Local Level Voluntary Agencies, people's organizations at grass roots – PASS

PRACTICALS-Skill Development

Plan an activity to create awareness among women and children of community surveyed according to their needs and interests - Lecture cum group discussion

1. Field Visits – Mandal Office, ICDS, Mahila Pranganam, PASS organization
2. Community development – Need based group project work.

HSC- 403 - HUMAN DEVELOPMENT AND FAMILY DYNAMICS

Unit I Human Development - Adolescence

- Adolescence – Definitions by WHO, UNICEF, NCERT, Characteristics.
- Physical and physiological Changes during puberty for Boys and girls
- Developments during adolescence – Cognitive- Piaget's Formal-operational stage, Emotional and Social development
- Major concerns during adolescence – Substance abuse, Delinquency , Suicidal Ideation, Teen age pregnancy etc. Symptoms and warning signs - Use of Counselling.

Unit II Human Development -Young Adult Hood

- Definition, Development tasks, significance of the period, Changing responsibilities
- Adjustments during young adulthood period
- Preparation for Marriage – Factors to be considered in the choice of marriage partner. Modes of mate selection, Self-choice marriage and arranged marriage – Advantages and disadvantages.
- Pre-marital counselling – Meaning and Need for Pre-marital Counselling.

Unit III Marriage and Adjustments

- Marriage –Definition and Functions, needs and goals. Criteria for successful marriage.
- Values and goals of marriage – Indian context. Different Marriage practices(Hindu,Muslim & Christian)- Advantages and disadvantages.
- Adjustments in marriage – In laws, sex adjustment to mate, adjustment to parenthood, and financial adjustments.
- Transition to Parenthood – Factors that influence Planned Parenthood.
- Factors responsible for an increase in the rate of legal marital dissolution – Post-marital counselling.

Unit IV Indian Family and Changing Trends

- Family – Meaning, Definition, functions of family, sociological significance of family.
- Types of Family – Definitions of Joint, Extended, Nuclear Families, Alternate family styles - Modern trends in family – Advantages and disadvantages.
- Changing Indian family structure – Factors responsible - Advantages and disadvantages , Impact on Children.
- Problems faced by the modern family – Need for family counselling.

Unit V Human Development - Middle and Late Adulthood

- Middle adulthood – Definition, physical and physiological changes - health issues, Psychological changes during middle age, coping up strategies, preparation for retirement.
- Late adulthood – Sub groups and definitions, Late adulthood and Ageing (beyond 60 years) - Definitions, Characteristics of old age – Physical and physiological changes during old age, cognitive and memory changes.
- Problems of old age and coping up strategies
- Institutionalization of aged in Indian context

PRACTICALS

1. Study of adolescent adjustment problems
2. Case study of adolescent boy and Girl
3. Identification of Mate selection criteria depicted in Mass media
4. Case study of Married couple-Marital adjustment
5. Case study of elderly man and woman.
6. Visit to counselling centre –Finding common problems of adolescents and married Couples (Skill oriented)

SEMESTER – IV

HSC-404 – NUTRITIONAL BIOCHEMISTRY

THEORY

UNIT I Introduction to Biochemistry and Carbohydrates

- Introduction to Biochemistry - Acids, Bases, PH, Buffers definitions
- Acid-base balance
- Chemistry of carbohydrates
  - Structural classification, (Monosaccharides, Disaccharides and Polysaccharides)
  - Properties, Reactions of carbohydrates
  - Role of Fibre in human nutrition

UNIT II Lipids and Proteins

- Chemistry of Lipids
  - Classification of Fatty Acids
  - Properties of Lipids,
  - Structural Lipids – Phospholipids, Glycolipids, Lipoproteins and Cholesterol.
- Chemistry of Proteins
  - Nutritional classification of Amino Acids
  - Classification of protein
  - Properties of protein
  - Reactions of amino acids

UNIT III Enzymes and Co-Enzymes

- Enzymes – Definition, Properties, Classification, Enzyme Specificity, Enzyme Action, Inhibition and Factors effecting Enzyme Activity.
- Co enzymes – Vitamins as co enzymes

UNIT IV Metabolism of Carbohydrates

- Digestion and absorption of carbohydrates
- Homeostasis of blood glucose or Regulation of blood glucose
- Glucose Tolerance Test.
- Glycolysis
- Kreb's cycle.

UNIT V Metabolism of Lipids and Proteins

- Synthesis of triglycerides
- Beta oxidation and bio synthesis of fatty acids.
- Metabolism of Amino acids – Deamination, Transamination, Decarboxylation of amino acids.
- Integration of Carbohydrate, protein and Lipid metabolism

PRACTICALS

1. Preparation of acids, bases, buffers, measuring pH. – Skill Development
2. Qualitative analysis – Identification of carbohydrates - Skill Development
3. Qualitative analysis – Identification of proteins and amino acids - Skill Development
4. Qualitative analysis of Lipids. - Skill Development
5. Qualitative analysis of food enzymes – plant and animal. - Skill Development

IV SEMESTER HSC 405 RESOURCE MANAGEMENT & FAMILY ECONOMICS

UNIT I Management Process: a. Management Process – Steps – Planning, Organizing, Controlling & Evaluating;
b. Types of managerial situations in family- Elementary, Growth & Developmental and Preventive;
c. Roles played by Home Maker, Role Overload, Role Conflict;
d. Systems Approach to Management- Elements and Importance

UNIT II

a. Factors motivating Management: Values, Goals & Standards – Types, Factors influencing, Inter-relationship
b. Resources – classification, factors influencing
c. Decision Making – Steps in Decision making, Types of Decisions, Factors influencing Decision making.
d. Conflict Resolution – Methods, Importance.

UNIT III

a. Time Management – Importance, Tools of time management – Time Norm, Time Cost, Work Norm, Work Curve, Peak Load; Management Process applied to Time – Planning – Controlling & Evaluating.
b. Energy Management – Importance, Management process applied to Energy; Fatigue – Types- Physiological & Psychological, Methods of Coping.
c. Work Simplification – Techniques to study work simplification -Process Chart, Pathway Chart, Operation Chart; Mundell's Classes of Change – Three classes of Change(Skill oriented)

UNIT IV

a. Family as an Economic Unit – Functions, Economic Goals of Families, Factors influencing Economic Goals
b. Family Income – Definition, Classification, Methods of handling Family Income, Methods of Supplementing Family Income.

UNIT V

a. Family Expenditure – Heads of expenditure;
b. Budget – Steps in Budgeting, Budgets for Different Income Levels, Factors influencing Family Budget
c. Savings – Importance, Benefits of Savings, Modes of saving in India – Advantages & Risks (Skill oriented)

PRACTICAL:

1. Decision making – technique of decision tree
2. Time norm – for any two activities
3. Work norm – for any two activities
4. Study of peak load of selected career women/full time home makers through personal interview
5. Study of work simplification by using a) process chart b) pathway chart
6. Study of fatigue experienced by women through personal interview
7. Study of economic goals of selected home makers from beginning, expanding and contracting stages of family life cycle.
8. Planning of budget for different income levels.
9. Study of different modes of savings – visit to post office/banks to know (Skill oriented)

SEMESTER IV

HSC - 406 HOME SCIENCE EXTENSION AND COMMUNITY DEVELOPMENT

Theory: 4Hours/Week
Practicals: 2 Hours/Week

THEORY

Unit 1 Program Planning

- Definition, Objectives and Principles of Program Planning in Extension
- Steps in Program Planning
- Evaluation – Principles, methods of evaluating individual and group performances.
- Methods to find out felt and unfelt needs of the community.

Unit-II Lesson Planning-Skill Development

- Characteristics of good lesson plan – Pre-requisites and components of lesson planning.
- Planning lessons for a specific groups – Women and Children
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Unit-III Community Types and Their Characteristics

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Unit-IV Community Development

- Community Development – Definition , Scope objectives – Role of Functionaries
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  - Five tier system of Panchayat Raj – Village Panchayath –Functions
- Mandal Parishath – Seven Committees (Planning, Production etc.,) Functions
- ZillaParishath – Commitees, Functions- District, State and central level
- Extension organization in Panchayath raj set-up
- Concept of Welfare State, Directive Principles

Unit- V Government and Non-Governmental Organizations

- Government and Non- Governmental Organizations-Meaning and definition
- Role of organizations (Government and Voluntary) for the development of people
- International Agencies – WHO, CARE, UNICEF,
- National and Voluntary Agencies – ICDS, RASS, KVK, DWCRA, MEPMA
- Local Level Voluntary Agencies, people's organizations at grass roots – PASS

PRACTICALS-Skill Development

Plan an activity to create awareness among women and children of community surveyed according to their needs and interests - Lecture cum group discussion

1. Field Visits – Mandal Office, ICDS, Mahila Pranganam, PASS organization
2. Community development – Need based group project work.

1.1.3 Details of courses offered by the institution that focus on employability/ entrepreneurship/ skill development during the year.					
1.2.1 Details of courses introduced across all programmes offered during the year					
Name of the Course	**Course Code**	**Activities/**	**Link to the**		
Old and Modern Poetry, History of Hindi Literature ,Essays	HIN20203	Unit I,II	Employability		
		Unit IV,V	Skill Development &		
			Employability		
Indian Culture and Science (ICS)	ICS20202L	UNIT I,II,III	Employability		

A.S.D GOVT. DEGREE COLLEGE FOR WOMEN (A)

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KAKINADA 533002 EASTGODAVARI, ANDHRA PRADESH

II B.Sc HORTICULTURE THEORY SYLLABUS 2022-2023

SEMESTER - III, COURSE – III

BASICS OF VEGETABLE SCIENCE (OLERICULTURE)

Unit – 1 : Introduction to Vegetable Crops **12 Hrs.**

1. Importance of vegetable cultivation in India and Andhra Pradesh.2. Classification and Nutritive value of vegetables.

3. Area and production of vegetables in India and Andhra Pradesh. 4. Export and import potential of vegetables in India. Constraints in vegetable productionand remedies to overcome them.

Unit – 2 : Solanaceous and Leafy Vegetables **12 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seedsand sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting andyield of following crops:

Cultivation of (a) Brinjal (b) Tomato (c) *Capsicum* (d) Spinach (c) Coriander and (d) *Mentha*

Unit – 3 : Root and Tuber Crops **16 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seedsand sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting andyield of following crops:

Cultivation of (a) Carrot (b) Beet root (c) Tapioca and (d) *Colocasia*

Unit – 4 : Cole Crops **08 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seedsand sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting and yield of following crops:

Cultivation of (a) Cabbage and (b) Cauliflower

Unit – 5 : Leguminous Vegetables **12 Hrs.**

Importance, morphology and taxonomy, varieties, climate and soil, seedsand sowing, manuring, irrigation, intercultural operations, diseases and their control, harvesting and yield of following crops:

Cultivation of (a) Cluster bean (b) Cow pea and (d) *Dolichos*

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KAKINADA 533002 EASTGODAVARI, ANDHRA PRADESH

II B.Sc HORTICULTURE THEORY SYLLABUS for the Academic Year 2022-2023

SEMESTER - IV, COURSE – IV

BASICS OF FRUIT SCIENCE (POMOLOGY)

Unit – 1 : Introduction to Fruit crops **12 Hrs.**

1. Importance of fruit growing in India and Andhra Pradesh.
2. Nutritive value of fruits.
3. Area and production of India and Andhra Pradesh.
4. Export and import potential of fruits in India. Constraints in fruit productionand remediesto overcome them.

Unit – 2 : Tropical Fruit Crops **12 Hrs.**

Origin, history, distribution, area and production, uses and composition, varieties,soil and climatic requirements, propagation,planting, training and pruning, manuring and fertilizer application,irrigation, intercropping, harvesting and yield,diseases and pests ofthe following tropical fruit crops:

(a) Mango (b) Guava and (c) Papaya

Unit – 3 : Sub-tropical and Temperate Fruit Crops **12 Hrs.**

Origin, history, distribution, area and production, uses and composition, varieties,soil and climatic requirements, propagation,planting, training and pruning, manuring and fertilizer application,irrigation, intercropping, harvesting and yield,diseases and pests ofthe following sub-tropical and temperate fruit crops:

(a) Grapes (b) Pomegranate (c) Citrus and (d) Apple

Unit – 4 : Arid and Minor Fruit crops **12 Hrs.**

Origin, history, distribution, area and production, uses and composition, varieties, soil and climatic requirements, propagation, planting, training and pruning, manuring and fertilizer application, irrigation, inter cropping, harvesting and yield,diseases and pests of the following arid fruit crops:

(a) Amla (b) Dates and (c) Wood apple

Unit – 5 : Management Practices for Fruit Crops **12 Hrs.**

1. Sustainable Production Practices for Local Fruit Production.
2. Integrated Orchard Management/Principles of IPM.
3. Harvesting and Labor Concerns
4. Grading, packing, storage and marketing of fruits.

A.S.D GOVT. DEGREE COLLEGE FOR WOMEN (A)

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II B.Sc HORTICULTURE PRACTICAL SYLLABUS for the Academic Year 2021-2022
SEMESTER - IV, COURSE – IV

BASICS OF FRUIT SCIENCE (POMOLOGY)

Course Outcomes : On successful completion of this course, the students shall be able to :

- Identify different varieties of tropical, sub-tropical and temperate fruit crops.
- Estimate and apply required dosage of fertilizer/manure/biofertilizer for a fruit crop.
- Use required PGR to check the leaf fall, flower fall and fruit fall in a crop species.
- Identify pest and diseases of various fruit crops and suggest control measures.

1. Study of varieties of Mango, Papaya and Guava.
2. Study of varieties of Grape, Pomegranate, Citrus and Apple.
3. Study of varieties of Amla, Dates and Wood apple.
4. Manure and fertilizer application including Biofertilizers in different fruit crops.
5. Methods of application, calculation of the required quantity of manure andfertilizers based on the nutrient content.
6. Use of growth regulators in Fruit crops.
7. Identification and collection of important pests in fruit crops.
8. Identification and collection of important diseases in fruit crops and herbariumpreparation.
9. Visit to a local fruit market/commercial Orchard.

A.S.D GOVT. DEGREE COLLEGE FOR WOMEN(A)

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KAKINADA 533002 EASTGODAVARI, ANDHRA PRADESH

II B.Sc HORTICULTURE THEORY SYLLABUS for the Academic Year 2022-2023

SEMESTER - IV, COURSE – V

PESTS AND DISEASES OF HORTICULTURE PLANTSAND THEIRMANAGEMENT

Unit – 1 : Basics of Entomology and Plant Pathology **12 Hrs.**

1. Classification of Insects up to orders and families of economic importance; Studyof insect pests(Distribution, host range, biology, nature of damage and management) in horticultural crops.
2. Disease triangle and disease pyramid; Plant Pathology : Definition
3. A general account on symptoms of plant diseases caused by Viruses and Bacteria.
4. A general account on symptoms of plant diseases caused by Fungi.

Unit – 2 : Pests and diseases of Vegetables Crops **12 Hrs.**

1. Bhendi : Spotted boll worms, Red cotton bug, Yellow vein mosaic.
2. Cucurbits : Fruit flies, Pumpkin beetles; Downy and powdery mildews.
3. Potato : Potato tuber moth, Golden cyst nematode; Late blight.
4. Sweet Potato : Sweet potato weevil, Vine borer; Mottled necrosis.

Unit – 3 : Pests and diseases of Fruit crops **12 Hrs.**

1. Coconut :.Rhinoceros beetle, Burrowing nematode; Ganoderma root rot, Grey blight
2. Banana : Banana weevil, banana aphids; Panama wilt. Bunchy top
3. Cashew : Tea mosquito bug. Cashew stem borer; Anthracnose, 2.Pink disease
4. Custard apple : Mealy bug, Fruit boring caterpillar; Anthracnose, Glomerella fruit rots.

Unit – 4 : Pests and diseases of Commercial Flower Crops **12 Hrs.**

1. Rose : Rose aphid, Dieback, and black spot
2. Marigold : Aphids, leaf spot, and bud rot
3. Gerbera : Thrips, white flies and Blossom blight
4. Gladiolus : Cut worms, leaf eating caterpillar and corm rot.

Unit – 5 : Management of Pests and Diseases **12 Hrs.**

1. Principles and methods of plant disease management.
2. Integrated Plant disease management.
3. Fungicides classification based on chemical nature; commonly usedinsecticides, fungicides,bactericides and nematicides.
4. Preparation of fungicidal solutions, slurries, pastes and their application.

A.S.D GOVT. DEGREE COLLEGE FOR WOMEN (A)

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KAKINADA 533002 EASTGODAVARI, ANDHRA PRADESH

II B.Sc HORTICULTURE PRACTICAL SYLLABUS 2021-2022

SEMESTER - IV, COURSE – V

PESTS AND DISEASES OF HORTICULTURE PLANTS AND THEIRMANAGEMENT

Course Outcomes : On successful completion this course, the students shall be able to :

- Identify the insect pests and microbial pathogens on various horticulture plants.
- Identify the disease symptoms and attribute them to a pest or a microbe.
- Suggest the dose and rate of application of a pesticide/fungicide to control the diseases in horticulture plants.

1. Study of characteristics of insect pests, microbial pathogens, nematodes causing diseases on different plants given in the theory syllabus.
2. Identification of disease symptoms on different plants given in the theory syllabus.
3. Observing and acquiring knowledge on pesticides, fungicides etc.,
4. Acquaintance with methods of application of common fungicides.
5. Field visit and acquaintance with disease of crops

A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A), KAKINADA

(Accredited by NAAC with 'B' in Cycle 3)

Affiliated to ADIKAVI NANNAYA UNIVERSITY:: RAJAHMAHENDRAVARAM

UG- SKILL DEVELOPMENT COURSE

TOURISM GUIDANCE (w.e.f. 2020-2021 A.Y.)

Unit I: (06 hrs) Skill Development

Tourism – What is Tourism - Characteristics of Tourist Places – Guidance in Tourism - Meaning of Guidance – Types of Tour Guidance - Government/Department Regulations

Unit II: (10 hrs) Employability

Types of Guides – Characteristics of a Guide - Duties and Responsibilities of a Guide - The Guiding Techniques –Guide's personality- Training Institutions – Licence. Leadership and Social Skills - Presentation and Communication Skills - Working with different age and linguistic groups - Working under difficult circumstances – Precautions at the site - Relationship with Fellow Guides and Officials.

Unit III: (10 hrs) Employability

Guest Relationship Management- Personal and Official - Arrangements to Tourists – Coordinating transport - VISA/Passport -Accident/Death -Handling Guests with Special Needs/ Different Abilities – Additional skills required for Special/Adventure Tours - Knowledge of Local Security and Route Chart – Personal Hygiene and Grooming - Checklist - Code of Conduct

A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A), KAKINADA

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(Affiliated to Adikavi Nannaya University: Rajahmahendravaram)
UG – Life Skill and Skill Development Course Syllabus (2020-21)
LIFE SKILL COURSE

Semester: II

INDIAN CULTURE & SCIENCE (ICS)

Unit – I: Skill Development

Unity in Diversity in India: (09 hrs) Coexistence of various religions since ancient times - Hinduism, Buddhism, Jainism and Atheism, and later Sikhism, Islam and Christianity The Bhakti (Vishnavite and Saivaite) and Sufi Movements. The concepts of seela, karuna, kshama, maitri, vinaya, santhi and ahimsa Achievements in Literature, Music, Dance, Sculpture and Painting - Craftsmanship in cloth, wood, clay, metal and ornaments Cultural diversity, Monogamy, Family system, Important seasonal festivals

Unit – II: Employability

Social Reforms and Modern Society: (09 hrs) Reforms by Basaveswara - Raja Rama Mohan Roy – Dayananda Saraswathi –Swamy Vivekananda –Mahatma Gandhi - B. R. Ambedkar - Reforms in Andhra by Vemana,Veerabrahmam, Gurajada, Veere salingam and Gurram Jashua (only reforms in brief, biographies not needed). Modern Society: Family unity, Community service, Social Harmony, Civic Sense, Gender Sensitivity, Equality,
National Fervor

Unit – III: Skill Development

Science and Technology: (11 hrs.) Objectivity and Scientific Temper – Education on Scientific lines (Bloom's Taxonomy) - Online Education. Developments in Industry, Agriculture, Medicine, Space, Alternate Energy, Communications, Media through ages

A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (A), KAKINADA

(Accredited by NAAC with 'B' in Cycle 3)

(Affiliated to Adikavi Nannaya University: Rajahmahendravaram)
UG – Life Skill and Skill Development Course Syllabus (2020-21)
UG- LIFE SKILL COURSE

SEMESTER - I

HUMAN VALUES AND PROFESSIONAL ETHICS (HVPE)
(w.e.f. 2020-2021 A.Y)

UNIT- I : Skill Development

Introduction – Definition, Importance, Process & Classifications of Value Education: Understanding the need, basic guidelines, content and process for Value Education Understanding the thought provoking issues; need for Values in our daily life Choices making – Choosing, Cherishing & Acting, Classification of Value Education: understanding Personal Values, Social Values, Moral Values & Spiritual Values.

UNIT: 2 – Skill Development

Harmony in the Family – Understanding Values in Human Relationships: Understanding harmony in the Family- the basic unit of human interaction, Understanding the set of proposals to verify the Harmony in the Family; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship, Present Scenario: Differentiation (Disrespect) in relationships on the basis of body, physical facilities, or beliefs. Understanding the Problems faced due to differentiation in Relationships. Understanding the harmony in the society (society being an extension of family): Samadhan, Samridhi, Abhay, Sah-astitva as comprehensive Human Goals Visualizing a universal harmonious order in society- Undivided Society (AkhandSamaj), Universal Order (Sarvabhaum Vyawastha)- from family to world family.

UNIT: 3 Skill Development

- Professional Ethics in Education: Understanding about Professional Integrity, Respect & Equality, Privacy, Building Trusting Relationships. Understanding the concepts; Positive co-operation, Respecting the competence of other professions. Understanding about Taking initiative and promoting the culture of openness. Depicting Loyalty towards Goals and objectives.

A.S.D.GOVERNMENT DEGREE COLLEGE FOR WOMEN (A), KAKINADA

DEPARTMENT OF MATHEMATICS

IIBSC- III SEMESTER

ABSTRACT ALGEBRA

Course Outcomes:

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

1. Define the group with important example and the elementary properties of groups, finite groups ,composition table and the order of a group.
2. Understand the conditions for subgroup of a group and examples of subgroups.
3. Identify the applications of Lagrange's theorem.
4. Understand the definition of Normal subgroups with examples and quotient group.
5. Define the homomorphisms and its elementary properties and the proof of first homomorphism theorem.
6. Understand the definition of permutation and product of permutations, even and odd permutations and the proof of Cayley's theorem.

UNIT – I (12 Hours)

GROUPS : Binary Operation; Algebraic structure; semi group; monoid; Group definition and elementary properties; Finite and Infinite groups with examples ; order of a group; Composition tables with examples.

UNIT – II (12 Hours)

SUBGROUPS

Complex Definition; Multiplication of two complexes, Inverse of a complex; Subgroup Definition and examples; criterion for a complex to be a subgroup; criterion for the product oftwo subgroups to be a subgroup; union and intersection of subgroups.

Co-sets and Lagrange's Theorem:

Cosets definition; properties of Cosets; Index of a subgroups of a finite groups; Lagrange's Theorem.

UNIT –III (12 Hours)

NORMAL SUBGROUPS:

Definition of normal subgroup; proper and improper normal subgroups; Hamilton group ; criterion for a subgroup to be a normal subgroup ; intersection of two normal subgroups ; Sub group of index 2 is a normal sub group ; quotient group; criterion for an existence of a quotient group.

UNIT – IV (12 Hours)

HOMOMORPHISM : Definition of homomorphism; Image of homomorphism; elementary properties of homomorphism; Isomorphism, automorphism definitions and elementary properties; kernel of a homomorphism; fundamental theorem on Homomorphism and application

PERMUTATIONS:

Definition of permutation ; permutation multiplication ; Inverse of a permutation ; cyclicpermutations ; transposition ; even and odd permutations ; Cayley's theorem.

Additional Input: Cyclic groups, properties.

UNIT – V (12 Hours)

RINGS:

Definition of Ring and basic properties; Boolean Ring; divisors of zero and cancellation Laws in Integral Domain; Division Ring and Field; The characteristic of a ring, The characteristic of an Integral Domain, The characteristic of a Field; Sub Rings.

Additional Input: Ideals of a rings, Properties, Principal Ideal, homomorphism, first homomorphism theorem, maximal and prime ideal.

** The External Examination paper setters shouldn't set the questions from additional inputs.

Co-Curricular Activities (15 Hours)

Seminar/ Quiz/ Assignments/ Group theory and its applications / Problem Solving.

Text Book :

A text book of Mathematics for B.A. / B.Sc. by B.V.S.S. SARMA and others, published by S.Chand & Company, New Delhi.

Reference Books :

1. Abstract Algebra by J.B. Fraleigh, Published by Narosa publishing house.
2. Modern Algebra by M.L. Khanna.
3. Rings and Linear Algebra by Pundir & Pundir, published by Pragathi Prakashan
4. Ccelms.ap.gov.in/

A.S.D.GOVERNMENT DEGREE COLLEGE FOR WOMEN (A), KAKINADA

DEPARTMENT OF MATHEMATICS

IIBSC- III SEMESTER

ANALYTICAL SKILLS

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

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

1. Understand the basic concepts of arithmetic ability, quantitative ability, logical reasoning, business computations and data interpretation and obtain the associated skills.
2. Acquire competency in the use of verbal reasoning.
3. Apply the skills and competencies acquired in the related areas
4. Solve problems pertaining to quantitative ability, logical reasoning and verbal ability inside and outside the campus.

UNIT – 1: (10 Hrs)

Arithmetic ability: Algebraic operations BODMAS, Fractions, Divisibility rules, LCM & GCD(HCF).

Verbal Reasoning: Number Series, Coding & Decoding, Blood relationship, Clocks, Calendars.

UNIT – 2: (10 Hrs)

Quantitative aptitude: Averages, Ratio and proportion, Problems on ages, Time-distance–speed.

Business computations: Percentages, Profit & loss, Partnership, simple compound interest.

UNIT – 3: (07 Hrs)

Data Interpretation: Tabulation, Bar Graphs, Pie Charts, line Graphs. Venn diagrams.

Recommended Co-Curricular Activities (03 Hrs)

Surprise tests / Viva-Voice / Problem solving/Group discussion.

Text Book: Quantitative Aptitude for Competitive Examination by R.S. Agrawal, S.Chand Publications.

Reference Books:

1. Analytical skills by Showick Thorpe, published by S Chand And Company Limited, Ramnagar, New Delhi-110055.
2. Quantitative Aptitude and Reasoning by R V Praveen, PHI publishers.
3. Quantitative Aptitude for Competitive Examination by Abhijit Guha, Tata Mc Graw Hill Publications.
4. Ccelms.ap.gov.in/

A.S.D.GOVERNMENT DEGREE COLLEGE FOR WOMEN (A), KAKINADA

DEPARTMENT OF MATHEMATICS

IIBSC- III SEMESTER

REAL ANALYSIS

Course Outcomes:

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

1. Understand the concept of real numbers and the properties of real numbers and the definitions of supremum and infimum.
2. Solve the problems in sequences, limit of a sequence.
3. Solve the problems on infinite series by using the tests like ratio test, n^{th} root test etc.,
4. Solve the problems on the basic concepts of continuity, its elementary properties and uniform continuity.
5. Understand the concepts of differentiation and the three mean value theorems can solve the problems.
6. Define the Riemann integration and solve the problems.

UNIT – I (12 Hours)

Real Sequences:

Introduction of Real Numbers ,Sequences and their limits, Range and Boundedness of Sequences, Limit of a sequence and

Convergent sequence. The Cauchy's criterion, properly divergent sequences, Monotone sequences, Necessary and Sufficient condition for Convergence of Monotone Sequence, Sandwich theorem, Caucy's theorems on limits, Limit Point of Sequence, Subsequences , Cauchy Sequences , Cauchy's general principle of convergence theorem.

Additional Input: Bolzano-Wierestrass Theorem**.**

UNIT –II (12 Hours)

INFINITIE SERIES

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Series: Introduction to series, convergence of series. Cauchy's general principle of convergence for series, tests for convergence of Series of Non-Negative Terms:

1. P-test(proof)
2. Limit comparison test
3. Cauchy's n^{th} root test or Root Test (proof) and problems.
4. D'-Alemberts' Test or Ratio Test proof and problems.

Alternating Series : Leibnitz Test proof and problems.

Additional Input: comparison test of first type ,Absolute and conditional convergence.

UNIT – III (12 Hours)

Real Functions, Boundedness of a function, Limits of functions. Some extensions of the limit concept: Infinite Limits, Limits at infinity.

CONTINUITY:

Continuous functions: Continuity of a function, Continuous Functions on interval, algebra of continuous functions, discontinuity of a function, properties of continuous functions: Bolzano's theorem, Intermediate value theorem.

Additional Input: Uniform continuity

UNIT – IV (12 Hours)

DIFFERENTIATION AND MEAN VALUE THEOREMS:

The derivability of a function at a point, on an interval, , relation between derivability and continuity of a function, Graphical meaning of the Derivative, Mean value Theorems: Rolle's Theorem, Lagrange's Mean value Theorem, Cauchy's Mean value Theorem and related problems.

Additional Input: Taylor's theorem, Maclaurin's theorem, Taylor's series and Maclaurin's series

UNIT – V (12 Hours)

RIEMANN INTEGRATION :

Riemann Integral, Riemann integral functions, Darboux theorem, Necessary and sufficient condition for R – integrability, Properties of integrable functions, Fundamental theorem of integral calculus, First mean value Theorem.

** The External Examination paper setters shouldn't set the questions from additional inputs.

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/ Real Analysis and its applications / Problem Solving.

Text Book:

Introduction to Real Analysis by Robert G.Bartle and Donlad R. Sherbert, published by John Wiley.

Reference Books:

1.A Text Book of B.Sc Mathematics by B.V.S.S. Sarma and others, published by S. Chand & Company Pvt. Ltd., New Delhi.

2.Elements of Real Analysis as per UGC Syllabus by Shanthi Narayan and Dr. M.D. Raisinghania, published by S. Chand & Company Pvt. Ltd., New Delhi

3. Ccelms.ap.gov.in/

A.S.D.GOVERNMENT DEGREE COLLEGE FOR WOMEN (A), KAKINADA

DEPARTMENT OF MATHEMATICS

IIBSC- III SEMESTER

LINEAR ALGEBRA

Course Outcomes:

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

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

UNIT – I (12 Hours)

Vector Spaces-I:

Vector Spaces, General properties of vector spaces, n-dimensional Vectors, addition and scalar multiplication of Vectors, internal and external composition, Null space, Vector subspaces, Algebra of subspaces, Linear Sum of two subspaces, linear combination of Vectors, Linear span Linear independence and Linear dependence of Vectors.

UNIT –II (12 Hours)

Basis and dimension:

Basis of Vector space, Finite dimensional Vector spaces, basis extension, co-ordinates, Dimension of a Vector space, Dimension of a subspace, Quotient space and Dimension of Quotient space.

UNIT –III (12 Hours)

Linear Transformations:

Linear transformations, linear operators, Properties of L.T, sum and product of LTs, Range and null space of linear transformation, Rank and Nullity of linear transformations – Rank – Nullity Theorem.

UNIT –IV (12 Hours)

Eigen Values , Eigen vectors and Cay Hamilton theorem :

Linear Equations, Characteristic equations, Characteristic Values & Vectors of square matrix, Cayley – Hamilton Theorem.

Additional Input:

UNIT –V (12 Hours)

Inner product space :

Inner product spaces, Euclidean and unitary spaces, Norm or length of a Vector, Schwartz inequality, Triangle Inequality, Parallelogram law, Orthogonality, Orthonormal set, Gram– Schmidt orthogonalisation process. Bessel's inequality and Parseval's Identity

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/ Linear algebra and its applications / Problem Solving.

Text Book:

Linear Algebra by J.N. Sharma and A.R. Vasista, published by Krishna Prakashan Mandir,Meerut-250002.

Reference Books:

1. Matrices by Shanti Narayana, published by S.Chand Publications.
2. Linear Algebra by Kenneth Hoffman and Ray Kunze, published by Pearson Education (low priced edition), New Delhi.
3. Linear Algebra by Stephen H. Friedberg et. al. published by Prentice Hall of India Pvt. Ltd. 4th Edition, 2007
4.Ccelms.ap.gov.in/

BSc	MICROBIOLOGY (Semester: III)	Credits: 4
MBT: III	MOLECULAR BIOLOGY AND MICROBIAL GENETICS	Hrs/Wk: 4

Aim and objectives of Course

To understand different biomolecules, analytical techniques, bacterial nutrition, growth and metabolism

Learning outcomes of Course

Up on completion of this course students should able to:

1. Explain working principle and applications of Colorimetry, Chromatography, Spectrophotometry, Centrifugation and Gel Electrophoresis.
2. Knowledge on Microbial nutrition, bacterial growth, metabolism and Respiration.
3. The student will get first-hand experience on separation methods

UNIT- I: Nucleic acids **No. of hours: 12**

DNA and RNA - Role in heredity-The central dogma
Watson and Crick model of DNA
Types of RNA, structure, and functions
Organization of DNA in prokaryotes

UNIT- II : Genetic material and replication: Skill oriented

Experiments which established DNA as genetic material
RNA as genetic material
Mechanism of DNA Replication in Prokaryotes
Proof of semi conservative mechanism of replication (Meselson - Stahl Experiment)

UNIT- III: Gene expression and regulation: Employability **No. of hours: 12**

Concept of gene - Muton, recon and cistron.
Genetic code
Protein synthesis - Transcription and translation in Prokaryotes
Regulation of gene expression in bacteria - *lac* operon

UNIT- IV: Mutations, damage and repair: Employability

Outlines of DNA damage and repair mechanism
Mutations - spontaneous and induced
Chromosomal aberrations - deletions, inversions, tandem duplications, insertions
Point mutations- base pair changes, frame shifts
Mutagens - Physical and Chemical mutagens
Bacterial recombination - Transformation, Conjugation, Transduction (Generalized and specialized transductions)

UNIT- V: Genetic engineering : Enterpreneurship

Basic principles of genetic engineering.
Restriction endonucleases, DNA ligases.
Vectors – plasmids (pBR322), Cosmids, Phagemids, lambda phage vector, M 13 vectors.
Outlines of gene cloning methods.

Polymerase chain reaction.
Genomic and cDNA libraries.
General account on application of genetic engineering in industry, agriculture, and medicine.

MBP – III: MOLECULAR BIOLOGY AND MICROBIAL GENETICS

TOTAL HOURS: 30 **CREDITS: 1**

1. Study of different types of DNA and RNA using micrographs and model / schematic representations.
2. Study of semi-conservative replication of DNA through micrographs / schematic representations
3. Isolation of genomic DNA from *E. coli*
4. Estimation of DNA using UV spectrophotometer.
5. Resolution and visualization of DNA by Agarose Gel Electrophoresis.
6. Resolution and visualization of proteins by Polyacrylamide Gel Electrophoresis (SDS - PAGE).
7. Problems related to DNA and RNA characteristics, Transcription and Translation.
8. Induction of mutations in bacteria by UV light.
9. Instrumentation in molecular biology - Ultra centrifuge, Transilluminator, PCR

Recommended Text Books &Reference books:

- Freifelder, D. (1990). Microbial Genetics. Narosa Publishing House, New Delhi. Freifelder, D. (1997). Essentials of Molecular Biology. Narosa Publishing House, New Delhi.
- Glick, B.P. and Pasternack, J. (1998). Molecular Biotechnology, ASM Press, Washington D.C., USA.
- Lewin, B. (2000). Genes VIII. Oxford University Press, England.
- Maloy, S.R., Cronan, J.E. and Freifelder, D. (1994). Microbial Genetics, Jones and Bartlett Publishers, London.
- Ram Reddy, S., Venkateshwarlu, K. and Krishna Reddy, V. (2007) A text Book of Molecular Biotechnology. Himalaya Publishers, Hyderabad.
- Sinnot E.W., L.C. Dunn and T. Dobzhansky. (1958). Principles of Genetics. 5 th Edition. McGraw Hill, New York.
- Smith, J.E. (1996). Biotechnology, Cambridge University Press.
- Snyder, L. and Champness, W. (1997). Molecular Genetics of Bacteria. ASM press,
- Strickberger, M.W. (1967). Genetics. Oxford & IBH, New Delhi.
- Verma, P.S. and Agarwal, V.K. (2004). Cell Biology, Genetics, Molecular Biology, Evolution and Ecology. S. Chand & Co. Ltd., New Delhi.

BSc	MICROBIOLOGY (Semester: IV)	Credits: 4
MBT: IV	IMMUNOLOGY AND MEDICAL MICROBIOLOGY	Hrs/Wk: 4

Aim and objectives of Course

To study types of immunity, immune organs, cells, antibodies and antigen-antibody interactions.

To learn diagnostic and pathogenesis of various diseases. Antimicrobial defense and different toxins and vaccines.

Learning outcomes of Course

Up on completion of the course students able to

1. Explain No-specific body defence and the immune response
2. Develop knowledge on disease transmission and control
3. Demonstrate on collection and handling of laboratory specimens
4. Develop an information making personal health decision in regard to infectious diseases.
5. Student can safeguard himself & society and can work diagnostics and hospitals.

UNIT-I: Immune System **No. of hours: 12**

Concept of Innate and Adaptive immunity
Primary and secondary organs of immune system - thymus, bursa fabricus, bone marrow, spleen, lymph nodes.
Cells of immune system- Identification and function of B and T lymphocytes, null cells, monocytes, macrophages, neutrophils, basophils and eosinophils
Complement system (in brief)

UNIT-II : Immune response : Skill oriented

Characteristics of antigen (Foreignness, Molecular size, Heterogeneity and solubility) Haptens.
Antibodies - basic structure and types and functions (Immune complex formation and elimination - Agglutination, Precipitation, Neutralization, Complement fixation, Phagocytosis)
Generation of Humoral Immune Response (Plasma and Memory cells)
Generation of Cell Mediated Immune Response
MHC- Functions of MHC I & II molecules
Hypersensitivity- definition and types (in brief)
Autoimmunity (in brief)

UNIT- III: Microbes in Health and Disease: Skill oriented **&** Employability

Normal flora of human body.
Definitions - Infection, Invasion, Pathogen, Pathogenicity, Virulence, Toxigenicity, Opportunistic infections, Nosocomial infections.

General account on microbial diseases – causal organism, pathogenesis, epidemiology, diagnosis, prevention, and control of the following
Bacterial diseases - Tuberculosis, Typhoid.
Fungal diseases - Candidiasis.
Protozoal diseases - Malaria.
Viral Diseases – Corona virus and AIDS

UNIT- IV: Principles of Diagnosis Skill oriented, Enterpreneurship **&** Employability

General principles of diagnostic microbiology- Collection, transport of clinical samples
Identification by Culturing & Biochemical characteristics (IMViC)
Identification by molecular assays (PCR, RT-PCR, DNA probes)
Identification by serological tests (ELISA, Immunofluorescence, Agglutination based tests, Complement fixation)

UNIT- V: Prevention and Treatment Skill oriented

No. of hours: 12

Vaccines
Monoclonal antibodies- Production and application
Antimicrobial agents- General modes of action of antibacterial (Penicillin), antifungal (Amphotericin), antiviral (Amantadine) agents
Interferons
Tests for antimicrobial susceptibility (Disc diffusion)
Antibiotic resistance in bacteria

MBP -V: IMMUNOLOGY AND MEDICAL MICROBIOLOGY

TOTAL HOURS: 30 **CREDITS: 1**

1. Identification of human blood groups.
2. Separate serum from the blood sample (demonstration).
3. Immunodiffusion by Ouchterlony method.
4. Identification of any of the bacteria (*E. coli, Pseudomonas, Staphylococcus, Bacillus*) using laboratory strains on the basis of cultural, morphological and biochemical characteristics: IMViC, urease production and catalase tests
5. Study of composition and use of important differential media for identification of bacteria: EMB Agar, McConkey agar, Mannitol salt agar
6. Antibacterial sensitivity by Kirby-Bauer method
6. Determination of Minimal Inhibitory Concentration (MIC) of an antibiotic
7. Study symptoms of the diseases with the help of photographs: Anthrax, Polio, Herpes, chicken pox, HPV warts, Dermatomycoses (ring worms)
8. Study of various stages of malarial parasite in RBCs using permanent mounts.
9. Phenol coefficient test
10. Isolation of Normal flora of human body (Hands, Feet, Nostrils, Teeth Surface) by swab method.
11. Evaluation of Hand Sanitizer Effectiveness by Filter Paper Disc Method & thumb impression method.

Recommended Text Books &Reference books:

- Ananthanarayan R. and Paniker C.K.J. (2009) Textbook of Microbiology. 8th edition, University Press Publication.
- Brooks G.F., Carroll K.C., Butel J.S., Morse S.A. and Mietzner, T.A. (2013) Jawetz, Melnick and Adelberg's Medical Microbiology. 26th edition. McGraw Hill Publication.
- Delves P, Martin S, Burton D, Roitt IM. (2006). Roitt's Essential Immunology.11th edition Wiley-Blackwell Scientific Publication, Oxford.
- Goldsby RA, Kindt TJ, Osborne BA. (2007). Kuby's Immunology. 6th edition W.H. Freeman and Company, New York.
- Kuby's Immunology. 6th edition W.H. Freeman and Company, New York.
- Jawetz, Melnick and Adelberg's Medical Microbiology. 26th edition. McGraw Hill Microbiology. 4th edition. Elsevier Publication.
- Willey JM, Sherwood LM, and Woolverton CJ. (2013) Prescott, Harley and Klein's Microbiology. 9th edition. McGraw Hill Higher Education.

BSc	MICROBIOLOGY (Semester: IV)	Credits: 4
MBT: V	MICROBIAL ECOLOGY AND INDUSTRIAL MICROBIOLOGY	Hrs/Wk: 4

Aim and objectives of Course

1. To study role of microorganisms in nutrient cycling, microorganism in waste treatment and degradation of xenobiotics
2. To determine the potability of drinking water
3. To study concepts of screening and strain improvement, media, Fermentation, assays with examples of industrially important processes

Learning outcomes of Course

Up on completion of the course students able to

1. Understand fundamental concept in soil microbial diversity, basic concept of biogeochemical cycles and plant growth promotion and plant diseases
2. Understands the role of microorganisms in treatment of solid and liquid waste.
3. Acquire knowledge on application of microorganisms in agro – environmental fields.
4. Get basic information design of fermenter, fermentation processes and Single cell proteins.
5. Self-reliance in the industrial application of Microbiology in life and industry.
6. Entrepreneurship can be established with the gained knowledge.

UNIT - I: Microbial Ecology : Skill **No. of hours: 12**

Role of microorganisms in Biogeochemical cycles (Carbon, nitrogen, phosphorus)
Microbe-microbe interactions - Synergism, mutualism, commensalism, antagonism, competition, parasitism, predation
Plant- Microbe interactions - Plant growth promoting Microorganisms, Plant pathogens

UNIT - II : Microorganisms in Environment: Employability, Skill oriented
No. of hours: 12
Microbes in waste management- solid and liquid waste (aerobic and anaerobic)
Microbes in degradation of Xenobiotics
Microbes in drinking water- detection of potability by (a) standard qualitative procedure: presumptive test/MPN test, confirmed and completed tests for faecal coliforms (b) Membrane filter technique
Microbes in food - intrinsic and extrinsic parameters that affect microbial growth in food

UNIT - III: Industrial Microbiology: Employability & Enterpreneurship
No. of hours: 12 Industrial important Microorganisms- Yeasts & Moulds , Bacteria , Actinomycetes .
Screening techniques.
Strain improvement techniques.

UNIT -IV: Fermentation processes: Skill, Employability & Enterpreneurship
Design of fermenter (for control of pH, temperature, dissolved oxygen, foaming and aeration)

Types of fermentation processes - solid state, liquid state, batch, fed-batch, continuous.
Fermentation media (Carbon source, nitrogen source, minerals, vitamins & growth factors, Buffers, Precursors, Antifoam agents, water, oxygen)
Examples of Crude media; molasses, corn- steep liquor, sulphite waste liquor, whey.
Downstream processing - filtration, centrifugation, cell disruption, solvent extraction.

UNIT - V: Microbial Productions: Employability

No. of hours: 12

Microbial production of Industrial products: Citric acid, Ethanol, Penicillin, Glutamic acid, vitamin B12, Amylase, Yogurt
Microbial cells as food- SCP

MBP - V: MICROBIAL ECOLOGY AND INDUSTRIAL MICROBIOLOGY

Total hours: 30 **Credits: 1**

1. Microbial fermentation for the production and estimation of ethanol
2. Isolation of amylase producing microorganisms from soil
3. Isolation of food spoilage microorganisms from spoiled food sample.
4. MPN test
5. Demonstration of fermenter
6. Production of wine from grapes
7. Growth curve and kinetics of any two industrially important microorganisms.
8. Microbial fermentation for the production and estimation of citric acid
9. Preparation of yoghurt.
10. Crowded plate technique
11. Isolation of microorganism from soil
12. Isolation of microorganism from different water samples

Recommended Text Books &Reference books:

- Atlas RM and Bartha R. (2000). **Microbial Ecology: Fundamentals & Applications.** 4th edition. Benjamin/Cummings Science Publishing, USA
- Barton LL & Northup DE (2011). **Microbial Ecology**. 1st edition, Wiley Blackwell, USA
- Campbell RE. (1983). **Microbial Ecology**. Blackwell Scientific Publication, Oxford, England.
- Coyne MS. (2001). **Soil Microbiology: An Exploratory Approach.** Delmar Thomson Learning.
- Lynch JM & Hobbie JE. (1988). **Microorganisms in Action: Concepts & Application in Microbial Ecology.** Blackwell Scientific Publication, U.K.
- Madigan MT, Martinko JM and Parker J. (2014). **Brock Biology of Microorganisms**. 14th edition. Pearson/ Benjamin Cummings
- Maier RM, Pepper IL and Gerba CP. (2009). **Environmental Microbiology**. 2nd edition, Academic Press
- Martin A. (1977). **An Introduction to Soil Microbiology**. 2nd edition. John Wiley & Sons Inc. New York & London. Adams MR and Moss MO. (1995). **Food Microbiology**. 4th edition, New Age International (P) Limited Publishers, New Delhi, India.
- Banwart JM. (1987). **Basic Food Microbiology**. 1st edition. CBS Publishers and Distributors, Delhi, India.
- Casida LE. (1991). **Industrial Microbiology**. 1st edition. Wiley Eastern Limited.

- Crueger W and Crueger A. (2000). **Biotechnology: A textbook of Industrial Microbiology**. 2nd Edition. Panima Publishing Company, New Delhi
- Frazier WC and Westhoff DC. (1992). **Food Microbiology**. 3rd edition. Tata McGraw-Hill Publishing Company Ltd, New Delhi, India.

A.S.D.Govt. Degree College for Women (A), Kakinada

Department of Physics

Course-III: HEAT AND THERMODYNAMICS

UNIT-I: Kinetic Theory of gases :(12 hrs)

Kinetic Theory of gases-Introduction, Maxwell's law of distribution of molecular velocities (qualitative treatment only) and its experimental verification, Mean free path, Degrees of freedom, Principle of equipartition of energy (Qualitative ideas only), Transport phenomenon in ideal gases: viscosity, Thermal conductivity and diffusion of gases.

UNIT-II:Thermodynamics:(12hrs)

Introduction- Isothermal and Adiabatic processes, Reversible and irreversible processes, Carnot's engine and its efficiency, Carnot's theorem, Thermodynamic scale of temperature

and its identity with perfect gas scale, Second law of thermodynamics: Kelvin's and Clausius statements, **Principle of refrigeration, Entropy, Physical significance, Change in entropy in reversible and irreversible processes; Entropy and disorder-Entropy of Universe; Temperature-Entropy (T-S) diagram and its uses ; change of entropy when ice changes into steam**.

UNIT-III: Thermodynamic Potentials and Maxwell's equations:(12hrs)

Thermodynamic potentials-Internal Energy, Enthalpy, Helmholtz Free Energy, Gibb's FreeEnergy and their significance, Derivation of Maxwell's thermodynamic relations fromthermodynamic potentials, Applications to (i) Clausius-Clayperon's equation (ii) Value of C_P-C_V (iii) Value of C_P/C_V (iv) Joule-Kelvin coefficient for ideal gases.

UNIT-IV: Low temperature Physics:(12hrs) Methods for producing very low temperatures, Joule Kelvin effect, Porous plug experiment ,Joule expansion, Distinction between adiabatic and Joule **Thomson expansion, Expression forJoule**

Thomson cooling, Liquefaction of air by Linde's method, Production of low temperatures by adiabatic demagnetization (qualitative), Practical applications of substancesat low temperatures.

UNIT-V: Quantum theory of radiation: (12 hrs) Black body and its spectral energy distribution of black body radiation, Kirchoff's law, Wein'sdisplacement law, Stefan-Boltzmann's law and Rayleigh-Jean's law (Noderivations),Planck's law of black body radiation-Derivation, Deduction of Wein's law and Rayleigh-Jean's law from Planck's law, Solar constant and its determination using Angstrompyroheliometer, Estimation of surface temperature of Sun.

practical Course-III: Heat and Thermodynamics

Minimum of 6 experiments to be done and recorded

1. Specific heat of a liquid –Joule's calorimeter –Barton's radiation correction
2. Thermal conductivity of bad conductor-Lee's method
3. Thermal conductivity of rubber.
4. Measurement of Stefan's constant.
5. Specific heat of a liquid by applying Newton's law of cooling correction.
6. Heating efficiency of electrical kettle with varying voltages.
7. Thermo emf- thermo couple - Potentiometer
8. Thermal behavior of an electric bulb (filament/torch light bulb)
9. Measurement of Stefan's constant- emissive method
10. Study of variation of resistance with temperature - Thermistor.

B.Sc. PHYSICS SYLLABUS UNDER CBCS
For Mathematics Combinations
[2020-21 Batch onwards]
II Year B.Sc.-Physics: IV Semester
Course-IV: ELECTRICITY, MAGNETISM AND ELECTRONICS

UNIT-I

1. Electrostatics: (6hrs)

Gauss's law-Statement and its proof, Electric field intensity due to (i) uniformly charged solid sphere and (ii) an infinite conducting sheet of charge, Deduction of Coulomb's law from Gauss law, Electrical potential–Equipotential surfaces, Potential due to a (i)uniformly charged sphere

2.Dielectrics: (6 hrs)

Dielectrics-Polar and Non-polar dielectrics- Effect of electric field on dielectrics,Dielectric strength, Capacitance of a parallel plate condenser with dielectric slab between the plates, Electric displacement D, electric polarization P, Relation between D, E and P, Dielectricconstant and electric susceptibility.

UNIT-II

3.Magnetostatics: (6 hrs)

Biot-Savart's law and its applications: (i) circular loop and (ii) solenoid, Ampere's Circuital Law and its application to Solenoid,Hall effect, determination of Hall coefficient and applications.

4.Electromagnetic Induction: (6 hrs)

Faraday's laws of electromagnetic induction, Lenz's law,Self induction and Mutual induction,Self inductance of a long solenoid, Mutual inductance of two coils, Energy stored in magnetic field, Eddy currents.

UNIT-III

5.Alternating currents: (6 hrs)

Alternating current - Relation between current and voltage in LR and CR circuits, Phasor and Vector diagrams, LCR series and parallel resonant circuit, Q –factor, Power in ac circuits, Power factor.

6.Electromagnetic waves-Maxwell's equations:(6 hrs) Idea of displacement current,Maxwell's equations-Derivation, Maxwell's wave equation (withderivation),

Transverse nature of electromagnetic waves, Poynting theorem (Statement and proof),velocity wave equation using Maxwells relations in vaccum.

UNIT-IV

7. Basic Electronic devices: (12 hrs)

PN junction diode, Zenerdiode and Light Emitting Diode (LED) and their I-V characteristics, Zener diode as a regulator- Transistors and its operation, CB, CE and CC configurations, Input and output characteristics, transistor in CE mode,Relation between alpha bête gamma Transistor as an amplifier.

UNIT-V:

8. Digital Electronics: (12 hrs)

Number systems, Conversion of binary to decimal system and vice versa**, Binary addition & Binary subtraction (1's and 2's complement methods), Laws of Boolean algebra, DeMorgan's laws-Statements and Proofs, Basic logic gates, NAND and NOR as universal gates, Exclusive-OR gate, Half adder and Full adder circuits**.

Practical CourseIV:Electricity, Magnetism and Electronics

Minimum of 6 experiments to be done and recorded

1. Figure of merit of a moving coil galvanometer.
2. LCR circuit series/parallel resonance, Q factor.
3. Determination of ac-frequency –Sonometer.
4. Verification of Kirchoff's laws and Maximum Power Transfer theorem.
5. Field along the axis of a circular coil carrying current-Stewart & Gee's apparatus.
6. PN Junction Diode Characteristics
7. Zener Diode –V-I Characteristics
8. Zener Diode as a voltage regulator
9. Transistor CE Characteristics- Determination of hybrid parameters
10. Logic Gates- OR,AND,NOT and NAND gates. Verification of Truth Tables.
11. Verification of De Morgan's Theorems.
12. Construction of Half adder and Full adders-Verification of truth tables

B.Sc. PHYSICS SYLLABUS UNDER CBCS

For Mathematics Combinations

[2020-21 Batch onwards]

II Year B.Sc.-Physics: IV SemesterCourse V: MODERN PHYSICS

UNIT-I :

1. Atomic and Molecular Physics:(12 hrs)

Vector atom model and Stern-Gerlach experiment, Quantum numbers associated with it, Angular momentum of the atom, Coupling schemes, Spectral terms and spectral notations, Selection rules, Intensity rules, Fine structure of Sodium D-lines, Zeeman effect,Experimental arrangement to study Zeeman effect;Raman effect, Characteristics of Raman effect,

Experimental arrangement to study Raman effect, Quantum theory of Raman effect,Applications of Raman effect.

UNIT-II:

2. Matter waves&Uncertainty Principle: (12 hrs)

Matter waves, de Broglie's hypothesis, Wave length of matter waves, Properties of matter waves, Davisson and Germer's experiment, Phase and group velocities, Heisenberg's uncertainty principle for position and momentum& energy and time, Illustration of uncertainty principle using diffraction of beam of electrons (Diffraction by a single slit)and photons(Gamma ray microscope),Bohr's principle of complementarity.

UNIT-III:

3. Quantum (Wave) Mechanics:(12 hrs)

Basic postulates of quantum mechanics, Schrodinger time independent and time dependent wave equations-Derivations, Physical interpretation of wave function, Eigen functions, Eigen values, Application of Schrodinger wave equation to (i) one dimensional potential box of infinite height(InfinitePotential Well).

UNIT-IV:

4. Nuclear Physics:(12 hrs)

***Nuclear Structure*:General Properties of Nuclei, Mass defect, Binding energy;**

***Nuclear forces*: Characteristics of nuclear forces- Yukawa's meson theory; *Nuclear Models*: Liquid drop model, The Shell model, Magic numbers; *Nuclear Radiation detectors*: G.M. Counter, Cloud chamber, Solid State detector; *Elementary Particles*: Elementary Particles and their classification.**

UNIT-V:

5. Nano materials:(7hrs)

Nanomaterials – Introduction, Electron confinement, Size effect, Surface to volume ratio, Classification of nano materials– (0D, 1D, 2D); Quantum dots, Nano wires, Fullerene, CNT, Graphene(Mention of structures and properties),Distinct properties of nano materials (Mention-*mechanical,optical, electrical, and magnetic properties*); Mention of applications ofnano materials: (*Fuel cells,Phosphors for HD TV),*

UNIT-5

Superconductivity: (5 hrs)

Introduction to Superconductivity, Experimental results-critical temperature, critical magnetic field, Meissner effect , Isotope effect,Type I and Type II superconductors, BCS theory (elementary ideas only),Applications of superconductors

Practical Course V:Modern Physics

Minimum of 6 experiments to be done and recorded

1. e/m of an electron by Thomson method.
2. Determination of Planck's Constant (photocell).
3. Verification of inverse square law of light using photovoltaic cell.
4. Determination of the Planck's constant using LEDs of at least 4 different colours.
5. Determination of work function of material of filament of directly heated vacuumdiode.
6. Study of absorption of α-rays.
7. Study of absorption of β-rays.
8. Determination of Range of β-particles.
9. Determination of M & H.
10. Analysis of powder X-ray diffraction pattern to determine properties of crystals.
11. Energy gap of a semiconductor using junction diode.
12. Energy gap of a semiconductor using thermistor
13. GM counter characteristics

A.S.D GOVT DEGREE COLLEGE

FOR WOMEN(A)

KAKINADA

DEPARTMENT OF BOTANY

SKILL DEVELOPMENT COURSE

PLANT NURSERY

(2021-2022)

. Unit-1:

Introduction to plant nursery: (06 Hrs)

1. Plant nursery: Definition, importance.

2. Different types of nurseries –on the basis of duration, plants produced, structure used.

3. Basic facilities for a nursery; layout and components of a good nursery

. 4. Plant propagation structures in brief.

5. Bureau of Indian Standards (BIS-2008) related to nursery.

Unit- 2:

Necessities for nursery: (09 Hrs)

1. Nursery beds – types and precautions to be taken during preparation.

2. Growing media, nursery tools and implements, and containers for plant nursery, in brief.

3. Seeds and other vegetative material used to raise nursery in brief.

4. Outlines of vegetative propagation techniques to produce planting material.
5. Sowing methods of seeds and planting material.

Unit-3:

Management of nursery: (09 Hrs)

1. Seasonal activities and routine operations in a nursery.

2. Nursery management – watering, weeding and nutrients; pests and diseases.

3. Common possible errors in nursery activities.

4. Economics of nursery development, pricing and record maintenance.

5. Online nursery information and sales systems.

A.S.D.GOVT.DEGREE COLLEGE (W), (AUTONOMOUS), KAKINADA
DEPARTMENT OF POLITICAL SCIENCE
CBCS: SYLLABUS SEMISTER WISE 2021-22 II-YEAR SEMISTER-III B.A POLITICAL SCIENCE PAPER-III (CORE): INDIAN GOVERNMENT AND POLITICS

UNIT I:

SOCIAL AND IDEOLOGICAL BASE OF THE INDIAN CONSTITUTION:

EMPLOYABILITY

1. Constitutional Development in India during British Rule-A Historical Perspective with Reference to Government of India Acts, 1909, 1919 and 1935.
2. Constituent Assembly-Nature, Composition, Socio-Economic, Philosophical Dimensions and Salient Features of the Indian Constitution.

UNIT II:

INDIVIDUAL AND STATE: **EMPLOYABILITY**

1. Fundamental Rights, Directive Principles of State Policy and Fundamental Duties-Differences between Fundamental Rights and Directive Principles of State Policy.
2. The 'Doctrine of Basic Structure of the Constitution' with reference to Judicial Interpretations And Socio-Political Realities.

UNIT III:

UNION EXECUTIVE: **EMPLOYABILITY**

1. President of India-Mode of Election, Powers and Functions.
2. Parliament-Composition, Powers and Functions, Legislative Committees, Prime Minister and Council of Ministers-Powers and Functions, Role in Coalition Politics

UNIT IV:

STATE EXECUTIVE: **EMPLOYABILITY**

1. Governor-Mode of Appointment, Powers and Functions.
2. Legislature-Composition, Powers and Functions, Chief Minister and Council of Ministers-Powers And Functions

UNIT V:

THE INDIAN JUDICIARY: **EMPLOYABILITY**

1. Supreme Court-Composition and Appointments, Powers and Functions or Jurisdiction of The Supreme Court, Judicial Review, Judicial Activism.
2. High Court-Composition, Powers and Functions, Debates on the mode of appointment of Judges-National Judicial Appointments Commission and Judicial

A.S.D.GOVT.DEGREE COLLEGE (W), (AUTONOMOUS), KAKINADA
DEPARTMENT OF POLITICAL SCIENCE
CBCS: SYLLBUS SEMESTER WISE (2021-2022) SECOND YEAR: SEMESTER IV B.A POLITICAL SCIENCE PAPER – IV (CORE): INDIAN POLITICAL PROCESS

UNIT I:

FEDERAL PROCESSES: **SKILL DEVELOPMENT**

1. Features of Indian Federal System- Centre-State Relations-Legislative, Administrative and Financial.

2. Emerging Trends in Centre-State Relations-Restructuring Centre- State Relations-Recommendations of Sarkaria Commission, M.M.Punchi Commission.

UNIT II:

ELECTORAL PROCESSES: **EMPLOYABILITY**

1. The Election Commission of India, Powers and Functions.

2. Issues of Electoral Reforms, Voting Behavior-Determinants and Problems of Defections.

UNIT III:

GROSSROOT DEMOCRACY-DECENTRALISATION: **EMPLOYABILITY**

1. Panchayat Raj system-Local and Urban Governments-Structure, Powers and Functions.

2. Democratic Decentralization-Rural Development and Poverty alleviation with reference to 73rd and 74th Constitutional Amendment Acts, Challenges and Prospects.

UNIT IV:

SOCIAL DYNAMICS AND EMERGING CHALLENGES TO INDIAN POLITICAL SYSTEM: **SKILL DEVELOPMENT**

1. Role of Caste, Religion, Language and Regionalism in India.
2. Politics of Reservation, Criminalization of Politics and Internal threats to Security.

UNIT V:

REGULATORY AND GOVERNANCE INSTITUTIONS: **EMPLOYABILITY**

1. NITI Ayog, Finance Commission, Comptroller and Auditor General of India.
2. Central Vigilance Commission, Central Information Commission, Lokpal and Lokayukta

A.S.D.GOVT.DEGREE COLLEGE (W), (AUTONOMOUS), KAKINADA
DEPARTMENT OF POLITICAL SCIENCE
CBCS: SYLLBUS SEMESTER WISE (2021-2022) SECOND YEAR:
SEMESTER IV B.A POLITICAL SCIENCE PAPER – V (CORE):
WESTERN POLITICAL THOUGHT

UNIT I:

ANCIENT GREEK POLITICAL THOUGHT: **SKILL DEVELOPMENT**

1. Plato-Rule of Philosopher Kings-Theory of Justice-Ideal State and Education
2. Aristotle-Theory of State-Classification of Governments-Citizenship, Slavery and Theory of Revolutions.

UNIT II:

MEDIEVAL AND MODERN POLITICAL THOUGHT: **SKILL DEVELOPMENT**

1. St.Augustine-Theory of Two Cities.
2. Niccolo Machiavelli-State and Statecraft

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UN IT III:

CONTRACTUAL POLITICAL THOUGHT: **SKILL DEVELOPMENT**

1. Thomas Hobbes- Social Contract and Absolute Sovereignty.
2. John Locke- Human Nature, State of Nature, Social Contract, Natural Rights and Limited Government.
3. Jean Jacques Rousseau- Human Nature, State of Nature, Social Contract, General Will and Popular Sovereignty

UNIT IV:

UTILITARIAN POLITICAL THOUGHT: **SKILL DEVELOPMENT**

1. Jermy Bentham-Theory of Utility, Law and Reforms.
2. J.S.Mill-Theory of Liberty and Representative Government.

UNIT V:

MARXIST POLITICAL THOUGHT: **SKILL DEVELOPMENT**

1. Karl Marx-Dialectical Materialism, Theory of Surplus Value and Class Struggle.
2. Antonio Gramsci-Hegemony and Civil Society.

A.S.D. GOVERNMENT DEGREE COLLEGE FOR WOMEN(A)

DEPARTMENT OF SANSKRIT

II B.Sc/BCOM/B.A. – III Semester

Course: **Drama, Upanishad, Alamkara and History of Literature.**

Course Code : Paper : III No. of Hours/Week: 4

Course Objective:

In the B.A,BCOM,BSC Stream the distribution of course in different semesters for general course in Sanskrit is very much compact and useful to the students .Each semesters bears 100 full marks and consists of Poetry, Prose, Drama, Grammar and History of Sanskrit literature.

Course Outcomes:

Sanskrit is not only a classical language, but it is an emotion for Indians. It is the root language for endless modern Indian languages. Our Great Indian philosophers and religious workers have written their ancient Indian shlokas in Sanskrit.

Ancient Indian people used Sanskrit as their mother tongue, but slowly and gradually the dominance of Sanskrit was passed to other languages.

During the Buddhist period, many new languages were introduced in the Indian territory and took away the pride of the Sanskrit language.

Once the Muslim Invaders got their rule in India, the Sanskrit language got disappear, and Arabic and Persian got royal patronage and become an official language. After this, the British took over the Indian Kingdom and the English language started its ruling.

There are endless vernacular languages that were developed in India at that time. Thus, the Sanskrit language was treated as defunct in Modern India.

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

1. However, at present, Students want to know about the Sanskrit language and its importance in ancient India.
2. 2.Now Students are curious to know why the Sanskrit language was being used by the great philosophers, that's why students are opting for Sanskrit as a Course, and want to build a career in the Sanskrit language
3. . 3.Students are excited to study ancient Indian culture.
4. Though Sanskrit has not regained its value as a colloquial language, students are putting their effort torediscover the glory of the Sanskrit language and want to solve their query about why Sanskrit was known as "Wisdom of ancient India".

UNIT - I UNIT – I :

OLD DRAMA

1.''Madhyamavyayogaha''.

Bhasa Natakachakram. krishadas academy, Varanasi 1998.

UNIT – II :

MODERN DRAMA

''Sankalpabalam'' by Prof.G.S.R.Krishna Murthy,

Published by Semushi, R.S.Vidyapeetam, Tirupati-2019.

UNIT – III :

UPANISHAD

1. ''Sishyanusasanam'' – Sikshavalli of Taittireeyopanishad.

2. ''Sraddatrayavibhagayoga'', 17th Chapter,UHUN Bhagavadgita, Geetapress, Gorakhpoor.

UNIT - IV : 1. ALANKARAS:

1. Upama

2. Ananvaya

3. Utpreksha

4. Deepakam

5. Aprastutaprasamsa

6.Drushtanta

7. Prateepa.

2. HISTORY OF SANSKRIT LITERATURE

1. Panini

2.Kautilya

3.Bharatamuni

4. Bharavi

5.Magha

6.Bhavabhuti

7. Sankaracharya,

8.Jagannatha.

9. Dandi.

UNIT – V : HALANT SABDAS

1. Jalamuch 2.Vaach 3.Marut 4.Bhagavat 5.Bhavat

6.Pachats 7. Naman 8.Rajan 9.Gunin 10.Vidwas 11. Manas.

Apart from the drama text and technical terms History of Sanskrit Drama literature has been taken in the curriculum for the SEM III Students. The origin and Development of Sanskrit drama and some important dramatists and their works are in the syllabus. The dramatists are:Bhasa,kalidasa,sudraka,vishakadatta,bhavabhuti,bharavi,Dandi,Magha,Sri Harsha, Shankaracharya

Reference Books:

1. *AMRUTA VANI-III

2*VISWABHARATI

3*SAMSKRUTABHARATI

4*SARASWATHI SUSHMA

Skill course content:

1.Enhance communication skills-Listening, Speaking, Reading, Writing.

2. Students will be able to write Devnagari scripts which provide them paleographical knowledge to read out the script of modern languages like Hindi and Marathi.

3. Increase in depth knowledge of the Core Areas of the subject.

4.Students will demonstrate the skill needed to participate in conversation that builds knowledge with collaboration.

5.Reasonable understanding of multi-disciplinary relevance of literature of Sanskrit like Veda, Philisophy, Grammar, Kavya, Smitisastra etc

6. To make them eligible for higher education.

7. Develop research aptitude and independent thinking

Employbility:

Career Opportunities in Sanskrit

After becoming graduate students can apply in the field of UPSE, WBCS etc. And also after postgraduation they can apply against teaching posts in schools, colleges and other educational institutions.

Academics – One of the most demanding career opportunities! Most of India's Universities and schools teach Sanskrit as an optional language, So one can be a Sanskrit teacher. Even, you can even go for a research job in the Sanskrit language.

Research Job Opportunities in vast areas – The Sanskrit Courses are not limited to the language, but it also teaches students the treasure trove of wisdom that was penned by our philosophers and religious writers in Sanskrit. Hence, students can do specialization in varied subjects like Vaastu, yoga, Indian drama, astrology, Vedic studies, and Ayurveda. Students can do jobs in research as well in all these fields.

Jobs in other fields – Some of the colleges that teach Sanskrit courses also include different aspects of Indology like, Philosophical and religious traditions, history of Indian culture, Aesthetics and Arthashastra, etc. Students can opt for jobs in archaeology, museums, and work as a professor of foreign or ancient languages.

Law: Students doing specialization in Sanskrit can go for selecting Law or civil service as their career option.

A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (AUTONOMOUS), KAKINADA
(NAAC Accredited with B Grade Cycle- 3)
Department of Tourism and Travel Management B.A.
II YEAR II BA (HET) TOURISM AND TRAVEL MANAGEMENT COURSE

CBCS: PAPER III SEMESTER-III	**Semester: III**	**Credits: 4**
Course: 3	**Travel And Tourism Management**	**Hrs/Wk: 5**

UNIT I: Basics of Management **(Skill Development)**

1. Meaning, concept and characteristics of Management **2**. Nature of Management: Management as a Science, Arts, and as a profession **3**. Functions of Management and their relevance in Tourism industry: planning, organizing, staffing, directing, controlling.

4. Types of Management: Operative and Administrative Management; Management systems of Accommodation; Management of a Travel Agency

UNIT II: Understanding of Travel Agency and Tour Operator Business Skill Development

1. Travel Agency and Tour Operation Business : Definition and differentiation; Inbound Tourism.**2**. Genesis and growth of Travel Agency and Tour Operator business; Types of Travel Agency **3**. Functions of a Travel agency: travel information, documentation, tour counselling, ticketing, reservation and itinerary, immigration related services, etc.

4. Functions of Tour Operators ; Negotiation and liaising with principles, Tour Package formulation, pre-tour arrangements, tour operations and post - tour management **5.** Source of Travel Agency and tour operator income : commission, service charges and mark up on tours; Distribution Chain in tourism

UNIT III: Entrepreneurship, Procedure, Formal Approvals **Entrepreneurship**

1. Entrepreneurship and Tourism: meaning, elements, determinants and importance of entrepreneurship. ; Dimensions of entrepreneurship; managerial roles of an entrepreneur and his functions in a small business; the need for and the extent of professionalism of management in Tourism Industry in India.2. Procedure for setting up of travel agency and tour operating enterprises; their role in development of tourism industry.
3. Approval from Dept. of Tourism (DOT), International Air Transport Association (IATA)

UNIT IV: Travel Documentation & Role of Internet and modern information techniques for promoting Tourism **Employability**

Passport, Visa, Tickets, Travel Insurance, Medical Documents, Travel Documents required for visiting NE region of India : Restricted Area Permit (RAP) and Inner Line Permit (ILP)

Role of Internet, Accessing Tourism Web Sites, Mobile apps and modern information techniques for promoting Tourism .Designing of tourist itinerary: Project work on preparation of a tourist itinerary, tourist brochure/information leaflet with the help of incorporating the important/popular destinations in Andhra Pradesh. Tour Guide;duties and responsibilities, his role in promoting tourism

UNIT V: Travel Organizations & Associations **Skill Development**

1. Organization and Functions of UNWTO, TAAI, IATO, IATA and PATA ,
2. Organization and Functions of ITDC, APTDC, FHRAI, IH & RA
3. Case studies of Travel agency and Tour operators: Thomas Cook, SITA, TCI, Cox & Kings

A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (AUTONOMOUS), KAKINADA (NAAC Accredited with B Grade Cycle- 3)

II YEAR II BA (HET) TOURISM AND TRAVEL MANAGEMENT
COURSE CBCS: PAPER **IV SEMESTER**-IV

SYLLABUS **BA**	**Semester: IV**	**Credits: 4**
Course: 4	**Tourism Policy, Planning and Development**	**Hrs/Wk: 5**

UNIT I: Introduction to Planning: **Skill Development**

Concept, definition, nature and process of planning, Types of planning

1. Importance of planning approach in Tourism
2. Steps in Tourism planning
3. Factors influencing in Tourism planning

UNIT II: Approaches of Planning in Tourism: **Employability**

4. Planning approaches for different forms of Tourism: Eco tourism, Urban tourism, Rural Tourism
5. Planning for the development of a tourist destination
6. Impacts of unplanned tourism development on a tourist destination

UNIT III: Planning for Tourism in India: **Employability**

7. New Tourism Policy of India: study about the plans and policies of the govt. of India for the development of tourism sector.
8. National Action plan for tourism (NAPT) 1992: Objectives and strategies.
9. Andhra Pradesh Govt.'s New Policy on the development of Tourism in the state.

UNIT IV: **Employability**

1. Study of climatic, drainage, travel availability maps (road, air, water, and railway) of Andhra Pradesh.
2. Tourist map design: maps showing national parks and wildlife sanctuaries; cultural, historical and religious tourist spots with their transport/road map connectivity.
3. Preparation of brochure of a native tourist destination or a poster on an event or theme and a festival calendar of the locality/area.

UNIT V: **Skill Development**

1. Cultural Tourism Resources with special reference to the Tribes of A.P. in hilly regions and coastal regions- Chenchus, Koyas, Savaras, Lambadas- Tribal culture- measures taken by the Govt. for their sustenance.
2. Tourism Legislation
3. Assessment of tourism facilities and services at local level and preparation of a report thereof.

A.S.D. GOVT. DEGREE COLLEGE FOR WOMEN (AUTONOMOUS), KAKINADA (NAAC Accredited with B Grade Cycle- 3)

II YEAR II BA (HET) TOURISM AND TRAVEL MANAGEMENT
COURSE CBCS: PAPER **V SEMESTER-IV**

B.A.	**Semester: IV**	**Credits: 4**
Course: 5	**Tourism Marketing**	**Hrs/Wk: 5**

UNIT I: Understanding of Marketing **Skill Development**

1. Marketing: Concept and definition and its significance in tourism industry

2. Basic concepts of need and want; demand, product, service, market and sales

3. Significance of service and characteristics of Service - Tourism marketing: differentiation of product marketing and Service marketing

4. Defining marketing mix, the 8 P's of marketing mix

UNIT II: Market Research **Skill Development**

5. Understanding of marketing research, Research problem, research design, sampling, primary and secondary data, qualitative and qualitative data and Marketing Information System (MIS) and its function, tools of data collection, data interpretation and report writing in tourism, application of computers in research,

6. Consumer and consumer behaviour, Factors influencing the buying behaviour of consumers, & Consumer Satisfaction.

7. Market segmentation and basis for segmenting consumers markets, targeting and positioning and related market strategies.

UNIT III: Marketing Mix in Tourism Industry **Entrepreneurship**

8. Product: Definition and levels, nature of tourism product, stages of launching a new product/ product life cycle (PLC)

9. Branding: concept and need of branding of a product for a tourism company

10. Pricing: Definition and influencing factors: Major pricing strategies in the tourism industry for its products.

11. Communication: Concept and purpose of marketing communication for an organization, process of communication, barriers of effective communication in Tourism.

UNIT IV: Promotion and Distribution **Employability**

12. Promotion: Major tools of Promotion Mix - Word-of-Mouth Information, Advertising, Sales promotion, public relation, personal and social selling; Importance of Advertising in Tourism, Selection of message and media, Media timing

13. Distribution: definition, factors influencing on distribution policy, distribution system,

14. Travel Agent and Tour Operator as intermediaries of Tourism Industry

UNIT V: Destination Marketing **Employability**

1. Necessary attributes for an ideal tourist destination, Destination life cycle.

2. Marketing strategies for promotion and development of a tourist destination.

A.S.D.GOVERNMENT DEGREE COLLEGE FOR WOMEN (A)

(Re-Accredited NAAC with "B" Grade) Kakinada, East Godavari, A.P, 533002

ZOOLOGY SYLLABUS FOR III SEMESTER **PAPER – III**

CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

Unit – I Cell Biology

1.1 Definition, history, prokaryotic and eukaryotic cells, virus, viroids, mycoplasma

1.2 Electron microscopic structure of animal cell.

1.3. Plasma membrane –Models and transport functions of plasma membrane.

1.4 Structure and functions of Golgi complex, Endoplasmic Reticulum and Lysosomes

1.5 Structure and functions of Ribosomes, Mitochondria, Nucleus, Chromosomes

(Note: 1. General pattern of study of each cell organelle – Discovery, Occurrence, Number, Origin, Structure and Functions with suitable diagrams**)**

2. Need not study cellular respiration under mitochondrial functions)

Unit – II Genetics - I

2. 1 Mendel's work on transmission of traits

2. 2 Gene Interaction – Incomplete Dominance, Dominance, Lethal Genes

2. 3 Polygenes (General Characteristics & examples); Multiple Alleles (General Characteristics and Blood group inheritance

2. 4 Sex determination (Chromosomal, Genic Balance, Hormonal, Environmental and Haplo-diploidy types of sex determination)

2. 5 Sex linked inheritance (X-linked, Y-linked & XY-linked inheritance)

Unit – II Genetics - II

3.1 Mutations & Mutagenesis

3.2 Chromosomal Disorders (Autosomal and Allosomal)

3.3 Human Genetics – Karyotyping, Pedigree Analysis (basics)

3.4 Basics on Genomics and Proteomics

UNIT IV: Molecular Biology

4.1 Central Dogma of Molecular Biology

4.2 Basic concepts of -

a. DNA replication – Overview (Semi-conservative mechanism, Semi-discontinuous mode, Origin & Propagation of replication fork)

b. Transcription in prokaryotes – Initiation, Elongation and Termination, Post-transcriptional modifications (basics)

c. Translation – Initiation, Elongation and Termination

4.3 Gene Expression in prokaryotes (Lac Operon); Gene Expression in eukaryotes

Unit - V

5.1 Origin of life

5.2 Theories of Evolution: Lamarckism, Darwinism, Germ Plasma Theory, Mutation Theory

5.3 Neo-Darwinism: Modern Synthetic Theory of Evolution, Hardy-Weinberg Equilibrium

5.4 Forces of Evolution: Isolating mechanisms, Genetic Drift, Natural Selection, Speciation

Practical Syllabus

Learning Objectives:

- Acquainting and skill enhancement in the usage of laboratory microscope
- Hands-on experience of different phases of cell division by experimentation
- Develop skills on human karyotyping and identification of chromosomal disorders
- To apply the basic concept of inheritance for applied research
- To get familiar with phylogeny ad geological history of origin & evolution of animals

I. Cell Biology

1. Preparation of temporary slides of Mitotic divisions with onion root tips
2. Observation of various stages of Mitosis and Meiosis with prepared slides
3. Mounting of salivary gland chromosomes of *Chironomous*

II. Genetics

1. Study of Mendelian inheritance using suitable examples and problems
2. Problems on blood group inheritance and sex linked inheritance
3. Study of human karyotypes (Downs syndrome, Edwards, syndrome, Patau syndrome, Turner's syndrome and Klinefelter syndrome)

III. Evolution

1. Study of fossil evidences
2. Study of homology and analogy from suitable specimens and pictures
3. Phylogeny of horse with pictures
4. Study of Genetic Drift by using examples of Darwin's finches (pictures)
5. Visit to Natural History Museum and submission of report

A.S.D.GOVERNMENT DEGREE COLLEGE FOR WOMEN (A)

(Re-Accredited NAAC with "B" Grade)

KAKINADA, EAST GODAVARI, A.P, 533002.

ZOOLOGY SYLLABUS FOR IV SEMESTER **PAPER – IV**

ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY

UNIT I Animal Physiology – I

1.1 Process of digestion and assimilation

1.2 Respiration - Pulmonary ventilation, transport of oxygen and CO_2 (Note: Need not study cellular respiration here)

1.3 Circulation - Structure and functioning of heart, Cardiac cycle

1.4 Excretion - Structure and functions of kidney urine formation, counter current Mechanism

UN IT I Animal Physiology - II

2.1 Nerve impulse transmission - Resting membrane potential, origin and propagation of action potentials along myelinated and non-myelinated nerve fibers

2.2 Muscle contraction - Ultra structure of muscle, molecular and chemical basis of muscle contraction

2.3 Endocrine glands - Structure, functions of hormones of pituitary, thyroid, parathyroid, adrenal glands and pancreas

2.4 Hormonal control of reproduction in a mammal

UNIT III Cellular Metabolism – I (Biomolecules)

3.1 Carbohydrates - Classification of carbohydrates. Structure of glucose

3.2 Proteins - Classification of proteins. General properties of amino acids

3.3 Lipids - Classification of lipids

3.4 Enzymes: Classification and Mechanism of Action

UNIT—IV Cellular Metabolism – II

4.1 Carbohydrate Metabolism - Glycolysis, Krebs cycle, Electron Transport Chain, Glycogen metabolism, Gluconeogenesis

4.2 Lipid Metabolism – β-oxidation of palmitic acid

4.3 Protein metabolism - Transamination, Deamination and Urea Cycle

Unit – V Embryology

5.1 Gametogenesis

5.2 Fertilization

5.3 Types of eggs

5.4 Types of cleavages

5. 5 Development of Frog upto the formation of primary germ layers

SEMESTER –IV Paper-IV Practical Syllabus 2021-2022

Learning Objectives:

- Identification of an organ system with histological structure
- Deducing human health based on the information of composition of blood cells
- Demonstration of enzyme activity *in vitro*
- Identification of various biomolecules of tissues by simple colorimetric methods and also quantitative methods
- Identification of different stages of earl embryonic development in animals

I. ANIMAL PHYSIOLOGY

1. Qualitative tests for identification of carbohydrates, proteins and fats
2. Study of activity of salivary amylase under optimum conditions
3. T.S. of duodenum, liver, lung, kidney, spinal cord, bone and cartilage
4. Differential count of human blood

II. CELLULAR METABOLISM

1. Estimation of total proteins in given solutions by Lowry's method.
2. Estimation of total carbohydrate by Anthrone method.
3. Qualitative tests for identification of ammonia, urea and uric acid
4. Protocol for Isolation of DNA in animal cells

III. EMBRYOLOGY

1. Study of T.S. of testis, ovary of a mammal
2. Study of different stages of cleavages (2, 4, 8 cell stages)
3. Construction of fate map of frog blastula

A.S.D.GOVERNMENT DEGREE COLLEGE FOR WOMEN (A)

(Re-Accredited NAAC with "B" Grade)

KAKINADA, EAST GODAVARI, A.P, 533002.

ZOOLOGY SYLLABUS FOR IV SEMESTER PAPER-V

IMMUNOLOGY AND ANIMALBIOTECHNOLOGY

Unit – I Immunology – I (Overview of Immune system)

1.1 Introduction to basic concepts in Immunology

1.2 Innate and adaptive immunity, Vaccines and Immunization programme

1.3 Cells of immune system

1.4 Organs of immune system

Unit – II Immunology – II (Antigens, Antibodies, MHC and Hypersensitivity)

2.1 Antigens: Basic properties of antigens, B and T cell epitopes, haptens and adjuvants; Factors influencing immunogenicity

2.2 Antibodies: Structure of antibody, Classes and functions of antibodies

2.3 Structure and functions of major histo-compatibility complexes

2.4 Exogenous and Endogenous pathways of antigen presentation and processing

2.5 Hypersensitivity – Classification and Types

Unit – III Techniques

3.1 Animal Cell, Tissue and Organ culture media: Natural and Synthetic media,

3.2 Cell cultures: Establishment of cell culture (primary culture, secondary culture, types of cell lines; Protocols for Primary Cell Culture); Established Cell lines (common examples such as MRC, HeLa, CHO, BHK, Vero); Organ culture; Cryopreservation of cultures

3.3 Stem cells: Types of stem cells and applications

3.4 Hybridoma Technology: Production & applications of Monoclonal antibodies (mAb)

Unit – IV Applications of Animal Biotechnology

4.1 Genetic Engineering: Basic concept, Vectors, Restriction Endonucleases and Recombinant DNA technology

4.2 Gene delivery: Microinjection, electroporation, biolistic method (gene gun), liposome and viral-mediated gene delivery

4.3 Transgenic Animals: Strategies of Gene transfer; Transgenic - sheep, - fish; applications

4.4 Manipulation of reproduction in animals: Artificial Insemination, *In vitro* fertilization, super ovulation, Embryo transfer, Embryo cloning

Unit – V

5.1. PCR: Basics of PCR.

5.2 DNA Sequencing: Sanger's method of DNA sequencing- traditional and automated sequencing

5.3 Hybridization techniques: Southern, Northern and Western blotting

5.4 DNA fingerprinting: Procedure and applications

5.5 Applications in Industry and Agriculture: Fermentation: Different types of Fermentation and Downstream processing; Agriculture: Monoculture in fishes, polyploidy in fishes

Learning Objectives:

- Acquainting student with immunological techniques vis-à-vis theory taught in the class room
- Interconnect the theoretical and practical knowledge of immunity with the outer world for the development of a healthier life.
- Demonstrate basic laboratory skills necessary for Biotechnology research
- Promoting application of the lab techniques for taking up research in higher studies

SEMESTER –IV Paper-V Practical Syllabus 2021-2022

I. IMMUNOLOGY:

1. Demonstration of lymphoid organs (as per UGC guidelines)

2. Histological study of spleen, thymus and lymph nodes (through prepared slides)

3. Blood group determination

4. Demonstration of

    a. ELISA

    b. Immuno electrophoresis

II. Animal biotechnology:

1. DNA quantification using DPA Method.

2. Techniques: Western Blot, Southern Hybridization, DNA Fingerprinting

3. Separation, Purification of biological compounds by paper, Thin-layer and Column chromatography

4. Cleaning and sterilization of glass and plastic wares for cell culture.

5. Preparation of culture media.

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

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SYLLABUS OF

POULTRY FARMING

AS PART OF SKILL DEVELOPMENT COURSES
UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

A.P. STATE COUNCIL OF HIGHER EDUCATION
B A, B Com & B Sc Programmes

Revised CBCS w.e.f. 2020-21
SKILL DEVELOPMENT COURSES
To be Offered from Semesters I to IV

ZOOLOGY STREAM
Syllabus of
POULRY FARMING
Total 30 hrs (02h/wk), 02 Credits & Max 50 Marks

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

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

SYLLABUS:

Section I (Introduction to Poultry Farming): 10Hrs

1.1 General introduction to poultry farming -Definition of Poultry; Past and present scenario of poultry industry in India.
1.2 Principles of poultry housing. Poultry houses. Systems of poultry farming.
1.3 Management of chicks, growers and layers. Management of Broilers.
1.4 Preparation of project report for banking and insurance

Section II (Feed and Livestock Health Management): 10 Hrs

2.1 Poultry feed management – Principles of feeding, Nutrient requirements for different stages oflayers and broilers. Feed formulation and Methods of feeding.
2.2 Poultry diseases – viral, bacterial, fungal and parasitic(two each); symptoms, control and management; Vaccination programme.

Section III(Harvesting of Eggs and Sanitation): 10 Hrs

3.1 Selection, care and handling of hatching eggs. Egg testing.Methods of hatching.
3.2 Brooding andrearing. Sexing of chicks.
3.3 Farm and Water Hygiene, Recycling of poultry waste.

Co-curricular Activities Suggested: (4 hrs)

1. Group discussion& SWOT analysis
2. Visit to a poultry farm
3. Invited Lectures by Concerned officers of government or private farms
4. Cheap and Healthy Feed preparation by students based on government standards
5. Market study and Survey (Monitoring of daily price hike in poultry market and analysis)
6. Online SwayamMoocs course on poultry farming (see reference 9 below)

Reference books:

1. Sreenivasaiah., P. V., 2015. Textbook of Poultry Science. 1st Edition. Write & Print Publications, New Delhi
2. 2. Jull A. Morley, 2007. Successful Poultry Management. 2nd Edition. Biotech Books, New Delhi"
3. Hurd M. Louis, 2003. Modern Poultry Farming. 1st Edition. International Book Distributing Company, Lucknow."
4. Life and General Insurance Management, "
5. Financial services, Tata McGraw hill
6. http://www.asci-india.com/BooksPDF/Small%20Poultry%20Farmer.pdf
7. https://nsdcindia.org/sites/default/files/MC_AGR-Q4306_Small-poultry-farmer-.pdf
8. http://ecoursesonline.iasri.res.in/course/view.php?id=335
9. https://swayam.gov.in/nd2_nou19_ag09/preview

MODEL QUESTION PAPER & PATTERN

Max. Marks: 50 **Time: 1 1/2 hrs (90 Minutes)**

SECTION A (Total: 4x5=20 Marks)

(Answer any **four questions**. Each answer carries **5 marks**
(At least 1 question should be given from each Unit)

1.	Poultry house
2.	Broilers
3.	Any two viral diseases of poultry
4.	Any two bacterial diseases of poultry
5.	Any two fungal diseases of poultry
6.	Egg testing
7.	Brooding
8.	Sexing chicks

SECTION B (Total: 3x10 = 30 Marks)

(Answer any **three questions**. Each answer carries **10 marks**
(At least 1 question should be given from each Unit)

1.	Discuss briefly the past, present and future scenario of poultry farming industry in India.
2.	Explain principles of poultry housing in detail, with examples.
3.	Write an essay on viral diseases of poultry.
4.	Give an account of fungal and bacterial diseases (any two each) of poultry
5.	Write an essay on selection, handling and hatching of eggs.

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Note: Please read the following in addition to the Guidelines sent.

1. *In Unit-2 and Unit-3, Sub-titles highlighted in Yellow colour are Skills. Sub-titles not highlighted are of Theoretical base.*
2. *Skills, though separately shown, shall also have 'content' to be learnt and written in the examination by the students.*
3. *The field (hands on) skills are learnt through the Co-curricular Activities.*
4. *One or two books referred shall be related to 'learning of skills'*
5. *Topics and syllabus may be prepared keeping all (BA/BSc/BCom) urban as well as rural students in view.*