

**2023-2024**

# **TABLE**

**1 YEAR - RESOURCES**  
**GRADE 1000-1000**

## **PAGE 1. BOTTLE PLANTIVITY**

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## UNIT 3 - SET

### 5 YEAR 11 SUBJECT COURSE CORE SYLLABUS

#### UNIT 3 - SETS AND LOGIC

##### Objectives

1. To understand the logic and notation of the set theory and its application in real life situations.
2. To understand the logic and notation of the set theory and its application in real life situations.
3. To understand the logic and notation of the set theory and its application in real life situations.

##### Unit 3

Unit 3.1: Sets and Logic

Unit 3.2: Sets and Logic (continued)

Unit 3.3: Sets and Logic (continued)

##### Unit 4

Unit 4.1: Sets

Unit 4.2: Sets and Logic (continued)

##### Unit 5

Unit 5.1: Sets

Unit 5.2: Sets and Logic

##### Unit 6

Unit 6.1: Sets and Logic (continued)

##### Unit 7

Unit 7.1: Sets and Logic (continued)

##### Unit 8

Unit 8.1: Sets and Logic (continued)

Unit 8.2: Sets and Logic (continued)





# Project: End week

| UNIVERSITY                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
| Course code:                                                                                                                                                                                                                                                                                                                       | Core Course - I                                                                                                                                                                                                                                                                                                                                                                                                                         | DS | C | HV |
| Course title:                                                                                                                                                                                                                                                                                                                      | FINANCIAL ACCOUNTING                                                                                                                                                                                                                                                                                                                                                                                                                    | Y  | Y | Y  |
| <b>Objectives:</b>                                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"><li>► Analyze the conceptual and accounting and financial reporting to the modern market activity.</li><li>► Compare the regulatory framework for the preparation of accounting records</li><li>► Understand the basic accounting concepts, accounting principles and techniques of posting their financial changes</li><li>► To identify the structure and content of financial statements</li></ul> |    |   |    |
| <b>Topic I</b>                                                                                                                                                                                                                                                                                                                     | Introduction to Financial Accounting – Book Keeping – Meaning – Features – Scope – Importance – Advantages – Limitations – Basis – Date Book – Ledger – Trial Balance                                                                                                                                                                                                                                                                   |    |   |    |
| <b>Topic II</b>                                                                                                                                                                                                                                                                                                                    | Introduction – Debit – Purchase Book – Sales Book – Purchase Returns Book – Sales Returns Book – Different Types of Cash Books – With Entries – With Illustrations – Prep Cash Book                                                                                                                                                                                                                                                     |    |   |    |
| <b>Topic III</b>                                                                                                                                                                                                                                                                                                                   | Bank Reconciliation Statement – Rules for Preparing Bank Reconciliation – Difference between Cash Book and Pass Book – Rectification of Errors                                                                                                                                                                                                                                                                                          |    |   |    |
| <b>Topic IV</b>                                                                                                                                                                                                                                                                                                                    | Introduction – Meaning – Classification – Cases – Issues                                                                                                                                                                                                                                                                                                                                                                                |    |   |    |
| <b>Topic V</b>                                                                                                                                                                                                                                                                                                                     | Final Accounts – Preparation of Trading Account – Profit & Loss Account – Balance Sheet Preparation                                                                                                                                                                                                                                                                                                                                     |    |   |    |
| <b>Task: Question mark to select 80% on Problems and 40% on Theory part)</b>                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
| <b>Text and Reference Books:</b>                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
| Fundamental of A.C.A. V.K. Ramesh, Advanced Accounting                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
| Principles of A.C.A. Advanced Accounting                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
| The A.C.A. V.K. Ramesh, Advanced Accounting                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
| Principles of A.C.A. V.K. Ramesh, Advanced Accounting                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
| Principles of A.C.A. V.K. Ramesh, Advanced Accounting                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
| Principles of A.C.A. V.K. Ramesh, Advanced Accounting                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
| <b>Objectives</b>                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
| The students will be able to:                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
| <ul style="list-style-type: none"><li>► Understand the concept of Financial Accounting</li><li>► Prepare the purchase and sales book</li><li>► Prepare the Cash Book, Bank Statement</li><li>► Understand the basic accounting concepts and its accounting benefits</li><li>► Prepare the final accounts for any company</li></ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |

## Page: 144/144

| EXAMINER                     |                                                                                                                                                                                                                                                                                                             |    |   |    |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
| Overseer/Examiner            | Core Course - B                                                                                                                                                                                                                                                                                             | TP | Q | BM |
| 123456789                    | MANAGERIAL ECONOMICS                                                                                                                                                                                                                                                                                        | T  | Q | Q  |
| <b>Objective</b>             | The main objective of this course is to train, train the techniques and theories of managerial economics can be used to apply in the practical business world.                                                                                                                                              |    |   |    |
| <b>Task I</b>                | Managerial Economics, Meaning, Nature and Scope, Managerial Economics and Business Structure (making - Market analysis - Types of demand - Determinants of demand - Price the Law of demand - Demand for Managerial Economics - Demand - Law of diminishing marginal utility - Concept of consumer surplus) |    |   |    |
| <b>Task II</b>               | Theory of Demand - Types - Indifference curve analysis - Welfare in Equilibrium - Demand Elasticity - Elasticity - Elasticity and consumer surplus                                                                                                                                                          |    |   |    |
| <b>Task III</b>              | Concept of Cost - Short Run Cost - Long Run Cost - Production and its Efficiency                                                                                                                                                                                                                            |    |   |    |
| <b>Task IV</b>               | Concept of market structure - Market equilibrium, Monopoly, Oligopoly - Managerial Economics - Economics of Public Finance, Market equilibrium - Equilibrium, Equilibrium                                                                                                                                   |    |   |    |
| <b>Task V</b>                | Production of Money - Role of Commercial Banks - Bank - Methods of credit control - Monetary and Fiscal Policies                                                                                                                                                                                            |    |   |    |
| <b>HYGIENIC SPACING</b>      |                                                                                                                                                                                                                                                                                                             |    |   |    |
| Source: Managerial Economics |                                                                                                                                                                                                                                                                                                             |    |   |    |
| Source: Managerial Economics |                                                                                                                                                                                                                                                                                                             |    |   |    |
| Source: Managerial Economics |                                                                                                                                                                                                                                                                                                             |    |   |    |
| Source: Managerial Economics |                                                                                                                                                                                                                                                                                                             |    |   |    |
| <b>Outcome</b>               | <p>The students will be able to:</p> <ul style="list-style-type: none"> <li>Understand the concept of managerial economics.</li> <li>Understand the concept of Short Run Cost, Variable Cost.</li> <li>Understand the concept of Demand and Supply.</li> </ul>                                              |    |   |    |

## Project field work

| 12 WEEKS                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |        |         |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------|---------|
| Course code<br>EBA1042                                                                  | CORE COURSE VI<br>PRINCIPLES OF MANAGEMENT                                                                                                                                                                                                                                                                                                                                                                                                                           | TP<br>T | C<br>J | SW<br>J |
| <b>Objectives:</b>                                                                      | To enable the students: <ul style="list-style-type: none"> <li>To understand the basic concepts of management.</li> <li>To plan and deliver management oriented to be an effective manager.</li> <li>To apply the managerial knowledge in real time and real life settings.</li> <li>To develop their ability to work in teams.</li> </ul>                                                                                                                           |         |        |         |
| <b>Topic I</b>                                                                          | Nature and evolution of Management – Meaning and Definition of Management – Contributions of Taylor, Fayol, Steno and Herzlberg – Functions of management – Management: Art, Science and Profession – Advancements in Management – The broad scope of management – Managerial Skills: Technical, Human, Conceptual and decision making – Types of managers                                                                                                           |         |        |         |
| <b>Topic II</b>                                                                         | Planning: Meaning and Definition, Importance and Characteristics – Planning process – Types of plans – Short and long term plans – Planning – Concept of MBO – Decision Making: Definition and methods of Decision Making – Decision Making: Nature, Importance and steps with real time setting. Decision making in business                                                                                                                                        |         |        |         |
| <b>Topic III</b>                                                                        | Organizing: Meaning, definition and principles, Formal and Informal Organization – Organizational structure – Centralized and decentralized – Groups, Types of Groups – Formal and informal groups – Norms and standards of the groups                                                                                                                                                                                                                               |         |        |         |
| <b>Topic IV</b>                                                                         | Personnel: Meaning and Definition of Human Resource – Motivation: Meaning, sources and importance – Factors, strategies, learning and characteristics of motivation – Staffing: meaning and importance of staffing – Recruitment of staffing: Recruitment: definition, meaning of staff recruitment, job vacancy, job design, job posting, job analysis                                                                                                              |         |        |         |
| <b>Topic V</b>                                                                          | Controlling: Meaning, definition and need – Principles of controlling – Controlling techniques, Coordination: Meaning, need and definition – Delegation – Functions of managers                                                                                                                                                                                                                                                                                      |         |        |         |
| <b>RECOMMENDED READING</b>                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |        |         |
| Gupta, S.S. <i>Management: Theory and practice</i>                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |        |         |
| Prasad Subrahani, S. <i>Principles of Management</i>                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |        |         |
| Prasad, S.S. <i>Principles of Management</i>                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |        |         |
| Kotler, P. <i>Principles of Management</i>                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |        |         |
| Robinson, G. D. <i>Human Resource Management</i> Gupta, <i>Principles of Management</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |        |         |
| <b>Outcome:</b>                                                                         | The students will be able to: <ul style="list-style-type: none"> <li>Identify and explain the importance of the management process and identify some of the basic skills required for the contemporary management practice.</li> <li>Explain management and its various dimensions in different settings and situations.</li> <li>Specify how the management tasks of planning, organizing and controlling can be executed in a variety of circumstances.</li> </ul> |         |        |         |

| IT DEPARTMENT      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |    |   |    |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
| Course code:       | COSCI COGNIZ-VIE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | TF | C | WV |
| Module code:       | COMPUTER APPLICATION IN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1  | 4 | 1  |
|                    | MANAGEMENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| <b>Objectives:</b> | <p>To enable the students:</p> <ul style="list-style-type: none"> <li>To gain familiarity with the concepts and terminology used in the development, implementation and operation of business program applications.</li> <li>To explore various methods where Information Technology can be used to support existing business and strategies.</li> <li>To investigate emerging technology in shaping new processes, strategies and business models.</li> <li>To learn basic or experience with programming applications software to enhance business activities.</li> </ul> |    |   |    |
| <b>Unit I</b>      | <p>History of computers • Characteristics • Uses of applications • Input • Computer • Storage • Input and Output devices • Hardware and Software operation system • Introduction to Windows 2000 • Working on Start up and shut down in start up • Shut down system • Functions of files and folders • Windows Explorer • File system • Start up • Windows working applications and communication</p>                                                                                                                                                                       |    |   |    |
| <b>Unit II</b>     | <p>Introduction to MS word • Start up for MS word • Copying word documents • Windows Explorer using word • Editing, inserting objects and formatting documents • Spelling and grammar check • Word count • Document • Mail contact • Working with tables • Inserting, opening and closing documents • Mail merge</p>                                                                                                                                                                                                                                                        |    |   |    |
| <b>Unit III</b>    | <p>Introduction to MS Excel and its features • Programmes and applications • Excel sheets • Building worksheets • Entering data, editing and formatting worksheets • Drawing and the various different types of charts • Application of statistical statistical function • Drawing data using formulas and using, opening and closing of work books.</p>                                                                                                                                                                                                                    |    |   |    |
| <b>Unit IV</b>     | <p>Fundamentals of computer applications • Computerized accounting • Business systems • Introduction and components of EXCEL • Functions of VLOOKUP • Configuration of VLOOKUP and macros • Functions of macros and groups • Editing and deleting objects • Introduction to teachers • Library, portfolio, acceptance, portfolio, research and financial functions, editing and deleting worksheets</p>                                                                                                                                                                     |    |   |    |
| <b>Unit V</b>      | <p>Introduction to Microsoft • Introduction to Microsoft • Word program • Word documents • Configuration and function of word documents • Editing and deleting documents • Mail Merge • Introduction • Draft and final documents • Review track</p>                                                                                                                                                                                                                                                                                                                         |    |   |    |

**SUGGESTED READING**

Microsoft office for windows-2010

VUE, most current book (4th) and publications, VUE, Data publications

Computer accounting using VUE publications, Data publications

Implementing VUE 4-4 (author E.A. Sullivan) Publications (Data Publications)

**Outcomes**

The student shall be able to:

- Apply computer resources to business administration.
- Conduct business and academic documents using Microsoft Word.
- Create spreadsheets with formulas and graphs using Microsoft Excel.
- Integrate Microsoft Office applications for use in business.

**Project field work**

| V SEMESTER        |                                                                                                                                                                                                                                                                     |    |   |    |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
| Course code       | COURSE TITLE                                                                                                                                                                                                                                                        | TP | T | Pr |
| 2556A003          | <b>PRODUCTION AND OPERATION MANAGEMENT</b>                                                                                                                                                                                                                          | 2  | 4 | 8  |
| <b>Objectives</b> | This course aims to enable students to understand clearly the concepts, principles, practices, and practices of operations management.                                                                                                                              |    |   |    |
| <b>Unit-I</b>     | Operations management • Definition, objectives and functions • Plant location • Factors influencing plant location • site and road plan • cost and production • Production • location, process, efficiency and performance • International development and location |    |   |    |
| <b>Unit-II</b>    | Work study Definition, meaning, advantages of work study, method study, importance of method study. Work measurement: meaning and objectives, Time study and its uses                                                                                               |    |   |    |
| <b>Unit-III</b>   | Production planning and control • need, functions • planning, routing, scheduling, Material handling • Functions and principles • various types of material handling equipment's                                                                                    |    |   |    |
| <b>Unit-IV</b>    | Quality control: Need for quality control, objectives, importance. Methods of acceptance sampling: sampling techniques, Steps in quality control, benefits of quality control                                                                                       |    |   |    |
| <b>Unit-V</b>     | Inventory control • importance, classification • Stock levels- MRP, ABC, MRP, MRP • Distribution • Types • Computer Integrated Manufacturing • Sources of Information                                                                                               |    |   |    |



|                           |                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit 1</b>             | Organizational Learning: History, models and applications • Knowledge and Intellectual Capital • Resistance to change • Steps in managing change • Organizational Development<br>Objectives of the program                                                                                                                                                      |
| <b>SUGGESTED READING:</b> | 1.1.1. Kotter, Organizational Behavior<br>1.1.2. Mintzberg, Organizational Behavior<br>1.1.3. Pfeffer, Organizational Behavior<br>1.1.4. Robbins, Organizational Behavior<br>1.1.5. Starbuck, Organizational Behavior: The new Class                                                                                                                            |
| <b>Assessment:</b>        | The student will be able to study the behavior of individual and groups as part of the social and technical system in the workplace. This will be able to understand individual and group behavior, communication, conflict and management techniques in the work environment and apply these concepts in the development of an organization's human resources. |

## Topic: Finance

| V SEMESTER                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |   |    |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
| Course code                                                     | COURSE DESIGN-UG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | TS | E | EN |
| 77001057                                                        | HUMAN RESOURCE MANAGEMENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1  | 1 | 1  |
| <b>Objectives:</b>                                              | After the course, <ul style="list-style-type: none"> <li>• To understand the HR Management practices in various levels in business and to know specific industries or organisations.</li> <li>• To help the students to analyse the issues and strategies related to HR and develop business solutions.</li> <li>• To develop interest with necessary for application in HR related issues.</li> <li>• To enable the students to understand the current HR scenario along with the future concept to enter in the current business domains.</li> </ul> |    |   |    |
| <b>Unit I</b>                                                   | Introduction and importance of HRM – HRM objectives – Scope – Functions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |   |    |
| <b>Unit II</b>                                                  | Effective Human Resource Planning, Recruitment and selection, recruitment process – types of jobs – job analysis and job design – types of interviews – Placement and retention – Job rotation – Job description – Job specification – Job evaluation – Job analysis – Methods of job analysis.                                                                                                                                                                                                                                                        |    |   |    |
| <b>Unit III</b>                                                 | Training and development training, need, importance – types of training – Executive development training, corporate and importance of executive development – Methods of executive development.                                                                                                                                                                                                                                                                                                                                                        |    |   |    |
| <b>Unit IV</b>                                                  | Wages and Salary Administration: Features and principles of wages and salary administration – Components and methods of wage payment, promotion, Transfer etc.                                                                                                                                                                                                                                                                                                                                                                                         |    |   |    |
| <b>Unit V</b>                                                   | Performance Performance appraisal: Meaning, methods of performance appraisal – appraisal systems, meaning, importance and importance of HR – 1 mark for every important answer. <b>Choice</b> participation in management – concept, kind and forms of transfer.                                                                                                                                                                                                                                                                                       |    |   |    |
| <b>SUGGESTED READING:</b>                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |   |    |
| Khanna, S.S. Human Resource Management                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |   |    |
| Venkatesh, R. Human Resource                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |   |    |
| Management: South A. Gupta, Human                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |   |    |
| Resource Management                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |   |    |
| Gupta, S. Human Resource Management: Text and Cases             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |   |    |
| Gupta and Khanna, Personnel Management and Industrial Relations |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |   |    |

**Outcome:**

The student will be able to:

- Identify various marketing management process in the field (11 BIII)
- Respond positively to problems & challenges in business
- Apply effectively with colleagues with creative skills, interpersonal and self leadership
- Promote ethical ethical aspect in a business and global context.

**Topic/Module**

| V SEMESTER                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |   |    |
|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
| COURSE CODE                                                                                   | CORE COURSE-III                                                                                                                                                                                                                                                                                                                                                                                                                 | TP | E | EV |
| 19BBA12                                                                                       | MARKETING MANAGEMENT                                                                                                                                                                                                                                                                                                                                                                                                            | 7  | 4 | 4  |
| <b>Objectives:</b>                                                                            | <ul style="list-style-type: none"> <li>• To make the students to understand the basic marketing concepts and the importance of marketing for business success.</li> <li>• To understand the basic pricing strategies for selling and new products that is available in the market.</li> <li>• To get the clarity about the sales promotional techniques adopted by the business organisations to capture the market.</li> </ul> |    |   |    |
| <b>Unit I</b>                                                                                 | Marketing Management - meaning - function - business versus marketing and selling - marketing environment - importance of marketing department                                                                                                                                                                                                                                                                                  |    |   |    |
| <b>Unit II</b>                                                                                | Market - classification of market - laws of market - segmentation - target market                                                                                                                                                                                                                                                                                                                                               |    |   |    |
| <b>Unit III</b>                                                                               | Consumer - types - components of consumer behavior - Marketing Mix - product Product Planning - meaning - product feature - classification of products - product life and product mix decision - New product development - product life cycle - branding -                                                                                                                                                                      |    |   |    |
| <b>Unit IV</b>                                                                                | Price determination, market, national and global - Pricing - (12A) Pricing - meaning and objectives - concept - methods of pricing - Distribution planning - objectives, types and levels of distribution - wholesaling - retailing - functions                                                                                                                                                                                 |    |   |    |
| <b>Unit V</b>                                                                                 | Sales Management - salesperson - Sales Forecasting - Promotional selling - sales promotion - (12B) Promotional selling - personal and non-personal selling                                                                                                                                                                                                                                                                      |    |   |    |
| <b>SUGGESTED READING:</b>                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |   |    |
| Macmillan C. K. Principles and Practice of Marketing in India                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |   |    |
| Philip Kotler, Marketing Management                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |   |    |
| Richard D. Irwin, Richard M. Irwin, The Success of Unimark Sales Management                   |                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |   |    |
| James A. Farley, Principles of Marketing                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |   |    |
| Marketing M. B. Dr. K. R. S. Chitra, Marketing Management Textbook Course of Indian Programme |                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |   |    |
| William D. Dunfee, Fundamentals of Marketing                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |   |    |

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Outcome:</b> | After studying this course students will: <ul style="list-style-type: none"> <li>➤ Develop an ability to understand basic marketing concepts and understand the marketing role of an organisation</li> <li>➤ Develop an ability to assess the impact of the environment on marketing business.</li> <li>➤ Be able to develop suitable marketing strategies in light of the environment</li> <li>➤ Be able to look for business opportunities based on social conditions.</li> </ul> |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Object End work

| V SEMESTER         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |   |    |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
| (CSE/CSE/IT)       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |    |   |    |
| Course code:       | RESEARCH METHODOLOGY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | TY | C | HW |
| 220601013          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | T  | T | T  |
| <b>Objectives:</b> | To present a overview of the course is <ul style="list-style-type: none"> <li>➤ To develop an understanding towards the basic framework of research process.</li> <li>➤ To develop an understanding towards various research designs and techniques</li> <li>➤ To identify the various sources of information for business sector and data collection</li> <li>➤ To develop an understanding about the effect dimensions of marketing in applied research.</li> <li>➤ To develop the components of relevant writing and reports in quality.</li> </ul> |    |   |    |
| <b>Unit I</b>      | Research Process – Planning – Scope and Significance – Utility of business research – Definition of good research – Types of Research, Research process, Problems encountered by the Researcher – Problems and Frustrations in the Research. Importance of Good Research.                                                                                                                                                                                                                                                                              |    |   |    |
| <b>Unit II</b>     | Problem identification, selection and formulation of research problem, Step Research Design – Factors of good design – Various Methods of Research Design – Hypothesis, meaning and significance.                                                                                                                                                                                                                                                                                                                                                      |    |   |    |
| <b>Unit III</b>    | Sampling, meaning, methods of sampling – Sample Size and Sampling Procedure, Various types of sampling techniques, Types of Error: Sampling and Non-sampling, Various Methods of Collection and Data.                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| <b>Unit IV</b>     | Concepts of Data Measurement and scaling techniques – Scaling scales – attitude scales – Likert, Semantic scales, Processing and analysis of data – Coding, Editing and tabulation.                                                                                                                                                                                                                                                                                                                                                                    |    |   |    |
| <b>Unit V</b>      | Inferential and report writing: types of reports – steps in writing a report – Formulation of report, Techniques of interpretation, Components and Format of Research Reports. Guidelines for Writing Research Reports.                                                                                                                                                                                                                                                                                                                                |    |   |    |



## RECOMMENDED READING

Wheeler, T.A. *Advanced Financial Management*

Wheeler, T.A. *Financial Management*

Free Text: *Successful Financial Management (Vol. 1) - Fundamentals of Finance*

Free Text: *Successful Financial Management (Vol. 2) - Finance Practice*

## Review of Examinations

|                                     |          |
|-------------------------------------|----------|
| 1. Internal Examination             | 25 marks |
| 2. Internal Examination             | 25 marks |
| 3. Internal Final Exam (Compulsory) | 50 marks |

1. Note: An additional test for a prominent person given in India is necessary. Students have to submit a report and the report has to be evaluated by the internal examiner (50 marks).

**Examiners:** The student will be asked:

- Understand and explain the various positions in India and abroad.
- Provide information about the packages.
- Know and apply the methods to develop a good business and business of that manager.

## Impact of Law

| COURSE             |                                                                                                                                                                                                                                                      |    |   |    |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
| Course code        | DE-01                                                                                                                                                                                                                                                | TF | C | HW |
|                    | BOOKS/URL                                                                                                                                                                                                                                            | T  | E | E  |
| <b>Objectives:</b> | This course is designed to provide the students with the knowledge of the legal environment to enable a business operator, and to provide the students with knowledge of legal principles governing the business.                                    |    |   |    |
| <b>Unit I</b>      | Meaning of Law → Importance → Commercial Law → Contract → Agency → Law of Torts → Criminal → Insurance → Agency → Agency → Contracts of a valid Contract → Offer → Acceptance → Consideration → Capacity of Parties                                  |    |   |    |
| <b>Unit II</b>     | Free Contract → Misrepresentation → Fraud → Contract → Unfair Influence → Breach of Contract → Rectification of Contract → Contract of indemnity and guarantee.                                                                                      |    |   |    |
| <b>Unit III</b>    | Sale of Goods Act 1930 → Transfer of Property Act → Contract of Sale → Conditions and warranties → Transfer of Property → Specialties → Gifts.                                                                                                       |    |   |    |
| <b>Unit IV</b>     | Law of Agency → Types → Meaning → Types → Nature, Limitations and scope of Agency and Principal → Creation and Termination of Agency.                                                                                                                |    |   |    |
| <b>Unit V</b>      | Companies Act 1956 → Company → Meaning → Types → Characteristics of a Company → Formation of a Company → Incorporation → Incorporation → Incorporation and Articles → Incorporation of Capital and Share → Brief history of the company. Management. |    |   |    |

## RECOMMENDED READING

Wheeler, T.A. *Commercial Law*

Wheeler, T.A. *Commercial Law*

Wheeler, T.A. *Commercial Law*

Wheeler, T.A. *Commercial Law*

Wheeler, T.A. *Commercial Law*

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Outcome</b> | <p>1.1. comprehend the business policies with its objectives</p> <ul style="list-style-type: none"> <li>➤ Understand the relevance of the business law in the corporate world</li> <li>➤ Identify the fundamental legal principles behind the contractual agreements</li> <li>➤ Understand how businesses can be held liable in case for the violation of their employees</li> <li>➤ Analyse the ethical implications of legal and business practices and its impact on society</li> </ul> |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Important unit

### REVISED SYLLABUS COURSE CODE: BBA210

#### ELECTIVE COURSE-III – III- INSURANCE MANAGEMENT

##### Unit I

Concept of Insurance – sources – evolution and importance of Insurance management – principles and functions – role of the Insurance companies in society

##### Unit II

History of Life Insurance – classification of policies – advantages of life – measurement of the company's value – valuation and surplus – management of L.I. of funds

##### Unit III

History of Fire Insurance contract – classification of policies – policy conditions – premium calculation – claims process – payment claims – management of marine insurance – role of insurance in marine insurance business – claims process in marine insurance business

##### Unit IV

History and laws of F&V Insurance – F&V Insurance contract – classification of policies – policy conditions – claims process in F&V Insurance – valuation of claims – management of F&V Insurance – role of F&V Insurance in the insurance business – claims process in F&V Insurance business

##### Unit V

History Insurance – Property Insurance – Personal Accident Insurance – Health Insurance & Life – role of management of these insurance – classification of Insurance business and its impact

**Recommended Books:**

Community, Principles and Practices - T. J. Miller

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**Project Schedule**

12/18/18 - 4/18/2020  
COURSE CODE: TBAG01

COURSE CODE - EVAL. REPORT & UVA VOCE

Maximum Units - 100

WVA for Super Evaluation:

WVA for Time Fee

(Note: Both are jointly evaluated by External and Internal Examiners)

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**III YEAR - V SEMESTER  
CORE COURSE THREE**

**CORE COURSE - 3 – CLINICAL BIOCHEMISTRY**

**Unit I      DISORDERS OF CARBOHYDRATE METABOLISM**

Sugar level in normal blood - Fasts and Hypoglycemia: Blood Glucose, Glycosuria, Glucose tolerance test, Diabetes mellitus: Glycogen storage disease- types and characteristics, Galactosemia, Inherited fructose intolerance, Mucopolysaccharidosis, Inborn errors of uric acid metabolism.

**Unit II      DISORDERS OF LIPID METABOLISM**

Fats and Fatty Acids: Disorders of lipoproteins, Phenylketonuria and Cholesterol metabolism, Sphingolipids, Gaucher's disease- types and characteristics, Tay Sachs disease, Niemann-Pick disease, Fabry's disease, Inborn errors of lipid metabolism.

**Unit III      DISORDERS OF AMINO ACID AND PROTEIN METABOLISM**

Amino acid metabolism in nervous system, Disorders of plasma protein -  $\gamma$  globulinemia, proteinuria, urea, and acid, ammonia, amino acids, Ornithinemia, Ornithinosis and Propionitis, Maple syrup urine disease, Phenylketonuria, Phenylpyruvate, Tyrosinemia, Inborn errors of urea acid metabolism.

**Unit IV      DISORDERS OF NUCLEIC ACID METABOLISM**

Urea, Uric acid - Nucleic acid metabolism, uric acid, Disorders of purine metabolism: Deficiency of HGPRT, HGPAT, Lesch-Nyhan syndrome,  $\alpha$ -manose phosphorylase deficiency, Adenosine deaminase deficiency and conditions.

**Unit V      IMMUNOLOGICAL DISORDERS**

Disorders of humoral immune system, Allergic diseases, various auto plethysm and Hypersensitivity reactions and its types, Autoimmune diseases: Rheumatoid arthritis, Graves disease, Type I diabetes, Systemic lupus erythematosus.

**Text Books:**

1. Medical Biochemistry by M V Raghavan, Elsevier Publishers (IND) 3<sup>rd</sup> Edition 2011
2. Text Book of Biochemistry by M A Chatterjee, Aggar Publishers (IND) 3<sup>rd</sup> Edition 2011

**Books for Reference:**

1. Physiological Chemistry - Gowen
2. Animal Clinical Biochemistry - David Voller
3. Clinical Biochemistry - Tietz
4. Biochemistry - Chabaz
5. Practical Clinical chemistry methods and interpretation - Chowdh
6. Fundamentals of Biochemistry by Armita Chatterjee, 1<sup>st</sup> Edition Publishers (IND)
7. Medical Laboratory Technology by Mahapatra, Tata Mc Graw Publishers (IND)

\*\*\*\*\*



| Course code |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Semester II             |  |    |   |    |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--|----|---|----|
| 180303      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Core Course-II          |  | TF | T | EN |
| Objectives  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Analytical Biochemistry |  | T  | A | E  |
| Unit-I      | <p><b>Thin Layer Chromatography:</b> Principles in the separation of compounds related analytical techniques. <b>Color Reactions:</b> Theory, principles, limitations, principles, various compounds, their reactions, per minute, <math>R_F</math> to <math>R_M</math>, 4- hour test of select. Properties and analytical strategies. — <b>Density gradient centrifugation:</b> Application of isopycnic density gradient, Isothermogravimetry, applications in the detection of compounds.</p>                                                                                                           |                         |  |    |   |    |
| Unit-II     | <p><b>Chromatography:</b> General principles — column, paper and thin layer chromatography — <b>Adsorption</b> — <b>Elution</b> — <b>Ion exchange</b> — <b>Exclusion</b> — <b>Gas</b> — <b>Liquid Chromatography</b> and HPLC. Application and selection of chromatography method for biology.</p>                                                                                                                                                                                                                                                                                                         |                         |  |    |   |    |
| Unit-III    | <p><b>Electrophoresis and Buffer:</b> Theory of electrophoresis, types of electrophoresis, moving boundary and zone electrophoresis, paper electrophoresis, isotachic analysis and polyacrylamide gel electrophoresis, SDS-PAGE — vertical and horizontal electrophoresis and their applications, isoelectric gel electrophoresis and its applications, Isoelectric focusing theory and applications. Acid and base, Lewis concept of acid and bases, weak acids: <math>pK</math>, <math>pK_a</math>, buffer, pH of buffer, buffer in body fluids. Measurement of pH by indicator and glass electrode.</p> |                         |  |    |   |    |
| Unit-IV     | <p><b>Colorimetry and Spectrophotometry:</b> Beer-Lambert law and its limitations, Light absorption and transmission, Extinction coefficient, UV and visible absorption spectroscopy, Protein Fractionation: Amino acid spectroscopy, Amino acid spectroscopy, Spectrophotometry, Biochemical applications of spectrophotometry. <b>Fluorescence and Applications of Fluorescence.</b></p>                                                                                                                                                                                                                 |                         |  |    |   |    |
| Unit-V      | <p><b>Molecular Chemistry:</b> Radioisotopes, radio of radio activity, half life, <math>\alpha</math> and <math>\gamma</math> emission. Detection and measurement of radioactivity — Methods based upon ionization- GM counter, scintillation- Scintillation counter, Autoradiography-application of radio isotopes in the elucidation of metabolic pathways, clinical tracing and radio labeling, radio isotopes used. Biological functions of calcium and sodium isotopes in handling radio isotopes.</p>                                                                                                |                         |  |    |   |    |

#### Reference Text Books:

##### Text Books:

Archer, P. (2004). *Basics of Analytical Biochemical Techniques*. China Petroleum.

Spallholz, A. (2002). *Biochemical chemistry - Concepts and Techniques* (2<sup>nd</sup> ed.). Saunders Publications.

##### Books for Reference:

Kapoor, R. (2011). *Analytical Techniques in Biochemistry and Molecular Biology*. Springer.

Lippich, F., Angeli, J.W. (2015). *Advanced Analytical Methods and Concepts in Biochemistry and Molecular Biology*. Wiley.

Robinson, J.W., Skelly-Francis, E.M., Farns, E. O.M. (2004). *Undergraduate Biochemical Analysis*. CRC Press.

Vogelstein, M.A. (2002). *Biochemistry: Theory and Practice*. CRC Press.

Wilson, K., Walker, I. (1988). *Practical Biochemistry* (2<sup>nd</sup> ed.). Cambridge University Press.

Wilson, K., Walker, I. (2015). *Principles and techniques of practical Biochemistry* (2<sup>nd</sup> ed.). University Press, Cambridge.

Wiley, K., Gooding, K.B. (1992). *Analytical's Guide to Principles and Techniques of Analytical Biochemistry*. Cambridge University Press.

**Outcome:** —> Creating a strong analytical background for techniques used in biological classification and separation.

## FIRST YEAR: SEMESTER II

## CELL BIOLOGY

| Course Code | Course Name         | Credits | L |   |   |   |   | Practicals |     | Total    |       |
|-------------|---------------------|---------|---|---|---|---|---|------------|-----|----------|-------|
|             |                     |         | L | T | P | S | C | Practicals | CLN | Internal | Final |
|             | <b>Cell Biology</b> | 5       | 2 | 1 | - | - | 4 | 5          | 20  | 10       | 30    |

## Learning Objectives

## Describe the structure and function of

- Prokaryotic and eukaryotic cells and their organelles
- Understand the organization of prokaryotic and eukaryotic genomes
- Relate the structure and organization of the membrane and transport proteins
- Impact knowledge on cellular cell division and growth of cells
- Functions for transport of molecules of cell-cell interactions

|          |                                                                                                                                                                                                                                                                                                                                |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit I   | Structure of cells- historical approaches of prokaryotic and eukaryotic cells, microbial, plant and animal cells. The ultrastructure of nucleus, mitochondria, SER, Golgi apparatus, lysosomes, peroxisomes and their function.                                                                                                |
| Unit II  | Cytoskeleton: organization, movement and molecular structure- structure, composition and function. Organization of Genome- prokaryotic and eukaryotic genomes. Organization of chromatin- histones, nucleosomes, structure of chromatin structure. Special types of chromosomes- band type chromosomes, polyploid chromosomes. |
| Unit III | Membranes: structure, organization of phospholipids, proteins, transport across cell membrane- transport, transport and transport. Protein and water transport.                                                                                                                                                                |
| Unit IV  | Cellular Differentiation and Growth of cells- Cell division, cell cycle and its regulation. Cell cycle- definition, types and characteristics of cancer cells.                                                                                                                                                                 |
| Unit V   | Extracellular matrix- Collagen, laminin, fibronectin and proteoglycan- structure and biological role. Structure and role of cadherins, selectins, integrins. Cell-cell interactions- Types of interactions, tight junctions and Desmosomes.                                                                                    |

## Text books

1. Alberts et al., Cell Biology, Garland Science, 7th ed., 2015
2. Davidson, Principles of Molecular Biology, Garland Science, 7th ed., 2015
3. Bruce Alberts and Dennis Bray, 2015, Essential Cell Biology, 4th ed. Garland Science

## Reference books

1. H. B. Callenberg, *Strong's Concordance* (2008-2010), 22336667289-1, ISBN 978141841496-2, 2006.

2. Linger, A. A. *The City of Man and the City of God* (1881), in *Vol. 100*, 100 (1), 1708781286, 2011.

3. J. M. P. O. *City of Man and the City of God* (1881), in *Vol. 100*, 100 (1), 1708781286, 2011.

4. Linger, A. A. *The City of Man and the City of God* (1881), in *Vol. 100*, 100 (1), 1708781286, 2011.

#### Notes

<http://www.strong's.org/strong's-concordance/>

<http://www.strong's.org/strong's-concordance/>

<http://www.strong's.org/strong's-concordance/>

#### Course Outcomes

| LO  | The outcomes of this course, indicate will be able to                     | Program Outcome |
|-----|---------------------------------------------------------------------------|-----------------|
| LO1 | Explain the concept of the city of God and its significance in the Bible. | PO1             |
| LO2 | Explain the concept of the city of God and its significance in the Bible. | PO1, PO2        |
| LO3 | Explain the concept of the city of God and its significance in the Bible. | PO1, PO2        |
| LO4 | Explain the concept of the city of God and its significance in the Bible. | PO1, PO2        |
| LO5 | Explain the concept of the city of God and its significance in the Bible. | PO1, PO2        |

#### Mapping with Program Outcomes

|     | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| CO1 | 1   |     |     |     |     |     |     | 1   |     | 1    |
| CO2 | 1   | 1   |     |     |     |     |     | 1   |     | 1    |
| CO3 | 1   | 1   |     |     |     |     |     | 1   |     | 1    |
| CO4 | 1   | 1   |     |     |     |     |     | 1   | 1   | 1    |
| CO5 | 1   | 1   |     |     |     |     |     | 1   |     | 1    |

Strong's Concordance 11/11/11

[illegible]

**Task 5:** *Reflections – Types of Reflections* discuss activities and its importance, compare and contrast with other activity, identify based upon content / topic  
*Medium/upper* Medium level open exercise / task all appropriate for content  
 Interdisciplinary, Strategic applications and active content of reflection

#### Textbooks

1. *Visual Geometry* by A. W. K. Chan, published by Macmillan, Hong Kong, 1997  
 and *Geometry*, P. J. P. Jones, published by Macmillan

2. *Visual Geometry*, P. J. P. Jones, published by Macmillan

3. *Visual Geometry*, P. J. P. Jones, published by Macmillan

4. *Visual Geometry*, P. J. P. Jones, published by Macmillan

#### References

1. *Visual Geometry*, P. J. P. Jones, published by Macmillan

2. *Visual Geometry*, P. J. P. Jones, published by Macmillan

3. *Visual Geometry*, P. J. P. Jones, published by Macmillan

4. *Visual Geometry*, P. J. P. Jones, published by Macmillan

#### Web Resources

1. <http://www.maths.org.uk/visualgeometry/>

2. <http://www.maths.org.uk/visualgeometry/visualgeometry/>

3. <http://www.maths.org.uk/visualgeometry/visualgeometry/>

#### Case Studies

|     |                                                                                                       |                   |
|-----|-------------------------------------------------------------------------------------------------------|-------------------|
| CD  | On completion of this course, students will be able to                                                | Programme Outcome |
| CD1 | Identify the main and minor components of the course<br>and its relevance to the study of Mathematics | PO1, PO2, PO3     |
| CD2 | Identify the main and minor components of the course<br>and its relevance to the study of Mathematics | PO1, PO2, PO3     |
| CD3 | Apply the main and minor components of the<br>course to the study of Mathematics                      | PO1, PO2, PO3     |
| CD4 | Identify the main and minor components of the<br>course and its relevance to the study of Mathematics | PO1, PO2, PO3     |
| CD5 | Identify the main and minor components of the<br>course and its relevance to the study of Mathematics | PO1, PO2, PO3     |

#### Mapping with Program Outcomes

|     | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| CD1 | 2   | 3   |     |     |     | 2   | 3   | 3   | 3   | 3    |
| CD2 | 2   | 3   |     |     |     | 2   | 3   | 3   | 3   | 3    |
| CD3 | 2   | 3   |     |     |     | 2   | 3   | 3   | 3   | 3    |
| CD4 | 2   | 3   |     |     |     | 2   | 3   | 3   | 3   | 3    |
| CD5 | 2   | 3   |     |     |     | 2   | 3   | 3   | 3   | 3    |

Strongly (3), Moderate (2), Little (1)

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course Code<br><b>11001N1</b> | <b>COMPARISON</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Teacher's<br>name             | <b>BASICS OF MICROBIOLOGY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Location                      | <b>4</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Pre-requisites<br>None        | Basic knowledge of chemistry and mathematics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Course objectives             | <p>Students will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the basic concepts of microbiology.</li> <li>2. Recognize the various types of microorganisms and their characteristics.</li> <li>3. Understand the structure, properties and biological significance of cells and the living cell system and its control.</li> <li>4. Understand the various types of growth curves and their significance in biological processes and its application in biotechnology.</li> <li>5. Understand the various types of microorganisms and their significance in biotechnology.</li> </ol>                       |
| Course Outcome                | <p>On successful completion of this course, students should be able to:</p> <p><b>CO1:</b> Explain the characteristics and functions of microorganisms (4: 12)</p> <p><b>CO2:</b> Explain the various types of microorganisms and their significance in biotechnology (4: 12)</p> <p><b>CO3:</b> Explain the various types of growth curves and their significance in biological processes (4: 12)</p> <p><b>CO4:</b> Explain the various types of microorganisms and their significance in biotechnology (4: 12)</p> <p><b>CO5:</b> Explain the various types of microorganisms and their significance in biotechnology (4: 12)</p> |

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[illegible]



| Course Code<br>IIMBIC-1        | COURSE TITLE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Title of the Course<br>Credits | BIOTECHNICAL AND MOLECULAR BIOLOGY TECHNOLOGY<br>5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Prerequisites, if any          | Fundamental knowledge of basic of Microbiology, Molecular Biology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Course Objectives              | <p>Students will acquire sufficient nature, non-destructive method, in biological research and the course aims to provide students with the following objectives:</p> <ol style="list-style-type: none"> <li>1. To understand the various techniques used in biotechnological investigation and microscopy.</li> <li>2. To explain the microscopy techniques and their applications.</li> <li>3. To explain the spectroscopic techniques.</li> <li>4. To understand the spectroscopic techniques and determine their applications in biotechnological investigation.</li> <li>5. To acquire knowledge of auto-labeling techniques and investigation.</li> </ol>                                                                                                                                                                  |
| Course Outcome                 | <p>After completion of the course, the students should be able to:</p> <p>CO1. Acquire good knowledge to realize and in biotechnological investigation and microscopy, and apply the experimental process in culture and cells in single investigation in biological research (BC, K1)</p> <p>CO2. Understand knowledge to implement the theoretical basis of microscopy to improve practical course work (B1, K1)</p> <p>CO3. Understand knowledge to implement the theoretical basis of spectroscopic techniques in research work (B1, K1)</p> <p>CO4. To able to use advanced and specialized spectroscopic techniques that are pertinent to research (K1, K2 &amp; K3)</p> <p>CO5. To able to use advanced and specialized microscopy and investigation techniques that are pertinent to research work (B1, K2 &amp; K3)</p> |
| <b>Units</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| I                              | <p>General approaches in biotechnological investigation, cell culture techniques and microscopy techniques, light and laser light microscopy, cell fractionation and computerized techniques, cell sorting, and cell counting, tissue Culture techniques, Cryopreservation, Bioreactors- principle and application, Principles, working and applications of light microscope, dark field, phase contrast and fluorescence microscope, Culture microscope Principles, instrumentation of TEM and SEM, Spectroscopic principles and application, studies involving negative staining and freeze fracturing.</p>                                                                                                                                                                                                                    |
| II                             | <p>Chromatography Techniques</p> <p>Basic principles of chromatography: absorption and partition techniques: Gas Chromatography and several column Chromatography. Adsorption Chromatography - Thin layer chromatography and paper chromatography. Ion exchange Chromatography. (B1), chromatography Lab. Skill</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |



|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course code           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| LMBC1C1               | TIME PAPER- III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Title of the Course   | HISTOLOGY AND CELL BIOLOGY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Credits               | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Prerequisites, if any | Anatomy, Cell and Biological Chemistry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Course Objectives     | To understand the functions and structure of organs, tissues or cells and of physical and chemical processes involved in the human body                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Course Outcomes       | <p>After completion of the course, the students should be able to:</p> <p>CO1. Specifically understand the histological and chemical processes within a human cell (EL, EL.11, EL.6)</p> <p>CO2. Identify cell types and tissues (EL, COX, EL.14)</p> <p>CO3. understand infection, its diagnosis, microbial defences and immunology and immunological pathogenesis (EL, EL.14, EL.14)</p> <p>CO4. identify general characteristics of individuals with inheritance of such basic traits and the principles (EL, EL, EL.14, EL.14)</p> <p>CO5. process the mechanism of the transmission of biological information between cell membrane and nucleus. (EL, EL, EL)</p> |
|                       | Time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 1                     | Major classes of cell junctions including, tight and gap junctions. Types of cell surface molecules (CAMs)- cadherins, integrins. Types of tissues, epithelium- organization and types. The basement membrane. Cell cycle- mitosis and meiosis. Cell cycle phases and regulation. (EL) Apoptosis mechanisms- apoptosis- apoptosis, necrosis.                                                                                                                                                                                                                                                                                                                           |
| 2                     | Reproductive system: sexual differentiation and development, sperm transport, sperm capacitation, sperm analysis and Assisted reproduction (Clinical relevance of female reproductive physiology- menstrual cycle, pregnancy and menopause. Fertilization and embryonic development.                                                                                                                                                                                                                                                                                                                                                                                   |
| 3                     | Digestive system: structure and function of different components of digestive system, digestion and absorption of carbohydrates, lipids and proteins, role of bile salts in digestion and absorption, mechanism of HCl formation in stomach, role of various enzymes and hormones involved in digestive system. Composition of blood, lymph and CSF. Blood cells-                                                                                                                                                                                                                                                                                                      |



|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course code<br>L2NHC/11  | CORE ELECTIVE PAPER - I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Title of the<br>Course   | NEUROBIOLOGY & IMPAIRMENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Credits                  | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Prerequisites, if<br>any | No student should possess basic knowledge about neuroanatomy, types of neurotransmitters, and the role of neurotransmitters in the brain, understanding about the process of reflexive, perceptual deficits and psychological responses, if any                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Course<br>Objectives     | <p>To appreciate the mechanisms of neurotransmission based on their content, sites and steps with an insight into the various synaptic mechanisms.</p> <p>To understand the role of neurotransmission in environment and also to know the cultural variations.</p> <p>To recognize the positive contribution of drugs to neurotransmission, to understand neurotransmitter presynaptic release and to know about presynaptic release of neurotransmitters.</p> <p>To gain knowledge on pathological conditions by neurotransmission and presynaptic receptors as well.</p> <p>To comprehend the function of autoregulated agents, their mechanism of action along with its side effect and also to explain natural stimuli and their agonists/antagonists.</p> <p>To understand the other cellular processes like synaptic vesicle release, long term potentiation and depression.</p>                                                                                         |
| Course<br>Outcomes       | <p>After completion of the course, the student should be able to:</p> <p>CO1. To classify the both excitatory and inhibitory vesicles different types of neurotransmitters and their receptors in the brain. (B1, B2, B3, B4)</p> <p>CO2. To recognize the neurotransmission involved in drug of brain and to understand the application of neurotransmitters. The student will be able to explain the role of various biochemical molecules in the study of brain chemistry. (B1, B2, B3, B4)</p> <p>CO3. To understand the common pathways, function and drug the neurotransmission and also will be able to explain synaptic receptors. (B1 &amp; B2)</p> <p>CO4. To understand the various pathways, function and drug the neurotransmission and also will be able to explain synaptic receptors. (B1, B2, B3 &amp; B4)</p> <p>CO5. To apply knowledge of neurotransmission and its receptors in the study of brain chemistry and its receptors. (B1, B2, B3 &amp; B4)</p> |
| Exam                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



| Course code<br>ENIN 341 | COMPANY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Subject/Unit<br>Title   | DEPARTMENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Credits                 | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Pre-requisite           | Basic knowledge about materials, structure and chemical reaction and kinetics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Course Objectives       | <p>Graduates will be able to understand the structure and properties of nanomaterials:</p> <ol style="list-style-type: none"> <li>1. Synthesis of nanomaterials and discuss affecting conditions with an understanding</li> <li>2. The structure of nanomaterials and conditions in the synthesis and growth of nanomaterials will be studied and the systems for applying nanomaterials and nanomaterials in synthesis will be analyzed.</li> <li>3. Students will learn about the applications of nanomaterials in nanomaterials, medicine, and industry, which will prepare them for careers in nanomaterials and related research.</li> <li>4. The control of nanomaterials, pathways and cellular response through nanomaterials will be analyzed.</li> </ol> |
| Course Outcomes         | <p>On successful completion of this course, students should be able to:</p> <p>CO1: Describe the synthesis mechanism employed by nanomaterials (K1, K2, A 4/5)</p> <p>CO2: Discuss and use the applications nanomaterials in medicine and biology, nanomaterials in the synthesis of nanomaterials (K1, K2, A1, A4 &amp; 5/5)</p> <p>CO3: Analyze nanomaterials and nanomaterials, nanomaterials in medicine, nanomaterials in the synthesis of nanomaterials (K1, K2, A1, A4 &amp; 5/5)</p> <p>CO4: Explain structure and properties and nanomaterials, nanomaterials in the synthesis of nanomaterials (K1, K2, A1, A4 &amp; 5/5)</p> <p>CO5: Explain the use of nanomaterials in medicine and nanomaterials (K1, K2 &amp; 5/5)</p>                              |





**YEAR - I SEMESTER  
COURSE CODE: TNC3111**

**COURSE COURSE 3 - CHEMISTRY AND PHYSICS (THEORY) AND THE PRACTICAL - I**

**Inorganic-Volumetric Estimation**

| S. No.                            | Compound                  | Salt                      | Estimation        |
|-----------------------------------|---------------------------|---------------------------|-------------------|
| <b>acid - base back titration</b> |                           |                           |                   |
| 1                                 | Sodium carbonate          | Hydrochloric acid         | Barium hydroxide  |
| 2                                 | Sodium acid               | Sodium hydroxide          | Oxalic acid       |
| 3                                 | Sodium carbonate          | Hydrochloric acid         | Sodium carbonate  |
| <b>Redox - Permanganometry</b>    |                           |                           |                   |
| 4                                 | Oxalic acid               | potassium permanganate    | ferrous sulphate  |
| 5                                 | ferrous ammonium sulphate | potassium permanganate    | ferrous sulphate  |
| 6                                 | Oxalic acid               | potassium permanganate    | Oxalic acid       |
| 7                                 | ferrous ammonium sulphate | potassium permanganate    | Oxalic acid       |
| <b>Redox titration</b>            |                           |                           |                   |
| 8                                 | ferrous ammonium sulphate | ferrous ammonium sulphate | ferrous sulphate  |
| <b>precipitation</b>              |                           |                           |                   |
| 9                                 | ferrous ammonium sulphate | Silver Nitrate            | Mercurous Nitrate |
| 10                                | ferrous ammonium sulphate | Silver Nitrate            | Copper sulphate   |
| 11                                | ferrous ammonium sulphate | Silver Nitrate            | ferrous sulphate  |

**3. Degree Advanced Estimation:**

1. Formulation of product
2. Estimation of product
3. Estimation of product

**Distribution of marks in the internal practical examination**

Total marks - 60

Round robin - 10 marks

Blue - mark - 10 marks

Impurity procedure - 2 marks

Organic procedure - 2 marks

Derivation of all steps from 10 and 10 - 10 marks

Report submission from 75 and 100 marks for every 100

Report submission from 75 and 100 - only 2 marks

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**3 YEAR – 6 SEMESTER  
COURSE CODE: 780001**

**COURSE CODE: 780001 ORGANIC QUALITATIVE ANALYSIS PRACTICE - II**

**Pr. Per week: 6**

**1. Inorganic Qualitative Analysis**

To analyse a mixture of inorganic salt contains two cations and two anions. Give it the what should be necessary answer table.

**2. Organic Qualitative Analysis**

To detect a compound to identify the general formula, present. A suitable relation structure/functional group.

**Literature Task Allocation**

Inorganic analysis : 10 marks

Organic analysis : 10 marks

Inorganic qualitative analysis : 10 marks

Organic qualitative analysis : 10 marks



| Semester - II                                                                                                                                                                                                                                                                 |                                                           |                  |                 |                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------|-----------------|-----------------|
| Exams Code                                                                                                                                                                                                                                                                    | Exm. Period (s)                                           | 1 <sup>st</sup>  | 2 <sup>nd</sup> | 3 <sup>rd</sup> |
| 222210001                                                                                                                                                                                                                                                                     | GRADING THE LIGNIN AND ORGANIC PREPARATION FROM THE M. Y. | 5                | 4               | 4               |
| Max. Marks: 30                                                                                                                                                                                                                                                                |                                                           | Duration: 3 Hrs. |                 |                 |
| <b>I. Experiments Evaluation:</b><br>1. Evaluation of Lignin to Lignin derivatives: 10 marks<br>2. Evaluation of Lignin to Lignin derivatives: 10 marks<br>3. Evaluation of Lignin to Lignin derivatives: 10 marks<br>4. Evaluation of Lignin to Lignin derivatives: 10 marks |                                                           |                  |                 |                 |
| <b>II. Preparation of organic compounds</b><br>Preparation for doing the following reaction<br>(a) Reduction of Lignin to Lignin (b) Reduction of Lignin to Lignin<br>(c) Reduction of Lignin to Lignin (d) Reduction of Lignin to Lignin                                     |                                                           |                  |                 |                 |
| <b>III. Determination of melting and boiling points of organic compounds (and for qualitative purpose)</b>                                                                                                                                                                    |                                                           |                  |                 |                 |
| <b>IV. Separation of organic mixtures (and for qualitative purpose)</b>                                                                                                                                                                                                       |                                                           |                  |                 |                 |
| <b>Distribution of Experiments:</b>                                                                                                                                                                                                                                           |                                                           |                  |                 |                 |
| 1. Lignin                                                                                                                                                                                                                                                                     |                                                           | 10 marks         |                 |                 |
| 2. Lignin to Lignin                                                                                                                                                                                                                                                           |                                                           | 10 marks         |                 |                 |
| 3. Lignin to Lignin                                                                                                                                                                                                                                                           |                                                           | 10 marks         |                 |                 |
| 4. Lignin to Lignin                                                                                                                                                                                                                                                           |                                                           | 10 marks         |                 |                 |
| 5. Lignin to Lignin                                                                                                                                                                                                                                                           |                                                           | 10 marks         |                 |                 |
| 6. Lignin to Lignin                                                                                                                                                                                                                                                           |                                                           | 10 marks         |                 |                 |
| 7. Lignin to Lignin                                                                                                                                                                                                                                                           |                                                           | 10 marks         |                 |                 |
| 8. Lignin to Lignin                                                                                                                                                                                                                                                           |                                                           | 10 marks         |                 |                 |
| 9. Lignin to Lignin                                                                                                                                                                                                                                                           |                                                           | 10 marks         |                 |                 |
| 10. Lignin to Lignin                                                                                                                                                                                                                                                          |                                                           | 10 marks         |                 |                 |
| <b>Experiments Evaluation:</b><br>1. Lignin to Lignin ... 10 marks<br>2. Lignin to Lignin ... 10 marks<br>3. Lignin to Lignin ... 10 marks<br>4. Lignin to Lignin ... 10 marks<br>5. Lignin to Lignin ... 10 marks                                                            |                                                           |                  |                 |                 |
| <b>Note: Each entry should be evaluated (4 marks)</b>                                                                                                                                                                                                                         |                                                           |                  |                 |                 |

| Semester IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                  |                 |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------|-----|
| Course Code:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Chem (Physical V)                | LP              | 1 8 |
| 22060001                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | PHYSICAL CHEMISTRY PART-III (22) | P               | 4 4 |
| Max. Marks: 80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                  | Duration: 3 hrs |     |
| <p><b>1. Photochemistry</b></p> <p>a. Simple example</p> <p>b. Computed reference</p> <p><b>2. Determination of molecular weight</b></p> <p>a. Rayleigh method using equilibrium in solvent</p> <p>b. Transient temperature using reflectance contribution in cell (photo)</p> <p><b>3. Critical solution temperature</b></p> <p>a. L.C.T. of glucose-water system</p> <p>b. Determination of critical solution for studying the L.C.T. of glucose-water system</p> <p><b>4. Kinetics</b></p> <p>Determination of rate constant of acid by acid catalyzed hydrolysis of ester</p> <p><b>5. Partition coefficient</b></p> <p>a. Study of equilibrium <math>A + B \rightleftharpoons AB</math> by studying the partition coefficient of iodine between water and carbon tetrachloride</p> <p>b. Determination of association factor of benzene-water system</p> <p><b>6. Electrochemistry</b></p> <p>a. Conductometric titration of weak acid and a base (OR) Fuel cell</p> <p>b. Potentiometric method - Potentiometric titration between <math>Ti^{3+}</math> and acid and a base (OR) <math>Fe^{2+}</math> and <math>LiOH</math> or <math>NaOH</math></p> <p><b>7. Thermodynamics</b></p> <p>a. Determination of heat of reaction - oxalic acid solution</p> |                                  |                 |     |
| Distribution of Marks for marks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                  |                 |     |
| Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 60 marks                         |                 |     |
| Experiments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 20 marks                         |                 |     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 40 marks                         |                 |     |
| Note: University specified examination: 4 hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                  |                 |     |

| Session 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                               |    |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----|-----|
| Topic Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Topic Name/VR                 | EP | A/B |
| 220-0001                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | APPLIED ENVIRONMENTAL SCIENCE | P  | A   |
| <ol style="list-style-type: none"> <li>1. Determination of total immunity and potential hazards of vaccine supply by RFLP method.</li> <li>2. Determination of percentage of available vaccine in the supply chain of health system.</li> <li>3. Determination of biological safety of vaccine supply by RFLP and genetic analysis.</li> <li>4. Determination of efficiency of vaccine of the given supply by RFLP and genetic analysis.</li> <li>5. Determination of vaccine supply of a given supply by RFLP and genetic analysis.</li> <li>6. Determination of A+B value of vaccine.</li> <li>7. Determination of Superinfection value of vaccine.</li> <li>8. Determination of the quality of vaccine supply.</li> <li>9. Determination of total and potential of the A+B and V vaccine supply.</li> <li>10. In total, the determination of vaccine supply in the supply chain of vaccine supply.</li> <li>11. Identification of vaccine supply in the supply chain.</li> </ol> |                               |    |     |
| <b>Distribution of vaccine</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                               |    |     |
| Source                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 10 supply                     |    |     |
| Production                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10 supply                     |    |     |
| Exportation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 10 supply                     |    |     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10 supply                     |    |     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10 supply                     |    |     |
| <b>Notes (please provide your own notes / if any)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                               |    |     |
| <div style="text-align: center;">  </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                               |    |     |

| Semester - III    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |    |   |   |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|
| Course Code:      | PG-15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 17 | 1 | 8 |
| 200 3001          | ANALYTICAL CHEMISTRY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5  | 0 | 5 |
| <b>Objectives</b> | <p>To provide the basic idea about the fundamental analysis and analytical techniques along with handling the laboratory techniques and safety procedures. To learn about important fundamental analytical data analysis method and various chemical methods of separating analytical data. To study about the principles and classification of separation methods, the methods of separation techniques and its applications. To provide the principles of gravimetric analysis, methods and classification of precipitation techniques, method of thermal analytical methods and the electroanalytical techniques.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |   |   |
| <b>Unit I</b>     | <p><b>LABORATORY SKILLING AND SAFETY &amp; ANALYTICAL DATA ANALYSIS</b></p> <p>1.1 Storage and handling of chemicals – nomenclature, nomenclature, systematic and common names, chemical – general precautions for a using chemicals.</p> <p>1.2 Chemical techniques for analysis, titration, color, and flame, alkali tests, ferrous-chloride, peroxide, reduction of iron and barium and lead tests.</p> <p>1.3 Reduction and classification of errors – methods of reducing errors – estimation of analytical accuracy and precision – Sources of error and its control – confidence limit – estimation of significant data.</p> <p>1.4 Significant figure – error – fitting – method of least square – problems involving statistical data graphs.</p>                                                                                                                                                                                                                                                                                                                                                                |    |   |   |
| <b>Unit II</b>    | <p>2.1 Separation and Purification Techniques: Adsorption – separation – Surface chemistry. Principles, mechanism and application, of Chromatography, theory, Solubility.</p> <p>2.2 Gravimetric analysis: Adsorption, chemical, chromatography.</p> <p>2.3 Chromatography – Principles, Principles, working and applications, Paper chromatography – column chromatography.</p> <p>2.4 Sample and recovery of Thin Layer Chromatography and Gas Liquid Chromatography, Separation of TLC and other Chromatography.</p> <p>2.5 Gravimetric analysis – Principles – Barium chloride, Lead – standard error, method of error – method – titration method.</p> <p>2.6 Photometric colorimetric method – estimation of iron, copper and nickel.</p> <p>2.7 Thermal analytical methods: Thermogravimetric analysis – Principles – mechanism – characteristics of Thermogravimetric analysis – Application of TGA for analytical and environmental.</p> <p>2.8 Differential Thermal analysis – Principles – mechanism – characteristics of differential thermal analysis – Application of DTA for environmental monitoring.</p> |    |   |   |
| <b>Unit III</b>   | <p>3.1 Gravimetric analysis: Sample preparation – Basic Principles of Gravimetric Analysis, Classification of precipitation agents – choice of reagent.</p> <p>3.2 Conditions of precipitation, Coprecipitation, Post precipitation, Re-precipitation.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |   |   |

|         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <p><b>Introduction</b></p> <p>2.1 Prescription from hermeneutic viewpoint – Against hermeneutic of progress – growth of the discipline</p> <p>2.2 Against hermeneutic progressivism, emphasizing spirit and history</p>                                                                                                                                                                                                                                                                            |
| 1994    | <p>3.1 Hermeneutic circle, circle of historical change, Reflection on historic efficiency, enhanced and diminished (the problem of hermeneutic progress, hermeneutic)</p> <p>3.2 Hermeneutic expansion of scope from textual and scriptal hermetic</p> <p>3.3 Hermeneutic method: Delineating of text by top-down</p> <p>3.4 Hermeneutic Hermeneutic and Hermeneutic Hermeneutic</p>                                                                                                               |
|         | <p>Deleuze, Gilles and Félix Guattari, <i>Principles of Hermeneutic Analysis</i>, Willamstown, New York, 1981</p> <p>Deleuze, G., F. Guattari and J. Guattari, <i>General of Hermeneutic Hermeneutic</i>, Indian Hermeneutic Press, New Delhi, 1991</p> <p>Deleuze, Gilles and Félix Guattari, <i>General Hermeneutic Hermeneutic</i>, Willamstown, New York, 1981</p> <p>Deleuze, Gilles and Félix Guattari, <i>General Hermeneutic Hermeneutic</i>, Willamstown, New York, 1981</p>              |
| Thomson | <p>It is important to be familiar with the text and the hermeneutic hermeneutic, to be able to identify the text and the hermeneutic hermeneutic, and the ability to determine the nature of text and its effect on the hermeneutic hermeneutic. It is important to be familiar with the text and the hermeneutic hermeneutic, to be able to identify the text and the hermeneutic hermeneutic, and the ability to determine the nature of text and its effect on the hermeneutic hermeneutic.</p> |

| Appendix III      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |    |   |   |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|
| Course Code:      | SYLLABUS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | TP | L | R |
| 2201 3041         | INDUSTRIAL CHEMISTRY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5  | 6 | 6 |
| <b>Objectives</b> | The objective is to expose the students about the basic concepts of glass technology and chemistry, to help the students to understand the manufacturing of various and glass and its types. To enable the students to study some of important emerging, manufacturing of polymers and composites. To understand the concept of nanotechnology, growth, scope and mainly industries and use of composites, polymers and nanotechnology.                                                                                                                                                                                                                                                                                                   |    |   |   |
| <b>Unit-I</b>     | 1.1. Glass: Definition – classification of glass based on the application – essentially – function of a good glass.<br>1.2. Properties: Definition – composition, characteristics and use of various glass: soda, lithium and TF. Also polymers – function like elastoplastics – glass.<br>1.3. Bad polymers – and how elastoplastics and how. Good polymers – strong glass, Glycerol's polymer and thermosetting – elastoplastics and their uses.<br>1.4. Various Industries – construction of various – elastoplastics and a good example was – commercial found – definition – types – applications.                                                                                                                                   |    |   |   |
| <b>Unit-II</b>    | 2.1. General: Definition, manufacturing of various, general properties of various – general properties and important test points, notes.<br>2.2. High technology industries and their applications, from the materials – functions and applications of silica in glass.<br>2.3. Glass Technology, Classification (types of manufacturing process) – Manufacturing and availability of glass.<br>2.4. Composition and properties of the following types of glasses: Soda-lime glass, Lead glass, Borosilicate glass, alkali glass, borosilicate glass, borosilicate glass, vitreous glass, phosphoric glass.                                                                                                                               |    |   |   |
| <b>Unit-III</b>   | 3.1. Glass Definition – manufacturing of various, manufacturing of glass – with manufacturing notes.<br>3.2. Properties: Definition – classification of glass, various types – notes.<br>3.3. Properties – various types of glass – examples – use materials.<br>3.4. Applications: Definition, Classification – Properties – Classification of the Clay, bricks and more.<br>3.5. General: Definition – Manufacturing – composition – general properties – notes – functions – Properties – Properties – Properties – Properties of various types – General: Definition – Properties – Properties – Properties – Properties of various types – General: Definition – Properties – Properties – Properties – Properties of various types. |    |   |   |
| <b>Unit-IV</b>    | 4.1. Definition: Definition – manufacturing of various types of glass, properties, applications and notes. Various (TP, L, R) – Properties and notes at table.<br>4.2. Glass Technology: Manufacturing of glass – Properties and functions – applications and notes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |   |   |

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Topic           | <p>(1) Introduction: Manufacture of pulp and paper: Historical background of papermaking and related</p> <p>(2) Stock selection: Manufacture – chemistry of lignin and ligninolytic</p> <p>(3) Cellulose: Definition – classification of cellulose – natural glue – papermaking – pulping, cellulose – stock, cellulose – properties – uses</p> <p>(4) Chemical treatment of cellulose: Bleaching – classification and applications</p> <p>(5) Cellulose derivatives – Cellulose – Classification of cellulose – Nitrocellulose, T.N.T Powder and Gun Powder, Cellulose and Dextran, XPS</p> <p>(6) Biopolymer and its uses: Wood as Biopolymer, Polyethylene and Paper</p> |
| REFERENCE BOOKS | <p>John Edd and R.S. Edd – "Tree Resin of Organic Chemistry", Vol. and Vol. 10, (1990) Oxford, New York.</p> <p>Donaldson, R.S. "Natural Chemistry", 1st Ed. Oxford and BH Publishing, New York.</p> <p>Edwards, P. Villalobos, E. San Sebastian – "Applied Chemistry", Vol. 10, (1990, 2000) The Chemical Publishing Co. Ltd., New York.</p> <p>Wiley, R.E. – "Natural Chemistry", 1st Ed. (1990) and Publishing House.</p> <p>Vol. 10, – "Tree Resin of Organic Chemistry", Vol. 10, (1990), C. O'Neil &amp; Co., New York.</p>                                                                                                                                           |
| Remarks         | <p>The students receive training with the given literature and facilities. Further the students understand each working system and its use and present to their lab. The students will also be able to identify the polymer in cellulose, cellulose and paper. This will help the students to identify the structure, properties and uses of cellulose.</p>                                                                                                                                                                                                                                                                                                                 |

| Semester - III    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |    |    |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|
| Course Code:      | PSU-303A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CP | LC | TC |
| 200-3031          | POLYMER CHEMISTRY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 5  | 5  | 5  |
| <b>Objective:</b> | To provide the basic idea about the constitution of polymers and polymerization techniques and various industrial polymer products along with their properties and useful uses.                                                                                                                                                                                                                                                                                                                                                                 |    |    |    |
| <b>Unit I</b>     | (1) Introduction: Elements - Defined - Functions of components and its significance - degree of polymerization - Natural and Synthetic polymers - classification of polymers - Addition and condensation polymers.<br>(2) Historical methods of preparation of polymers - anionic polymerization - chain growth polymerization and polymerization through ring opening.<br>(3) Free-radical mechanism: Init., radical, propagation and termination polymerization.<br>Mechanism of free-radical, anionic and cationic polymerization reactions. |    |    |    |
| <b>Unit II</b>    | (1) Polymer properties: Definitions: A structure of linear, branched and cross-linked polymers with suitable examples.<br>(2) Properties of polymers: The glass state and the glass transition temperature - thermal behavior of polymers.<br>(3) Sol, degradation: General, mechanical, environmental and thermal degradation.<br>(4) Molecular weight of polymers: Number average molecular weight and weight average molecular weight.                                                                                                       |    |    |    |
| <b>Unit III</b>   | (1) Copolymerization: EM, alternating, ion-pair and syndiotactic - block and graft copolymers.<br>(2) Kinetics of polymerization: Free radical polymerization - monomer, polymerization.<br>(3) Types of polymerization - addition, condensation and coordination.<br>(4) Synthetic polymers and polymerization: ADPs and CMC, styrene and isoprene, butadiene, copolymerization, free-radical, anionic and cationic polymerization.                                                                                                            |    |    |    |
| <b>Unit IV</b>    | (1) Thermoflex, Thermosets and thermoplasticity: PPS, PVL, PVA, polypropylene and polystyrene.<br>(2) Rubber: Natural and synthetic rubbers - isoprene, cis - polyisoprene and use of butyl, butyl styrene, butyl acrylate, Thiocoll, Neoprene and chloroprene rubbers.<br>(3) Crosslinking of rubber - Preparation of hot crosslinking, Reduction of spring return and crosslinking.<br>(4) Biodegradable polymers - advantages of biodegradable polymers - polylactide and polyglycolide acid and polymerization.                             |    |    |    |
| <b>Unit V</b>     | (1) Plastics and Resins: Definition, Thermoplastics and thermosetting resins - classification of plastics - Glass, Acrylonitrile, chloroacrylate, (Styrene and)                                                                                                                                                                                                                                                                                                                                                                                 |    |    |    |

|  |                                                                                                                                                        |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | cellulose                                                                                                                                              |
|  | 12 Synthesis of thermoplastic from cellulose derivatives – cellulose acetate and cellulose nitrate                                                     |
|  | 13 Synthesis of modifying agents: chlorides, acids, anhydrides, glycols and silicate esters                                                            |
|  | 14 Textile Fibres: (Woolen) Fibres, fibre processing, preparation and use of Synthetic and Blended – synthetic preparation and use of synthetic fibres |

#### REFERENCE BOOKS

- Billmeyer F.W., *Textile book of Physics* (Interscience, John Wiley & Sons, Singapore, 1996)
- Demchick V.F., *UV Irradiation*, Polymer science, Wiley Interscience, Interscience, New York, 1996
- Reynolds J., *Organic chemistry of macromolecules*, Marcel Dekker, New York, 1961
- Wypych G.G., *Introduction to Polymer Chemistry*, Marcel Dekker, New York, 1973

|         |                                                                                                                                                                                                                                          |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Outcome | A student should have knowledge of polymer science and synthesis of preparing polymers of industrial importance. (How) to prepare various polymers, methods of polymer and their applications. Can to collect literature for study about |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|





# **THIRD YEAR - SEMESTER - II**

## **COURSE - III**

| PREREQUISITE COURSE(S)                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |   |         |            |       |              |       |  |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---------|------------|-------|--------------|-------|--|
| Subject Code                             | L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | T | P | S | Credits | Sem. Hours | Marks |              |       |  |
|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |   |         |            | CIA   | Exptl        | Total |  |
| THUY202                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | T |   |   | 3       | 5          | 25    | 75           | 100   |  |
| Learning Objectives                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |   |         |            |       |              |       |  |
| LO1                                      | The students are able to prepare different kinds of accounts with proper debit and credit entries.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |   |   |         |            |       |              |       |  |
| LO2                                      | To understand the difference of different types of departmental accounts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |   |   |   |         |            |       |              |       |  |
| LO3                                      | To give an understanding about partnership accounts relating to Admission and withdrawal.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |   |   |   |         |            |       |              |       |  |
| LO4                                      | Provide knowledge to the students regarding Partnership Accounts relating to dissolution of firm.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |   |   |         |            |       |              |       |  |
| LO5                                      | To learn the requirements of departmental accounting methods.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |   |   |         |            |       |              |       |  |
| Prescribed Texts and Reference Materials |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |   |         |            |       |              |       |  |
| Course                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |   |   |         |            |       | No. of Hours |       |  |
| Unit I                                   | New Purchase and Consignment System<br>New Purchase System - Accounting Treatment - Calculation of Invoice - Debit and Creditment - New Purchase Trading Account - Consignment System - Calculation of Profit - Branch and Departmental Accounts<br>Branch - Independent Branches: Accounting, Reports - Different system: Direct and Indirect system - Difference between Wholesale Profit and Retail Profit - Independent Branches (Foreign Branches excluded) - Departmental Accounts: Basis of Allocation of Expenses - Joint Departmental Transactions - Cost or Selling Price. |   |   |   |         |            |       |              | 12    |  |
| Unit II                                  | Partnership Accounts - I<br>Partnership Accounts - Admission of a Partner - Transfer of Goodwill - Calculation of Goodwill - Retirement of a Partner - Death of a Partner.                                                                                                                                                                                                                                                                                                                                                                                                           |   |   |   |         |            |       |              | 12    |  |
| Unit III                                 | Partnership Accounts - II<br>Dissolution of Partnership - Settlement - Settlement of Accounts Regarding Loans and Assets - Realisation account - Treatment of Goodwill - Preparation of Balance Sheet - Use of asset Payment methods - All Partners involved - Application of Game & Money Theory - Accounting Treatment - Partner's Distribution - Gupta Capital Method - Maximum Loss Method.                                                                                                                                                                                      |   |   |   |         |            |       |              | 12    |  |

|        |                                                                                                                                                                                                                                                                                                                                       |    |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Unit 5 | Accounting Standards for Business Reporting (Theory only)<br>Objectives and Use of Financial Statements for Verification of Accounting Standards + Derivation of Accounting Standards<br>&<br>Role of IASB. IFRS: Adoption vs. Convergence<br>Implementation Plan. IASB and IASB: the International Accounting Standards Board (IASB) | 30 |
| TOTAL  |                                                                                                                                                                                                                                                                                                                                       | 75 |

#### UNIT 6: IASB AND FINANCIAL REPORTING

| Learning Objectives |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| CO1                 | To evaluate the five primary accounts and balance sheet system.                    |
| CO2                 | To prepare Double account and Depreciated Account.                                 |
| CO3                 | To understand the accounting treatment for adjustment and balance in journalizing. |
| CO4                 | To know the effect of accounting treatment of transaction of a firm.               |
| CO5                 | To explain the role of IASB.                                                       |

| Textbooks |                                                                                        |
|-----------|----------------------------------------------------------------------------------------|
| 1         | Intermediate and B.L. Gupta: Financial Accounting, Sultan Chaudhary, New Delhi.        |
| 2         | H.T. Hodge V.S. Grewal & S.C. Gupta: Advanced Accounts, V.Chand Publishing, New Delhi. |
| 3         | B.L. Gupta and V.S. Gupta: "Financial Accounting", Sultan Chaudhary, New Delhi.        |
| 4         | S.P. Jais and E.L. Narang: Financial Accounting I, Khanna Publishers, New Delhi.       |
| 5         | T.S. Arora and A. Mathur: Financial Accounting, Margen Publishers, Chennai.            |

| Reference Books |                                                                                     |
|-----------------|-------------------------------------------------------------------------------------|
| 1               | D.R. Maheshwari: Financial Accounting, Vikas Publications, New Delhi.               |
| 2               | R.S. Prasad: Financial Accounting (I) (Accounting), Vikas Publications, New Delhi.  |
| 3               | R.S. Prasad: Financial Accounting (II) (Accounting), Vikas Publications, New Delhi. |
| 4               | T.S. Arora: Financial Accounting, Vikas Publications, New Delhi.                    |
| 5               | Chandrasekhar: Financial Accounting, Vikas Publications, New Delhi.                 |

#### UNIT 7: Latest Editions of Textbooks Also Included

| Web Sources |                                                       |
|-------------|-------------------------------------------------------|
| 1           | <a href="http://www.iasb.org">http://www.iasb.org</a> |
| 2           | <a href="http://www.iasb.org">http://www.iasb.org</a> |
| 3           | <a href="http://www.iasb.org">http://www.iasb.org</a> |

| Semester - V         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | T.Y. |   |    |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---|----|
| Course Code: TSH3333 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | TH   | C | SW |
| Course Name: Tally   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1    | 1 | 1  |
| Objectives           | <p>To provide the knowledge of Tally</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |   |    |
| Unit-I               | <p>Introduction - Sale of computer &amp; Accounting - Extended computer history - Accounting and inventory control features - sales and purchase entry - promoting Tally - Tally - menu and options - Accounting with Tally - Predefined groups of accounts - Golden rule of accounts - Double entry system - ledger creation</p>                                                                                                                                                                                                                                                                  |      |   |    |
| Unit-II              | <p>Gateway of Tally - Accounts information - Primary groups of account entries - various nature - To create group using single mode - multiple mode - Types of Budget - type of vouchers - Voucher numbering - Foreign Exchange Transactions - Gate way of Tally - Inventory information - Single stock group creation - multiple stock group creation - create stock category using single mode - multiple mode - configuration settings for inventory - creating voucher - BUD - LPO - create stock entry by multiple mode - Inventory Registers</p>                                             |      |   |    |
| Unit-III             | <p>Gateway of Tally - Voucher entry - Type of voucher - Inventory Allocation - Purchase and Sales with voucher entry - Service entry - optional and Supplier Vouchers - Gate way of Tally - Balance sheet - Profit and Loss Account</p>                                                                                                                                                                                                                                                                                                                                                            |      |   |    |
| Unit-IV              | <p>Gate way of Tally - Display - Trial Balance - Accounting Books and Statements - Inventory Reports and Statements - Cash Flow / Bank Pass Statement - Gate way of Tally - BRS Accounting Printing - Types of printing Configuration Options</p>                                                                                                                                                                                                                                                                                                                                                  |      |   |    |
| Unit-V               | <p>Reconciliation of Bank Accounts and other Miscellaneous options - Stock Inventory Status Analysis - Import and Export of Data - Backup and Restore of data - Loading a company - creating a group company - Reconciliation of Bank account - Security control - sales and purchases - Types of Security - Case study for Manufacturing Accounts (inventory flow problems) - Case study of Trading Business (inventory flow problems) - Online help - Tally ODBC - Connectivity - E-mail - ASCII - HTML - XML - Internet Publishing - upload - FTP - Weppage - LSI - Exchange and Merge data</p> |      |   |    |
| Textbook             | Tally software Package - Manual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |   |    |
| Outcomes             | <p>After completing this course the students will be able to</p> <p>→ Get the knowledge of Tally</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |   |    |

**YEAR - I SEMESTER  
OVERSE CODE: 190303**

**COURSE CODE: - II - RELATIONAL DATABASE MANAGEMENT SYSTEM  
(DBMS)**

**Unit - I**

Data base System Applications, Data base System VS file System - View of Data - Data abstraction - Instance and Schema - data Models - the ER Model - Relational Model - Data Model - Database Languages - DDL - DML - Database Systems for application programs - data base Users and Administrators - Transaction Management - data base System Architect - Storage Manager - the Query Processor. History of Data base Systems - Database design and 3NF, 4NF, 5NF

**Unit - II**

Introduction to the Relational Model - Integrity Constraints Overview - Defining integrity constraints - Querying relational data - Logical data base design - Introduction to view - Deriving / creating Tables and Views, Relational Algebra - Selection and projection as operations - joining - join - Division

**Unit - III**

Formal Third SQL Query - Examples of Basic SQL Queries - Introduction to Nested Queries - Complex Nested Queries SQL - Aggregation Operators - Aggregate Operators - HAVING clause - Comparison using NULL values - Logical connectives - AND, OR and NOT - Insertion in SQL - Constraints - Data types - Defining NULL values - Complex Integrity Constraints in SQL Triggers and stored Data items. Foreign relationship - Primary Keyed by relationship - Decomposition - Primary related to decomposition - removing about FSD - FIRST, SECOND, THIRD Normal form - BCNF

**Unit - IV**

Transaction Concept- Transaction Model- Implementation of Atomicity and Durability - Isolation, Recovery, 2PC - Implementation of Isolation - Testing for serializability - Lock-based Protocol - Recovery Based Protocols- Validation Based Protocols

**Unit - V**

Index on Relational Storage - File Organization and indexing - Clustered Index, Primary and Secondary Indexes - Index Data Structures - Hash Based indexing - Tree Based indexing - Comparison of File Organization - Indexes and Performance Tuning- Statistics for query optimizer - Relational Algebraic Access Methods (RAAM)

**Text Books:**

1. Raguvaran Korth, Abraham Gallo, Data base Management Systems, 3rd Edition, Tata McGraw-Hill 2001.
2. Silberschatz, Data base System Concepts, 8th Edition, Tata McGraw-Hill 2001

**Books for Reference:**

1. Elmasri, Abraham, Database Systems: The Complete Book, 2nd Edition, Pearson Education, 2003.
2. Griesemer, "Database Systems: The Complete Book" Douglas Ableson, 2003, 2004.

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**COURSE CONTENT - IV - COMPUTER NETWORKS**

**Unit - I**

Building a Network - Requirements - Layering and protocols - Internet Architecture - LAN configuration - Topology - Transmission Media - Comparison of Network LAN, MAN, WAN - Layering and protocols- OSI Layer, Physical Layer, Analog and Digital Signal Parameters, Transmission Media

**Unit - II**

Data Link Layer: Internet Architecture - Network software - Performance - Link layer services - Error Detection and correction - Introduction - Error Coding - Cyclic Redundancy Check - Framing - Flow and error Control - Data link layer protocols: stop-and-wait protocol and sliding window protocol - Multiple Access Protocols: ALOHA - CSMA - CSMA/CD

**Unit - III**

Network Layer: Circuit switching - packet switching - message switching - Virtual circuit and Datagram networks - Routing algorithms - Route vector - shortest path routing, Flooding, Flow based routing - Dynamic routing - distance vector routing, Bell state routing - Hierarchical routing, Broad cast, Multicast routing

**Unit - IV**

Transport Layer: Protocols in process delivery - UDP - TCP - Transmission oriented V. communication services. Application and services: Remote Layer - Mail Exchange - File Transfer - Remote Procedure Call - Remote File Access - Transaction applications - Database Mail (SMTP, POP3, IMAP, NNTP) - HTTP - Web services - DNS - SSOB

**Unit - V**

Network Security - Cryptography - Encryption model - Transmission and Authentication Options- Symmetric key cryptography: DES - AES - Asymmetric key cryptography: RSA

**Text Books**

1. Computer Networks: A Systems Approach, 3rd Edition, Larry L. Peterson, Bruce S.David, Morgan Kaufmann Publishers, 2011.
2. Computer Networks, 4th Edition, Andrew S.Tanenbaum, Pearson Education, 2003.
3. Data Communications and Networking, 4th Edition, Behrouz A.Farzman, TMH, 2009.

**Books for Reference**

1. An Engineering Approach to Computer Networks, 2nd Edition, S.Krishna, Pearson Education, 2011.
2. Data Computer Communications, 10 Edition, William Stallings, Pearson India, 2008.

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**8 YEAR - IV SEMESTER  
COURSE CODE: TROCC01**

**CORE COURSE - (E - E-COMMERCE AND INTERNET)**

**Unit - I**

Introduction to E-Commerce - Application of E-Commerce - E-Commerce and global connectivity - Market forces influencing E-commerce - components of E-commerce - network access Equipment - Global Information Distribution Networks.

**Unit - II**

Architectural Framework of Electronic Commerce - World Wide Web (WWW) as the Architecture - Web Background - Hypertext Publishing - Technology behind the Web - security and the web types of Electronic payment system (EPS) - Digital token based EPS - Smart card and EPS and Smart EPS - Electronic EPS - Designing EPS

**Unit - III**

Electronic data interchange - EDI applications in business - EDI legal, security and privacy issues - EDI and E-commerce - Central Information systems - master - server and Shared commerce - supply chain Management (SCM) - Dimension of integrated electronic commerce systems - creating a business case for a document Library - Types of Digital documents - corporate data warehouse.

**Unit - IV**

Introduction to Internet - History and features of Internet - Hardware and software requirements of Internet - Internet Architecture - Networking Ring Protocol - Internet service providers (ISP) - Connecting to Internet - Internet connection: Dial-up access, leased line, ISDN, DSL, cable modem - Internet Addressing.

**Unit - V**

Internet Services : E-Mail - WWW - FTP - Telnet - News - Internet Relay Chat - Introduction to web - URL schemes, host names and port numbers - Web browser - Search Engines - Web page protocol - Adding website to browser - Customizing options.

**Text Books:**

1. Principles of Electronic Commerce - by P.K.Gupta.
2. The complete internet - Mahesh Lakshmi Young Millions

**Books for Reference:**

1. Principles of Electronic Commerce - Rav Lakshmi, Andrew Wilson
2. E-Commerce: A Managerial perspective - P.T. Kopp
3. Designing Systems for Internet Commerce - D. Walid Tamim & Lawrence C. Sauer
4. Computer Fundamentals - Anita Gird, Pearson Education India, 2010.

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**III YEAR - V SEMESTER  
(CURRIC CODE: TBC005)**

**ELECTIVE COURSE - I (20) - WEB TECHNOLOGIES**

**Unit - I**

WWW Fundamentals: Getting connected - who is on the web - History of the web - Understanding URL's - History of the Internet - Services available on the Internet - Accessing the Internet - what is multimedia - Hypertext - HTML and WWW - on line communications and the web

**Unit - II**

Getting connected to the web: Web access - Internet service Providers - HTTP and windows: learning about SLIP and PPP - Newsfeeds - Dedicated connection information and the web - About the Web Browser - Netscape Navigator

**Unit - III**

Working On - word, Accessing Internet Mail - Electronic Mail and on - line services - Going from a Cyberspace - every mailing list - accessing other parts of the Internet.

**Unit - IV**

Web Server Hardware and Software: About setting up a web server - Hardware requirements - Dedicated Proxy Server - Web Server Software - Working with windows - HTTP - Getting up and running with HTTP - Managing

**Unit - V**

Learning HTML: About Home Page - About Hypertext Markup Language - Using HTML - Document Formatting - Paragraph Formatting - List - Specification Formatting - Formatting hyperlinks - HTML and Multimedia.

**Text Books**

1. Paul J.Perry, "World Wide Web Exerts, Comdex, computer Publishing 1996.
2. Rajarath "Internet and WEB Technologies" Tata Mc Graw Hill Publishing Company Ltd, New Delhi, 1999.

**Books for Reference**

1. Douglas E.Greene, the Internet, Wiley India, Pearson Education Asia, 1997.
2. David Mitchell, Emma Mitchell, "Web extensive technology Handbook" The McGraw Hill Publishing Co. Ltd,
3. David Mitchell "Internet A Internet Engineering Technologies, Fundamentals and Application" Tata Mc Graw Hill Publishing Co. Ltd, 1999.

ELECTIVE COURSE - III (B) - INDUSTRIAL LAW

Unit - I THE FACTORIES ACT, 1948 (XXXIJA TO XL)

Preamble - inspecting staff - health, safety and welfare of workers - working hours - child employment - young persons - leave with wages.

Unit - II TRADE UNIONS ACT, 1926

Definition - registration of trade unions - rights and liabilities of trade unions - fund for political purposes - general funds - amalgamation of trade unions - assessment fund of unincorporated liability - funds and returns - penalties - dissolution, Minimum wages act 1948 - inspection - minimum wages - provision for fixing wages - conciliation and voluntary funds - wages in kind - payment of minimum wages.

Unit - III THE INDUSTRIAL DISPUTES ACT, 1947

Definition of activities - procedure and power of activities - reference to activities - strikes and lock out lay off and retrenchment.

Unit - IV THE WORKMEN'S COMPENSATION ACT, 1923

Nature and scope - definition - workmen's compensation - employer's liability - covering of accident - compensation - permanent, partial and temporary disablement - compensation of half weekly payment (Table not necessary)

Unit - V THE EMPLOYEE'S PROVIDENT FUND ACT, 1951

Preamble - provision fund scheme - provisions regarding contribution to the fund The Employer's State Insurance Act, 1948. Nature and scope - contribution - benefits - disputes and claims.

Text Books:

Manuella Law - N.D. Kapoor

Books for Reference:

- |                                |   |              |
|--------------------------------|---|--------------|
| 1. Manuella Law                | - | M.C. Chakla  |
| 2. Fund Book of Manuella Law   | - | E. Venkatesh |
| 3. Labour legislation in India | - | R.N. Datta   |

# Appendix 1

| Course code: | Core Course         | TP | ET | IL |
|--------------|---------------------|----|----|----|
| 2201C117     | MANAGEMENT CONCEPTS | 2  | 4  | 8  |

|          |                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit I   | Management: Definition - History - Characteristics - Functions - Importance - Differences between Management and Administration - Evolution of Management - Management as Art, Science and Profession - Characteristics of Management - Taylor & Henry Fayol - Development of Management Thought - Classical Theory - Neo-Classical Theory - Modern Theory - Management by objectives (MBO) - Management by Exception (MBE) |
| Unit II  | Planning: Meaning, Importance, Types, Objectives and Characteristics of Good Plan - Steps in Planning Process - Flexibility in Planning - Business Forecasting - Decision Making: Models and Process - Types: Cognitive, Rational, Intuitive                                                                                                                                                                                |
| Unit III | Organisation: Meaning - Features of Organisation - Principles of Organisation - Organisation Structures: Types and Importance - Functions and significance of Training and Informal Organisation - Authority & Responsibility - Delegation of authority: Need, Principles and Evaluation - Coordination and Distribution of Duties: meaning - Steps of Coordination - Steps of Delegation                                   |
| Unit IV  | Directing: Functions and Functions of Director - Communication - Motive and Morale - Theories of Motivation - Leadership: Types - Developing Qualities of a Leader and Manager - Characteristics of Leading Methods - Controlling: Concepts and Techniques of Control - Planning - Forecasting - Performance Appraisal: Importance, Types and Methods                                                                       |
| Unit V   | Strategic Management: Meaning - Importance - Approaches to strategy and Risk - Models - Strategic Groups - Strategic Leadership and Decision Making: Strategic Alliances - Core Competency - Strategic Control & Dynamic Capabilities - Business Unit strategy - Corporate level strategy - Diversified level strategy                                                                                                      |

## Books for Reference

1. Dr. D. G. Luthans, G. T. Davis, L. E. McManis II, Strategic Management: Choosing Competitive Advantage, 7<sup>th</sup> Edition, Pearson Education Edition, 2022/2023/2024
2. David Bates and Kathy George, 2013, Strategic Management, 2<sup>nd</sup> Edition, Pearson Education
3. Dayne and Horne, 2018, The Strategy Journal of IIM
4. L. J. Frost, Principles of Management
5. Peter F. Drucker, 2018, Management
6. Rakesh W. Chitambar, 2011, Management, South-Western College Publications
7. Stephen P. Robbins and Mary Coulter, 2015, Management, 7<sup>th</sup> Edition
8. L. Katz, Principles of Management, Business Publishing House

| Course code:                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Semester – II                     |    |    |
|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----|----|
| 22MCC121                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Core Course – I                   | TH | CT |
|                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>ELUSIVE OF RESEARCH DESIGN</b> | 1  | 4  |
| Unit-I                                                                                                                    | Business Research – Meaning – Scope and Significance – Utility of Business Research – Qualities of Good Researcher – Types of Research – Research Process – Research As Business Decision Support System – Computer Applications in Business Research – Hypothesis, Selection and Formulation of Research Problems – Review of Literature – Research gap – Quantitative Paradigms – Research Design – Planning Need, Features of Good Design – Different Types of Research Design – Developing A Research Plan |                                   |    |    |
| Unit-II                                                                                                                   | Sampling – Meaning and Significance – Methods and Techniques – Sample Size – Division of Good Sampling – Factors Affecting Size of Sample – Sampling Error – Primary Data and Secondary Data – Types of Data Collection: Quantitative and Qualitative – Methods of Data Collection: Interview, Observation and Self-Report Surveys – Sources of Data: First and Web Sources.                                                                                                                                   |                                   |    |    |
| Unit-III                                                                                                                  | Measurement and Testing Techniques – Rating Scales – Judgment Scales – Validity and Reliability – Construction of Likert Scales – Pilot Study and Pre-Testing: Processing and Analysis of Data – Editing and Coding – Transcription and Tabulation – Consensus in Data Analysis                                                                                                                                                                                                                                |                                   |    |    |
| Unit-IV                                                                                                                   | Hypothesis Testing, Concept and Basic Experiments-Testing the Mean – One and Two Populations – One-Way and Two-Way ANOVA – Testing of Proportions: One and Two Populations – Chi-Square Test: One and Two-sided – Sign Test – Run Test: Sign Test                                                                                                                                                                                                                                                              |                                   |    |    |
| Unit-V                                                                                                                    | Interpretation and Research Report Writing – Layout of Research Report – Types of Research Reports – Steps in Writing Research Report – Examples of Good Writing – Evaluation of Good Research Report Presentation – Criteria for Evaluation of Research Report                                                                                                                                                                                                                                                |                                   |    |    |
| <b>Books for Reference:</b>                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   |    |    |
| C.R Kothari, <i>Research Methodology: Methods and Techniques</i> , New Age International.                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   |    |    |
| Bages, <i>Business Research Methods</i> , Irwin                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   |    |    |
| Greenwell J.B., <i>Marketing Research</i> , Prentice Hall.                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   |    |    |
| John W Greenwell, <i>Research Design: Qualitative Quantitative and Mixed Methods Approaches</i> , SAGE Publications, Inc. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   |    |    |
| R.P. Shrivastava, <i>Research Methodology</i> , PHI                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   |    |    |
| Sugandha Kumar, <i>Research Methodology</i> , APH Publications.                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                   |    |    |

**Note:** The question paper shall consist of 60% Theory and 40% problem.



|     |                                                                     |
|-----|---------------------------------------------------------------------|
| CO1 | Examine the concept of human resources analysis                     |
| CO2 | Apply the HR tools and techniques in business setting               |
| CO3 | Examine the different types of HR metrics and their relative merits |
| CO4 | Collect and analyse data leading to HR reporting                    |
| CO5 | Build metrics for predictive analysis                               |

**Books for study:**

1. *Human Resource Analytics: Strategic Decision Making*, 1st Edition, Pearson Education Pvt. Ltd., Chennai
2. *Human Resource Analytics (HR)*, HR analytics, Tinkle Publications Pvt. Ltd, Lucknow
3. *Human Resource Analytics (HR)*, HR analytics: understanding business and applications, 1st Edition, Sage Publications India Private Limited, New Delhi

**Books for reference:**

1. *Human Resource Analytics and Analytics Tools (HR)*, Working on HR analytics, Sage publishing, New Delhi
2. *Analytics Tools (AT)*, HR analytics: quantifying the workplace, 1st Edition, Tata Book publications, New Delhi
3. *Michael J. Walsh (2020)*, HR analytics: essential you should want to know, 1st Edition, Pearson publications, Mumbai

**Web references:**

1. <https://www.mckinsey.com/industries/human-resources/our-insights/human-resources-analytics>
2. <https://www.pwcc.com/en/insights/human-resources/human-resources-analytics>
3. <https://www.gartner.com/en/human-resources/insights/human-resources-analytics>

Note: Latest edition of the books only to be used

**Mapping of course outcomes with POs and PSOs**

|     | POs |   |   |   |   | PSOs |   |   |   |   |
|-----|-----|---|---|---|---|------|---|---|---|---|
|     | 1   | 2 | 3 | 4 | 5 | 1    | 2 | 3 | 4 | 5 |
| CO1 | 1   | 1 | 1 | 1 | 1 | 1    | 1 | 1 | 1 | 1 |
| CO2 | 1   | 1 | 1 | 1 | 1 | 1    | 1 | 1 | 1 | 1 |
| CO3 | 1   | 1 | 1 | 1 | 1 | 1    | 1 | 1 | 1 | 1 |
| CO4 | 1   | 1 | 1 | 1 | 1 | 1    | 1 | 1 | 1 | 1 |
| CO5 | 1   | 1 | 1 | 1 | 1 | 1    | 1 | 1 | 1 | 1 |

Strong-3 Medium-1 Low-1



1. 以下各题，每题 10 分，共 100 分。

1. Open the code editor and create a new file named `index.html` and save it.
2. Write the following code in the `index.html` file to create a simple web page.
3. Write the code to create a simple web page using the `index.html` file.
4. Write the code to create a simple web page using the `index.html` file.
5. Write the code to create a simple web page using the `index.html` file.
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19. Write the code to create a simple web page using the `index.html` file.
20. Write the code to create a simple web page using the `index.html` file.

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（附：4个附录，2个附录为空白页）  
（附录1：附录2：附录3：附录4）

**Figure 10**

© 2004 Blackwell Publishing Ltd

Figure 1

Source: <http://www.fishbase.org>

Abstract

**Food Service**

### Early life experience

www.sagepub.com

PLASTICITY OF THE HUMAN VISUAL SYSTEM

## 100

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<sup>1</sup>See Structural Indicators (previous report) + 2001 Indicators + p. 2. <http://www.fishbase.org>

## 154-91

The *International Journal of Nursing Studies* is a multidisciplinary journal. It is concerned with the development of nursing practice, research, education and management. It is also concerned with the development of nursing theory and the development of nursing as a profession. The journal is concerned with the development of nursing as a profession and the development of nursing as a profession. The journal is concerned with the development of nursing as a profession and the development of nursing as a profession.

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

First Unmarked Transmittal Group - Best Practices, Practice  
 Policy, Finance and other subjects - Work Agreement - Local  
 Transmittal

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1. H. Hirschman and P. Smorodinsky, *Intensity Correlation Spectroscopy*, McGraw-Hill, 1966.
2. H. Hirschman and G. S. Kino, *Coherence Spectroscopy*, McGraw-Hill, 1969.
3. H. Hirschman, *Coherence Spectroscopy*, McGraw-Hill, 1969.

### Study 2a: Method

- John H. Brown, *Chemistry Department, Neuroscience and Physiology, and Robert A. Marder*

94-1540, 11 SEPTEMBER  
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1992, p. 11.

## 1000

## 1100-01

## Discussion

**Field Number:**

## Weeks for Selling 17

- E. George M. Sharkey, *Master, Man, and Machine: History and Revolution in the Canadian Prairie* (Edmonton, 1981).

**doi:10.1017/S0022278X12001000**

**5th SEMESTER  
COMPUTER SCIENCE**

**CORE COURSE - SIX - DISTRIBUTED NETWORKS**

**Unit I**

Introduction: Use of Computer Networks – Network Protocols and network software – Software stack – Sample Networks – Network Standardization – Physical Layer: Transmission Media – Network Layers – LAN – Broadband and High-speed LAN – ATM and ATM – Communication Building.

**Unit II**

Data Link Layer: Design Issues – Error Detection and correction codes – Elementary error free protocols – Sliding Window Networks – Protocol Specification and Validation: Finite state models – Stop and wait – Flowside Link Protocols: HDLC – SDP – PPP – Media access Sub layer: Multiple access protocols – CSMA – Carrier Sense multiple Access protocols – Collision free protocols.

**Unit III**

Network Layer: Design Issues – Routing Algorithms – Congestion Control Algorithms – Loadbalancing: Fairness – Fragmentation – Networks – Network Layer in the internet – IP – Subnets – Internet protocol: Address Resolution Protocol – ICMP – IGMP – Internet Multicasting – Network layer in ATM networks: Cell Forward – Connectionless – Resource allocation – System Congestion – ATM LANs.

**Unit IV**

Transport Layer: Transport layer – Elements of Transport Protocol: addressing – Flow Control and Buffering – Multiplexing – UDP Summary – Performance issues – Measuring network performance – Internet Transport Protocol – TCP – UDP – Protocols for High Networks.

**Unit V**

Application Layer: network security – Cryptography – Secret and Public Key Algorithms – DES – MAC – Hashing and – Secure Mail Protocols – World Wide Web: Client Side – Server Side – Applications – Audio – Video – Data compression – JPEG, MPEG Summary.

**Text Book:**

1. Andrew S. Tanenbaum, Computer Networks, Prentice Hall of India, 3rd Edition, 2003.

**Books for References:**

1. David Wats, Computer Networks, Pk.
2. Data Communications Organization, ITK, W. Stallings.
3. Data Communication and networking by Stallings: A Pearson, Tom Addison: W.B. Stallings.

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DE VISA - VERMEER  
LINDSEY CORP. INC.

CARE COURSE - IV - SOFTWARE ENGINEERING

Unit I

Introduction: Introduction to software engineering - scope definition - user and system quality and usability factors - conceptual issues

Planning a software project: Defining the problem - developing a system strategy - planning the development process - planning an organizational structure - other planning activities

Unit II

Software Cost Estimation: software cost factors - software cost prediction techniques including software maintenance

Software Requirements Definition: The software requirements specification - formal specifications techniques

Unit III

Software Design: Fundamental design concepts - modular and modularized systems - design methods - design techniques - detailed design considerations - software and hardware system design - test plan - software, subroutines and languages - formal methods

Software Implementation: Software testing techniques - testing cycle - control and protection

Unit IV

Software Training: A human approach to software testing - training issues - software integration testing - software testing - system testing - the art of debugging

Software Maintenance: Managing software quality during development - management issues of software engineering - configuration management - source code control - software maintenance techniques

Unit V

Software Quality Assessment: Quality concepts - software quality measures - software errors - formal technical review - statistical quality assurance - the SQA process - the SQA quality standards

Text Book:

1. Software Engineering, Concrete-Edward L. Fisher, John McLean (McGraw-Hill Publishing Company) ISBN 0-07-051111-1

Books for Reference:

1. Software Engineering - A Practitioner's approach - Roger S. Pressman (Fourth Edition) ISBN 0-07-051111-1
2. An Integrated Approach to Software Engineering - David J. Reiser, David L. Parnas, Prentice Hall
3. Fundamentals of Software Engineering, Third Edition, John Galletta, John Galletta, Prentice Hall Inc. New York

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10 YEAR - STUDENT  
EXAM CORE SUBJECTS

CORE COURSE - 47 - PROJECT

A minimum of two students are required and do a project in the subject related to Computer Applications with the guidance of a teacher who will be the project guide. The project may be submitted to the respective department and evaluated by the internal and external examiners and the marks sent to the university.

**\*\*\*\*\***

10 YEAR - 10 QUESTIONS  
CHAPTER 10: THE LAB

EXERCISES 10.1 - 10.10

1. Write a program to calculate the area of a circle.
2. Write a program to calculate the area of a rectangle.
3. Write a program to calculate the area of a triangle.
4. Write a program to calculate the area of a parallelogram.
5. Write a program to calculate the area of a trapezoid.
6. Write a program to calculate the area of a circle sector.
7. Write a program to calculate the area of a circle segment.
8. Write a program to calculate the area of a circle annulus.
9. Write a program to calculate the area of a circle sector.
10. Write a program to calculate the area of a circle segment.
11. Write a program to calculate the area of a circle annulus.
12. Write a program to calculate the area of a circle sector.
13. Write a program to calculate the area of a circle segment.
14. Write a program to calculate the area of a circle annulus.
15. Write a program to calculate the area of a circle sector.

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| Course code<br>(BSC-601) | Semester - III                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |    |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
|                          | Course Name - III                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | CP | C | WP |
|                          | Database Management System                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7  | 1 | 3  |
| <b>Objectives</b>        | 1. Gain a good understanding of the architecture and functioning of database Management Systems<br>2. Apply Normalization techniques to normalize a database<br>3. Understand the need of transaction processing and learn techniques for controlling the concurrency of program data access<br>4. Demonstrate use of Advanced Query Language (SQL) and its queries                                                                                                                     |    |   |    |
| <b>Unit-I</b>            | <b>Introduction:</b> Database System Architecture, Functions of Database Systems, Types of Data, Database Languages, Relational Database, Database Theory, ER Model based and Non-ER based Database, Data Storage and Querying, Database User and Administration, Transaction Management, Database users and Authentication, History of Database Query<br><b>Entity-Relationship Model:</b> E-R model, Constraints, A-R diagrams, A-R Query Query, View Query Join, General D-B Issues. |    |   |    |
| <b>Unit-II</b>           | <b>Relational Database Design:</b> Factors of good Relational design, Normal Forms and 3NF Normal Form, Decomposition using Functional Dependencies, Functional Dependencies Theory, Decomposition using Functional Dependencies using Multivalued Dependencies, some Normal forms, Database Design Process, Database Tuning and Opt.                                                                                                                                                   |    |   |    |
| <b>Unit-III</b>          | <b>Database System Architecture:</b> Client-server architecture, Server architecture, Server System Architecture, Parallel Systems, Data Ware Systems, Network Types, Parallel Database: HJ parallelism, Temporary Parallelism, Temporary Parallelism, Parallelized Database: Distributed and Mainframe Database, Distributed Data Storage, Distributed Transactions, Distributed Query Processing.                                                                                     |    |   |    |
| <b>Unit-IV</b>           | <b>Software Support:</b> Data Storage, Clustering and Indexing Issues, Indexes: B-Trees, B+ Trees, B* Trees (B+ Trees and B* Trees), Synonyms.                                                                                                                                                                                                                                                                                                                                          |    |   |    |
| <b>Unit-V</b>            | <b>PL/SQL:</b> PL/SQL, Triggers, Stored Procedures and Functions, Package, Cursor, Database.                                                                                                                                                                                                                                                                                                                                                                                            |    |   |    |

#### Reference and Textbooks:

##### TEXT BOOKS:

- Corrado, C. & Abraham, S. (2007). *Principles of Database Management* (3rd ed). Springer International Edition.
- Elmasri, R. A., Elmasri, R. A., & Abraham, S. (2014). *Database System Concepts* (7th ed). The McGraw-Hill.

##### REFERENCE BOOKS:

- Abraham, R. A. & Abraham, S. (2014). *Principles of DBMS* (7th ed). The McGraw-Hill.

##### WEB REFERENCES:

- NPTEL & MOOC courses related Database Management System  
<https://www.nptel.ac.in/courses/106102001/106102001>  
<https://www.coursera.org/course/dbms>

##### Outcome

- On Completion of this course, the student will able to:
- 1. Have a better understanding of database concepts and database management system software.
  - 2. Have a high level understanding of major DBMS components and their functions.
  - 3. Model an application's data requirements using normalized modeling tools like ER diagrams and design database schema based on the conceptual model.
  - 4. Write SQL, constraint to create tables and indexes, insert/update/delete data, and query data in a relational DBMS.

|                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
| Semester - III                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| Course Name: OS                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| Operating System                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| Course code (UG/PG)                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                  | 30 | 5 | 35 |
|                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                  | T  | E | T  |
| <b>Objectives:</b>                                                                                                                            | <ul style="list-style-type: none"> <li>To understand the process provided by and the design of an operating system</li> <li>To understand the process and organization of the file system</li> <li>To understand when a process and how process are synchronized and scheduled</li> <li>To understand different approaches to memory management</li> </ul>       |    |   |    |
| <b>Unit-I</b>                                                                                                                                 | <b>Introduction:</b> Basic Goals, Types of Systems, OS Services, Computer System, System Software, layered approach, Virtual Machine, System Usage and Performance, <b>Process Management:</b> Process, Process Scheduling, Cooperating Process, Goals, Importance, Characteristics, I/O Scheduling, CPU Scheduling, Scheduling Criteria, Scheduling Algorithms. |    |   |    |
| <b>Unit-II</b>                                                                                                                                | <b>Process Management:</b> Process Synchronization, Critical-Section Problem, Synchronization Hardware, Semaphore, Critical Problems of System Analysis, Critical Region, Mutex, Spinlock, <b>Deadlocks:</b> Characterization, Methods for Finding Deadlocks, Deadlock Prevention, avoidance, Detection, Recovery.                                               |    |   |    |
| <b>Unit-III</b>                                                                                                                               | <b>File System Management:</b> Access, History, System Loading and Unloading, Privilege, Local and Remote Access, Security, Authentication, Internal & External Organization, Non-Contiguous Allocation, Paging and Segmentation, Access, Authentication, Hardware/Software, Security, Performance.                                                              |    |   |    |
| <b>Unit-IV</b>                                                                                                                                | <b>Thread Management:</b> Thread Usage, Type, Implementation, Type, Execution, Algorithm, Threading.<br><b>File System:</b> File Usage, access, history, History, Security, Protection, Consistency, Security, File System Structure, Allocation Methods, File System Organization.                                                                              |    |   |    |
| <b>Unit-V</b>                                                                                                                                 | <b>I/O System:</b> Overview, I/O Hardware, Application, I/O Interface, Kernel I/O Subsystem, Translating I/O Requests to Hardware Operation, Performance, Scheduling, Storage Management: Processes, Goals, Underlying Architecture, The Buffer Problem, Allocation, Types, Types, Monitoring, Exercise.                                                         |    |   |    |
| <b>Reference and Textbooks:</b>                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| <b>TEXT BOOK:</b>                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| Silberschatz, G., Peter Galvin, R. & Galvin, H. (2012). Operating System Concepts (9 <sup>th</sup> ed.). Wiley India Pvt. Ltd.                |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| <b>REFERENCE:</b>                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| Galvin, Thomas, R. & Galvin, R. (2012). Modern Operating Systems (9 <sup>th</sup> ed.). Pearson Ed.                                           |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| William Stallings (2011). Operating System: Internals and Design Principles (9 <sup>th</sup> ed.). Pearson.                                   |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| <b>WEB RESOURCES:</b>                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| <a href="http://www.cse.cuhk.edu.hk/~cs4201/lectures/Process.pdf">http://www.cse.cuhk.edu.hk/~cs4201/lectures/Process.pdf</a>                 |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |
| <a href="http://www.photonix.de/~cs/teaching/OS/OSPrinciples/Process.pdf">http://www.photonix.de/~cs/teaching/OS/OSPrinciples/Process.pdf</a> |                                                                                                                                                                                                                                                                                                                                                                  |    |   |    |

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| Course code<br>CSCA301 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Semester : II      | Page No. : 1 |  |  |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Core Elective : AI | Page No. : 1 |  |  |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Practical Lab      | Page No. : 1 |  |  |
| Objectives             | <ul style="list-style-type: none"> <li>1. Create the schema ERD, and DDL commands</li> <li>2. Utilization of views in SQL to reduce redundancy from data base</li> <li>3. Understand PL/SQL, triggers, Database, Clusters, and Triggers.</li> <li>4. Develop the database applications using form and report tool such as</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |              |  |  |
| Lab Diagrams           | <ol style="list-style-type: none"> <li>1. Operate on existing records in the table EMPLOYEE <ul style="list-style-type: none"> <li>(a) Display the employee name, last name, salary, phone number, and email.</li> <li>(b) Find out the employee id, name, salary of all the employees</li> <li>(c) List out the employees who work in department 30</li> <li>(d) Find the name of the employee who gets a salary greater than or equal to 4000</li> <li>(e) List out the employee whose last name is 'ALLEN'</li> <li>(f) Find the name of the employee who works in departments 30, 20 and 10</li> <li>(g) Display the unique manager_id</li> </ul> </li> <li>2. Operate on existing records by using Create Clause, insert with the following fields: (teacher, name, address, phone, email, last_name) <ul style="list-style-type: none"> <li>(a) Insert the records</li> <li>(b) Find the number of records whose last_name is 'SMITH'</li> <li>(c) Change the last_name of (teacher) 'CITY' to 'LA' 7100</li> <li>(d) Change the name of Clerk, name to Clerk IT</li> <li>(e) Display the last_name having in 'SMITH'</li> </ul> </li> <li>3. Write SQL and Create commands Create Teacher table with the following fields: (name, deptno, date of joining, deptname, location, salary) <ul style="list-style-type: none"> <li>(a) Insert the records</li> <li>(b) Give increment of 20% salary for Mathematics Department</li> <li>(c) Perform Rollback command</li> <li>(d) Give increment of 10% salary for Commerce Department</li> <li>(e) Perform commit command</li> </ul> </li> <li>4. Operate on salary by using group by clause's Create Salary table with the following fields: (name, no, department, branch, salary, bonus, DOR) <ul style="list-style-type: none"> <li>(a) Insert the records</li> <li>(b) Calculate total salary amount for each branch</li> <li>(c) Calculate average salary amount for each branch</li> <li>(d) Display all the salaries, DOR also are there in the month of December as any professor's salary is 12 times</li> <li>(e) Display the name and DOR of professor's who work in each of the month</li> </ul> </li> <li>5. Create an Emp table with the following fields: (EmpNo, EmpName, EmpSalary, EmpDept, EmpPay, EmpTax) (Calculate EmpPay as 90% of Salary and EmpTax as 10% of Salary) <ul style="list-style-type: none"> <li>(a) Insert the records and calculate EmpPay and EmpTax</li> </ul> </li> </ol> |                    |              |  |  |

- 10 Display the employees whose rank is lowest in each department.
- 11 Display the employees whose rank is less than 10,000 and the 100th special department.
- 12 Display the employees whose first name has between 6,000 to 10,000.
- 13 Display all the employees who are not from India.

5. Employee Database: An example for which it maintains a database to maintain its operations. Employees is divided into certain departments and each department consists of employees. The following are tables that form the relational database Dept (deptno, dname, loc) Emp (empno, ename, job, mgr, salary, comm, deptno, empno).

- (1) Update the employee salary by 10%, whose experience is greater than 10 years.
- (2) Delete the employees, who completed 30 years of service.
- (3) Display the manager who is having more than number of employees working under him.
- (4) Create a view, which contains employee name and their manager.

7. Using Empbase Database perform the following queries

- (a) Determine the names of employees who work under their managers.
- (b) Determine the names of employees, who take highest salary in each department.
- (c) Determine the employees, who are located in the same place.
- (d) Determine the employees, whose total salary is less than average salary of each department.
- (e) Determine the employees, who have not received any salary.

8. Check the following table names "DEPARTMENT" and "EMPLOYEE" that reference are as follows, departments (deptno, deptname, dept\_location) employees (empno, emp\_name, emp\_salary, emp\_comm, emp\_dept).

- (a) Develop a query to print all privileges of employees table and departments table.
- (b) Develop a query to print user privileges of employees table and departments table.
- (c) Develop a query to print user privileges of employees table from departments table.
- (d) Develop a query to print user privileges of employees table from departments table.
- (e) Write a query to implement the new grant.

9. Using the tables "DEPARTMENT" and "EMPLOYEE" perform the following queries

- (a) Display the employees name, department name and department name and loc.
- (b) Display the employees name and Department name by implementing a left outer join.
- (c) Display the employees name and Department name by implementing a right outer join.
- (d) Display the details of those who have the salary greater than the average.

[illegible]

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|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Examine Working Cells, Multiple Cells, Ranges, Using Ready Functions, Drawing the Two Endpoints, Using Functions for Drawing</p> <p><b>Table 2</b></p> <p>Model Programming: How to use 4000 Java Applications, Designing a Web Application, Building Java Code, Access the Query, Creating a Database, Access, Designing a Web Page, Access the Address, Access a HTML File, Access the Object, Finding Parameters to Access, Designing Database, Accessing data from the web</p> <p>Graphics Programming: The Graphics Class, Lines and Rectangles, Circles and Ellipses, Drawing Area, Drawing Polygons, Line Graphs, Using Control Objects in Applets, Drawing the Clock</p> |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**References and Textbooks:**

**TEXT BOOKS:**

Reference 1: E. CHOI, Programming with Java (2<sup>nd</sup> ed.) TATA Mc Graw-Hill Publishing Company Limited

**REFERENCES:**

Object, E.M. & Dinesh, P. (2002). Java - How to Program (2<sup>nd</sup> ed.). Thomson Education Pvt. Ltd.

Object, BUCHA (2002). Java 2 - The Complete Reference (2<sup>nd</sup> ed.). John Wiley & Sons, Inc. Publishing Company Limited

**WEB RESOURCES:**

[www.apress.net/india/](http://www.apress.net/india/)

[www.java.com](http://www.java.com/)

<http://www.oracle.com/technetwork/java/javase/index-011>

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Outcomes</b> | <p>On Completion of this Course, the students will be able to</p> <ul style="list-style-type: none"> <li>1. Understand and the development of code to create and application program and demonstrate professionally oriented coding</li> <li>2. Understand the concepts of object-oriented programming through Java</li> <li>3. Apply the concepts of Abstraction, Modularity, Encapsulation, Inheritance and this paradigm to creating Java program</li> <li>4. Develop and maintain the system and graphical user interface</li> <li>5. Understand the fundamental concepts of JAV's concepts, classes and objects</li> </ul> |
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# Lesson – 15

|                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                |         |        |         |
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| Course code<br>22EE3403                                                                                                                                                                                                                                                                                                                                               | Page Count: 15<br>Computer Networks                                                                                                                                                                                                                                                                                                                                                            | TP<br>1 | C<br>4 | HW<br>4 |
| <b>Objectives</b>                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>To develop an understanding of computer networking fundamentals.</li> <li>To study different components of computer networks, various protocols, routing technologies and their applications.</li> </ul>                                                                                                                                                |         |        |         |
| <b>Unit-I</b>                                                                                                                                                                                                                                                                                                                                                         | <b>Introduction:</b> Types of Computer Networks, Network standards and network services, Addressing methods, Network Hardware, Network Topologies, Physical Layer: Transmission Media, Telephone Network, ADSL, Broadband and International ISDN, ISDN and ATM, Communication facilities.                                                                                                      |         |        |         |
| <b>Unit-II</b>                                                                                                                                                                                                                                                                                                                                                        | <b>Data Link Layer:</b> Flow Control, Error Detection and Correction Codes, Stop-and-Wait, Stop-and-Go Protocols, Sliding Window, Protocols: Protocol Specification and Fairness, Flow control methods, Network models, Example: Token Protocols: HDLC, SDP, PPP, Multiple access: CSMA, Multiple Access Protocols: ALOHA, CSMA, CSMA with binary persistence, Collision Resolution Protocols. |         |        |         |
| <b>Unit-III</b>                                                                                                                                                                                                                                                                                                                                                       | <b>Network Layer:</b> Design Issues, Routing Algorithms, Congestion Control Algorithms, Internetworking: Tunneling, Fragmentation, Forwarding, Layer 3 to 4: Bridges, IP, Subnets, Network Control Protocols: Address Resolution Protocol, RARP, ICMP, Internet addressing, Network layer in ATM networks: Cell Format, connection setup, Routers and switching, Service Categories, ATM LANs. |         |        |         |
| <b>Unit-IV</b>                                                                                                                                                                                                                                                                                                                                                        | <b>Transport Layer:</b> Transport Services, Elements of Transport Protocols: Addressing, Flow Control and Reliability, Multiplexing, Checksums, Performance issues, Measuring Network performance, Internet Transport Protocols: TCP, UDP, Protocols for Quality of Service.                                                                                                                   |         |        |         |
| <b>Unit-V</b>                                                                                                                                                                                                                                                                                                                                                         | <b>Application Layer:</b> Network Security, Cryptography, Secret and Public Key Algorithms, DNS, SNMP, Gateway Map, Network Mail Protocol: Mail, Wide Area, Queue Data, Server Side, Multicasting, Audio, Video, Data compression, HTTP, HTTPS Protocols.                                                                                                                                      |         |        |         |
| <b>Reference and Textbooks:</b><br><b>Text Book:</b><br>Andrew Tanenbaum, E. (2010) <i>Computer Networks</i> (7 <sup>th</sup> ed.) Pearson (ed.) India.<br><b>Books for Reference:</b><br>Kenneth R. Forster, A. (2015), <i>Data Communication and Networking</i> , Tata Mc Graw-Hill Edition.<br>Stallings, W. (2011) <i>Data and Computer Communications</i> (7th). |                                                                                                                                                                                                                                                                                                                                                                                                |         |        |         |
| <b>Outcomes</b>                                                                                                                                                                                                                                                                                                                                                       | On Completion of this Course, the students can able to: <ul style="list-style-type: none"> <li>Explain the technological basis of Computer Networking.</li> <li>Discuss the key technological components of the Network.</li> <li>Explain the challenges in routing, switching and addressing.</li> </ul>                                                                                      |         |        |         |

| Course code<br>TSCA201 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Semester - II        |    |    | Credits  |  |  |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----|----|----------|--|--|
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Core Elective - IT   |    |    | Elective |  |  |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Java Programming Lab |    |    | Project  |  |  |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | LP                   | TP | PA |          |  |  |
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1                    | 1  | 1  |          |  |  |
| Objectives             | <ul style="list-style-type: none"> <li>➤ To impart Practical Training in JAVA Programming Language</li> <li>➤ To impart an adequate concept and software making experience in JAVA</li> <li>➤ Build programs using packages and working with Exception handling concepts.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                      |    |    |          |  |  |
| Lab Programs           | <ol style="list-style-type: none"> <li>1. Write a JAVA program to display default value of all primitive data type of JAVA.</li> <li>2. Write a JAVA program to implement class inheritance - Create a class methods and invoke them using main method.</li> <li>3. Write a JAVA program to implement constructor.</li> <li>4. Write a JAVA program to implement a constructor overloading.</li> <li>5. Write a JAVA program to implement method over loading.</li> <li>6. Write a JAVA program to implement finally keyword.</li> <li>7. Write a JAVA program to implement static level inheritance.</li> <li>8. Write a Java program for abstract class to find area of all given shapes.</li> <li>9. Write a JAVA program to implement interface.</li> <li>10. Write a JAVA program that illustrates exception handling mechanism.</li> <li>11. Write a JAVA program illustrating multiple catch clause.</li> <li>12. Write a JAVA program that implements throws and try/catch.</li> <li>13. Write a JAVA program for creation of Stream using from.</li> <li>14. Write a JAVA program for creation of Stream using of().</li> <li>15. Write a JAVA program for creation of Java List in the stream.</li> <li>16. Write a JAVA program for creation of Java HashSet Collection.</li> <li>17. Write a JAVA program that accepts and print the default java package.</li> </ol> <p style="text-align: center;"><b>Apple</b></p> <ol style="list-style-type: none"> <li>18. Write a JAVA program to print the name of apple.</li> <li>19. Write a JAVA program to display apple class using Apple.</li> <li>20. Write a JAVA program to create different object and to access using Apple.</li> <li>21. Write a program to find Name.</li> <li>22. Write a program to show our friend's flag.</li> <li>23. Write a program to show the class.</li> <li>24. Write a JAVA program that illustrates how to get java class event and creating with it's Apple.</li> </ol> |                      |    |    |          |  |  |
| Outcomes               | <p>On Completion of this Course, the students can able to</p> <ul style="list-style-type: none"> <li>➤ Study all the basic statements in java Programming.</li> <li>➤ Practice the usage of branching and looping statements.</li> <li>➤ Apply Packages, Interfaces, Analyze the use of packages and in JAVA.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                      |    |    |          |  |  |

**FIRST TERM - SEMESTER I**

| FIRST YEAR        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |        |   |   |         |       |       |                  |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|---|---|---------|-------|-------|------------------|
| Subject Code      | Subject Name                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Category | L.T.P. |   |   | Credits | Total |       |                  |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          | L      | T | P |         | CHS   | Books | Time             |
| 22B2A01           | 22B2A01<br>PYTHON 4 SEMESTER                                                                                                                                                                                                                                                                                                                                                                                                                                           | Gen      | 1      | - | - | 1       | 11    | 11    | 11               |
| Course Objectives |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |        |   |   |         |       |       |                  |
| CO1               | To make students understand the concept of Python programming                                                                                                                                                                                                                                                                                                                                                                                                          |          |        |   |   |         |       |       |                  |
| CO2               | To apply the Python concepts in Python programming                                                                                                                                                                                                                                                                                                                                                                                                                     |          |        |   |   |         |       |       |                  |
| CO3               | To apply knowledge of classes and objects concepts                                                                                                                                                                                                                                                                                                                                                                                                                     |          |        |   |   |         |       |       |                  |
| CO4               | To make students learn how to use Python IDE and its working                                                                                                                                                                                                                                                                                                                                                                                                           |          |        |   |   |         |       |       |                  |
| CO5               | To learn the lists and tuple characteristics                                                                                                                                                                                                                                                                                                                                                                                                                           |          |        |   |   |         |       |       |                  |
| Course Contents   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |        |   |   |         |       |       | No. of<br>theory |
| UNIT I            | Basics of Python Programming: History of Python - Features of Python - Keyword - Constants - Variables - Operators - Keywords - Built-in Data Types - About Statements - Input Statements - Comments - Indentation - Expressions - Pipelines - Type conversion Python ARITHMETIC: Addition and Subtracting Arithm. Area arithm.                                                                                                                                        |          |        |   |   |         |       |       | 15               |
| UNIT II           | Control Statements: Conditional Statements: Identifying statements if, if else, nested if and while else statements. Loops: for loop, while loop, for loop, else with it loop and nested loops. Jump statements: break, continue and pass statements.                                                                                                                                                                                                                  |          |        |   |   |         |       |       | 15               |
| UNIT III          | Functions: Function Definition - Function Call - Variable Scope and its Modifiers - Return Statement - Function Arguments: Required Arguments, Keyword Arguments, Default Arguments and Variable Length Arguments - Recursion - Python Strings: String operations - Immutable - String methods - String Modifiers and Functions - String Comparison, Modifiers, input statement - The Python module - dir() function - Module and Namespace - Defining our own module. |          |        |   |   |         |       |       | 15               |
| UNIT IV           | List: Creating a list, Access value in list, Deleting values in list, Nested list, Range list operations List Methods: len(), Counting, Appending, Insert, Remove list operations List Methods: len(), Counting, Appending, Updating and Deleting Elements in a list, Split values-Dictionary: Updating and Deleting Elements in a Dictionary-Dictionary Functions: Map Method-Dictionary Methods: len(), del(), pop(), popitem()                                      |          |        |   |   |         |       |       | 15               |
| UNIT V            | Python File Handling: Types of files in Python-Opening and Closing files-Reading and Writing (txt, csv) and appending() methods - append() method - read() and readlines() methods - with keyword handling words - File methods-File functions: Accessing and deleting files.                                                                                                                                                                                          |          |        |   |   |         |       |       | 15               |
| Total Hours       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |        |   |   |         |       |       | 75               |

| Subject Code      | Subject Name                                                                                                                                                                                                                                                                                                                                                                              | Category | L | T | P | Total | Marks        |                   |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---|---|---|-------|--------------|-------------------|
|                   |                                                                                                                                                                                                                                                                                                                                                                                           |          |   |   |   |       | Theory       | Practical         |
| 2001 (100)        | Advanced Programming in C                                                                                                                                                                                                                                                                                                                                                                 | Science  | 5 | 0 | 0 | 5     | 100          | 00                |
| Course Objectives |                                                                                                                                                                                                                                                                                                                                                                                           |          |   |   |   |       |              |                   |
| CO1               | To introduce the students with the programming in C and the development of the software.                                                                                                                                                                                                                                                                                                  |          |   |   |   |       |              |                   |
| CO2               | To understand the various ways to implement a program.                                                                                                                                                                                                                                                                                                                                    |          |   |   |   |       |              |                   |
| CO3               | To understand the concept of arrays.                                                                                                                                                                                                                                                                                                                                                      |          |   |   |   |       |              |                   |
| CO4               | To understand the concept of pointers.                                                                                                                                                                                                                                                                                                                                                    |          |   |   |   |       |              |                   |
| CO5               | To understand the concept of structures.                                                                                                                                                                                                                                                                                                                                                  |          |   |   |   |       |              |                   |
| Books             |                                                                                                                                                                                                                                                                                                                                                                                           |          |   |   |   |       | No. of Books | Course Objectives |
| 1001              | Introduction to C Programming (1) : covers the concepts of program structure, memory, C program structure, variables and data types, constants, arithmetic, relational, assignment, loop, arrays, pointers, strings, structures, unions, typedef, preprocessor, debugging, error in variable declaration, constant, declaring a variable, constant, at variable, constants and functions. |          |   |   |   |       | 4            | 100               |
| 1001 B            | Advanced Programming in C (2) : covers the concepts of arrays, pointers, structures, unions, typedef, preprocessor, debugging, error in variable declaration, constant, declaring a variable, constant, at variable, constants and functions.                                                                                                                                             |          |   |   |   |       | 4            | 100               |
| 1001 B1           | Advanced Programming in C (3) : covers the concepts of arrays, pointers, structures, unions, typedef, preprocessor, debugging, error in variable declaration, constant, declaring a variable, constant, at variable, constants and functions.                                                                                                                                             |          |   |   |   |       | 4            | 100               |
| 1001 B2           | Advanced Programming in C (4) : covers the concepts of arrays, pointers, structures, unions, typedef, preprocessor, debugging, error in variable declaration, constant, declaring a variable, constant, at variable, constants and functions.                                                                                                                                             |          |   |   |   |       | 4            | 100               |
| 1001 B3           | Advanced Programming in C (5) : covers the concepts of arrays, pointers, structures, unions, typedef, preprocessor, debugging, error in variable declaration, constant, declaring a variable, constant, at variable, constants and functions.                                                                                                                                             |          |   |   |   |       | 4            | 100               |
| 1001 B4           | Advanced Programming in C (6) : covers the concepts of arrays, pointers, structures, unions, typedef, preprocessor, debugging, error in variable declaration, constant, declaring a variable, constant, at variable, constants and functions.                                                                                                                                             |          |   |   |   |       | 4            | 100               |
| Total             |                                                                                                                                                                                                                                                                                                                                                                                           |          |   |   |   |       | 20           | 00                |

| Course Objectives |                                                                                          | Programme Outcome |
|-------------------|------------------------------------------------------------------------------------------|-------------------|
| CO1               | To introduce the students with the programming in C and the development of the software. | PO1, PO2, PO3     |
| CO2               | To understand the various ways to implement a program.                                   | PO1, PO2, PO3     |
| CO3               | To understand the concept of arrays.                                                     | PO1, PO2, PO3     |
| CO4               | To understand the concept of pointers.                                                   | PO1, PO2, PO3     |
| CO5               | To understand the concept of structures.                                                 | PO1, PO2, PO3     |



[illegible]

# SEMI-4 - V SEMESTER COMBIC (CODE: 380001)

## CORE COURSE - 23 COMBIC0001ALITERATURE

### Unit - I Poetry

- |                         |                              |
|-------------------------|------------------------------|
| Robert Frost            | - A Poet's Own Words         |
| Edna St. Vincent Millay | - My December's Acquaintance |
| William Wordsworth      | - The City Plagues           |

### Unit - II Poetry

- |                    |                   |
|--------------------|-------------------|
| William Wordsworth | - The World and I |
| A. C. M. Smith     | - The Dying Poet  |
| Robert Frost       | - After           |

### Unit - III Prose

- |              |                      |
|--------------|----------------------|
| James Joyce  | - The Dead           |
| W. G. Sebald | - The World Tomorrow |

### Unit - IV Prose

- |              |                         |
|--------------|-------------------------|
| W. G. Sebald | - The Love and the Love |
|--------------|-------------------------|

### Unit - V Drama

- |                    |                     |
|--------------------|---------------------|
| William Wordsworth | - The Little Screen |
|--------------------|---------------------|

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| Course code: |        | Unit Content                                                                                                                                                                                                                                                                                                                                                    |  | TH | Q | RP |
|--------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|---|----|
| 2201002      |        | Unit Content                                                                                                                                                                                                                                                                                                                                                    |  | Y  | C |    |
| Unit-1       |        | INDIAN WRITING IN ENGLISH                                                                                                                                                                                                                                                                                                                                       |  |    |   |    |
| Objectives   |        | <ul style="list-style-type: none"> <li>To give the learner a taste for the right genre of Indian Literature in English.</li> <li>To introduce learners to the regional and national and international literature of Indian Literature in English.</li> <li>To help learners appreciate the basic Indian literature and literature of Indian English.</li> </ul> |  |    |   |    |
| Unit-2       | Prose  | Pico Spino : - The Green Tree<br>Anandibai : - The Tiger and the Hunt<br>English India : - The Communist Problem                                                                                                                                                                                                                                                |  |    |   |    |
| Unit-3       | Poetry | Bhaskar Das : - The Night of the Swallow<br>A.V. Chatterjee : - a Blue<br>Kumbhar Das : - The Old Day Home                                                                                                                                                                                                                                                      |  |    |   |    |
| Unit-4       | Prose  | Mahatma Gandhi - Franchise and the Youth<br>Pankaj Mishra - Tiger - The Tiger Begins (Short Examinations of July 140)<br>The Emerald : - Heart and Blue                                                                                                                                                                                                         |  |    |   |    |
| Unit-5       | Prose  | Clark Kavanagh - Tiger                                                                                                                                                                                                                                                                                                                                          |  |    |   |    |
| Unit-6       | Prose  | Chandra Sheela - Tiger                                                                                                                                                                                                                                                                                                                                          |  |    |   |    |
| Assessment   |        | <ul style="list-style-type: none"> <li>Workshop on Indian Literature in English.</li> <li>Primary, secondary, national and international literature of Indian Literature in English.</li> <li>History and theory of Indian literature.</li> <li>Appreciate the richness and diversity of Indian English.</li> </ul>                                             |  |    |   |    |

| Course code                                                                                                             | Unit Course 31                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1st | 2nd | 3rd |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|
| TRB3001                                                                                                                 | <b>TRANSLATION STUDIES: THEORY AND PRACTICE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | 2   | 3   |
| Objectives                                                                                                              | <ul style="list-style-type: none"> <li>To introduce students to various Translation Theories and the management of Translation</li> <li>To enable the student understand the problems in translation of political documents</li> <li>To give students practice in translating passages from one language to another and vice versa</li> <li>To enable students to assess different translations of the same text</li> <li>To give students a conceptual perspective on translation studies</li> </ul>       |     |     |     |
| Unit I                                                                                                                  | Introduction to Translation - Theory of Translation - Definition - Types of Translation                                                                                                                                                                                                                                                                                                                                                                                                                     |     |     |     |
| Unit II                                                                                                                 | Developing an ideology<br>Features of Interpretation - History of Translation Theory                                                                                                                                                                                                                                                                                                                                                                                                                        |     |     |     |
| Unit III                                                                                                                | Specific Examples of Literary Translation                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |     |     |
| Unit IV                                                                                                                 | <b>Translating Literary Texts</b><br>1. Translation - The two chapters from G.G. Fichtelberg's Translation<br>2. Translation - The Market Test<br>3. F. V. Pitts - Classroom                                                                                                                                                                                                                                                                                                                                |     |     |     |
| Unit V                                                                                                                  | Translating & Interpreting Texts into English and Vice versa                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |     |     |
| <b>Books for Reference:</b><br>Suresh Thevaran - The Art of Translation<br>David Reardon - Translating the Bible (2010) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |     |     |
| Assessment                                                                                                              | <ul style="list-style-type: none"> <li>to evaluate the problems in political study and the various levels of the translation of translation studies</li> <li>develop an interest in contemporary language systems/translation</li> <li>compare different texts to assess problems in that text takes</li> <li>translate multiple translations and develop original translation</li> <li>assess similarities and differences among translations of the same text from different cultural contexts</li> </ul> |     |     |     |

| Course code<br>ENGL3013 |  | Core Course - ENGL<br>American Literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ECTS | C | IBB |
|-------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---|-----|
| Introduction            |  | <ul style="list-style-type: none"> <li>1. To give the student a general overview of American Poetry, Prose, Drama and Fiction</li> <li>2. To give the student a general overview of American Literature</li> <li>3. To enable the student to appreciate the historical and cultural context of American Poetry, Prose and Fiction</li> <li>4. To enable the student to appreciate the influence of social and political factors on American Literature</li> <li>5. To enable the student to appreciate the influence of literary and critical theory on American Literature</li> <li>6. To provide literary appreciation</li> </ul> | 1    | 1 | 1   |
| Unit I                  |  | <b>Poetry</b><br>Emily Dickinson - A Brief Course in American Poetry<br>Robert Frost - The Road Not Taken<br>Walt Whitman - Drift of the Leaves                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |   |     |
| Unit II                 |  | <b>Poetry</b><br>Edgar Allan Poe - The Raven<br>William Shakespeare - The Sonnet<br>John Donne - The Flea                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |   |     |
| Unit III                |  | <b>Prose</b><br>Nathaniel Hawthorne - The Scarlet Letter<br>Herman Melville - Typee<br>Henry James - The Ambassadors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |   |     |
| Unit IV                 |  | <b>Drama</b><br>Arthur Miller - A Death in the Family<br>Tennessee Williams - The Glass Menagerie                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |   |     |
| Unit V                  |  | <b>Fiction</b><br>Ernest Hemingway - The Sun Also Rises<br>F. Scott Fitzgerald - The Great Gatsby                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |   |     |
| Outcomes                |  | <ul style="list-style-type: none"> <li>1. To give the student a general overview of American Poetry, Prose, Drama and Fiction</li> <li>2. To enable the student to appreciate the historical and cultural context of American Literature</li> <li>3. To enable the student to appreciate the influence of social and political factors on American Literature</li> <li>4. To enable the student to appreciate the influence of literary and critical theory on American Literature</li> <li>5. To provide literary appreciation</li> </ul>                                                                                          |      |   |     |



|              |                                                                                                                                                                                                                                                                                                                                                                                               |                  |    |   |      |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----|---|------|
| Course name: |                                                                                                                                                                                                                                                                                                                                                                                               | Core Course - IV | VF | C | 8/20 |
| Course Code: |                                                                                                                                                                                                                                                                                                                                                                                               | (404MSA-1)       | 1  | 1 | 1    |
| Objectives:  | <ul style="list-style-type: none"> <li>1. Understand literature as representative work from Indian literature.</li> <li>2. To give literature a historical perspective on the same.</li> <li>3. To enable literature to perceive the effect of social political literature on society.</li> <li>4. To enable students to perceive the literary and cultural context of literature.</li> </ul> |                  |    |   |      |
| Unit - I     | Characteristics of Indian Literature                                                                                                                                                                                                                                                                                                                                                          |                  |    |   |      |
| Unit - II    | The Indian Novel                                                                                                                                                                                                                                                                                                                                                                              |                  |    |   |      |
| Unit - III   | The Indian Short Story                                                                                                                                                                                                                                                                                                                                                                        |                  |    |   |      |
| Unit - IV    | The Indian Drama                                                                                                                                                                                                                                                                                                                                                                              |                  |    |   |      |
| Unit - V     | The Indian Poetry                                                                                                                                                                                                                                                                                                                                                                             |                  |    |   |      |
| Assessment:  | <ul style="list-style-type: none"> <li>1. Assignments, essays, projects, etc.</li> <li>2. Mid-term and end-term examinations.</li> <li>3. Class participation and discussion.</li> <li>4. Group projects and presentations.</li> </ul>                                                                                                                                                        |                  |    |   |      |

**3 YEAR - 1 SEMESTER  
CORE CURR. UNIT 11**

**CORE CURR. - 3 - DEAFENING OF ENGLISH**

**Objectives**

1. To demonstrate to a wide range of English Speaking English
2. To help students learn the meaning of "deafening" through representative words

**Unit I Poets**

- |                            |                  |
|----------------------------|------------------|
| John Donne                 | - The Canon      |
| Andrew Marvell             | - Transformation |
| Henry Wadsworth Longfellow | - The Canon      |

**Unit II Poets**

- |                 |             |
|-----------------|-------------|
| A. C. Swinburne | - The Canon |
| E. E. Cummings  | - The Canon |
| Walt Whitman    | - The Canon |

**Unit III Poets**

- |                   |             |
|-------------------|-------------|
| Edgar Allan Poe   | - The Canon |
| Robert B. Kennedy | - The Canon |
| Robert B. Kennedy | - The Canon |

**Unit IV Poets**

- |                   |             |
|-------------------|-------------|
| Robert B. Kennedy | - The Canon |
| Robert B. Kennedy | - The Canon |

**Unit V Poets**

- |                   |             |
|-------------------|-------------|
| Robert B. Kennedy | - The Canon |
| Robert B. Kennedy | - The Canon |

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**1 YEAR - HONOURS  
COURSE CODE: THDQ01**

**COURSE CODE: VIE - WORLD CLASSICS IN ENGLISH TRANSLATION**

**Objectives**

1. To acquaint students with the Classical Literature of the world
2. To help students learn the essential aspects of world classics
3. To enable students understand the essence of great works.

**Unit I Poets**

|             |                                                                                                            |
|-------------|------------------------------------------------------------------------------------------------------------|
| Shakespeare | William Shakespeare                                                                                        |
| Keats       | John Keats                                                                                                 |
| Thoreau     | The Great Book: "Walden" (Translated from French with an introduction by D. A. Reardon's Penguin Classics) |

**Unit II Drama**

|             |                   |
|-------------|-------------------|
| Shakespeare | Hamlet, King Lear |
| Shakespeare | Macbeth           |

**Unit III Drama**

|             |                |
|-------------|----------------|
| Shakespeare | A Doll's House |
|-------------|----------------|

**Unit IV Fiction**

|             |               |
|-------------|---------------|
| Leo Tolstoy | Anna Karenina |
|-------------|---------------|

**Unit V Fiction**

|             |                    |
|-------------|--------------------|
| Shakespeare | Hamlet and Macbeth |
|-------------|--------------------|

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THESE ARE THE OFFICIAL RECORDS

[illegible]



**UNIT SEAN DISCLOSED IT  
UNIT 11 - UNIT 11 (LITERATURE)**

| Category | L | T | P | S | Points | Last Score | Results |     |     |
|----------|---|---|---|---|--------|------------|---------|-----|-----|
|          |   |   |   |   |        |            | 1st     | 2nd | 3rd |
| Unit 11  | 1 | 1 | 1 | 1 | 1      | 1          | 100     | 100 | 100 |

**Learning Objectives**

|   |                                                         |
|---|---------------------------------------------------------|
| 1 | Identify and describe the main characters in the story. |
| 2 | Identify and describe the main events in the story.     |
| 3 | Identify and describe the main themes in the story.     |
| 4 | Identify and describe the main symbols in the story.    |
| 5 | Identify and describe the main motifs in the story.     |

**Exercises**

|         |                                                         |
|---------|---------------------------------------------------------|
| UNIT 11 | Identify and describe the main characters in the story. |
| UNIT 11 | Identify and describe the main events in the story.     |
| UNIT 11 | Identify and describe the main themes in the story.     |
| UNIT 11 | Identify and describe the main symbols in the story.    |
| UNIT 11 | Identify and describe the main motifs in the story.     |

|         |                                                         |
|---------|---------------------------------------------------------|
| UNIT 11 | Identify and describe the main characters in the story. |
| UNIT 11 | Identify and describe the main events in the story.     |
| UNIT 11 | Identify and describe the main themes in the story.     |
| UNIT 11 | Identify and describe the main symbols in the story.    |
| UNIT 11 | Identify and describe the main motifs in the story.     |

|         |                                                         |
|---------|---------------------------------------------------------|
| UNIT 11 | Identify and describe the main characters in the story. |
| UNIT 11 | Identify and describe the main events in the story.     |
| UNIT 11 | Identify and describe the main themes in the story.     |
| UNIT 11 | Identify and describe the main symbols in the story.    |
| UNIT 11 | Identify and describe the main motifs in the story.     |

|         |                                                         |
|---------|---------------------------------------------------------|
| UNIT 11 | Identify and describe the main characters in the story. |
| UNIT 11 | Identify and describe the main events in the story.     |
| UNIT 11 | Identify and describe the main themes in the story.     |
| UNIT 11 | Identify and describe the main symbols in the story.    |
| UNIT 11 | Identify and describe the main motifs in the story.     |

**Final Exams**

|         |                                                         |
|---------|---------------------------------------------------------|
| UNIT 11 | Identify and describe the main characters in the story. |
| UNIT 11 | Identify and describe the main events in the story.     |
| UNIT 11 | Identify and describe the main themes in the story.     |
| UNIT 11 | Identify and describe the main symbols in the story.    |
| UNIT 11 | Identify and describe the main motifs in the story.     |
| UNIT 11 | Identify and describe the main characters in the story. |
| UNIT 11 | Identify and describe the main events in the story.     |
| UNIT 11 | Identify and describe the main themes in the story.     |
| UNIT 11 | Identify and describe the main symbols in the story.    |
| UNIT 11 | Identify and describe the main motifs in the story.     |

| Semester - II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |   |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
| Course code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Unit (Course ID)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | TF | L | TP |
| 2284103                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Basic Sewing Techniques &amp; Pattern Making</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | T  | F | S  |
| Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>To study some sewing machine parts function and its application.</li> <li>To know the specialized machine used in garment industry</li> <li>To impart knowledge of fashion and how used for sewing</li> <li>To learn about the various garment details and the way they are attached to finish a garment</li> <li>To learn different types of finishing in garment construction</li> </ul>                                                                                                                            |    |   |    |
| Unit - I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Sewing machine - parts and their function, use and maintenance. Work for covering, sewing, cutting &amp; pressing. Selection of thread and needle for various types of fabric. Bodice Measurements - preparation for measuring. Men's and women's measurements. Skirts: To-fabricate, types of waists and skirt styles, factors to be considered in selection of waist. Collars: Definitions, types of collars, Calculating measurements.</p>                                                                                                             |    |   |    |
| Unit - II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>Collars - Definition, parts of collar, factors to be considered in designing collar, construction of collar.</p> <p>Yokes - Definition, selection of yoke design, sewing ready to yoke. Drafting pattern for yoke without darts, yoke with darts, within the yoke &amp; yoke extending to attaching pattern. Attachments of collar, Neckline finishes-definitions, two being finishing.</p>                                                                                                                                                               |    |   |    |
| Unit - III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Sleeves - Classification of sleeves, types of sleeves- plain, puff at top, bottom, bell, bishop, elastic, leg-sleeves, character types, finished edges. Pattern construction for these sleeves. Pockets-definitions, selection of pocket and sewing ready to pocket - Pockets and its types. Skirts: Different types of skirts - Drafting pattern for ankle-length and simple skirt.</p>                                                                                                                                                                  |    |   |    |
| Unit - IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>Pattern preparation: Preparing the fabric for cutting - Lay pressing, lay-out, work to remember in pattern making. Types of apex. Drafting pattern making: any skirt, two skirt.</p> <p>Methods of Pattern Making - drafting - principles for pattern drafting-Preparing cloth for two bodice, skirt and trousers - Dressing - draping. Techniques - One piece Techniques: Definitions, Piece pattern, Skirt &amp; good pattern.</p>                                                                                                                      |    |   |    |
| Unit - V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Garment pattern - Development of commercial pattern, from individual to Pattern Grading - Definition, Grading technology, selecting a grading system, grading techniques, how advantages and disadvantages. One-piece grading. Grading procedure. Grading of basic block using draft grading system.</p> <p>Pattern alteration: General principles for pattern alteration. Common pattern alterations in a fitted bodice pattern. Grading: fitting and assembling blocks for a good fit, checking for good fit, solving fitting problems and resolve.</p> |    |   |    |
| <b>References and Textbooks:</b><br>Cunningham, W. J. (2011). <i>Patternmaking for Fashion Design</i> . Pearson New International Edition. TIF -India.<br>Pricer: Rs 150<br>Helen Jones, (2015). <i>Patternmaking for Fashion Design</i> . Free India Pattern Masters India.<br>MacDonald, M. M. (2000). <i>Principles of the pattern design</i> . All edition. Pearson Publishing - USA.<br>Mark, E. E. (2005). <i>Concepts of patternmaking: techniques for menswear and womenswear grading</i> . Butterworth Publishing USA.<br>Mark, S. V. & Graham, M. A. (2011). (2011). <i>Techniques in the Fashion and Apparel Industry: Patternmaking</i> . Pearson Education: Springer Series.<br>Ngai, E., & Pothier, R. (Eds.). (2017). <i>Automated garment sample making</i> . Woodhead Publishing.<br>Ngai, E., & Pothier, R. (Eds.). (2017). <i>Automated garment sample making</i> . Woodhead Publishing.<br>Ngai, E., & Sanyal, S. (2016). <i>One and a half century of ready-to-wear technology: apparel and commercial cutting</i> . CRC Press.<br>Ridd, S., Ridd, J. N., & Ridd, S. (2014). <i>Applied Tailoring &amp; Pattern Cutting: A System for Good Basic Tailoring / Pattern Making</i> . All editions of the 7th International Conference on ITM - Taiwan.<br>Johnson, Susan, J. (2008). <i>Illustrated cutting of ladies' wear</i> . Woodhead Publishing. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |   |    |

| Semester - II                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|-----|
| Course code                                                                                                                                                                                                                                                                                                         | Core Practical III                                                                                                                                                                                                                                                                                                                                                                                                                                                       | DP | C | SPV |
| 22SPC304                                                                                                                                                                                                                                                                                                            | Fabrics Embellishment: Freehand                                                                                                                                                                                                                                                                                                                                                                                                                                          | P  | 2 | 6   |
| Objectives                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"><li>➤ Design and construct fabric accessories based on theme.</li><li>➤ To understand the different accessories available in fashion industry.</li><li>➤ To work and take the students to the topics of hand and machine embroidery.</li><li>➤ To impart knowledge on various types of embroidery stitches.</li><li>➤ To make them to acquire skills essential to enhance the job prospects of graduates.</li></ul>                    |    |   |     |
| 1.                                                                                                                                                                                                                                                                                                                  | <b>Basic Hand Stitches</b> <ul style="list-style-type: none"><li>a) Freeing - Whipped Running Stitch, Threaded Running Stitch</li><li>b) Hemming</li><li>c) Back stitch - Whipped Back stitch, Threaded Back stitch</li></ul>                                                                                                                                                                                                                                            |    |   |     |
| 2.                                                                                                                                                                                                                                                                                                                  | <b>Basic Embroidery Stitches</b> <ul style="list-style-type: none"><li>a) Chain stitch and its types</li><li>b) Free stitch</li><li>c) Stem stitch</li><li>d) Long Dash Stitch and its types</li><li>e) Feather (or) Fan Stitch SSB</li><li>f) Zebra</li></ul>                                                                                                                                                                                                           |    |   |     |
| 3.                                                                                                                                                                                                                                                                                                                  | <b>Advanced Embroidery Stitches</b> <ul style="list-style-type: none"><li>a) French Knot</li><li>b) Bellini Knot</li><li>c) Feather - Double Feather Stitch, Claved Feather SSB</li><li>d) Starling Knot and its types</li><li>e) Cross Stitch</li></ul>                                                                                                                                                                                                                 |    |   |     |
| 4.                                                                                                                                                                                                                                                                                                                  | <b>Other surface Embroidery</b> <ul style="list-style-type: none"><li>a) Quilt work</li><li>b) Mirror work</li><li>c) Applique Patch - Hand Applique, Machine Applique</li><li>d) Bead and sequins</li><li>e) Zentao</li><li>f) Tied and - Corded Tied and</li><li>g) Pique</li></ul>                                                                                                                                                                                    |    |   |     |
| <b>Reference and Text books</b><br>Shalpa D Nair., Traditional Embroideries of India, APN Publishing, 1996<br>Nigam Editors, Everyday Embroidery for Modern Fashion, CBT Publishing, 2020<br>Lilly Moore, Thread Talk: A Modern Modern Book of Embroidery Projects and Applique Collaborations, Page Two & Co, 2018 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |   |     |
| Outcomes                                                                                                                                                                                                                                                                                                            | <b>The students gain knowledge in</b> <ul style="list-style-type: none"><li>➤ Different types of accessories and its uses in garment design.</li><li>➤ Design and construct the accessories based on theme.</li><li>➤ Acquire knowledge on the embroidery tools and techniques.</li><li>➤ Identify the different hand embroidery stitches and fabric traditional embroidery.</li><li>➤ Thorough understanding of the different accessories and embellishments.</li></ul> |    |   |     |

# **Semester - IV**

| Course code | Core Practicals/IV                    | TP | C | HW |
|-------------|---------------------------------------|----|---|----|
| 22BPCAP1    | Garment Construction Adult Wear - Lab | 7  | 1 | 2  |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objectives</b> | <ul style="list-style-type: none"> <li>➤ The students are able to design and construct the garment for different age group of kids.</li> <li>➤ To learn about the dress-making design garments.</li> <li>➤ To assemble students with various garment components by providing them the practical skills.</li> <li>➤ To give knowledge of various finishing techniques related to sewing.</li> <li>➤ To acquire knowledge about how to construct a garment with different styles.</li> </ul> |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## **Designing, Draft and construct the following Garments**

1. Infant wear- Bib, Panty and Loiner
2. Baby suit / Romper
3. Children's frock - 2 railway
4. Baby Pajamas- Six Panel, Decorative Buttons
5. Blouse- Front/Back Open, Faded Neck, Waist Band a Flare, with Blouse
6. Salwar / Chudidar
7. Evening wear/ without collar, with without Flare, without/with Opening, with/with out Pockets, with/ without Sleeve
8. Nightie / Blouse with / without collar, with/without opening, without/with yoke, with/without puff sleeve
9. Back Skirt with Collar, Half Sleeve, Waist Pucker
10. Kid's Dress - Full Pina, Side Pocket, Round Neck, Full Open
11. Pyjama/Sleeved/Blouse/Tops attached Waist, without/with P
12. One piece pant - By method, separate top attached, front and back, dot

## **Reference and Textbooks**

- Cutting and Sewing Sewing, Garment Yarns, Kapil Dev, Computerized Publications Ltd, India, 2019
- Pattern cutting and Making up, the professional approach, Martin H. Stone and Janet P.Wood, Practical Clothing/Constructing Part I and II, Mary Mathews, Creative Press, Chennai, 1996
- Knowledge Taylor and Francis Group, London and New York, Revised Edition, 2011
- Wendell Atchard, Making Pattern Cutting for Women's Wear, 9th Edition, Blackwell Publishing, 2015
- Joseph E. R. Dressing System of Cutting, Marvet Publications (India) Ltd, Mysore, 2017

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Outcomes</b> | <p><b>The students are able to</b></p> <ul style="list-style-type: none"> <li>➤ Develop the designs by own and construct the garment design.</li> <li>➤ Understand the basic concept of patternmaking and take note</li> <li>➤ Students will gain the understanding regarding different garment components and their construction.</li> <li>➤ Design and to construct complete pattern.</li> <li>➤ Sewing pattern by own and construct using drafting method.</li> </ul> |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Course code      | EECCAP1 | CARE AND MAINTENANCE OF TEXTILES-<br>PRACTICAL | L | T | P | C |
|------------------|---------|------------------------------------------------|---|---|---|---|
| Elective - I (a) |         |                                                | 2 | - | - | 2 |
| Prerequisites    |         | Basic knowledge about fabric and garment care  |   |   |   |   |

  

**CARE AND MAINTENANCE OF TEXTILES-PRACTICAL**

**Identification of Textile Stain**

- Visual appearance test
- Microscopic Test
- Fluorescence Test
- Solubility Test

**Stain removal**

- Vegetable stains
- Tea, coffee, wine
- Oil, Paint and grease stains
- Ink, Chalk, Blood

  

- Study and collect the wash and care labels on fabrics
- Preparation of sample for softening agent

  

**Text book**

Wingard R, Textile Fabrics and Their Selection, Revised 4th ed. Pitman, 1946.

Fundamentals of Textiles and Care- Sudarsh Dasgupta, Orient Long man 198 (199)

**Reference Book**

1. HEDDIE T. TAYLOR AND OLIVIERO D., Family Clothing, John Wiley & Sons Inc, New York, 1981.

2. DORIS DODDING, Household Textiles and Laundry Work, Ash & Sons, London 1991

|                                                                                                                              |                                                                                                                                                     |                         |   |   |   |          |
|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---|---|---|----------|
| Course code                                                                                                                  | TH01CA<br>EG                                                                                                                                        | HOME TEXTILES PRACTICAL | L | T | P | C        |
| Elective II                                                                                                                  |                                                                                                                                                     |                         | - | - | 2 | 2        |
| Prerequisites                                                                                                                | Basic knowledge in sewing                                                                                                                           |                         |   |   |   |          |
| Course Objectives:                                                                                                           |                                                                                                                                                     |                         |   |   |   |          |
| The main objectives of this course are to:                                                                                   |                                                                                                                                                     |                         |   |   |   |          |
| 1. Understand the types of home textiles.                                                                                    |                                                                                                                                                     |                         |   |   |   |          |
| 2. Develop knowledge on the application of home textiles                                                                     |                                                                                                                                                     |                         |   |   |   |          |
| 3. Design and home textiles.                                                                                                 |                                                                                                                                                     |                         |   |   |   |          |
| Expected Course Outcomes:                                                                                                    |                                                                                                                                                     |                         |   |   |   |          |
| On the successful completion of the course, students will be able to:                                                        |                                                                                                                                                     |                         |   |   |   |          |
| CO1                                                                                                                          | Understand the types of home textiles                                                                                                               |                         |   |   |   | K1       |
| CO2                                                                                                                          | Analyze the parts and functions of home textiles                                                                                                    |                         |   |   |   | K4       |
| CO3                                                                                                                          | Create designs for types of home textiles and show variations                                                                                       |                         |   |   |   | K6       |
| CO4                                                                                                                          | Construct home textiles                                                                                                                             |                         |   |   |   | K6       |
| CO5                                                                                                                          | Apply color combinations and fabric selection throughout the process                                                                                |                         |   |   |   | K4       |
| K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create                                         |                                                                                                                                                     |                         |   |   |   |          |
| 1.Preparation of Wall Hangings / Door Hanging (Design / Sketch 5 designs and construct one)                                  |                                                                                                                                                     |                         |   |   |   | 18 hours |
| 2.Preparation of Table linen set (Design / Sketch 5 designs and construct one)                                               |                                                                                                                                                     |                         |   |   |   | 20 hours |
| <ul style="list-style-type: none"> <li>• Tablecloth</li> <li>• Runner</li> <li>• Placemat</li> <li>• Table Napkin</li> </ul> |                                                                                                                                                     |                         |   |   |   |          |
| 3.Preparation of Bed Room (Design / Sketch 5 designs and construct one)                                                      |                                                                                                                                                     |                         |   |   |   | 15 hours |
| <ul style="list-style-type: none"> <li>• Bed sheets with Pillow Cover</li> </ul>                                             |                                                                                                                                                     |                         |   |   |   |          |
| 4. Preparation of Curtains and Draperies (Design / Sketch 5 designs and construct one)                                       |                                                                                                                                                     |                         |   |   |   | 25 hours |
| Total Lecture hours                                                                                                          |                                                                                                                                                     |                         |   |   |   | 60 hours |
| Text Books                                                                                                                   |                                                                                                                                                     |                         |   |   |   |          |
| 1                                                                                                                            | Home Textiles, J. Karkh and D. Durgadekar, Dept. Publishing House, 2018                                                                             |                         |   |   |   |          |
| 2                                                                                                                            | Home Furnishing, V. Ramani Babu and S. Sankaranarayanan, Woodhead Publishing India, 2018                                                            |                         |   |   |   |          |
| Reference Books                                                                                                              |                                                                                                                                                     |                         |   |   |   |          |
| 1                                                                                                                            | Interior Decorating, Evelyn Stewart and Sally Walton, Corney books, 2000                                                                            |                         |   |   |   |          |
| Related Online Contents (MOOC, SWAYAM, NPTEL, Websites etc.)                                                                 |                                                                                                                                                     |                         |   |   |   |          |
| 1                                                                                                                            | <a href="https://www.indiancounselling.com.au/blog/what-type-of-tablecloth/">https://www.indiancounselling.com.au/blog/what-type-of-tablecloth/</a> |                         |   |   |   |          |
| 2                                                                                                                            | <a href="https://www.indiancounselling.com.au/blog/what-type-of-tablecloth/">https://www.indiancounselling.com.au/blog/what-type-of-tablecloth/</a> |                         |   |   |   |          |

| Cm  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
|-----|-----|-----|-----|-----|-----|-----|
| CO1 | M   | M   | S   | S   | S   | M   |
| CO2 | M   | S   | M   | S   | S   | S   |
| CO3 | L   | M   | S   | M   | M   | S   |
| CO4 | M   | M   | S   | L   | M   | S   |
| CO5 | L   | M   | S   | M   | L   | S   |

|                                                                                          |                                                                                                                                                       |                                             |   |   |   |                            |
|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|---|---|---|----------------------------|
| Course code                                                                              | 220C1P                                                                                                                                                | BASICS OF GARMENT CONSTRUCTION<br>PRACTICAL | L | T | P | C                          |
| Term II                                                                                  |                                                                                                                                                       |                                             | - | - | 8 | 8                          |
| Pre-requisite                                                                            | Basic knowledge in garment construction                                                                                                               |                                             |   |   |   |                            |
| <b>Course Objectives:</b>                                                                |                                                                                                                                                       |                                             |   |   |   |                            |
| The main objectives of this course are to enable:                                        |                                                                                                                                                       |                                             |   |   |   |                            |
| 1. Develop sewing skills in creating garment components                                  |                                                                                                                                                       |                                             |   |   |   |                            |
| 2. Develop creative patterns for skirts, sleeves, collars and yokes                      |                                                                                                                                                       |                                             |   |   |   |                            |
| 3. Create miniature samples for skirts, sleeves, collars and yokes                       |                                                                                                                                                       |                                             |   |   |   |                            |
| <b>Expected Course Outcomes:</b>                                                         |                                                                                                                                                       |                                             |   |   |   |                            |
| On the successful completion of the course, student will be able to:                     |                                                                                                                                                       |                                             |   |   |   |                            |
| CO1                                                                                      | Develop samples for skirts, sleeve, collar and yokes                                                                                                  |                                             |   |   |   | NA                         |
| CO2                                                                                      | Create samples for collars and neckline finishes                                                                                                      |                                             |   |   |   | NA                         |
| CO3                                                                                      | Create samples for pleats, facings and pockets                                                                                                        |                                             |   |   |   | NA                         |
| CO4                                                                                      | Construct miniature samples for skirt and sleeves                                                                                                     |                                             |   |   |   | NA                         |
| CO5                                                                                      | Construct miniature samples for collars and yokes                                                                                                     |                                             |   |   |   | NA                         |
| NA - Not achieved, NJ - Undermined, KI - Apply, KA - Analyse, KE - Evaluate, KB - Create |                                                                                                                                                       |                                             |   |   |   |                            |
| <b>I Preparation/Samples for the following</b>                                           |                                                                                                                                                       |                                             |   |   |   | <b>Assess</b>              |
| 1. Skirts (Flared, tapered, full, belted, pleated, draped)                               |                                                                                                                                                       |                                             |   |   |   |                            |
| 2. Sleeve (Gathered, double cuff, edge stitched, over laid, optional)                    |                                                                                                                                                       |                                             |   |   |   |                            |
| 3. Hem-curved, straight and turned, bias for circular shape                              |                                                                                                                                                       |                                             |   |   |   |                            |
| 4. Darts -single and double                                                              |                                                                                                                                                       |                                             |   |   |   |                            |
| 5. Tucks-Pin tuck, cross tuck, group tucking                                             |                                                                                                                                                       |                                             |   |   |   |                            |
| 6. Neckline Finishes-Bias facing, bias binding and flared facing                         |                                                                                                                                                       |                                             |   |   |   |                            |
| 7. Pleats-continuous pleat, hand pleated, box pleat, drape pleat, ai hand pleat          |                                                                                                                                                       |                                             |   |   |   |                            |
| 8. Fasteners-Pin buttons, Hook and eye, Button and Buttonhole                            |                                                                                                                                                       |                                             |   |   |   |                            |
| 9. Pocket-Patch pocket, side seam pocket, bound and bound pocket                         |                                                                                                                                                       |                                             |   |   |   |                            |
| <b>II Prepare Miniature Samples for the following</b>                                    |                                                                                                                                                       |                                             |   |   |   | <b>Assess</b>              |
| 1. Skirt-pleated skirt, gathered skirt, cipo for skirt                                   |                                                                                                                                                       |                                             |   |   |   |                            |
| 2. Sleeve-Plain sleeve, Merged Sleeve, Raglan Sleeve                                     |                                                                                                                                                       |                                             |   |   |   |                            |
| 3. Collar-Flat collar any type (Open collar)                                             |                                                                                                                                                       |                                             |   |   |   |                            |
| 4. Simple Yoke                                                                           |                                                                                                                                                       |                                             |   |   |   |                            |
| <b>Text Books</b>                                                                        |                                                                                                                                                       |                                             |   |   |   | <b>Total Lecture hours</b> |
| 1                                                                                        | Practical Clothing Construction-Part I, Mary Mathews, Creative Press, Chennai, 1986.                                                                  |                                             |   |   |   | 15hours                    |
| 2                                                                                        | Practical Clothing Construction-Part II, Mary Mathews, Creative Press, Chennai, 1986.                                                                 |                                             |   |   |   |                            |
| 3                                                                                        | Sample system of cutting-Saunders E.R., Narayana Publications Ltd, 1961                                                                               |                                             |   |   |   |                            |
| <b>Reference Books</b>                                                                   |                                                                                                                                                       |                                             |   |   |   |                            |
| 1                                                                                        | Sewing and Cutting-A Readers Digest, Step-by-Step Guide, Readers Digest Press Ltd, Australia, 1993.                                                   |                                             |   |   |   |                            |
| <b>Related Online Courses (MOOC, SWAYAM, NPTEL, Wikista etc.)</b>                        |                                                                                                                                                       |                                             |   |   |   |                            |
| 1                                                                                        | <a href="https://www.coursera.org/learn/2d-fashion?specialization=2d-fashion">https://www.coursera.org/learn/2d-fashion?specialization=2d-fashion</a> |                                             |   |   |   |                            |

|                                        |                                |                                |   |   |   |   |
|----------------------------------------|--------------------------------|--------------------------------|---|---|---|---|
| Course code                            | 21BFC1F<br>C                   | FASHION DESIGNING<br>PRACTICAL | L | T | P | C |
| Skill Enhancement<br>Foundation Course |                                |                                | - | - | 2 | 2 |
| Pre-requisite                          | Knowledge in Fashion Sketching |                                |   |   |   |   |

#### Course Objectives

The main objectives of this course are to

1. Familiar with the elements and principles of Design.
2. Play with colours following the standard colour harmonies.
3. Create garment designs for various seasons or fashion figures.

#### Expected Course Outcomes

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

|     |                                                                       |    |
|-----|-----------------------------------------------------------------------|----|
| CO1 | Develop Primary colour chart, value and intensity chart               | K1 |
| CO2 | Illustrate human figures- child, women and men                        | K4 |
| CO3 | Sketch garment designs following the various elements of design       | K2 |
| CO4 | Apply the principles of design and colour harmonies in garment design | K3 |
| CO5 | Create garment designs for various seasons                            | K5 |

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyse; K5 - Evaluate; K6 - Create

#### 1.Prepare the following Charts

Hours

- Primary colour chart.
- Value chart
- Intensity chart

#### 2.Illustrate Human Figure for the Following Heads

Hours

- Child - 6 head.
- Women - 8 head, 10 head and 12 head.
- Men - 10 head

#### 3.Illustrate Garment Designs for the Elements of Design

Hours

- Line
- Texture
- Shape

#### 4.Illustrate Garment Designs for the Principles of Design

Hours

- Balance (Formal and Informal)
- Harmony
- Rhythm
- Proportion
- Rhythmic Repetition, Gradation and Line Movement

#### 5.Illustrate the Colour Harmony in Dress Designs

Hours

|                               |                             |    |    |    |    |
|-------------------------------|-----------------------------|----|----|----|----|
| Course code: LDECT1P          | FASHION SKETCHING PRACTICAL | 1. | 3. | 4. | 5. |
| Self-Evaluation<br>Course - 1 |                             |    |    | 1  | 2  |
| Pre-requisite                 | Basic drawing skills        |    |    |    |    |

#### Course Objectives:

The main objectives of this course are to:

1. Impart skills in drawing and coloring.
1. Illustrate garment sketches for children, men, and women.
1. Create sketches of different parts of a human body in different perspectives.

#### Expected Course Outcomes:

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

|     |                                                      |    |
|-----|------------------------------------------------------|----|
| CO1 | Illustrate garment designs for children              | E4 |
| CO2 | Illustrate garment designs for women                 | E4 |
| CO3 | Illustrate garment designs for men                   | E4 |
| CO4 | Sketch the parts of the body in various perspectives | K1 |
| CO5 | Sketch different views of male and female face       | K1 |

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyse; K5 - Evaluate; K6 - Create

#### 1. Illustrate the Following in Different Perspectives

Assign

Instructions - Create for male and female:

- Eyes
- Ear
- Nose
- Lips
- Hairstyle
- Arms
- Legs

#### 2. Sketch the face of male and female in different views

Assign

- Front view
- Three quarter view
- Profile view (side view)

#### 3. Illustrate the Following Children's Garments

Assign

Instructions - Create designs and Colour in in any medium. Give details

- Bib
- T-shirt with turtleneck
- Baby suit
- Pouch

#### 4. Illustrate the Following Women's Garments

Assign

Instructions - Create designs, Colour in in any medium. Give details

- Skirt
- Ladies top
- Saree

- Kurumi
- Mini/Gown
- Dressing

#### Illustrate the Following Men's Garments

Hours

Instructions – Create designs, Colour as in any medium, Give details

- T/Shirts
- Shirts
- Pants
- Shorts
- Pyjamas

Total Lecture hours 30 hours

#### Text Books

1. Fashion Design: Drawing and Presentation, Ireland Patrick John, Pavilion Books, 1982.
2. Fashion Design Education: Children, Ireland Patrick John, BT Handbook Ltd, 1985.
3. Fashion Design Education: Adults, Ireland Patrick John, BT Handbook Ltd, 1990.

#### Reference Books

1. Fashion Illustration, Elger Anna, David & Charles, 2011. ISBN-9780715131812
2. Fundamentals in Fashion Design and Illustration, Adam Saxon, Sanford Publishers, 2008.

#### Related Online Contents [MOOC\*, SWAYAM, NPTEL, Websites etc.]

1. <https://www.albertofashion.com/>
2. <https://www.fashionistaonline.com/showing-faces-fashion-illustration/>
3. <https://pinterest.com/pin/438842876257577/>

| Case | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
|------|-----|-----|-----|-----|-----|-----|
| CO1  | S   | S   | M   | S   | L   | M   |
| CO2  | S   | S   | M   | S   | L   | M   |
| CO3  | S   | S   | M   | S   | L   | M   |
| CO4  | S   | S   | M   | S   | L   | M   |
| CO5  | S   | S   | M   | S   | L   | M   |

\*S-Strong, M-Medium, L-Low

# Syllabus - II

| Course Code<br>(LTPSC)                                                                                                                                                                                                                                                                                                                                                                   | Course Name                                                                                                                                                                                                                                                                                                                                                                                                  | T/P      | C        | Q/W        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------------|
|                                                                                                                                                                                                                                                                                                                                                                                          | <b>HEAT AND THERMODYNAMICS</b>                                                                                                                                                                                                                                                                                                                                                                               | <b>T</b> | <b>C</b> | <b>Q/W</b> |
| <b>Objectives</b>                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>To elaborate the basic principles of heat and its transmission process</li> <li>To explain the rate of heat transfer mechanism</li> <li>To understand the concept of entropy</li> <li>To understand the basic theory of gases</li> </ul>                                                                                                                              |          |          |            |
| <b>Unit - I</b>                                                                                                                                                                                                                                                                                                                                                                          | <b>Thermodynamics and Calorimetry:</b><br>Thermodynamic states - Thermodynamic processes - Specific heat capacity of solids - Regnault's method of measurement - specific heat capacity of liquids - Callendar and Barnes method - Specific heat capacity of gases - $C_p$ and $C_v$ - Mayer's relation - $C_p$ by Poy's differential mean value theorem method - $C_p$ by Regnault's method.                |          |          |            |
| <b>Unit - II</b>                                                                                                                                                                                                                                                                                                                                                                         | <b>Thermodynamics:</b><br>Reversible and irreversible processes - isothermal and adiabatic process - work done during adiabatic and isothermal process - second law of thermodynamics - Carnot's engine - its efficiency - Entropy - change of entropy in reversible and irreversible processes - isobaric entropy changes - change of entropy when an isolated system.                                      |          |          |            |
| <b>Unit - III</b>                                                                                                                                                                                                                                                                                                                                                                        | <b>Law of Temperature Physics:</b><br>Joule's - Kelvin effect - Logarithm of Joule-Lenz's Power - Logarithm of hydrogen - Logarithm of Joule-Lenz's energy - Joule's method - Joule's and U - super fluidity - Joule's power - production of low temperatures - adiabatic demagnetization.                                                                                                                   |          |          |            |
| <b>Unit - IV</b>                                                                                                                                                                                                                                                                                                                                                                         | <b>Transmission of Heat:</b><br>Conduction - coefficient of thermal conductivity - Conduction - logarithm - power factor effect - Fourier's law of conduction - determination of specific heat capacity of liquid - Radiation - Black body - energy distribution in black body spectrum - Wien's law - Rayleigh's law of law - Planck's law (We distribution) - Stefan-Boltzmann law - Stefan-Boltzmann law. |          |          |            |
| <b>Unit - V</b>                                                                                                                                                                                                                                                                                                                                                                          | <b>Kinetic Theory of Gases:</b><br>Foundation of Kinetic Theory of gases - Molecular motion and its laws - average kinetic energy, diffusion and thermal conductivity of gas - experimental verification - Velocity with square of rate - Determination of Velocity with pressure - velocity by using Van der Waals equation of state.                                                                       |          |          |            |
| <b>Reference and Text Books:</b><br>Wright and Salammonson S. (2012). Heat and Thermodynamics. New Delhi: BH Education & Co.<br>Mahesh D. (2014). Heat and Thermodynamics. New Delhi: BH Education & Company.<br>Manjunath R. Krishna (2014). Thermal Physics. New Delhi: BH Education & Company.<br>Tuganovskiy M. and Nussimovskiy S. (1987). Heat, Optics, Fluids, Solids, and Gases. |                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |            |

| Semester - II                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|----|
| Course Code<br>(BPH04)                                                                                                                                                                                                                                                                                                                                                                                  | Course Content                                                                                                                                                                                                                                                                                                                                                                                                                      | EP | C | IM |
|                                                                                                                                                                                                                                                                                                                                                                                                         | ATOMIC PHYSICS                                                                                                                                                                                                                                                                                                                                                                                                                      | 1  | 2 | 3  |
| <b>Objectives</b>                                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>To study about the properties of perfect crystals and photo electric effect and its applications</li> <li>To understand the evolution of different atomic models and their merits and limitations</li> <li>To know the effect of application of magnetic and electric fields on atomic spectra and X-rays</li> </ul>                                                                         |    |   |    |
| <b>Unit - I</b>                                                                                                                                                                                                                                                                                                                                                                                         | <b>Positive Rays:-</b><br>Discovery – properties – analysis – Thomson's cathode ray method – Aston's mass spectrometer – de Sauter's mass spectrometer – Dempster's mass spectrometer – Dumas's method of determining $e/m$ – French and Hertz's method – Davis-Goucher experiment                                                                                                                                                  |    |   |    |
| <b>Unit - II</b>                                                                                                                                                                                                                                                                                                                                                                                        | <b>Photo Electricity:-</b><br>The nature of Photo particles – Photoelectric intensity law – Einstein's method to determine $e/m$ for photoelectrons – Richardson A. Compton experiment – Einstein's Photoelectric equation and its verification by Millikan's experiment. Photoelectric cells Photo-emitting cell – Photo tubes with Photo-conducting cell Applications                                                             |    |   |    |
| <b>Unit - III</b>                                                                                                                                                                                                                                                                                                                                                                                       | <b>Atomic Structure:-</b><br>Bohr atom model – Bohr's interpretation of the Rydberg equation – connection for nuclear matter – stability of atoms in Bohr's theory – correspondence principle – Sommerfeld's relativistic atom model – drawbacks – the vector atom model – Quantum numbers associated with the atom atom model – Pauli's exclusion principle – periodic classification of elements                                  |    |   |    |
| <b>Unit - IV</b>                                                                                                                                                                                                                                                                                                                                                                                        | <b>Line Structure &amp; Spectral Lines:-</b><br>Coupling schemes – L-S Coupling – J-J Coupling – Zeeman effect – magnetic dipole moment due to orbital motion of the electron – due to spin of the electron – Normal and Paschen Back experiment – Normal Zeeman effect – Anomalous Zeeman effect – quantum mechanical explanation – Landé's theory – Anomalous Zeeman effect – Paschen Back effect – hyperfine                     |    |   |    |
| <b>Unit - V</b>                                                                                                                                                                                                                                                                                                                                                                                         | <b>X-Rays and Photo Electric Effects</b><br>Production of X-rays – properties description of X-rays – X-ray absorption edge – Bragg's law – Bragg's X-ray spectrometer – the precession method – Laue's method – rotating crystal method – characteristic spectra – Moseley's law – importance – Compton effect – theory and experimental verification Photo Diode Effect – Einstein's photoelectric equation – photoelectric cells |    |   |    |
| <b>Reference and Text Books:-</b><br>Brink A (1971). Concepts of Modern Physics. New Delhi, Tata Mc Graw-Hill Publications.<br>Halliday, D, Resnick and Walker, J (2011). Fundamentals of Physics. New York, Wiley, 9th Edition, 965p.<br>Hargrove JH, and Yang, J (1998). Modern Physics. New Delhi, McGraw-Hill Publications.<br>Kenneth S. Krane, (1996). Modern Physics. Canada, John Wiley & sons. |                                                                                                                                                                                                                                                                                                                                                                                                                                     |    |   |    |



|                          |                                                                                                                                                                                                                                                                                                                                                    |                               |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <b>COURSE</b>            | <b>FIRST SEMESTER - CORE COURSE I</b>                                                                                                                                                                                                                                                                                                              |                               |
| <b>COURSE TITLE</b>      | <b>PROPERTIES OF MATTER AND FLUIDS</b>                                                                                                                                                                                                                                                                                                             |                               |
| <b>CREDITS</b>           | 3                                                                                                                                                                                                                                                                                                                                                  | <b>COURSE CODE - (MPPH01)</b> |
| <b>COURSE OBJECTIVES</b> | Study of the properties of matter leads to information which is of practical value to both the physicist and the engineer. It gives an understanding about the material things which surround the ordinary parts of the universe. Students who undergo this course are necessarily bound to get a better insight and understanding of the subject. |                               |

| <b>UNITS</b>     | <b>COURSE OBJECTIVES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>UNIT-I</b>    | <b>ELASTICITY:</b> Hooke's law - stress-strain - elastic - stress-strain curve - Poisson's ratio - relation between elastic constants and Poisson's ratio - work done in stretching and twisting a body - twisting couple as a vector - rigidity modulus by static method - torsional pendulum - bulk and volume strain.                                                                                                                                                                                                      |
| <b>UNIT-II</b>   | <b>BENDING OF BEAMS:</b> Load-deflection experiment for finding modulus of rigidity - shear stress and shear strain - the loaded end of the cantilever - oscillations of a cantilever - paper band torsion pendulum - experiment for finding Young's modulus - in uniform bending - experiment for determining Young's modulus - in non-uniform bending - experiment for determining Young's modulus using strain gauge.                                                                                                      |
| <b>UNIT-III</b>  | <b>FLUID DYNAMICS:</b> Continuity equation - Bernoulli's equation - Venturi effect - speed of efflux - surface tension - applications in optical and mechanical devices and bubbles - demonstration of surface tension by Jolly's method - variation of surface tension with temperature.<br><b>Flow in Tubes:</b> - viscosity - coefficient of viscosity - rate of flow of liquid in a capillary tube - Poiseuille's formula - viscosity - terminal velocity and Stokes' formula - coefficient of viscosity and temperature. |
| <b>UNIT-IV</b>   | <b>WAVES AND OSCILLATIONS:</b> Simple Harmonic Motion (SHM) - differential equation of SHM - graphical representation of SHM - vector value of SHM as a simple harmonic motion - Simple pendulum - time period, length, moment of inertia - compound and torsion pendulum - determination of $g$ by using simple harmonic motion - frequency using Melde's experiment.                                                                                                                                                        |
| <b>UNIT-V</b>    | <b>ACoustics OF BUILDINGS AND TELECOMMUNICATIONS:</b><br>Elasticity of sound - reflection - refraction - sound interference - Sound's transmission through various media - sound's effect on human hearing.<br>Ultrasonic waves - Production of ultrasonic waves - Piezoelectric effect - ultrasonic applications - applications of ultrasonic waves.                                                                                                                                                                         |
| <b>UNIT-VI</b>   | <b>PHOTONIC COMPONENTS:</b> Light waves - interference - diffraction - optical activity - optical activity - optical activity - optical activity.                                                                                                                                                                                                                                                                                                                                                                             |
| <b>TEXTBOOKS</b> | 1. T. T. Munshi, 2011, University of Physics, 1st Edition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

|               |  |                  |                  |                  |
|---------------|--|------------------|------------------|------------------|
| Semester - II |  | 13 <sup>th</sup> | 14 <sup>th</sup> | 15 <sup>th</sup> |
| Course Code   |  | Y                | 4                | 3                |
| COURSE NAME   |  | NUCLEAR PHYSICS  |                  |                  |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objectives</b> | <ul style="list-style-type: none"> <li>To acquire the knowledge of fundamental nuclear properties and apply the concepts to calculate various parameters of the nucleus</li> <li>To understand the theoretical concepts of nuclear models</li> <li>To elaborate the working of nuclear reactors and their applications in daily life.</li> <li>To study how to detect nuclear radiation and radioactive decay.</li> </ul> |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                 |                                                                                                                                                                                                                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit - I</b> | <b>Properties and structure of Nuclei</b><br>General properties of nucleus - proton number, mass number, atomic number, binding energy - binding energy and mass number ratio - $\alpha$ -particle - Nuclear force - characteristics - force between mass particles - Nuclear models (Liquid drop model) |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                  |                                                                                                                                                                                                                                                                                                                       |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit - II</b> | <b>Nuclear Stability</b><br>Fundamental laws of nuclear stability - decay of $\alpha$ , $\beta$ and $\gamma$ decay - properties of alpha, beta and gamma rays - neutrino and its properties - electron capture - nuclear reactions - fission and fusion - applications - Radio carbon dating - radio isotopes - uses. |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                   |                                                                                                                                                                                                                                                                                                          |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit - III</b> | <b>Nuclear Reactions</b><br>Kinematics of nuclear reactions, nuclear fission - nuclear fusion - Neutron reactions - $\alpha$ - ray, $\beta$ - ray - nuclear decay - nuclear fusion reaction - plasma confinement - artificial transmutation - Q - value of nuclear reaction - types of nuclear reaction. |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                  |                                                                                                                                                                                                                                                            |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit - IV</b> | <b>Nuclear Reactions and Particle Accelerators</b><br>Structure, working and properties - detectors - G.M. counter - scintillation counter - bubble chamber - Wilson cloud chamber - Geiger-Müller counter - cyclotron - synchrotron - linear accelerator. |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Unit - V</b> | <b>Cosmic Rays and Elementary Particles</b><br>Cosmic rays - introduction - discovery - source, velocity and detection characteristics - interaction with matter - primary and secondary cosmic rays - cosmic ray shower - Vavilov-Cherenkov effect of cosmic radiation.<br>Elementary particles - particles and antiparticles - elementary - the fundamental interaction - elementary particle quantum numbers - conservation laws and symmetries - the quark model |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>References and Text Books:</b><br>Irving Kaplan (2007) <i>Nuclear Physics</i> , New Delhi: Pearson Publishing House.<br>Loops (1998) <i>Fundamentals of Elementary Particle Physics</i> , New Delhi: Tata McGraw-Hill Publications.<br>Pandey M.L. Talya R.P.S. (2008) <i>Elements of Nuclear Physics</i> , Meerut: Vikasat Book Store.<br>Roy R.R and Majum B.P. (1997) <i>Nuclear Physics</i> , New Delhi: New Age International (P) Ltd.<br>Segrè, W.A. (1964) <i>Nuclei and Particles</i> , I.I.T.<br>Sharma R.C. (2008) <i>Nuclear Physics</i> , Meerut: G. Pathak & Co.<br>Subramanyam N. and Singh (1996) <i>Atomic and Nuclear Physics</i> , New Delhi: S. Chand & Co. |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | 5) Sand and Co.<br>6) Rajalakshmi N. Subramanyam, 2001, <i>Supernumerary Human X Chromosomes and Cy</i><br>7) H.R. Kumar and R. Subash, 1999, <i>Treatment of female</i><br><i>hyperandrogenism</i><br>8) Rajalakshmi N. Subramanyam, 1999, <i>A Text Book of Human, Social</i><br><i>Sexual Science</i> , Asian Publishing House<br>9) R. Murugesan, 2002, <i>Prevention of STDs</i> , Sri Sampath Co.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>REFERENCE BOOKS</b> | 1) L.J. Smith, 1966, <i>Sexual Propensities of Women</i> , 1969, Longman, London<br>2) H.C. Gaidak, 1977, <i>Endocrinology of Female Disorders of Menstruation</i> , R. Chandel and Co.<br>3) A.P. Fienberg, 1975, <i>Virginius and Women</i> , M.D. International, Mysore<br>4) <i>Text of Human Sexuality</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>WEB REFERENCES</b>  | 1) <a href="http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism">http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism</a><br>2) <a href="http://www.gynaecology.com/sexualdisordersandfemalehyperandrogenism">http://www.gynaecology.com/sexualdisordersandfemalehyperandrogenism</a><br>3) <a href="http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism">http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism</a><br>4) <a href="http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism">http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism</a><br>5) <a href="http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism">http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism</a><br>6) <a href="http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism">http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism</a><br>7) <a href="http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism">http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism</a><br>8) <a href="http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism">http://www.ijournalsonline.com/Health/sexualdisordersandfemalehyperandrogenism</a> |

#### METHOD OF EVALUATION

| Continuous Internal Assessment | End Semester Examination | Total | Grade |
|--------------------------------|--------------------------|-------|-------|
| 25                             | 75                       | 100   |       |

#### LEARNING OBJECTIVES

At the end of the course, the candidates will be able to

|                             |     |                                                                                                                                                                                         |
|-----------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>COGNITIVE OBJECTIVES</b> | CO1 | Define female hyperandrogenism as a condition of excessive levels of androgens and resulting of various conditions.                                                                     |
|                             | CO2 | Identify the typical clinical features of hyperandrogenism and its various causes.                                                                                                      |
|                             | CO3 | Explain the pathogenesis of hyperandrogenism and its clinical features and suggest the appropriate management with lipid therapy, oral contraceptives, and other medical treatments.    |
|                             | CO4 | Describe the clinical features of hyperandrogenism and its various causes and suggest the appropriate management with lipid therapy, oral contraceptives, and other medical treatments. |
|                             | CO5 | Explain the clinical features of hyperandrogenism and its various causes and suggest the appropriate management with lipid therapy, oral contraceptives, and other medical treatments.  |

## **RYEAR – SECOND SEMESTER CURRICULUM MAPING**

### **CORE COURSE/ADVANCED ELECTIVE THEMES**

#### **Unit I: Semiconductor devices**

Introduction to semiconductor – Atomic and Electronic semiconductor – PN Junction diode- Characteristics of forward bias and reverse biased diode, Zener diode, Varactor diode, Schottky diode, Heterojunction diodes, LDMOS diode, LED, Thermistor, photoconductor, solar cells.

Structure, working and I-V Characteristics of BJT, JFET, MOSFET, Diode and Enhancement, UJT, VCR, DIAC and TRIAC under different conditions. Exploring alternative applications.

#### **Unit II: Operational amplifier**

Operational amplifier- Basic operational amplifiers and OPAMP characteristics – OPAMP applications: Inverting and non-inverting amplifiers, OPAMP applications: Instrumentation amplifiers, voltage followers, integrator and differentiator.

Log and scaling amplifiers: Comparators: Voltage to current converter, voltage to voltage converter, Active filter, Summing low pass, High pass, band pass and band rejection filter using opamp.

#### **Unit III: Digital circuits and systems**

Logic gates: Logic families (RTL, RCL, TTL and CMOS) – OR, AND, IN, NOR, NAND and Tri-state, combinational logic circuits: different multi-level networks, system counter, synchronous counter – Register, Shift register, OADR, A/D, D/A, FIFO, Ring counter, Johnson counter.

Memory devices: ROM, RAM and memory modules, binary addition (BCDN) and BCDING, BINA, PROM, EPROM, EEPROM – charged coupled device (CCD).

#### **Unit IV: Signal processing and data acquisition**

Waveform generators and wave shaping circuits: Non-inverters, oscillators: Phase-locked oscillators: Voltage controlled oscillators, crystal oscillators: Multivibrators: astable, monostable, bistable, edge detector – square, Triangle wave generators, Pulse generator: Monophase and tri-state voltage controlled oscillator, RCM Universal IC applications.

Digital to analog converters: Integral converter and D/A converter (DAC) – DAC generators and oscillators: Analog to digital converter (ADC) – analog-to-digital converter: Successive approximation and Dual slope, VFC – DAC, accuracy and resolution.

#### **Unit V: Communication and microprocessor basics**

Amplitude modulation (AM): Frequency spectrum of AM signal, Characteristics of AM and pulse modulated signal, envelope and techniques, suppression of carrier and spectral efficiency, Description of Frequency and phase modulation, Mathematical representation of FM, Frequency spectrum of FM wave, Characteristics of FM, FM and AM

| Course Code                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Semester - A                 |  |    |   |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--|----|---|----|
| Subject                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Core Courses                 |  | TE | T | TP |
|                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CDSAP, ITP, PROGRAMMING, IOT |  | 3  | 4 | 4  |
| Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>To introduce assembly language for solving scientific problems</li> <li>To identify an efficient algorithm, write an algorithm together, debug and verify</li> <li>To implement scientific algorithms using assembly language</li> </ul>                                                                                                                                                                                     |                              |  |    |   |    |
| Unit - I                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Fundamentals-</b><br>The elements of - Identifiers and keywords - data types - constants - variables - Arithmetic - expressions - Label instructions<br><b>Operator and expressions:</b> Arithmetic operators - Relational and logical operators - Assignment operators - Conditional operators and Bitwise operators.<br><b>Data input and output:</b> The get char function - the get int function - scanf function - printf function - exit and goto function |                              |  |    |   |    |
| Unit - II                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Control Statements and Arrays-</b><br><b>Branching statements:</b> The if and if else statement - nested if statements the switch statement - the goto statement<br><b>Looping statements:</b> while statement / do while statement - the do while - break statement - continue statement<br><b>Arrays:</b> an array - declaring, declaring an array - the dimensional - multidimensional arrays - reading and writing arrays                                    |                              |  |    |   |    |
| Unit - III                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Functions-</b><br>Defining a function - declaring a function - declaring a function - function prototypes - passing arguments to a function - conversion of function - Return value - scope - Address & variable - External variable - static variable - Register variable                                                                                                                                                                                       |                              |  |    |   |    |
| Unit - IV                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Strings and Structures-</b><br>Strings - String declaration - declaring string variable - pointers and one dimensional array - passing pointers to a function - call by value and call by reference - arrays of pointers - Defining a structure - declaring structure variable - passing structure variables - processing strings - arrays of strings                                                                                                            |                              |  |    |   |    |
| Unit - V                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Programs-</b><br>Solving Problems - Arrays of int or float numbers - Dimension of Cubes in Fibonacci - Factorial of a given number - Roots of a quadratic equation - Add tabular two columns - Calculated one row - logical and logical number of an array - Finding numbers in ascending / descending order using function - Arranging the names in alphabetical order                                                                                          |                              |  |    |   |    |
| <b>Reference and Text Books:-</b><br>Balagurusamy V. (2004) <i>Programming in ASP C</i> . New Delhi: Tata McGraw Hill Publishing Company.<br>Bryant Hartman (2004) <i>Programming in C</i> . New Delhi: Tata McGraw Hill Publishing Company.<br>Korydonson D. (2005) <i>Programming in C</i> . New Delhi: Edition, New Age International.<br>Stephen G. Kochen (2004) <i>Programming in C</i> . New Delhi: 10 Edition, Prentice Hall India. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                              |  |    |   |    |
| Outcome                                                                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>The students will be able to acquire skills in writing the program for simple problems in assembly. Physics in particular</li> <li>The students will get the self-confidence in self-learning any other programming language and use them to solve scientific problems.</li> <li>Calculating variables should be the self-help</li> </ul>                                                                                    |                              |  |    |   |    |

| Semester - VI |                                                                                                                                                                                                                                                           |    |   |     |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|-----|
| Course Code:  | EME 6                                                                                                                                                                                                                                                     | TE | C | IVA |
| 12015ME       | EME 6                                                                                                                                                                                                                                                     |    | 6 | 60  |
| Objectives    | <ul style="list-style-type: none"> <li>1. To introduce the basic ideas of design &amp; project</li> <li>2. To increase the creativity of the students</li> <li>3. To make the students involved and enhance the depth of the subject knowledge</li> </ul> |    |   |     |
|               | Any experimental or demonstrative project                                                                                                                                                                                                                 |    |   |     |
| Outcomes      | <ul style="list-style-type: none"> <li>1. The students will be able to get basic ideas of every project and increase the depth of subject knowledge by doing assignments</li> </ul>                                                                       |    |   |     |

### Text Books:

1. Optics and Spectroscopy – R. Shankar, S. Choudhary, 8<sup>th</sup> Edition, New Delhi, 1998.
2. A text book of Optics – Subramanyam and Brijlal, 5<sup>th</sup> Edition and on... 22<sup>nd</sup> Edition, New Delhi 1994.
3. Elements of Spectroscopy – S.L. Gupta, V. Kumar and R.C. Sharma Physics Publications, 12<sup>th</sup> Edition, Meerut, 1997.

### Books for Reference:

1. Optics – Scheynschalt, Rente Physikalisches Handbuch, 55<sup>th</sup> Edition, New Delhi, 1998.
2. Introduction to Molecular Spectroscopy – G. N. Sankar (1988) publishing co. 17, Edition, New Delhi, 1988.
3. Molecular structure and spectroscopy – H. J. Goldstein, 1981 Pt. 1 & 2, 17<sup>th</sup> Edition, New Delhi, 1981.

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**1 YEAR- SEMESTER  
CORE COURSE TIMETABLE**

**CORE COURSE- IS EITHER PRACTICAL- II**

Any 12 experiments

1. Hyperbolic trigonometry - Determination of electrochemical
2. Optics - Determination of wavelength of a monochromatic source by grating
3. Magnetism - Determination of Curie's constant
4. Rayleigh's method - Determination of  $\lambda$  of a red
5. Debye's bridge - Comparison of capacitance
6. Determination of Poisson's ratio
7. I-V characteristics of a diode (half wave rectifier)
8. Voltage, current and capacitance in voltage divider - OP AMP
9. Study of Flip-Flops (SR, JK and D)
10. Square wave generator using IC 741 and IC 555
11. Wien's bridge Oscillator using OP AMP
12. D/A converter and its operation using IC 574
13. Multiplexer: Truth table and circuit
14. Microprocessor D/A converter using 8085, 8086
15. Microprocessor ADC converter using 8085, 8086
16. Microprocessor: Register window
17. C Programming: Matrix  $C_{ij}$  to Matrix  $A_{ij}$  - Evaluation of definite integrals
18. C Programming: Horizontal integration - Computer program to solve
19. C Programming: Complex Integration
20. C Programming: Euler's method

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**3<sup>RD</sup> YEAR – 3<sup>RD</sup> SEMESTER  
COURSE CODE: TUPNAC1**

**COURSE COURSE IS – ANALOG ELECTRONICS**

**Unit I SEMICONDUCTOR DIODES AND REGULATED POWER SUPPLIES**

Semiconductor – p-n junction diode – rectifier – half and full wave rectifier – Filter circuit – efficiency – ripple factor – Zener diode voltage divider circuit  
Filter diode – characteristics – voltage regulation – regulated power supply using zener diode.

**Unit II TRANSISTORS AND TRAPING**

Transistor action – CB, CE & CC modes – common-emitter amplifier with frequency response – load line analysis – ac – dc load construction – factors between  $\alpha$  and  $\beta$  – Transistor biasing – base resistor bias – feedback resistor bias – voltage divider bias – PNP – construction and working – characteristic parameters.

**Unit III AMPLIFIERS**

Single stage amplifier – Phase inverter – DE & CE type amplifier circuits – Voltage gain – Classification of amplifiers – Input impedance of an amplifier – AC equivalent, AVO coupled amplifier – Comparison of different types of amplifiers.

**Unit IV OSCILLATORS**

Transistor audio power amplifier – Difference between voltage and power amplifiers – Performance specifications of power amplifiers – Classification of power amplifiers – Expression for collector efficiency – Class A amplifier – Push-Pull amplifier.

Feedback principle – Negative and positive feedback – criteria for oscillation and its application in negative feedback amplifier – Barkhausen criterion for oscillation – External and internal oscillations – Tuning, Colpitts and phase shift Oscillator.

**Unit V OPERATIONAL AMPLIFIER**

Characteristics of an ideal op-amp – virtual ground – voltage follower – Non-inverting & inverting amplifiers – Applications of op-amp – buffer, summing, difference, integrator, op-amp signal processor: Peak-to-peak, Half-wave, Square wave and Triangle wave generators.

**Text Books:**

1. V.K. Mehta, Principles of Electronics, S.Chand & Co Ltd, 10<sup>th</sup> Edition, New Delhi, 2007.
2. R.S. Sedra – Text Book of Applied Electronics, McMillan (7<sup>th</sup> Ed), 3<sup>rd</sup> Edition, New Delhi, 2004.
3. Electronic Devices and Circuits – Neil Auluck and Anand Kulkarni, Newnes India Pvt. Ltd, New Delhi, 2007.

**Books for Reference:**

1. B.J. Thompson – Basic Electronics – S. Chand & Co, 7<sup>th</sup> Edition, New Delhi, 2006.
2. Milman & Leach – Transistor Applications – International Publications, New Delhi, 2000.

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# II YEAR B.E SEMESTER OTERINE OTERINE

## OTERINE OTERINE PRACTICAL-BE

### Any 12 Experiments

1. Viscosity Determination: Determination of wood length of a wood specimen using and thickness of a film
2. Viscosity Determination by Capillary method
3. Freezing Method: Determination of viscosity of a given material
4. Surface Tension by Jagger's method
5. Calibration of Thermocouple- Potentiometer
6. Magnetic susceptibility - Gouy's method
7. Hall effect
8. Photo cell's Determination of Planck's constant
9. Characterization of Polymers and Photo microscopy
10. Study of Coherence using R.T.M
11. D.S. Coherence - R.T.M method
12. D.S. Coherence - Weighted Resonance method
13. Acoustic Filter (Low, High, Band, Pass) using R.T.M
14. Triangle and low noise variation process using R.T.M
15. Solution of wavefunction equation using R.T.M
16. Microprocessor: Buffer access
17. Microprocessor: Direction of data output, triangle, low noise wave using DMA
18. C Programming: Data's method
19. C Programming: Buffer access, buffer process, Push and Pop method
20. C Programming: Queue and stack using push and pop method

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**YEAR - I SEMESTER  
COURSE CODE: MPEC2**

**COURSE CODE: MPEC2 - MECHANICS AND RELATIVITY**

**Unit I – STATICS**

Definitions/Scope of Statics – solid homogeneous, hollow homogeneous – solid bodies – composites – rigid solid bodies. Forces – Law of Statics – Classification of forces – units of Statics – units of Moment – Statical friction – Equilibrium of a body in a single inclined plane (three and four only) – Friction clutch.

**Unit II – DYNAMICS AND GRAVITATION**

Properties – Path, time and area of flight of a projectile and its applications. Gravitation – Newton's law of gravitation – Kepler's laws of planetary motion – Newton's law from Kepler's law – Derivation of finding G. Gravitational potential and attractive due to spherical shell and solid sphere – variation of 'g' due to height, depth and latitude – escape velocity – motion of rocket – orbital velocity – geostationary orbit.

**Unit III – RIGID BODY DYNAMICS**

Definitions of Moment of Inertia – Parallel and perpendicular axis theorems – Linear – Angular momentum – Conservation of linear and angular momentum – Elastic collision of a rotating body. Connected particles – Force of joints and types of suspension – (one of a compound pendulum) – Determination of g with Kater's pendulum.

**Unit IV – ROTATIONAL AND HYDRODYNAMICS**

Centre of Pressure, Diffusion – Centre of Pressure of rectangular and triangular bodies. Floating bodies, Law of Floating bodies – Metacentre height – Metacentre height of a ship. Equation of continuity – types of liquid motion – Bernoulli's theorem and its applications.

**Unit V – RELATIVITY**

Michelson Morley experiment and its implications – Postulates of special theory of relativity – Galilean and Lorentz transformations – Length contraction and time dilation – Addition of velocities – Einstein's mass energy equivalence.

**Text Books:**

1. Mechanics (Vol I and II) – Resnick/Halliday, Saunders Publishing Company, New Delhi, 1992
2. Mechanics – H.C. Mathew, R. Dhand & V. Jeyapalan, New Delhi, 2006
3. Mechanics and Mathematical Methods – H. Young and R. Stangor, 3rd Edn & 1st Indian Edition, New Delhi, 1998.
4. Modern Physics – R. Shankar, 3rd Edn & 1st Indian Edition, 1997, New Delhi, 1998.

**Books for Reference:**

1. Fundamentals of Physics – H. Halliday, R. Resnick and J. Walker – 6<sup>th</sup> Edition, Wiley, New York, 2001
2. Mechanics and General Properties of Matter – P. C. Chakrabarti, Sanku and Ashutosh, New Delhi.

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**Notes:** **Intially:** Pulse modulation Types of pulse modulation Pulse width Pulse position and pulse code modulation.

**Microprocessor devices:** **Timers:** **Watch:** **Count:** **Arithmetic:** **memory:** **input devices:** **OUTPUT:** **displays:** **peripherals:** **devices:** **Magazines:** **Mythical:** **Refers:** **Keywords:**

#### Books for study:

1. T.F. Scherbert and E.M. Kim, *Analog and Nonlinear Electronics* (1999) Wiley, New York, 1999.
2. L. Floyd, *Electronic Devices* (Pearson Education, New York, 2004).
3. Dennis La Collette, *Powermos* (Prentice Hall, 1991).
4. J. Millman and C.T. Halket, *Integrated Electronics* (McGraw-Hill, 1973).
5. A. Schemmel, *Semiconductor Devices and Applications* (New Age).
6. M. Gaudin, *Semiconductor Device Technology* (McMillan, 1982).

#### Books for Reference:

1. S.M. Sze, *Physics of Semiconductor Devices* (Wiley-Interscience, 1991).
2. Millman and Taub, *Pulse, Digital and Switching Waveforms* (Holt Rinehart & Winston, 1973).
3. Bat. H. *Handbook of Solid State Electronic Devices* (Prentice Hall, New Jersey, 1991).
4. A. Van der Ziel, *The Design and Layout of Integrated Circuits* (Prentice Hall, 1999).
5. S. Subramanian and S. Aravamudan, *Digital Circuits and Design* (Pearson Education, 2000).
6. *Electronic Communication Systems* George Kennedy, 3<sup>rd</sup> Edition (2000) McGraw-Hill Co.

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**3 YEAR - H SEMESTER  
COURSE CORE TOPICS**

**CORE COURSE VI - OPTICS AND SPECTROSCOPY**

**Unit I - GEOMETRICAL OPTICS**

Light - Ray model of light - Reflection - Methods of measuring optical distance - Atomic distance in terms - condition for total internal reflection (in and out of contact) - Lenses - Ray optics lens - Eyepiece - Ramsden's and Huygen's eyepieces - Dispersion - Angular and Chromatic Dispersion - combination of prisms to produce dispersion without deviation or deviation without dispersion - Rayleigh's dispersion formula. Newton's spectrum - Theory of formation of rainbow.

**Unit II - INTERFERENCE**

Conditions for interference - Fringes of thin film - Air wedge - Thin - Determination of distance of a film using Air wedge - Airy's experiment - Fresnel's fringes - Determination of refractive index of a liquid. Michelson's Interferometer - Interference in thin plates (Measurement of wavelength and distance between wavefronts of two stars using thickness of mica sheet) - Lloyd's Interferometer - Determination of refractive index of gases.

**Unit III - DIFFRACTION**

Young's Diffraction - Rayleigh's criterion of light - one plane diffraction in circular aperture - Fraunhofer diffraction - Fraunhofer diffraction in single slit - Double slit - Fraunhofer diffraction grating - Theory and experiment to determine wavelength - resolving of spectral lines. Rayleigh's criterion for resolution - resolving power - resolving power of grating - resolving power of a prism.

**Unit IV - POLARIZATION**

Double refraction - Rayleigh's explanation of double refraction in anisotropic crystals - Nicol Prism - Nicol Prism as polarizer and analyzer - Polaroids and their uses - Quarter wave plate and half wave plate. Plane, elliptically and circularly polarized light - Production and detection of optical activity - Rayleigh's explanation of optical activity - Spectroscopic polarizer - Determination of Rayleigh's half wave polarizer.

**Unit V - SPECTROSCOPY**

Molecular and Atomic Spectroscopy - Sources of molecules - Spontaneous emission - The rigid diatomic molecules, selection rules - the formation of spectral lines - Atomic spectroscopy emission series - Raman Spectroscopy - Quantum theory of Raman effect - Classical theory of Raman effect - Molecular Polarizability - para oriented Raman spectra of linear molecules - Raman Raman spectra - Applications.

3 YEAR - ENGINEER  
COURSE CODE: TAP001

CORE COURSE-IV: PHYSICS PRACTICAL -I

Any 12 Experiments

1. Elliptical Rings: Young's modulus
2. Ultrasonic measurement – velocity and adiabatic compressibility of liquids
3. Rotational Specific gravity (proof of a liquid)
4. Atkin's cell constant: Measurement of cell constant of cell
5. Charge of an electron using Spectrometer
6. Thermal conductivity: HEDD's method
7. ACET characteristics and CS-PCT amplifier
8. SCK characteristics and Power control
9. Construction of Dual regulated power supply using IC 7550
10. Two stage RT amplifier: Frequency response with and without feedback
11. Half adder and Full adder
12. Half Subtractor and Full Subtractor
13. Microprocessor: Binary addition, 2's and 1's Complement subtraction
14. Microprocessor: Number conversion: Decimal to Binary, Octal and Hex conversion and Vice versa
15. Microprocessor: Stacking and Unstacking words
16. Microprocessor: Shifted and Logical number in a set of numbers
17. C Programming: Swaps: Functions called - Sum of 2 given 2 numbers
18. C Programming: Leap: Given a year, find if it is Leap or not
19. C Programming: Solution of simultaneous linear algebraic equations: Gauss Elimination method
20. C Programming: Mean: Find the mean and Probability distributions of a set of random numbers

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#### FIG. 1. 42S NUCLEOTIDES

**LEARN - GET YOUR SEMESTER**

| SUBJECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SEM I – SIXTH SEMESTER |   |   |   |                     |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---|---|---|---------------------|---------------|
| Subject Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Subject Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Credits (A)            | L | T | P | Examination Credits | Total Credits |
| PHYSICS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ADVANCED OPTICS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1001-0010              | 3 | 1 | 1 | 4                   | 10            |
| <p><b>Pre-Requisites:</b></p> <p>Knowledge of the properties and wave nature of light</p> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"> <li>To learn the concepts behind polarisation and could prove matrix representation of application of law</li> <li>To treat anisotropy with viewing of fibre and nonlinear optics</li> <li>To study the working of different types of LASERS</li> <li>To differentiate fibre and optical harmonic generation</li> <li>To use the properties of magneto-optic and electro-optic effects and its applications</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                        |   |   |   |                     |               |
| UNITS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Course Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                        |   |   |   |                     |               |
| UNIT I:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>POLARIZATION AND DOUBLE REFRACTION</b> (Classification of polarization - Transverse character of light waves - Polarization and wave - Malus law - Production of polarized light - Ray and ordinary and the ordinary - Polarization by reflection - Polarization by double refraction - Polarization by scattering - The phenomenon of double refraction - Normal and oblique incidence - Birefringence of uniaxial light - Quarter and half wave plate - Walkers of polarized light - Optical activity |                        |   |   |   |                     |               |
| UNIT II:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>LASERS</b> Basic principles - Spontaneous and stimulated emission - Components of the laser - Resonance and lasing action - Types of lasers and its applications - Solid state laser - Ruby laser - Nd:YAG laser - gas laser - HeNe laser - CO laser - Chemical laser - EC laser - Semiconductor laser                                                                                                                                                                                                  |                        |   |   |   |                     |               |
| UNIT III:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>FIBER OPTICS</b> Fundamentals - Total internal reflection - The optical fibre - Fibre theory - The coherent bundle - The numerical aperture - Attenuation in optical fibre - Single and multi-mode fibre - Pulse dispersion in multimode optical fibre - Ray dispersion in multimode optical fibre - Modal analysis Mode - Dispersion causes pulse broadening - Dispersion control - Propagation of light                                                                                               |                        |   |   |   |                     |               |
| UNIT IV:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>NON-LINEAR OPTICS</b> Basic principles - Raman scattering - Stimulated Raman scattering - Four wave mixing - Third harmonic generation - Optical rectification - Frequency generation of light - Self-focusing of light                                                                                                                                                                                                                                                                                 |                        |   |   |   |                     |               |
| UNIT V:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>MAGNETO-OPTICS AND ELECTRO-OPTICS</b> Magneto-optical effect of light - Faraday effect - Voigt effect - Cotton-Mouton effect - Kerr magneto-optical effect - Electro-optical effect - Pockel effect - Bragg cell effect - Chiral double refraction - Kerr electro-optic effect - Pockel electro-optic effect                                                                                                                                                                                            |                        |   |   |   |                     |               |
| UNIT VI:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>FREE ELECTRONIC COMPONENTS</b> Light sources (Free Spontaneous - Spontaneous induced emission) Visible, ultraviolet, X-ray sources, Lasers, Free electron and Compton scattering, Cathode ray tubes, X-ray tubes, Synchrotron radiation, Free electron laser                                                                                                                                                                                                                                            |                        |   |   |   |                     |               |
| TEXT BOOKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <ol style="list-style-type: none"> <li>1. B. W. Laid, 2015, <i>Lasers and Non-Linear Optics</i>, 2<sup>nd</sup> Edition, New Age International Pvt Ltd</li> <li>2. Saleh (Eds), 2007, <i>Optics</i>, 4<sup>th</sup> Edition, McGraw - Hill Education Pvt. Ltd</li> <li>3. William J. Sullivan, 1996, <i>Free Electromagnetics</i> Cambridge University Press, New York</li> </ol>                                                                                                                          |                        |   |   |   |                     |               |

| Page 2: PRACTICAL I |                     | EXAM: FIRST SEMESTER |   |   |   |   |
|---------------------|---------------------|----------------------|---|---|---|---|
| Subject Code        | Subject Name        | Practical            | 1 | 2 | 3 | 4 |
| 11000001            | PHYSICS PRACTICAL I | Practical            |   | 1 | 1 | 1 |

#### Pre-Requisites

Knowledge and understanding of basic concepts and laboratory techniques of Physics.

#### Learning Objectives

- To understand the concepts of mechanical behavior of materials and utilization of various apparatus systems.
- To calculate the kinematical quantities and physical properties of materials.
- To analyze the material and chemical properties of materials.

#### Course Details

##### Minimum of Twelve Experiments from the list

- Determination of Young's modulus and Poisson's ratio by Pappalardo, Remy & Carter's Method.
- Determination of Young's modulus of the given metal - Mettler's.
- Determination of coefficient of linear expansion - Kennedy's Method.
- Wet and dry bulb hygrometry.
- Determination of thermal conductivity of a metal by G. Fischer's.
- Determination of Remy's Coefficient - Remy's apparatus.
- Thermal conductivity of a liquid - P.P. Apparatus.
- Determination of thermal conductivity of a liquid - Thomson's.
- Determination of specific heat of a substance - Thomson's method.
- Determination of Remy's coefficient of thermal conductivity - Pappalardo's method.
- Cell constant - Determination and its use in conductivity.
- Measurement of conductivity - Four probe method.
- McLeod gauge - McLeod.
- Measurement of wavelength of H $\alpha$ , H $\beta$ , H $\gamma$  & H $\delta$  lines using Diffraction grating.
- Measurement of standing wave and standing wave coefficient, loss of energy upon reflection and transmission coefficient, Radiation Pattern - Microwave oven.
- UV-Visible spectroscopy - Verification of Beer-Lambert's law and identification of wavelength maxima - Transmittance coefficient.
- Determination of refractive index coefficient using CTI.
- FTIR Spectroscopy (qualitative) experiment - Identification of organic compounds.
- Study of important chemical characteristics of CTI.
- UV-Visible spectroscopy - Different values of CTI.
- Study of atmospheric characteristics of Water Vapor in air and design of Water Vapor coefficient using CTI.
- Study of atmospheric characteristics of Fluoride in air and design of Fluoride coefficient using CTI.

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| <p><b>Information:</b></p> <p><b>1. Name:</b></p> <p><b>2. Address:</b></p> <p><b>3. City:</b></p> <p><b>4. State:</b></p> <p><b>5. Zip:</b></p> | <p><b>6. Date:</b></p> <p><b>7. Time:</b></p> <p><b>8. Day:</b></p> <p><b>9. Month:</b></p> <p><b>10. Year:</b></p>     | <p><b>11. Signature:</b></p> <p><b>12. Name:</b></p> <p><b>13. Address:</b></p> <p><b>14. City:</b></p> <p><b>15. State:</b></p> <p><b>16. Zip:</b></p> |
| <p><b>17. Name:</b></p> <p><b>18. Address:</b></p> <p><b>19. City:</b></p> <p><b>20. State:</b></p> <p><b>21. Zip:</b></p>                       | <p><b>22. Date:</b></p> <p><b>23. Time:</b></p> <p><b>24. Day:</b></p> <p><b>25. Month:</b></p> <p><b>26. Year:</b></p> | <p><b>27. Signature:</b></p> <p><b>28. Name:</b></p> <p><b>29. Address:</b></p> <p><b>30. City:</b></p> <p><b>31. State:</b></p> <p><b>32. Zip:</b></p> |
| <p><b>33. Name:</b></p> <p><b>34. Address:</b></p> <p><b>35. City:</b></p> <p><b>36. State:</b></p> <p><b>37. Zip:</b></p>                       | <p><b>38. Date:</b></p> <p><b>39. Time:</b></p> <p><b>40. Day:</b></p> <p><b>41. Month:</b></p> <p><b>42. Year:</b></p> | <p><b>43. Signature:</b></p> <p><b>44. Name:</b></p> <p><b>45. Address:</b></p> <p><b>46. City:</b></p> <p><b>47. State:</b></p> <p><b>48. Zip:</b></p> |

| ՀԱՅԱՍՏԱՆԻ ԳՐԱԴԱՐԱՆ |                                                                                                |   |   |    |
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| Գրքի համար         | Համարը Հ. Գր. Գ                                                                                | Կ | Ը | ԳՐ |
| Գրքի անուն         | Հ. Գր. Գ                                                                                       |   |   |    |
| Գրքի               | <ul style="list-style-type: none"> <li>Հ. Գր. Գ</li> <li>Հ. Գր. Գ</li> </ul>                   |   |   |    |
| Գրքի               | <ul style="list-style-type: none"> <li>Հ. Գր. Գ</li> <li>Հ. Գր. Գ</li> <li>Հ. Գր. Գ</li> </ul> |   |   |    |
| Գրքի               | <ul style="list-style-type: none"> <li>Հ. Գր. Գ</li> <li>Հ. Գր. Գ</li> </ul>                   |   |   |    |
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| Գրքի               | <ul style="list-style-type: none"> <li>Հ. Գր. Գ</li> <li>Հ. Գր. Գ</li> <li>Հ. Գր. Գ</li> </ul> |   |   |    |
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| Գրքի               | <ul style="list-style-type: none"> <li>Հ. Գր. Գ</li> <li>Հ. Գր. Գ</li> <li>Հ. Գր. Գ</li> </ul> |   |   |    |

| Տրված է գրեցի- քանակական   |                  |    |   |     |
|----------------------------|------------------|----|---|-----|
| Կր. հղման համար<br>(ՀԱՏԱՆ) | Գրեցիական ծրագրի | ԸՄ | Մ | ԸՄՄ |
|                            | Տիպիկական        | 1  | 2 | 3   |

|         |                                                                                                                            |
|---------|----------------------------------------------------------------------------------------------------------------------------|
| Ծրագրի: | <ul style="list-style-type: none"> <li>Շինարարական առարկաների վրա պետք է դրվի</li> <li>Տիպիկական առարկաների վրա</li> </ul> |
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| Գրեցի: 1 | Տիպիկական<br>Տիպիկական շինարարական/տիպիկական խմբի առարկաների վրա պետք է դրվի |
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| Գրեցի: 2 | Գրեցի<br>Տիպիկական շինարարական |
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| Գրեցի: 3 | Գրեցի<br>Տիպիկական շինարարական |
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| Գրեցի: 4 | Գրեցի<br>Տիպիկական շինարարական |
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| Գրեցի: 5 | Գրեցի<br>Տիպիկական շինարարական |
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|-----------------------------------------------------------------------------------------------------------------------|--|
| Կր. հղման ծրագրի                                                                                                      |  |
| <ul style="list-style-type: none"> <li>Տիպիկական շինարարական առարկաների վրա</li> <li>Տիպիկական շինարարական</li> </ul> |  |

|            |                                                                                                                                      |
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| Կր. հղման: | <ul style="list-style-type: none"> <li>Տիպիկական շինարարական առարկաների վրա</li> <li>Տիպիկական շինարարական առարկաների վրա</li> </ul> |
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| Semester - I               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | TH              | C | EW |   |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---|----|---|
| Course Code: ITDCEN01      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Over Course - I | T | F  | F |
|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | PROGRAMMATIC    |   |    |   |
| <b>Objective:</b>          | <ul style="list-style-type: none"> <li>• To gain basic understanding of C++ language.</li> <li>• To enable students to develop the program for their applications.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |   |    |   |
| <b>Unit - I</b>            | <b>Overview of C:</b> History of C – Importance of C – Basic Structure of C Program – Programming Style – Comments – <b>Variables:</b> Declaration – Identifiers – Constants – Functions and Data Types – <b>Declaration of Variables</b> – Defining Symbolic Constants – <b>Declaring a variable as a constant</b> – <b>Arithmetic and relational operators</b> – <b>Operator and Precedence:</b> Arithmetic, relational, logical, assignment operators – <b>Increment and decrement operators:</b> conditional operators, nested operators, mixed operators – <b>Arithmetic Expressions:</b> Evaluation of Expressions – <b>Precedence of Arithmetic Operators</b> – <b>Type Conversion:</b> Implicit Conversion – <b>Operator Precedence and Associativity:</b> Mathematical Functions.    |                 |   |    |   |
| <b>Unit - II</b>           | <b>Managing IO Operations:</b> Reading and Writing a Character – formatted input, Output – <b>Decision Making &amp; Branching:</b> if statement – if else statement – nesting of if else statement – the if loop – switch statement – the if operator – goto statement – the while statement – do statement – for for statement – program loop.                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |   |    |   |
| <b>Unit - III</b>          | <b>Arrays:</b> One Dimensional arrays – Declaration, Initialization – Two Dimensional arrays – Multi dimensional arrays – <b>Dynamic Arrays</b> – <b>Initialization, Array:</b> Declaration, initialization of array variable – using, not using arrays – using <b>string functions.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |   |    |   |
| <b>Unit - IV</b>           | <b>Characterised functions:</b> void & pass-by-value programs – structure of void and return functions – <b>arrays:</b> arrays of char type – <b>Characteristics:</b> Declaration, storage – <b>arrays of integers and float values</b> – <b>array of functions</b> – <b>pointer</b> – passing values using as function arguments – <b>pointers:</b> declaration and use of pointers, <b>Structures and Unions:</b> Defining structure, declaring variables, structure – <b>union:</b> union structure – <b>initialization</b> – copying and comparing – operations on initialized members – <b>array of structures</b> – <b>union:</b> union structure – <b>structures:</b> union structure – <b>structures and functions:</b> <b>union</b> – <b>array of structures</b> – <b>in fields.</b> |                 |   |    |   |
| <b>Unit - V</b>            | <b>Pointers:</b> the address of a variable – <b>initializing, manipulation of pointer variables</b> – <b>accessing a variable through a pointer:</b> <b>address of pointer:</b> pointer manipulation and arithmetic – <b>pointer arithmetic:</b> <b>arrays:</b> – <b>pointer as function arguments</b> – <b>pointer and structures:</b> <b>File Handling:</b> creating, reading a file – if (document is file) – <b>file handling using if statements</b> – <b>opening the arguments.</b>                                                                                                                                                                                                                                                                                                     |                 |   |    |   |
| <b>Text Book</b>           | C++ Programming, 2nd Edition, by A.S. Galletta, 1st Edition, by R. L. Krashinsky, Cengage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |   |    |   |
|                            | (Unit I) Chapter 1: Chapter 1.1 to 1.12, Chapter 2: 2.1 to 2.14, Chapter 3: 3.1 to 3.14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |   |    |   |
|                            | (Unit II) Chapter 4: 4.1 to 4.14, Chapter 5: 5.1 to 5.14, Chapter 6: 6.1 to 6.14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |   |    |   |
|                            | (Unit III) Chapter 7: 7.1 to 7.14, Chapter 8: 8.1 to 8.14, Chapter 9: 9.1 to 9.14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |   |    |   |
|                            | (Unit IV) Chapter 10: 10.1 to 10.14, Chapter 11: 11.1 to 11.14, Chapter 12: 12.1 to 12.14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                 |   |    |   |
|                            | (Unit V) Chapter 13: 13.1 to 13.14, Chapter 14: 14.1 to 14.14, Chapter 15: 15.1 to 15.14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |   |    |   |
| <b>Books for Reference</b> | Author: A. Krashinsky, 2006 Programming with C++ 1st Edition, Cengage Publications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |   |    |   |

Kayaker's, 1999 [Larson, 2000]. ISBN: 0-01-301161-6.

14. Schulte, C. 2000. *Java Graphics Programming*. 4th edition. PREHARSON.

Johnson's Teacher Series. 2000 ed. The McGraw-Hill, 1999. *Programming with C*.

**Outcome:**

- Students gain knowledge in writing C Programs.
- Students have skills to apply in students' program for solving real world problems.

| Semester - I                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |         |
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| Course Code<br>18CE0201                                                                                                         | Course Name - I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | 19 - 20 |
|                                                                                                                                 | PROCEEDINGS & CLAS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | 1 - 4   |
| Objectives                                                                                                                      | <ul style="list-style-type: none"> <li>To Understand the C Language Paradigm</li> <li>To have basic skills in the real time problems.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |         |
| Group A                                                                                                                         | <ol style="list-style-type: none"> <li>Write a C Program to find sum of 4 digits.</li> <li>Write a C Program to check whether a given number is Armstrong or not.</li> <li>Write a C Program to check whether a given number is Prime or not.</li> <li>Write a C Program to generate the Fibonacci series.</li> <li>Write a C Program to display the given number in binary number system.</li> <li>Write a C Program to print equivalent of the given number and string.</li> <li>Write a C Program to find the maximum and minimum of 'N' numbers using array.</li> <li>Write a C Program to change the given number to its ascending order.</li> <li>Write a C Program to calculate the average marks.</li> <li>Write a C Program to calculate the HCF and LCM.</li> </ol>                                                                              |  |         |
| Group B                                                                                                                         | <ol style="list-style-type: none"> <li>Write a C Program to find the grade of a student using the if-else.</li> <li>Write a C Program to implement the following string handling functions.</li> <li>Write a C Program to store an integer P in and displaying the value without using %d.</li> <li>Write a C Program to calculate geometric product using array of size.</li> <li>Write a C Program to convert number of days into weeks and hours and convert it.</li> <li>Write a C Program to generate random number for every array of numbers.</li> <li>Write a C Program to print and process the values using for.</li> <li>Write a C Program to convert and process payroll using do.</li> <li>Write a C Program to print and process array using nested loop.</li> <li>Write a C Program to print and process array using while loop.</li> </ol> |  |         |
| <b>Note:</b><br><b>One Question from Group A and another one Question from Group B is compulsory for University Examination</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |         |
| Outcomes                                                                                                                        | <ul style="list-style-type: none"> <li>Students are able to write the programs in every simple programs.</li> <li>Students are able to understand the basic syntax of C Program using arrays, structures and files.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |         |

| Semester : II                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | T5      |  | T6 |  | T7 |  |
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| Course Code: CSE4033                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | CSE4033 |  | T5 |  | T6 |  |
| Course Title: OBJECT ORIENTED PROGRAMMING WITH C++ |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | T5      |  | T6 |  | T7 |  |
| Objectives                                         | <ul style="list-style-type: none"> <li>To understand the basic concepts of OOP</li> <li>To enable students derive a program for real time situation</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |  |    |  |    |  |
| Unit I                                             | Definition of OOP - Advantages of OOP - History of OOP - Examples of OOP - Object Oriented Programming - Benefits of OOP - OOP in Real time language - Applications of OOP - Application of C++ - Structure of C++ - Program - Classes - Constructors - Destructors - Data types - User defined Data types - Derived Data types - Symbolic constants - Type compatibility - Declaration of variables - Dynamic Initialization of variables - Redundant variables - Operators in C++ - Manipulators - Type cast operators - Expressions and their types - Simple expressions - Complex expressions - For each function - Functions - Function Prototyping - Inline functions - Function overloading |         |  |    |  |    |  |
| Unit II                                            | Specifying a class - Defining member functions - Making an object - Accessing member - Accessing of member functions - Private member functions - Accessing a class - Memory allocation in object - Static data members - Static member functions - Scope of object - Object as function arguments - Friend functions - Casting object - Constant member functions - Constructors - Virtual member functions - Multiple inheritance in C++ - Constructors with default arguments - Dynamic initialization of objects - Copy constructors - Destructors                                                                                                                                             |         |  |    |  |    |  |
| Unit III                                           | Defining operators overloading - Overloading way, conversion - Overloading binary operators - Overloading unary operators using friend functions - Rules for overloading operators - Defining derived classes - Single inheritance - Making a private member function - Multiple inheritance - Multiple inheritance - Hierarchical inheritance - Friend inheritance - Friend functions - Constructors and destructors - Member object Accessing of class                                                                                                                                                                                                                                           |         |  |    |  |    |  |
| Unit IV                                            | Protected attribute - Accessor - Factory in virtual classes - Friend functions - Friend member functions - C++ Namespaces - Encapsulated I/O operations - Managing scope with namespace                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |  |    |  |    |  |
| Unit V                                             | Classes of the stream operators - Typedef and using type - Accessing out of file - More about input functions - File access, file pointers and their manipulation - Accessing type and output operations - Constructors arguments - Temporary class variables for function arguments                                                                                                                                                                                                                                                                                                                                                                                                               |         |  |    |  |    |  |
| Text Book                                          | Object Oriented Programming with C++, J. Balagurusamy, South Eastern, 2011, 10th Edition<br>Introduction to the Program, Richard, New York                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |  |    |  |    |  |
|                                                    | Ref: 1) - Chapter 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100                                                                                                                                                                                                                                                                           |         |  |    |  |    |  |
| Books for Reference:                               | 1) The C++ Language Reference, Richard, 2011, 10th Edition<br>2) The C++ Language Reference, Richard, 2011, 10th Edition<br>3) The C++ Language Reference, Richard, 2011, 10th Edition<br>4) The C++ Language Reference, Richard, 2011, 10th Edition<br>5) The C++ Language Reference, Richard, 2011, 10th Edition<br>6) The C++ Language Reference, Richard, 2011, 10th Edition<br>7) The C++ Language Reference, Richard, 2011, 10th Edition<br>8) The C++ Language Reference, Richard, 2011, 10th Edition<br>9) The C++ Language Reference, Richard, 2011, 10th Edition<br>10) The C++ Language Reference, Richard, 2011, 10th Edition                                                          |         |  |    |  |    |  |

Object-Oriented Programming With C++, For Professionals Using C++ Edition, PPL Learning Private Limited, New Delhi, 2020.

Object-Oriented Programming Using C++, Aja's A Corner Apart, A Corner Apart Pvt. Ltd. And Madhulakshmi Devisi, Pearson Education India Private Limited, New Delhi, 2020.

|                 |                                                                                                                                                                                                        |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Outcomes</b> | <ul style="list-style-type: none"><li>• Students gain knowledge in developing Object-Oriented Programs.</li><li>• Using the C++ STL (Standard Template Library) to solve real-time problems.</li></ul> |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Section - II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |    |
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| Question                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Case Problem(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DB | CP |
| Case Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SELECT ORIENTED PROBLEMS (TYPE 2) – C&P                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0  | 4  |
| Subject(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1. Introduction to DBMS Features – available<br>2. Access tools to address tool level problems, cases DBMS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |    |
| Group A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1. Finding Facts and facts not available (2 scenarios)<br>2. Finding Facts and facts not available (2 scenarios)<br>3. Finding Facts and facts not available (2 scenarios)<br>4. Finding Facts and facts not available (2 scenarios)<br>5. Finding Facts and facts not available (2 scenarios)<br>6. Finding Facts and facts not available (2 scenarios)<br>7. Finding Facts and facts not available (2 scenarios)<br>8. Finding Facts and facts not available (2 scenarios)<br>9. Finding Facts and facts not available (2 scenarios)<br>10. Finding Facts and facts not available (2 scenarios)<br>11. Finding Facts and facts not available (2 scenarios)<br>12. Finding Facts and facts not available (2 scenarios)<br>13. Finding Facts and facts not available (2 scenarios)<br>14. Finding Facts and facts not available (2 scenarios) |    |    |
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| Course title                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                    | Course Code | TP | C | ETP |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----|---|-----|
| Computer Architecture and Applications                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                    | 22CE4001    | T  | 0 | 0   |
| <b>Objectives</b>                                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>To gain knowledge about the microprocessors</li> <li>To understand the use of ARM processor</li> <li>To gain insight about the ARM processor and programming in ARM Assembly Language</li> </ul>                                                                                                                                            |             |    |   |     |
| <b>Unit I</b>                                                                                                                                                                                                                                                                                   | <b>The 8086 Microprocessor</b><br>Introduction to 8086 – Main features, architecture – Addressing modes – Instruction set and instruction description – Assembly language programming – Machine Programming – Listing and Debugger – Stack – Procedures – Macro – Interrupts and interrupt service routines – Interrupting the processor.                                          |             |    |   |     |
| <b>Unit II</b>                                                                                                                                                                                                                                                                                  | <b>8086 System Bus Interface</b><br>8086 signals – Bus architecture – External bus timing – Interrupt programming (INTR) – I/O programming – description of – Interrupt programming – Bus master/slave function description and operation – Expansion: locally attached and bus master/slave – I/O module bus architecture                                                         |             |    |   |     |
| <b>Unit III</b>                                                                                                                                                                                                                                                                                 | <b>I/O Interface</b><br>Parallel interfacing and I/O interfacing – Parallel communication interface – Serial communication interface – I/O and I/O interface – Interrupt Keyboard display controller – Interrupt controller – I/O controller – Programming and applications: Card, module, buffer, Light pen, A/D display, D/A display, Keyboard display, mouse and A/D to buffer. |             |    |   |     |
| <b>Unit IV</b>                                                                                                                                                                                                                                                                                  | <b>Introduction to Processor Design</b><br>Processor architecture and organization, description of hardware design, ARM – 4 simple processor – Instruction set design – Processor design trade-offs: The Reduced instruction Set Computer – Single bus system architecture – The multi-ported architecture.                                                                        |             |    |   |     |
| <b>Unit V</b>                                                                                                                                                                                                                                                                                   | <b>ARM Assembly Language Programming</b><br>Data processing instructions – Data transfer instructions – Control flow instructions – Floating-point instructions, language programs – ARM Expansion and Implementation.                                                                                                                                                             |             |    |   |     |
| <b>Reference and Textbooks: (ARM For all)</b>                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                    |             |    |   |     |
| <b>Text Books:</b>                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                    |             |    |   |     |
| 1. J. P. & J. L. & J. L. (2001), Microprocessors and Applications, 3rd Edition, Addison-Wesley, Prentice Hall, Inc.                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                    |             |    |   |     |
| 2. J. P. & J. L. (2001), ARM Architecture and Programming, Addison-Wesley, Prentice Hall, Inc.                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                    |             |    |   |     |
| <b>Book for Software:</b>                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                    |             |    |   |     |
| 1. J. P. & J. L. (2001), Microprocessors and Applications, 3rd Edition, Addison-Wesley, Prentice Hall, Inc.                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                    |             |    |   |     |
| 2. J. P. & J. L. (2001), ARM Architecture and Programming, Addison-Wesley, Prentice Hall, Inc.                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                    |             |    |   |     |
| <b>Outcome</b>                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                    |             |    |   |     |
| <ul style="list-style-type: none"> <li>The student will be able to understand Microprocessors and its applications</li> <li>The student will be able to understand the working of ARM processor</li> <li>The student will be able to understand ARM processor design and programming</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                    |             |    |   |     |



| Semester - II                                                                                                                                                                                                                          |  | T9                                                                                                                                                                                                                                                                              |  |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Course Code: CSE 304                                                                                                                                                                                                                   |  | T9                                                                                                                                                                                                                                                                              |  |  |
| Course Name: DATA STRUCTURES AND COMPUTER ALGORITHMS (USING C AND C++)                                                                                                                                                                 |  | T9                                                                                                                                                                                                                                                                              |  |  |
| <b>Objectives:</b> <ul style="list-style-type: none"> <li>To understand the Data Structures and Computer Algorithms concepts.</li> <li>To know how to implement Data Structures and Computer Algorithms by using C and C++.</li> </ul> |  |                                                                                                                                                                                                                                                                                 |  |  |
| <b>(Programs from Seminars Using C)</b>                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                 |  |  |
| 1. Implementing Stack using array<br>2. Implementing Queue using array<br>3. Convert infix expression to postfix expression using stack                                                                                                |  |                                                                                                                                                                                                                                                                                 |  |  |
| <b>Group - A:</b> 4. Convert infix expression to postfix expression using stack<br>5. Implementing Queue using Array<br>6. Implement Queue as a linked list<br>7. Insertion and deletion<br>8. Implement Binary Search Tree            |  |                                                                                                                                                                                                                                                                                 |  |  |
| <b>(Programs from Groupwise Algorithms Using C++)</b>                                                                                                                                                                                  |  |                                                                                                                                                                                                                                                                                 |  |  |
| 1. Linear Search<br>2. Binary Search<br>3. Bubble Sort                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                 |  |  |
| <b>Group - B:</b> 4. Insertion Sort<br>5. Quick Sort<br>6. Heap Sort<br>7. Selection Sort<br>8. Minimum Spanning Tree                                                                                                                  |  |                                                                                                                                                                                                                                                                                 |  |  |
| <b>NOTE:</b><br>One Question from Group A and another one Question from Group B is compulsory for University Examination.                                                                                                              |  |                                                                                                                                                                                                                                                                                 |  |  |
| <b>Course:</b>                                                                                                                                                                                                                         |  | <ul style="list-style-type: none"> <li>Students write self-assessment and the concept of Data Structures and Computer Algorithms.</li> <li>Students read self-assessment and the evaluation of assessment for program using Data Structures and Computer Algorithms.</li> </ul> |  |  |

| Course Code |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Course Name                  | TS | CS | MS |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----|----|----|
| 19EE1001    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Computer Systems Programming | 7  | 4  | 4  |
| Objectives  | • To impart knowledge about the C concepts & features.<br>• To equip students to be competent using C programming.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |    |    |    |
| Unit-I      | <b>Java Introduction:</b> Java History - Java Features - Java and Internet - Java Basic Rule - Architecture - JVM and JVM components - Java Support System - Java Environment<br><b>Overview of Java language:</b> identifier - Simple Java Program - Comments - Java Program Structure - class - class declaration - Implementing a Java Program - (I/O) Command Line Arguments - Constant - Variable - Data Type - Flow Control - Operator.                                                                                                                                                                                                   |                              |    |    |    |
| Unit-II     | <b>Operators and Expressions:</b> Arithmetic Operators - Relational Operator, Assignment Operators and Increment, Decrement, Logical, Logical Operator - Common expressions, Precedence of operators - Evaluation of Arithmetic Expressions - Type Conversion - Escape Character - String and array - Mathematical Functions - <b>Decision Making and Branching:</b> if - if else - Switch of if... else - else if - nested, if... else... <b>Decision Making and Looping:</b> while - do - do - while - jump or loop - nested loop.                                                                                                            |                              |    |    |    |
| Unit-III    | <b>Class, Object and Methods:</b> Defining a class - Adding attributes, methods - creating objects - Accessing Class Members - Constructors - Methods overloading - static members - Sorting of Methods - Encapsulation - Overriding methods - Final Variable and methods - Final classes - Static methods - The new methods and classes - creating array, Array, Array, String and Vector - Array - One Dimensional Array - Creating an array - Two Dimensional Array - Strings - Vectors - Strings Class - <b>Interface Multiple Inheritance:</b> Abstract methods - Overriding methods - implementing methods - Accessing interface methods. |                              |    |    |    |
| Unit-IV     | <b>Package:</b> New and Packages - Using package package - Naming conventions - Creating Package - Accessing a package - Using a package - Accessing all classes of package - using wildcard.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                              |    |    |    |
| Unit-V      | <b>Multithreaded Programming:</b> Creating Thread - Extending the Thread class - Mapping and Extending a thread - Life Cycle of a Thread - Using Thread methods - Thread Inheritance - Thread Priority - Synchronization - Implementing the Runnable interface.                                                                                                                                                                                                                                                                                                                                                                                 |                              |    |    |    |
| Unit-VI     | <b>Managing Error and Exception:</b> Types of errors - Exceptions - Types of exception handling code - Multiple Catch Statements - Using finally statement - Handling an error exception - Using Exceptions in Programs.                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |    |    |    |
| Unit-VII    | <b>Applet Programming:</b> Java applet, Java Applet - Creating a Java applet - Running applet Code - Applet Methods - Creating an Applet - Running a web page - Applet Tag - Adding Applet to HTML file - Running the Applet - Passing parameters to Applet - Overriding methods called - Handling applet from browser.                                                                                                                                                                                                                                                                                                                         |                              |    |    |    |
| Unit-VIII   | <b>Graphics Programming:</b> The AWT (AWT) Class - Color and Font class - Color and Font - Drawing text - Drawing graphics - Line Graphs - Using Canvas class to update - Drawing the Circle.                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                              |    |    |    |

**Text Book:**  
*Programming with Java* by Balagurusamy (2007) 4th Edition.

**Books for Reference:**  
*Java 2: The Complete Reference* by Herbert Schildt - 6th Edition (2003) - McGraw Hill Education (India) Private Limited.

Programming with Java (Silberman's Chemistry course) John F. Eubank II, J. Lawrence, 2006, 3rd edition  
Introduction to Java

Programming in Java, by D.A. Sutter, 2000, Publisher: Prentice Hall, 11.8 for Windows 95, 2000

**Outcomes**

- Students will able to understand the basic programming concepts.
- Students will able to apply concepts and use them in building programs.

| Semester - II                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |    |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|----|
| Course Code: CSE4CWA7C                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | TP | EW |
| OPERATING SYSTEM                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | T  | E  |
| <b>Objective:</b>                                                                                                                                      | <ul style="list-style-type: none"> <li>To understand the various processes and the design of an operating system.</li> <li>To understand the structure and organization of the OS system.</li> </ul>                                                                                                                                                                                                                                    |  |    |    |
| <b>Unit-I</b>                                                                                                                                          | <b>Introduction:</b> Operating System / Operating System Organization / Operating System Architecture – Operating System Services / Operating System Operations – Process Management – Service Management – Storage Management – File Management/Security / <b>Operating System Structure:</b> Operating System Services / User and Operating System Interface / System Calls / Type of System Calls / System Programs                  |  |    |    |
| <b>Unit-2</b>                                                                                                                                          | <b>Process:</b> Process Concepts / Process Scheduling / Execution of Processes / Interprocess Communication / <b>Process Synchronization:</b> Background / The Critical Section Problem / <b>Process's Section:</b> Synchronization Methods – Mutual Exclusion / Semaphores – Critical Section & P/V Operations – Monitors                                                                                                              |  |    |    |
| <b>Unit-3</b>                                                                                                                                          | <b>CPU Scheduling:</b> Basic Concepts / Scheduling Criteria / Scheduling Algorithms / Round Robin Scheduling / Multiprogrammed Scheduling / Real-time CPU Scheduling / <b>Deadlocks:</b> System State / Deadlock Characterization / Methods for Handling Deadlocks / Deadlock Prevention / Deadlock Detection / Deadlock Recovery / Recovery from Deadlock                                                                              |  |    |    |
| <b>Unit-4</b>                                                                                                                                          | <b>Main Memory:</b> Mainframe / Mapping / Mainframe Memory Structure / Segmentation / Paging / Structure of Memory / <b>Virtual Memory:</b> Background / Demand Paging / Copy-on-Write / Page Replacement / Structure of Pages / Handling Memory Management / <b>Backing Store Memory</b>                                                                                                                                               |  |    |    |
| <b>Unit-5</b>                                                                                                                                          | <b>File-Storage Structures:</b> Structure of File Storage / Structure of File System / File Structure / File Scheduling / File Management / <b>Device/Space Management:</b> RAID Systems / <b>Mobile Storage Implementation:</b> <b>File System Implementation:</b> File System Structure / File System Parameters / <b>Directory Implementation:</b> Directed Methods / File Space Management / File Access and Performance / Recovery |  |    |    |
| <b>Text Book:</b><br><b>Operating System Concepts,</b> Abraham S. Silberschatz, Peter Galvin, Andrew S. Galvin, Sixth Edition, John Wiley & Sons, Inc. |                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |    |    |
| <b>Course:</b>                                                                                                                                         | <ul style="list-style-type: none"> <li>To understand the various processes and the design of an operating system.</li> <li>To understand the structure and organization of the OS system.</li> </ul>                                                                                                                                                                                                                                    |  |    |    |

| Semester 2                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |     |
|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|
| Course code:                                                                                                               | Law Program: B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | EF: 2 | EN: |
| Title / LfP:                                                                                                               | ENVIRONMENTAL LAW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | F: 1  | F:  |
| Objectives:                                                                                                                | <p>A. To identify and apply the Content / Field of Law</p> <p>B. To assess progress and development, and to be able to communicate in a professional framework</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |     |
| Group 1:                                                                                                                   | <ol style="list-style-type: none"> <li>1. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>2. Apply Program in: Strategy, Applied Law</li> <li>3. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>4. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>5. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>6. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>7. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>8. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>9. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> </ol>                                                                                                                                                                                                                                                                                                                                                  |       |     |
| Group 2:                                                                                                                   | <ol style="list-style-type: none"> <li>1. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>2. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>3. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>4. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>5. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>6. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>7. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>8. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>9. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>10. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>11. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>12. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> <li>13. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</li> </ol> |       |     |
| <p>Note:</p> <p>For Groups from Group 1 and further see Details from Group 2 &amp; onwards for University Examinations</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |     |
| Comments:                                                                                                                  | <p>A. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</p> <p>B. Apply Program in: Strategy, Applied Law, (F) (F) (F) (F) (F) (F)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |     |

| Semester - V |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| Course Code  | Course Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| 22CE4003     | Relational Database Management Systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Objectives   | <ul style="list-style-type: none"> <li>To impart knowledge about various database and query languages (SQL, DDL, DML)</li> <li>To enable the students to become capable to RDBMS package</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| Unit I       | <p><b>Introduction:</b> Database Systems Applications + Properties of Database Systems + View of Data Abstraction Languages + Relational Database + Database Design + Design Method and Normalized Database + Data Storage and Querying + Database from user Administration + Fundamentals of Management + Database queries and Administration + Security of Database Systems</p> <p><b>Formal-Dependency Model:</b> Data model + Normalization + 1NF + 2NF + 3NF + 4NF + 5NF + 6NF + 7NF + 8NF + 9NF + 10NF + 11NF + 12NF + 13NF + 14NF + 15NF + 16NF + 17NF + 18NF + 19NF + 20NF + 21NF + 22NF + 23NF + 24NF + 25NF + 26NF + 27NF + 28NF + 29NF + 30NF + 31NF + 32NF + 33NF + 34NF + 35NF + 36NF + 37NF + 38NF + 39NF + 40NF + 41NF + 42NF + 43NF + 44NF + 45NF + 46NF + 47NF + 48NF + 49NF + 50NF + 51NF + 52NF + 53NF + 54NF + 55NF + 56NF + 57NF + 58NF + 59NF + 60NF + 61NF + 62NF + 63NF + 64NF + 65NF + 66NF + 67NF + 68NF + 69NF + 70NF + 71NF + 72NF + 73NF + 74NF + 75NF + 76NF + 77NF + 78NF + 79NF + 80NF 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| Semester - V                                                                                     |                                                                                                                                                                                                                                                                                                                    | Yr | Sr | Reg |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|-----|
| Course Code                                                                                      | Course Name / Title                                                                                                                                                                                                                                                                                                | Yr | Sr | Reg |
| 18EE032                                                                                          | PYTHON PROGRAMMING                                                                                                                                                                                                                                                                                                 | 5  | 2  | 2   |
| <b>Objectives</b>                                                                                | <ul style="list-style-type: none"> <li>To impart programming skills and ability to apply Python in Python</li> <li>To develop the ability to apply logical and technical skills to solve real-time applications in Python</li> </ul>                                                                               |    |    |     |
| <b>Unit-I</b>                                                                                    | Python Programming Introduction: IDLE – Python Syntax – Basic Data Types – Input Operators – Control Structures – Functions and Argument Passings – Lists – Strings – <b>Tuples</b> : Tuple's Function – Tuple's Introduction and Use – Import, Export and Module – Data Dictionary – Comments and Expressions.    |    |    |     |
| <b>Unit-II</b>                                                                                   | <b>Control Structures</b> – Conditional Statement – Loops – Break – Continue – Pass Statement – the statement <b>Scope</b> : Global and Local Id – Scope of Global and Name – <b>Integer</b> : Integer Function – <b>String</b> – Membership – Tuple's Function – <b>Import</b> : Importing module.                |    |    |     |
| <b>Unit-III</b>                                                                                  | <b>Modules and Dictionary Objects</b> : List – Set – Tuple – Dictionary – File and Exception: File Handling – String operation in a list – Lists and Dictionaries – Handling Exception.                                                                                                                            |    |    |     |
| <b>Unit-IV</b>                                                                                   | <b>Class</b> I : Classes and Objects – How to Access class type – Set: Class – <b>Class</b> II : Polymorphism – Inheritance – <b>Module</b> : and Accesses Methods – <b>File</b> : Method – saving Methods Dynamically – <b>Compositer</b> – <b>Interface</b> – <b>Static</b> & functions for Class.               |    |    |     |
| <b>Unit-V</b>                                                                                    | <b>Example</b> : List Comprehension – <b>Set</b> Objects – <b>Interface</b> – <b>Application of Python</b> : Handling Data using Module – Handling of Functions using GUI – wrapping Over with Python.                                                                                                             |    |    |     |
| <b>Text Book</b>                                                                                 |                                                                                                                                                                                                                                                                                                                    |    |    |     |
| Global Veng, Python入门: Python Programming in 4 Weeks Approach, Pearson Education India Pvt. Ltd. |                                                                                                                                                                                                                                                                                                                    |    |    |     |
| <b>Reference</b>                                                                                 | <ul style="list-style-type: none"> <li>Students will refer to python and Accessories for use of built-in functions and "List" and "Dictionary".</li> <li>Students will refer to design and implement a program to make a real-world application and as well as to design and implement GUI application.</li> </ul> |    |    |     |

| Week 1 - 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                          |    |   |    |
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| Course code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Core Project 14V                         | TD | C | EN |
| 17810P1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Advanced Database Management Systems Lab | P  | 4 | 4  |
| <p><b>Objective 1</b> The following concepts shall be introduced to the students:</p> <p><b>200. Concepts</b></p> <ul style="list-style-type: none"> <li>• Data tables, data fields, data fields</li> </ul> <p><b>300. Concepts</b></p> <ul style="list-style-type: none"> <li>• Tables, queries, tables, data, data structure</li> <li>• Database specification using function and composition operators (and)</li> <li>• <math>SELECT</math> (and <math>WHERE</math>)</li> <li>• Database operators and aggregates that use <math>SELECT</math> (and, <math>AND</math>, <math>OR</math>, <math>NOT</math>)</li> <li>• Joining Multiple tables</li> <li>• Grouping using <math>GROUP BY</math></li> </ul> <p><b>3.100. Procedures</b></p> <ul style="list-style-type: none"> <li>• Example 1: SQL programming, Transact-SQL</li> <li>• Example 2: SQL programming, Transact-SQL</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |    |   |    |
| <p>1. Create a student table with the following attributes: name, register number, department, marks in 3 subjects and total.</p> <p>(a) Insert five records into student table.</p> <p>(b) Display all the records.</p> <p>(c) Calculate department to find the marks.</p> <p>(d) Display the department of each record, register number and total only.</p> <p>2. Create a student table with the following attributes: name, department, department, marks in 3 subjects and total.</p> <p>(a) Insert five records into student table.</p> <p>(b) Modify the name of the student as register number is 11123456.</p> <p>(c) Delete the records whose register number is 11123456.</p> <p>(d) Display all the records.</p> <p>3. Create a table student with name, roll number, gender, age and marks in 3 subjects. Apply the following queries to the student table.</p> <p>(a) The student name name is in capital letter.</p> <p>(b) The roll number is not less than 1000.</p> <p>(c) The department is in capital letter.</p> <p>(d) The gender is in "Male" or "Female" or "Transgender".</p> <p>(e) The marks in 3 subjects are greater than 100.</p> <p>4. Create a table student with the following attributes: name, department, marks in 3 subjects and total. Apply the following queries to the student table.</p> <p>(a) Display all the records in the student table.</p> <p>(b) Display the <b>display</b> (name and marks).</p> |                                          |    |   |    |

- 1d. Find out the employees who are working permanently.
- 1e. Select the first 4 of student who is studying computer science department.
- 1f. Find out all those names who did not attend school.
2. Create a table with name, salary, rank, the column no. as primary key and it contains the following fields: product no, description, qty ordered, qty ship, product cost, profit\_percent, and gross\_profit\_percent. Give below command to create following:  
2a. Select each row and insert it into product and all profit% and all profit% for each row selected.
- 3a. Select product no, profit\_percent, bill, plus where profit\_percent is not between 10 and 15 with below as:  
3b. Select product no, description, profit\_percent and price where profit\_percent is not between 10 and 15.
- 4a. Select the employees and product no where employee no is '1' or '3' as second column.
5. Create an employee table with the following attributes: employee\_number, name, job and manager. Do the following: 5a. Insert 100 for manager and 100 as first column and 100 as second column.  
5b. Insert 100 as manager.
- 6a. Display all the columns.  
6b. Display manager job which is the one working under 100 as the manager job.
7. Create an employee table with the following attributes: employee\_number, employee\_name, department, manager, job and salary.  
8a. Query to display the top 5 rows of salary of all the employees working since Dec. 2000 till now.  
8b. Query to display employee\_name and department\_name for the particular employee\_number.  
8c. Query to display employee\_name and salary for all employees whose salary is not in the range of 5000, 10000, and 15000, 20000.  
9. Create an employee table with the following attributes: employee\_number, employee\_name, job, type, level, and department, manager and salary.  
9a. Query to display employee\_name and department\_name of all the employees in department\_number = 8 and type as not number. Do it by alphabetical order by name.  
9b. Query to display name of all the employees whose the first letter of their name is 'A'.  
9c. Query to display name with the 12th letter as null and all other letter as employee.  
9d. Query to display name of all employees if the first letter is 'A' or then first 'A' is 'A'.

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | <p><b>Write Query</b></p> <p>9. Create an Employee table with the following attributes: employee number, name, job title, department, salary. Write the following queries to work with employee database.</p> <p>(a) Query to display name and job title of every employee who was hired in 2001.</p> <p>(b) Query to display name and salary of the number of months between today and the date each employee was hired.</p> <p>(c) Query to display name and job title of employee who don't have a manager.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p><b>Group 2</b></p> | <p>10. Create a new table order with the order no., item number, delivery address, delivery date and price. Make the order no. as primary key using suitable level of normalisation.</p> <p>(a) Create another table named as sales_order_join with the same structure of sales_order with delivery no. as a foreign key using table level constraint. (should a new column for storing address, because in sales_order using lot of B Command)</p> <p>(b) Modify the new structure, add an address in the table using ALTER command. (Should a new column in table in the table)</p> <p>11. Create an employee table with the following attributes: employee number, employee name, job type, New date, department number salary and commission.</p> <p>(a) Query to display the Employee Name and Manager Name of all the employees.</p> <p>(b) Query to display the employee number and department number of all employees who are above 50 years of age salary.</p> <p>(c) Query to display the employee name salary and commission for all the employees who are above 50.</p> <p>(d) Find the data is missing any info of salary and commission.</p> <p>(e) Query to display employee name salary and commission for all employees whose commission is greater than 10% salary included 10%.</p> <p>12. Create a (DEPT) table with the attributes of department number and department name for the department number as primary key.</p> <p>(a) Insert the data.</p> <p>(b) Display all the records.</p> <p>(c) Create an employee table with the following attributes: employee number, employee name, job title, department number, but the employee number as a primary key and as the department number as a foreign key.</p> <p>(d) Query to display the employee details who are working in the particular department number.</p> <p>(e) Query to display employee number, job type, name and job title the employee table.</p> <p>(f) Query to display employee name from the employee table.</p> <p>(g) Query to display the employee name who are not having a manager.</p> |

10. Create a **DEPARTMENT** table with the attributes of department\_number and department\_name. Set the department\_name as a primary key.
  - (a) Create an employee table with the following attributes: employee\_number, salary, job\_title, department\_number and last\_name.
  - (b) Query to display employee number of all jobs that are in department\_number 20.
  - (c) Query to display employee salary, department\_name and department\_number for all employees.
  - (d) Query to display name, job, department\_number and department\_name for all the employees working at the Orlando location.
11. Create a table **client\_name** with the following fields: client\_no, name, address\_line, state, province, country. Set client\_no as primary key.
  - (a) Create another table **supplier** with the following fields: supplier\_name, address\_line, city, province, country. Set supplier\_name as primary key.
  - (b) Insert the supplier information with supplier\_no and the supplier\_name into supplier table.
  - (c) Insert data into client\_name table.
  - (d) Insert data into supplier table from client\_name.
  - (e) Delete the row with client\_no having the value returned in the last execution of client\_name table.
  - (f) Display client\_name table.
12. Create a table **magazine\_book** to contain the information of magazine name, magazine\_price and magazine\_type (Printed/Electronic/Internet) and price. Create a PK, FK, check on price column, unique and delete operation on the data in table.
13. Create a table to contain phone\_number, area\_code, address of the phone user. Write a function to search for a address using phone number.
14. Create a table to store the salary details of the employees in a company. Create the query to update employee\_number, employee\_name and salary. Also need to update the employee details.
15. Create a table to store the relationship about my name. It is a polymorphic relationship. Write a query to get my name or create new in the table.
16. Create a table **employee** to contain the information of employee\_name, employee\_number and salary.
  - (a) Write a procedure to increase 10% of salary to all employees (employee\_number provided).
  - (b) Write a procedure to increase specific percentage for specific department number (department\_no provided).

5

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|                                                                                                                                                                                               |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <ul style="list-style-type: none"> <li>• children responsible to pick up rubbish, put in</li> <li>• children responsible to leave (e.g. for the weekend) - suggest a new programme</li> </ul> |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

|                         |     | Semester - 25                                                                                                                                                                  |  |       |
|-------------------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------|
| Course code (2024-2025) |     | Cerebrius-PL                                                                                                                                                                   |  | TFCEB |
|                         |     | PYTHON PROGRAMMING                                                                                                                                                             |  | F+T   |
| 20 questions            | 1.  | Write a program to print the sum of first 10 natural numbers.                                                                                                                  |  |       |
|                         | 2.  | Write a program to print the sum of first 10 even numbers.                                                                                                                     |  |       |
|                         | 3.  | Write a program to print the sum of first 10 odd numbers.                                                                                                                      |  |       |
|                         | 4.  | Write a program to print the sum of first 10 numbers which are divisible by 5.                                                                                                 |  |       |
| Group-A                 | 5.  | Write a Python program that accepts a sequence of whitespace separated words as input and prints the words after removing all duplicate words and sorting them alphabetically. |  |       |
|                         | 6.  | Write a Python program to accept the radius of a circle from the user and compute the area.                                                                                    |  |       |
|                         | 7.  | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 8.  | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 9.  | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 10. | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 11. | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 12. | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 13. | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 14. | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 15. | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 16. | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 17. | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 18. | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 19. | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |
|                         | 20. | Write a Python program to calculate the length of a document where each word is on a new line.                                                                                 |  |       |

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | <p>8. Create a plot of performance following methods, with some text, about the last month. Name them.</p> <p>9. Write a python program to calculate the following operations: (sum, maximum, difference, average)</p> <p>10. Write a Python script to check whether a given key already exists in a dictionary.</p> <p>11. Write a Python program to check whether an element exists in the list.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <p><b>Group B</b></p> | <ol style="list-style-type: none"> <li>1. Write a Python function to calculate the factorial of a number (n) using recursion. (The function should take n as an argument)</li> <li>2. Write a Python program to calculate the sum of squares of first n natural numbers using recursion.</li> <li>3. Write a Python code which uses two methods get_string and print_string, get_string accept a string from the user and print_string print the string in upper case.</li> <li>4. Write a Python function to calculate the sum of squares of first n natural numbers using recursion. (The function should take n as an argument)</li> <li>5. Write a Python program to count the number of vowels in a string.</li> <li>6. Write a Python program to find the sum of the first n natural numbers and print the sum.</li> <li>7. Write a Python program to find the sum of the first n natural numbers. (The function should take n as an argument)</li> <li>8. Write a Python program to find the sum of the first n natural numbers. (The function should take n as an argument)</li> <li>9. Write a Python program to find the sum of the first n natural numbers. (The function should take n as an argument)</li> <li>10. Write a Python program to find the sum of the first n natural numbers. (The function should take n as an argument)</li> <li>11. Write a Python program to find the sum of the first n natural numbers. (The function should take n as an argument)</li> <li>12. Write a Python program to find the sum of the first n natural numbers. (The function should take n as an argument)</li> </ol> |
| <p><b>Notes:</b></p>  | <p>Our Question Bank Group A and includes the Questions from Group B as perquisites for University Examination</p> <p><b>Remarks:</b></p> <ul style="list-style-type: none"> <li>• Students must be allowed to use the calculator in the examination.</li> <li>• Students must be allowed to use the calculator in the examination.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## SEVEN - VISITATION COURSE CODE: TSP001

### UNIT COURSE-13-COMPUTER NETWORKS

#### Unit I

Unit I: Computer Networks - Network standards - Network settings - OSI and TCP/IP Reference models - Transport Network Internet

#### Unit II

Unit II: Physical Layer - Guided Transmission Media - Wireless Transmission - Communication Architecture - Point-to-Point Computer Network - The Multiple Access System

#### Unit III

Unit III: Layer - Design Issues - Data Link and Network - Necessary Data Link Protocol - Sliding Window Protocol - Medium Access Control Layer - Packet Switching System - Multiple Access Protocol - Ethernet

#### Unit IV

Network Layer - Design Issues - Routing Algorithms - Transport Layer - Transport Services - Classes of Transport Protocols

#### Unit V

Application Layer - HTTP Protocol - Mail - World Wide Web - Application services - Network Security - Cryptography - Authentication - Key Distribution - Public Key Algorithm

#### Text Book:

1. Computer Networks, Andrew S. Tanenbaum and W. J. Van Steenkiste, 3rd Ed, Pearson, 2003

#### Books for Reference:

1. Frank B. Roth, Computer Networks, PHI
2. Data and Computer Communications, P. K. W. Gollub
3. Data Communications and Computer Networks, Douglas Engel, Second Edition, PHI, India
4. Data Communications and Computer Networks, Paulraj, Computer Science Text of India, 2008
5. Data Communications and Networks, Volume 1 (Networks), TMH, 2007
6. Data Communications and Networking, Andrew S. Tanenbaum, 3rd Ed, 2003

# SEVEN - VISUALS CONCRETE CONCEPTS

## CONCRETE CONCEPTS

### Task I

Graphics Software Introduction - Line - Line Equation - Polygonal Line  
- Distance between a point and a Line - Vector - Point and Vector Math - Vector Equation  
- **Bresenham's Algorithm** - Initializing of Line - Filling Line Equation - Character Equation  
- Display to Screen Buffer - Programming Problems

### Task II

Graphics Software Introduction - Display device - The Simple File structure -  
Display File Structure - Display Control - Text - The Line-Style Parameter - Programming  
Problems  
- Polygon Introduction - Polygon - Polygon Representation - Drawing Polygon - Its  
math fact - Polygon structure, algorithm - Filling Polygon - Filling with Pattern -  
Introduction - Programming Problems

### Task III

Transformation Introduction - Matrix - Scaling Transformation - Rotate Line -  
Rotate - Translation Transformation and Translation - Translation Transformation - Rotation  
about an Arbitrary Point - Reflection Transformation - Mirror Transformation - Display Problems  
- Programming Problems  
- Symmetry Introduction - Symmetry Table - Translation - Clipping - Erasing - Drawing  
Segment - Visibility - Drawing and Moving - Other Display File Structure - User-Event  
Introduction - Programming Problems

### Task IV

Windowing and Clipping Introduction - The Window Transformation - Implementation  
- Clipping - The Cohen-Sutherland - Sutherland-Hodgman Algorithm - Clipping Polygon -  
Filling Clipping Homogeneous Clipping - Drawing Line - Multiple Windowing Programming  
Problems

### Task V

Introduction Introduction - Surface - Input Device - Font Handling - Sampled Pattern  
- Surface - Sampling Pattern - Filling - Interactive Technique - Programming Problems

### Task Book:

1. Computer Graphics (A Programming Approach) Second Edition by James D. Foley,  
VAN DAM, BILL, HERNIMAN, ANDERSON



### Books for reference

1. Software engineering - A Practitioner's approach - Roger S. Pressman, 3rd edn  
McGraw-Hill International Editions
2. An Integrated Approach to Software engineering - Patrick Henry, Subramaniam  
Naras, Prentice-Hall, India
3. Fundamentals of Software Engineering, 4th Edition, Patrick Henry, John  
Munro, Prentice Hall of India Pvt. Ltd, New Delhi

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## **8.CS.**

### **1 YEAR - 1 SEMESTER CHRE (CORE INCLC)**

#### **CORE COURSE - I - ADVANCED ACCOUNTANCY - I**

##### **Unit I**

Accounting principles, conventions and practice - Double entry system - Debit - Credit - Limitations - Classification and meaning of financial statements - Journal - Ledger - Trial Balance of account - T-accounts.

##### **Unit II**

Entry - Types - Identification of errors - Errors of omission - Error of Commission - Rectification entry - Law of Prudence - Suspense account - Bank Reconciliation Statement.

##### **Unit III**

Depreciation accounting - Meaning - Causes - Straight-line - Sinking fund method - Written down value method - Annuity method - Reducing balance method.

##### **Unit IV**

Fixed assets of self running concern - Trading account - Profit and Loss account - Balance Sheet preparation - Closing and Opening entries - Accounts of manufacturing concern - Debit and Credit account - Journal and Capitalization Account and Statement of profit and loss.

##### **Unit V**

Average Time Debt - Calculation of interest - Interest on loan - Bad debt expense - Provision and doubtful method - Doubtful debt provision.

##### **Books for Reference**

- |                                  |   |                                                                                   |
|----------------------------------|---|-----------------------------------------------------------------------------------|
| 1. Advanced Accounting           | - | R.L. Gupta and R. Subramanyam, A.P. Talwar, 10th ed. 2000 publication, New Delhi. |
| 2. Advanced Account              | - | M.C. Shukla and T.S. Grewal, 11th ed. 2000 publication, New Delhi.                |
| 3. An Introduction to Accounting | - | S.N. Maheshwari, 8th ed. 2000 publication, Lucknow.                               |
| 4. Advanced Accountancy          | - | M.V. Venkateshwar and R.C. Khandelwal, 11th ed. 2000 publication, New Delhi.      |
| 5. Advanced Accounting           | - | R.P. Jain and R.L. Narang, 10th ed. 2000 publication, New Delhi.                  |

(Note: The Question paper shall consist of 40% problem and 60% Theory)

**SCHENKING**

**S.Y.B.A. - 1 SEMESTER  
COURSE CODE: BBA10112**

**CORE COURSE - I - BUSINESS RECLASSIFICATION**

**Unit I**

Meaning of business - Functions of business - Types of trade - Classification of business - Requirements for success in business business - Qualities of good businessman - Evolution of business - Industry - Industrial revolution - Economic and political consequences

**Unit II**

Ownership of business firms - Types: Sole Proprietorship, Partnership, Companies - merits and demerits, co-operatives - Joint form of organisation - Choice of suitable form, factors, merits and demerits - Evolution - Distinctions between various forms

**Unit III**

Size of business firms - Factors for measurement - Importance of large scale production - Role of big business - Factors for survival of small units - Optimum size - Factors affecting optimum size - Dispersed form.

**Unit IV**

General management: Organisation - Recruitment - Award of duties - Delegation of duties - Chief executives - Managing director - Manager - Problems in management - Property - Control - Delegation.

**Unit V**

Government and business: Types of Government organisations - General regulations of business activity - Industrial policy in India including Industrial Policy Resolutions, Public Enterprises, Nationalisation - Case against public enterprise - Organisation of public enterprise - Functions of administration - Pricing policy - Problems of public enterprise, Public Utility Characteristics - Social problems - Price policy - Management

**Books for Reference:**

1. Fundamentals of Business Organisation and Management - V.K. Arora, Sultan Chaudhary
2. Principles of Business Organisation and Management - P. N. Reddy, Sultan Chaudhary
3. Business Organisation and Management - M.C. Chhabra S. Chaudhary,
4. Business Organisation - K. Narayana P. Narayana, Prakash Publications
5. Business Organisation - N. Prasad, Sri Venkateswara Publications

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| Course code                                                              | NAME OF THE COURSE                                                                                                                                                                                                                                                                                                                                                                 | TP | C | P | T |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---|---|---|
| SYLLABUS                                                                 | INTRODUCTION TO BUSINESS MANAGEMENT                                                                                                                                                                                                                                                                                                                                                | Y  | E |   |   |
| Objectives                                                               | <ul style="list-style-type: none"> <li>To introduce students to the various aspects of business management and its importance in the modern world.</li> <li>To equip the students with basic conceptual understanding and the knowledge necessary to understand application of subject skills necessary for business and management studies with industry and research.</li> </ul> |    |   |   |   |
| Unit I                                                                   | Introduction: Importance of Business Management - CRM and Relationship Marketing - Definition of CRM - Customer and Delivery of CRM - Customer activities - Features and Objectives, Customer Value and Lifecycle - Customer Life Cycle - Many Customer touch points - Deciding who should get the CRM Functions.                                                                  |    |   |   |   |
| Unit II                                                                  | Strategy and Implementation of CRM, CRM process and systems - Importance of Customer Support Relationship - CRM strategy - The relationship-oriented organization - Customer knowledge - Relationship pricing - Importance of Customer Loyalty in CRM.                                                                                                                             |    |   |   |   |
| Unit III                                                                 | Business CRM, Relationship and management - Business Solution - Data analysis, Data Warehouse and data mining - Segmentation and analysis - Application of Customer Relationship Management - Marketing results - using association criteria for the appropriate Relationship.                                                                                                     |    |   |   |   |
| Unit IV                                                                  | CRM Software: Contact Management, Campaign management, Data from Customer Value Chain - CRM - Integrated Business Process Management - Performance and Metrics - Contact Change - Process Lifecycle - Value System - Implementation Strategy.                                                                                                                                      |    |   |   |   |
| Unit V                                                                   | Advanced CRM, CRM Planning - segmentation, relationship Process, Technology, People - Managing quality relationship quality systems, Customer process - CRM model, Segmentation, internal and external, Data and - Application of CRM model - CRM implementation, Industry standards and current issues - Best Practice in Managing Technology - Global Issues.                    |    |   |   |   |
| <b>RECOMMENDED READING:</b>                                              |                                                                                                                                                                                                                                                                                                                                                                                    |    |   |   |   |
| Principles of Marketing, Customer Relationship Management                |                                                                                                                                                                                                                                                                                                                                                                                    |    |   |   |   |
| 100 Principles of CRM, The CRM Handbook                                  |                                                                                                                                                                                                                                                                                                                                                                                    |    |   |   |   |
| Business Strategy, CRM: A strategic perspective in the Marketing process |                                                                                                                                                                                                                                                                                                                                                                                    |    |   |   |   |
| Book, Marketing CRM: A strategic perspective in the Marketing process    |                                                                                                                                                                                                                                                                                                                                                                                    |    |   |   |   |
| Principles of CRM, CRM Handbook, Marketing Strategy                      |                                                                                                                                                                                                                                                                                                                                                                                    |    |   |   |   |
| Business Customer Relationship                                           |                                                                                                                                                                                                                                                                                                                                                                                    |    |   |   |   |
| Outcomes                                                                 | By the end of the course, students will be able to: <ul style="list-style-type: none"> <li>1. Explain CRM implementation strategy</li> <li>2. Develop and implement strategy, segmentation and CRM and CRM solutions</li> <li>3. Plan and monitor the CRM system and its impact on CRM and customer relationship management strategy.</li> </ul>                                   |    |   |   |   |

**8 YEAR - IV SEMESTER  
CURRICULUM (THEORETICAL)**

**CORE COURSE - II - PRINCIPLES OF MANAGEMENT**

**Unit I**

Definition of Management - Functions of management - Planning, organising, staffing, directing, motivating and controlling - Evolution of management. Contribution of F.W. Taylor, Henry Fayol, Douglas McGregor, Elton Mayo, Peter F. Drucker.

**Unit II**

Planning: Meaning, importance, types, Objectives, Steps, guidelines for effective planning - Decision making process.

**Unit III**

Organising: Meaning, Objectives and importance of organising - Types of management - Factors governing the type of organisation - Specialisation - Delegation of authority and responsibility - Centralisation and decentralisation of authority - Advantages - Disadvantages - Line and staff authority - Jobbing, working, personal, information applied.

**Unit IV**

Directing: Meaning, principles of direction - communication process, leadership - Principles of effective administration, Motivation, Control - Maslow's needs hierarchy theory and Herzberg's two factor theory.

**Unit V**

Controlling - meaning - activities - Steps in Controlling - Control Techniques.

**Books for Reference:**

1. T. L. Parsons, Principles of Management, Macmillan Publishing Co Inc.
2. Douglas Fayol, Elements of Management, Sir Isaac Pitman and Sons
3. Galbraith and Davis, Principles of Management, Pearson and Co.
4. J. S. Adams, Principles of Management, Indian Books Agency
5. L. M. Prasad, Principles and Practice of Management, Asian Chartered Bank
6. P. L. Terehkar & P. K. P. Terehkar, Tata McGraw Hill.
7. R. L. Akhanna & K. Gupta, Sahitya Prakash

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**II YEAR - FIFTH SEMESTER  
COURSE CODE: 7800AC1**

**(CORE COURSE - XIV - 1011010)**

**Unit I**

Definition of Costing - Importance - Uses of costing - Objectives - Advantages -  
Distinction between Cost and Financial accounts - Installation of costing system - Analysis  
and classification of costs - Importance of cost sheet

**Unit II**

Material: Standard procedure - Equations for material - Issue of materials: First  
in First Out, Last in First Out - Simple Average - Weighted Average - Recording and  
controlling of material - Importance of issue: minimum level, maximum level, reorder  
level, Economic Ordering quantity - Normal loss/losses - Control over wastage, scrap and  
spillage

**Unit III**

Methods of ascertaining labour: Standard labour - objectives - Control over labour  
cost - Job evaluation - Job costing - Time study - Labour turnover - Training and  
development

**Unit IV**

Accounting overheads - Fixed and variable overheads - Uses of absorption method:  
- Advantages - Applications: use of absorption - Distinction between works overhead,  
administrative overhead, selling overhead and distribution overhead - Classification of special  
overhead

**Unit V**

Job costing - Process costing - Normal loss, abnormal loss and abnormal gain -  
FIFO system - Equations - Production including By-products and joint products

**Books for Reference**

- |                    |                                              |
|--------------------|----------------------------------------------|
| 1. Cost accounting | H.P. Jain and K.L. Nigam, Vikas Publications |
| 2. Cost accounting | Sanjiv Kumar, Eastern Wall & Sons            |
| 3. Cost accounting | E.S.S. Pillai and Bhargava, S. Chand & Co.   |
| 4. Cost accounting | E.P. Prasad, Eastern Wall & Sons             |
| 5. Cost accounting | T.K. Achy, Narayana Publications             |
| 6. Cost accounting | V.B.P. Rao, Vikas Publications               |

**Note:** The given paper shall contain 60% problems and 40% theory

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DE FLAR - SCHMIDT  
COLLEGE CARE, PROGRAM

ELECTIVE COURSE: 100 - MICROFILM

Unit I

Introduction to Computers - History - Documents - Brief History of Computers - Classification of Computers - Comparison of a Document - Advantages of Computers - Introduction of Computers

Unit II

Introduction to M.S. Word - Working with Word Documents - Formatting the Documents - Moving - Printing and Saving the Documents - Using Undo and Redo Features - Text Clipping - Formatting the Text - Inserting Page Numbers - Header and Footer - Using Tables and Symbols

Unit III

M.S. Excel - Working a spreadsheet - Using data (B, C, D) and formulae (Bates and Columns) - Data and Basic - Copying and Moving Formulae - Printing and Copying Formulae - Moving Formulae - Using Functions - Printing a Chart

Unit IV

M.S. Access - Creating a new database - Creating a new table - Creating a primary key - Adding Fields - Changing the View and Using Fields - Reports and Queries

Unit V

M.S. Power Point - Creating basic presentation - Building Presentation - Using Visual Elements - Formatting and Changing text - Adding Objects - Applying Transitions - Animation Effects - Web Show

Books for Reference:

1. Windows and M.S. Office 2000 with Database concepts - N. G. G. - Eastern Publications
2. Office Automation and Word Processing - Singapore
3. Office Automation - E.S. Bay - Himalaya Publications
4. Office 2000 Comprehensive - Stephen Z. Nelson - Tata McGraw Hill Publishing Company Ltd.

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| Semester - V          |                                              | Page No. _____ |     |
|-----------------------|----------------------------------------------|----------------|-----|
| Course code: CSE10102 | Course title: Data Structures and Algorithms | NP             | 100 |
|                       |                                              | 1              | 1   |

|          |                                                                                                                                                                                                                                                               |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit-I   | <ul style="list-style-type: none"> <li>Linear data structures: Array, Linked List, Stack, Queue</li> <li>Binary Trees, Binary Search Trees, AVL Trees, B-Trees, B+ Trees</li> <li>Hashing, Graphs, Shortest Path Algorithms</li> </ul>                        |
| Unit-II  | <ul style="list-style-type: none"> <li>Advanced Linear Data Structures: AVL Trees, B-Trees, B+ Trees</li> <li>Hashing, Graphs, Shortest Path Algorithms</li> <li>Binary Trees, Binary Search Trees, AVL Trees, B-Trees, B+ Trees</li> </ul>                   |
| Unit-III | <ul style="list-style-type: none"> <li>Advanced Binary Trees: AVL Trees, B-Trees, B+ Trees</li> <li>Hashing, Graphs, Shortest Path Algorithms</li> <li>Binary Trees, Binary Search Trees, AVL Trees, B-Trees, B+ Trees</li> </ul>                             |
| Unit-IV  | <ul style="list-style-type: none"> <li>Advanced Graphs: Shortest Path Algorithms, Minimum Spanning Trees, Network Flow</li> <li>Hashing, Graphs, Shortest Path Algorithms</li> <li>Binary Trees, Binary Search Trees, AVL Trees, B-Trees, B+ Trees</li> </ul> |
| Unit-V   | <ul style="list-style-type: none"> <li>Advanced Hashing: Consistent Hashing, Hyperloglog</li> <li>Hashing, Graphs, Shortest Path Algorithms</li> <li>Binary Trees, Binary Search Trees, AVL Trees, B-Trees, B+ Trees</li> </ul>                               |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| References and Further Reading                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
| Cormen, R.E., Leiserson, C.E., Rivest, R.L., Stein, C. Introduction to Algorithms, 3rd Edition, MIT Press, 2009.<br>Sedgwick, R. Algorithms in C++, 4th Edition, Addison-Wesley, 2012.<br>Cormen, R.E., Leiserson, C.E., Rivest, R.L., Stein, C. Introduction to Algorithms, 3rd Edition, MIT Press, 2009.<br>Cormen, R.E., Leiserson, C.E., Rivest, R.L., Stein, C. Introduction to Algorithms, 3rd Edition, MIT Press, 2009.<br>Cormen, R.E., Leiserson, C.E., Rivest, R.L., Stein, C. Introduction to Algorithms, 3rd Edition, MIT Press, 2009. |  |

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|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|
| Semester - 11                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CIP                                                                                                                                                                                          |   |   |
| Course code                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CIP                                                                                                                                                                                          |   |   |
| 22BC0601                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1                                                                                                                                                                                            | 2 | 3 |
| Objectives                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1. To explain the various provisions relating to minimum wages, overtime, bonus, gratuity, leave, etc.<br>2. To explain the various rights and benefits available under various labour laws. |   |   |
| Unit I                                                                                                     | <b>The Factories Act, 1947</b><br>Definitions – Inspecting officer – Health, safety and welfare of workers – Working hours of adults – Employment of children, women and young persons – Leave with wages.                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                              |   |   |
| Unit II                                                                                                    | <b>The Trade Unions Act, 1926</b><br>Definitions – Registration of trade unions – Rights and liabilities of trade unions – Fund for welfare purposes – Disputes – Conciliation – Investigation of trade unions – Immunities from civil and criminal liability – Rules and orders – Penalties – Breach of the Industrial Disputes Act, 1947 – Conciliation – Minimum Wages – Provision for living wages – Conciliation and voluntary awards – Right to strike – Disputes of workers – 1927.                                             |                                                                                                                                                                                              |   |   |
| Unit III                                                                                                   | <b>The Industrial Disputes Act, 1947</b><br>Definitions – Jurisdiction under the Act – Settlement and award – List of new provisions.                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                              |   |   |
| Unit IV                                                                                                    | <b>The Workmen's Compensation Act, 1923</b><br>Scope and cover – Definitions – Rules regarding accidents – Compensation – Meaning of accident – Nature of compensation – Permanent and total incapacity – Qualification.                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                              |   |   |
| Unit V                                                                                                     | <b>The Employees' Provident Funds Act, 1952</b><br>Definitions – Employees' Provident Fund – Employees' Provident Fund contribution to the fund – The Employees' State Insurance Act, 1948 – Scope and cover – Contributions – Benefits – Disputes and claims.                                                                                                                                                                                                                                                                         |                                                                                                                                                                                              |   |   |
| <b>Reference and Textbooks:</b><br>Kapoor, D. D. (2006). <i>Concepts of Labour Law</i> . New Delhi: Lexis. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                              |   |   |
| Singh, B. D. D. (2006). <i>Labour Law &amp; Social Welfare</i> .                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                              |   |   |
| Saluja, H. C. (2001). <i>A Manual of Labour Law</i> . 3rd Edition.                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                              |   |   |
| Prasad, P. C. (2001). <i>Labour and Industrial Law</i> . 3rd Edition.                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                              |   |   |
| Exercises                                                                                                  | For the assigned assignment questions, refer to Unit I & II to: <ul style="list-style-type: none"> <li>1. Explain the provisions of Minimum wage.</li> <li>2. Explain the rights of workers in terms of labour law.</li> <li>3. Explain the provisions of the Factories Act, 1947.</li> <li>4. Explain the provisions of the Industrial Disputes Act, 1947.</li> <li>5. Explain the provisions of the Employees' Provident Funds Act, 1952.</li> <li>6. Explain the provisions of the Employees' State Insurance Act, 1948.</li> </ul> |                                                                                                                                                                                              |   |   |

**II YEAR - V SEMESTER  
COURSE CODE: TBC020**

**ELECTIVE COURSE - II (B)-COMPUTER APPLICATION IN SYSTEM**

**Unit I**

Computer System - Subsystem - Instruction - Interrupts - Classification - Hardware - Software - Central Unit - Control Processing Unit - Memory - Input and Output Device - Information Technology

**Unit II**

Development of Computer Program - Language - Syntax - Semantics - High Level - System Software - Application Software - Structure of Computer Program - Algorithm, Flowchart and Pseudocode - Storing Method - Data Processing - Real Time and Time Shared.

**Unit III**

Function of Operating System - Classification of Operating System - Types of Operating System - DOS - UNIX - Windows Operating System.

**Unit IV**

Assembly Language - Character Set - Basic Structure of Program - Key words and Identifiers - Constant - Variable - Data Type - Declaration of Variable - Assigning Value to Variable.

**Unit V**

Source and P-Code - Addressing Method - Register - Memory Architecture - Categories of Memory - LAN, MAN, WAN - Network Security - Cryptography and Encryption method.

**Books for Reference**

1. A Text book of Information Technology - 8 James Taylor, B. Prasad Rao and T. Prasad Rao, J.Chand & Company New Delhi.
2. Computer Programming and Applications - Dr. R.R. Iyer, New Age Publications, Mumbai.
3. Data and Computer Communications, 2<sup>nd</sup> Edition, William Stallings, Prentice Hall, India.
4. Computer Networks - A System Approach, 2<sup>nd</sup> Edition, Larry J. Kurose, Thomas W. Shanon, Morgan Kaufmann Publishers (2011).

**COMPUTER APPLICATION IN BUSINESS LAB**

**Solving business problem using C**

Calculation of depreciation under various methods, simple interest and compound interest, sales man's commission, payroll generation, stock levels, discounts (B1), and stock, bank pass book preparation, sorting the names of employees in alphabetical order etc.

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II YEAR - VI SEMESTER  
COURSE CODE: TUC02B

ELECTIVE COURSE - III (B) - ENTREPRENEURSHIP DEVELOPMENT

Unit I

Incubation - Meaning - Importance - Definition - Types - Functions - Qualities of an Incubator - Role of incubator in a start-up.

Unit II

Business Evaluation - Factors selection - Time of incubation - Start location - Seed building - water and power, raw material, machinery, space and other infrastructure facilities - Financing, registration and legal formalities.

Unit III

Business model development for entrepreneurship development - (BC, BDC, HEC, DSE - Institutional incubator in entrepreneurship - FIC, MIP, Commercial banks - Functions of start-up incubators).

Unit IV

Project report - Meaning and importance - Project report - Purpose of a report for the entrepreneurs of small business - Project proposal - Market feasibility - Technical feasibility - Financial feasibility and economic feasibility - Risk assessment.

Unit V

Entrepreneurship development in India - Small entrepreneurship in India - Policies to start-up business and start-up business.

Books Recommended

1. Entrepreneurship development - Joseph Paul D. All India Self Employment Programme Publishing House
2. Entrepreneurship Development Programme in India - M.A. Khan - Emerald Publishing House - India
3. Concepts of Entrepreneurship Development and Management - Ram Datta Chatterjee Publishing House
4. Entrepreneurship development - R. Lakshmi - All India Self Employment Programme Publishing House
5. The organization and Management of Small business - Centre for Entrepreneurship Development Studies.

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**1 YEAR - DIPLOMA  
COURSE CODE: DCC001**

**1 THE OTHER (B) - ADVANCED ACCOUNTS - II**

**Unit I**

Bills of Exchange - Drawing and Acceptance bills - Discount - Delivery for  
to maturity - Dating of bill - Endorsement - Collection before bill of exchange  
and Promissory note.

**Unit II**

The Discount Chart - Factors - Annual interest - Bank rate - Average date -  
Line of Cash - Date for day of profit - Miscellaneous Trading account.

**Unit III**

Original account - Partners' ledger - Journal entry - Share fee - Amount  
due - Calculation of share stock - Cost price - Market price - (It includes transactions -  
not recorded before - Share premium - Leading books.

**Unit IV**

Good versus bad debts - methods - Estimated Future's book - Expense out of  
badly method - Provisional method - Bad debt account - Estimated Interest paid  
current and long-term - Estimated future's book - current and old.

**Unit V**

Single entry system - methods - Not double method - Conversion of single entry into  
double entry - History of business account, credits, D.R., L.F., Capital, Cost, partners,  
Sales, Profit.

**Books for Reference:**

- |                             |   |                                                                                    |
|-----------------------------|---|------------------------------------------------------------------------------------|
| 1. Advanced (Practical)     | - | R.T. Gupta - vol. II Publishers,<br>Delhi - small & cost publishers,<br>New Delhi. |
| 2. Advanced Accounts        | - | M.A. Hudaib and T.E. Grewal, Chartered<br>Company Publications.                    |
| 3. Introduction to Accounts | - | S.S. Maheshwari, Publishers (Delhi)                                                |
| 4. Advanced Accounting      | - | M.A. Anandaraman and S.S. Tandon<br>Sharda Publishing Company Ltd                  |
| 5. Advanced Accounting      | - | S.P. Arora and K.C. Bhatia, Chartered<br>Publishers Ltd.                           |

Note: The question paper will contain 40% problems and 60% Theory

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