

SCHEME OF INSTRUCTION
MCA (MASTER OF COMPUTER APPLICATIONS)
Proposed from the Academic year 2017-2018
SEMESTER – I

S.No	Course Code	Course Title	Scheme of Instruction			Contact Hrs/Wk	Scheme of Examination	
			L	T	P		Sessio onals	Univ. Exam
1.	CS101	Discrete Mathematics	3	1	0	4	20	80
2.	CS102	Probability & Statistics	3	1	0	4	20	80
3.	CS103	Computer Programming and Problem Solving	4	0	0	4	20	80
4.	CS104	Elements of Information Technology	3	1	0	4	20	80
5.	CS105	Economic Analysis	3	1	0	4	20	80
6.	CS106	English	3	0	0	4	20	80
7.	CS107	Programming Lab I (C Programming Lab)	0	0	4	4	25	50
8.	CS108	Programming Lab II (Information Technology Lab)	0	0	4	4	25	50
Total			19	4	08	32	170	580

DISCRETE MATHEMATICS

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

UNIT- I

Mathematical Logic - Statements and notation connectives, Equivalence of statement formula, Theorem proving – Introduction to predicate calculus.

Relations – Binary relations and digraphs, special properties of Binary relations, Equivalence relations, Ordered relations, Lattices and Enumerations, Operations of relations.

UNIT -II

Functions – Definitions and properties of functions, Inductively defined functions, partial functions, Hashing functions, Recursion.

Boolean Algebra – Definition and properties, Lattices, Boolean functions, Normal forms. Disjunctive Normal Forms (DNF). Conjunctive Normal Forms (CNF). Principal DNF, Principal CNF, Applications to switching networks, applications to logic.

UNIT –III

Recurrence Relations – First-order linear recurrence relation, Second-order linear homogeneous recurrence relations with constant coefficients, Non-homogeneous recurrence relations

Algebraic structures – Definition, Examples and Properties

Groups: Definition, Examples and elementary properties, Homomorphism, Isomorphism and Cyclic groups.

UNIT - IV

Elementary combinatorial – sets, operations on sets, Venn diagram, basics of counting combinations and permutations without repetitions, unlimited repetitions, constrained repetitions. Binomial coefficients, Binomial and Multinomial theorems, principle of inclusion and exclusion.

UNIT -V

Graph Theory: Basic concepts, Isomorphism and sub graphs, trees and their properties, spanning trees, directed trees, binary trees.

Planar graphs, Euler's formula, multigraphs and Euler Circuits.

Hamiltonian graphs, chromatic numbers, four color problem, network flows.

Suggested Reading:

1. Jr. P. Tremblay and R Manohar “*Discrete Mathematical Structures with Applications to Computer Science*”, McGraw Hill, 1987.
2. Jol L. Moth, Abraham Kondel, Theoddar P. Paker “*Discrete Mathematics for Computer Scientists and Mathematicians*” PHI 1976.
3. Ralph P. Grimaldi “*Discrete and Combinatorial Mathematics*” 5th Edition, Pearson, 2004.

PROBABILITY AND STATISTICS

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

UNIT-I

Data Validation and Information Abstraction: Methods of collecting data efficiently, Gathering information from data charting.

UNIT-II

Probability: Laws of Probability, Probability distributions, Discrete, Equiprobable, binomial, Poisson.

UNIT-III

Continuous Distributions: Rectangular, normal, gamma and beta.

UNIT-IV

Statistical Methods : Frequency distributions, Mathematical Expectation, Moments, Skewness and Kurtosis.

UNIT-V

Correlation and Regression, Introduction to tests of Significance, u, t, x tests.

Suggested Reading:

1. S.C. Gupta and V.K. Kapoor, “ Fundamentals of Mathematical Statistics”, 10th Edition, 2000.
2. William Mendenhall, Robert J. Beaver, Barbara M. Beaver, “ Introduction to Probability and Statistics”, Thomson Brooks / Cole, Eleventh Edition, 2003.
3. Richard A. Johnson, “Probability and Statistics for Engineers”, Prentice Hall of India, Seventh Edition, 2005.

COMPUTER PROGRAMMING AND PROBLEM SOLVING

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

UNIT – I

Introduction to Computer Programming: Computing Environments, Computer Languages, Creating and Running Programs, Number Systems (Binary, Octal, Decimal, Hex), Representation of numbers (fixed and floating point)

Algorithms and Flow charts : Definition of Algorithms, examples, Symbols used in Flow chart, examples.

Introduction to C Language - Background, C Identifiers, Data Types, Operators, Variables, Constants, Input / Output, Expressions, C Programs, Precedence and Associativity, Evaluating Expressions, Type Conversion, Statements, Bitwise Operators.

UNIT-II

Selection: Logical Data and Operators, if-else, switch Statements, Standard Functions.

Repetition: loops, while, for, do-while statements, Loop examples, break, continue, go to.

Arrays - Concepts, Using Arrays in C, Inter-Function Communication, Array Applications, Two- Dimensional Arrays, Multidimensional Arrays, Linear and Binary Search, Selection, Bubble, Insertion Sorts.

UNIT – III

Functions: Designing Structured Programs, Functions Basics, User Defined Functions, Inter Function Communication, Standard Functions, Scope, Storage Classes-auto, Register, Static, Extern, Scope Rules, and Type Qualifiers.

Recursion- Recursive Functions, Terminating Condition, Quick & Merge Sort Techniques, Preprocessor Commands.

UNIT - IV

Pointers - Introduction, Pointers to Pointers, Compatibility, L value and R value, Arrays and Pointers, Pointer Arithmetic and Arrays

Call-by-reference: Pointers for Inter-Function Communication, Passing Arrays to a Function,

Dynamic Memory Allocation: Memory Allocation Functions, Array of Pointers, Programming Applications, Pointers to void, Pointers to Functions, Command-line Arguments.

Strings - Concepts, C Strings, String Input / Output Functions, Arrays of Strings, String Manipulation Functions.

UNIT - V

The Type Definition (type def), Enumerated Types

Structure: Definition and Initialization of Structures, Accessing Structures, Nested Structures, Arrays of Structures, Structures and Functions, Pointers to Structures, Self Referential Structures. Unions.

Input and Output: Files, Streams, Standard library Input Output Functions, Character Input Output Functions.

Suggested Reading:

1. Rajaraman V, "*The Fundamentals of Computer*", 4th Edition, Prentice Hall of India, 2006
2. Kernighan BW and Ritchie DM, "*The C Programming Language*", 2nd Edition, Prentice Hall of India, 2006.
3. J.R. Hanly and E.B. Koffman, "*Problem Solving and Program Design in C*", Pearson Education, 6th Edition, 2007.
4. B. A. Forouzan and R.F. Gilberg, "*C Programming & Data Structures*", Cengage Learning, 2nd Edition, 2007.

ELEMENTS OF INFORMATION TECHNOLOGY

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

UNIT-I

Introduction to Information Technology: Information concepts & Processing: Basic concepts of IT, data Processing, data and information

Elements of computer system: Classification, history and types of computers.

Hardware: CPU, Memory unit, I/O devices, auxiliary storage devices, data representation

Software: System and Application s/w and utility packages.

Programming Languages: classification, Machine code, Assembly Language, higher level languages, fourth generation languages. Translators: Assembler, Compiler and Interpreter.

UNIT –II

Operating systems: Concept as resource manager and coordinator of processor, devices and memory. Concept of priorities, protection and parallelism. Command interpreter, Typical commands of Linux/MS Windows

Communications: Client server systems, Computer networks, network protocols, LAN, WAN, Internet facilities through WWW, Mosaic, Gopher, html, scripting languages, communication channels, factors affecting communication among devices.

UNIT-III

Files & Databases: Data Storage hierarchy, File management systems, database management systems, types of data base organizations, features of database management systems.

Information integrity & computer security: Perverse software, concepts and components of security, Preventive measures and treatment.

UNIT-IV

Information System analysis & design: system study review, problem definition, system analysis, system design.

Management Information systems: information need of managers, developing a management information system, planning & decision making practices supported by an MIS.

UNIT-V

Computers impact on society & Range of applications: scientific, educational, industrial, business, multilingual applications.

Suggested Reading:

1. Sanders, D.H. *"Computers Today"* McGraw Hill. 3rd Edition, 1988.
2. Prof. Vikram Singh, *"Impact of Information & Communication Technology on public life"* (1st Edition) Lakshmi Publications, 2009.

ECONOMIC ANALYSIS

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessionals	20 Marks

UNIT-I

The nature and scope of Managerial Economics, Fundamental concepts of managerial economics.

UNIT-II

Demand Analysis, concepts of demand, demand elasticity's.

UNIT -III

Production and cost analysis and principles: Production function, single output isoquantum, average cost curve – Laws of returns – Laws of supply, Price determination under different competitive situations.

UNIT-IV

National income : Concepts, measurement and determinants.

Planning : The machinery for planning in India, Salient features of India's Five, Year plans.

UNIT-V

Indian Financial Systems, Functions and role of Reserve Bank of India. Conventional Banks and Industrial Finance. Term "lending Financial Institutions-role and functions.

Suggested Reading:

1. Dhiraj Bhattacharya & Pranab Chakraborti, "*Fundamentals of Business Economics*", A.H. Wheeler & Co. (P) Ltd., 1986.
2. Barry Keating & J. Holton Wilson, "*Managerial Economics*". Biztantra, Second Edition, 2003.
3. Dominick Salvatore, "*Managerial Economics*", Thomson, Fourth Edition, 2001.

ENGLISH

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessionals	20 Marks

The following are the objectives of the course:

To enable the students to

- communicate clearly, accurately and appropriately
- know and use verbal and non-verbal communication appropriately
- infer information from texts
- learn basic grammar of the English language
- use appropriate idiomatic expressions, one word substitutes etc.

UNIT – I

Effective communication: Role and importance of communication; Features of human communication; Process of communication; Importance of listening, speaking, reading, and writing, Types of listening, Tips for effective listening, Types of communication: Non-verbal communication, Verbal – Formal versus informal communication, One-way versus two-way communication; Barriers to communication

UNIT – II

Remedial English : Common errors, Tense and aspects, Connectives and correlative conjuncts, Simple, complex and compound sentences, Voice, concord, Direct and indirect speech, Degrees of comparison, Question tags, Punctuation

UNIT - III

Written Communication : Paragraph writing, Précis writing, Expansion, Essay writing, Personal Letters, General reports

UNIT – IV

Vocabulary: Technical vocabulary, Homonyms, Homophones, Synonyms, Antonyms, Words often confused, One-word substitutes, Idiomatic usage, Affixes

UNIT – V

Reading comprehension and reading strategies.

The following five lessons are prescribed:

1. Dr. A.P.J. Abdul Kalam
2. Sathya Nadella
3. Azim Premji
4. Sachin Tendulkar
5. Sam Pitroda

Suggested Reading:

- 1.E. Suresh Kumar, *Engineering English*, Orient Blackswan, 2014.
- 2.E. Suresh Kumar et al., *Communication Skills and Soft Skills*, Pearson, 2011.
3. Sanjay Kumar and Pushp Lata, *Communication Skills*, OUP, 2011.
- 4.Kavita Tyagi and Padma Misra, *Professional Communication*, PHI, 2011.
- 5.Meenakshi Raman and Sangeeta Sharma, *Technical Communication: Principles and Practice*, OUP, 2011.

**PROGRAMMING LAB - I
(C PROGRAMMING LAB)**

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessionals	20 Marks

1. Finding the maximum and minimum of given set of numbers
2. Finding Roots of a Quadratic Equation
3. Sin x and Cos x values using series expansion
4. Conversion of Binary to Decimal, Octal, Hex-Decimal and vice versa
5. Generating a Pascal triangle
6. Program using Recursion - Factorial, Fibonacci, GCD, Quick Sort and Merge Sort
7. Matrix addition and multiplication using arrays
8. Programs for Bubble Sort, Selection Sort, Insertion Sort
9. Programs on Linear Search and Binary Search
10. Functions for string manipulations
11. Finding the No. of characters, words and lines from a given text file
12. Program to open a file and copy the contents of it into another file.

**PROGRAMMING LAB - II
(IT Workshop)**

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessionals	20 Marks

Syllabus:

System Assembling , Disassembling and identification of Parts / Peripherals

Operating System Installation – Install Operating Systems like Windows, Linux along with necessary Device Drivers.

MS-Office / Open Office

- a. Word – Formatting Page Borders, Reviewing Equations, symbols
- b. Spread Sheet – organize data, usage of formula graphs charts
- c. Power point – features of power point, guidelines for preparing an effective presentation
- d. Access – creation of database, validate data
4. Network Configuration & Software Installation : Configuring TCP/IP, proxy and firewall settings. Installing application software system software & tools.
5. Internet and World Wide Web-Search Engines. Types of search engines, netiquette, Cyber hygiene.
6. Trouble Shooting – Hardware trouble shooting, Software trouble shooting.
7. MATLAB – basic commands, subroutines, graph plotting
8. LATEX – basic formatting, handling equations and images.

Suggested Reading:

1. K. L. James, Computer Hardware, Installation, Interfacing Troubleshooting and Maintenance, Eastern Economy Edition.
2. Gary B.Shelly, Misty E Vermaat and Thomas J. Cashman, Microsoft Office 2007 Introduction Concepts and Techniques, Windows XP Edition, 2007, Paperback.
3. Leslie Lam port, LATEX-User’s Guide and Reference manual, Pearson, LPE, 2nd Edition.
4. Rudraprathap, Getting Started with MATLAB: A Quick Introduction for Scientists and Engineers, Oxford University Press, 2002.
5. Scott Mueller’s, Upgrading and Repairing PCs, 18th Edition, Scott. Mueller, QUE, Pearson, 2008.

**SCHEME OF INSTRUCTION
MCA (MASTER OF COMPUTER APPLICATIONS)
Proposed from the Academic year 2017-2018**

MCA I Year

SEMESTER – II

S.No	Course Code	Course Title	Scheme of Instruction			Contact Hrs/Wk	Scheme of Examination	
			L	T	P		Sess ional s	Univ Exa m
1.	CS201	Accounting & Financial Management	4	1	0	4	20	80
2.	CS202	Principles of Object Oriented Programming using Java	4	-	0	4	20	80
3.	CS203	Management Information Systems	4	1	0	4	20	80
4.	CS204	C++ and Data Structures	4	1	0	4	20	80
5.	CS205	Computer Organization	4	1	0	4	20	80
6.	CS206	Communication Skills	4	1	0	4	20	80
7.	CS207	Programming Lab – III (OOP Lab)	0	0	4	4	25	50
8.	CS208	Programming Lab – IV (C++ Programming Lab)	0	0	4	4	25	50
Total			19	5	08	32	230	520

ACCOUNTING AND FINANCIAL MANAGEMENT

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

UNIT-I

An overview of Accounting cycle – Basic concepts and conventions – Books of Account – Terminal statement.

UNIT-II

Financial statement analysis and interpretation – Ration analysis.

UNIT-III

Working capital – Sources and uses – Funds flow and cash flow analysis – Management of Inventory.

UNIT-IV

Capital Budgeting – Techniques for evaluation – Cost of capital – Computation of specific costs, and weighted average cost of capital.

UNIT-V

Analysis of costs and their behavior – Cost volume – Profit analysis Variable costing and absorption costing.

Budgets-Flexible Budgeting – Long and Short term forecasting.

Suggested Reading:

1. James. C. Van Horne, “*Fundamentals of Financial Management*”, Pearson Edition, Eleventh Edition, 2001.
2. Khan MY, Lain PK, “*Financial Management*”, Tata McGraw Hill, Second Edition, 1993.
3. Maheswari SN, “*Management Accounting and Financial Control*”, Sultan Chand, & Sons, 2014.

PRINCIPLES OF OBJECT ORIENTED PROGRAMMING USING JAVA

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks
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UNIT-I

Object Oriented System Development: Understanding Object Oriented Development, Understanding Object Oriented Concepts, Benefits of Object Oriented Development.

Java Programming Fundamentals: Introduction, Overview of Java, Data types, Variables and Arrays, Operators, Control Statements, Classes, Methods, Inheritance, Packages and Interfaces.

UNIT-II

Exception Handling, Multithreaded Programming, I/O basics, Reading console input and output , Reading and Writing Files, Print Writer Class, String Handling.

UNIT-III

Exploring Java Language, Collection Overview, Collections Interfaces, Collection Classes, Iterators, Random Access Interface, Maps, Comparators, Arrays, Legacy classes and Interfaces, String Tokenizer, Bit Set, Date, Calendar observable, Timer.

UNIT-IV

Java I/O classes and Interfaces, Files, Stream and Byte Classes, Character Streams, Serialization.

UNIT-V

GUI and Event Driven Programming : Applet Class, Event Handling, Delegation event model, event classes, event listener Interfaces. Customizing Frame Windows, GUI Programming Basics, Text Related GUI Components, Layout Managers, Effective use of Nested panels, Other GUI components, Menus and Handling Mouse Events.

Suggested Reading:

1. Patrick Naughton “*JAVA 2, The Complete Reference*” Tata McGraw Hill, 3rd Edition, 2005.
2. Richard A. Johnson, “*Java Programming and Object-Oriented Applications Development*” Cengage Learning, India Edition, 2009.
3. John Dean and Raymond Dean “*Introduction to Programming with JAVA A Problem Solving Approach*”, McGraw Hill, 7th Edition ,2008.
4. Joe Wigglesworth and Paula McMillan, “*Java Programming : Advanced Topics*” Cengage Learning, 3rd Edition, 2009.

MANAGEMENT INFORMATION SYSTEMS

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

UNIT-I

An Introduction to concepts of System and Organizations. Strategic uses of Information Technology, Business Process in Engineering and Information Technology.

UNIT-II

Applications of Operational Information Systems to Business, Tactical and Strategic Information System to Business.

UNIT-III

Information Systems Planning, approach to System Building Alternative Application Development.

UNIT-IV

Managing Knowledge, Knowledge Management in the Organization, Enhancing Management Decision-Making, DSS, GDSS, and ESS.

UNIT-V

Management of Information Systems, Information System security and control, Ethical issue, managing firm infrastructure and Enterprise system.

Suggested Reading:

- Robert Schultheis, Mary Summer, “*Management Information Systems – The Manager’s view*”, Tata McGraw Hill, Fourth Edition, 2006.
1. Kenneth C. Loudon, Jane P Loudon, “*Management Information System*”, Prentice Hall, 4th Edition, 2008.
 2. Ralph Stair, George Reynolds “*Principles of Information Systems*”, Cengage Learning 12th Edition, 2008.
 3. James A, O’Brien, “*Management Information Systems*”, Tata McGraw Hill, Sixth Edition, 2004.

C++ AND DATA STRUCTURES

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

UNIT - I

Introduction to C++: Programming paradigms, Object Oriented Programming Concepts, Advantages and Applications of OOPs.

Functions: Call by value, call by reference, Inline Functions, Function Overloading, Recursion,

Arrays: Introduction to Arrays, Arrays in functions, Programming with Arrays and multidimensional Arrays

UNIT - II

Defining classes: Classes, Abstract data types. Friend Functions and Member Functions. Constructors, Destructors, Strings, Pointers and Dynamic Arrays.

UNIT – III

Operator overloading.

Inheritance: The notation of inheritance, derived classes, overriding, Virtual Base Class. Virtual functions, Polymorphism, Exception Handling, Function Templates, Class Templates.

UNIT-IV

Introduction to Linear Data Structures: Linear Lists, Stacks, Queues using Array Representation and Linked Representation, Applications of Stacks and Queues, Hashing, Collision Resolution.

UNIT – V

Non-Linear Data Structures: Binary Trees, properties, Representation, and Traversals, AVL Trees, Operations on AVL Trees, B-Trees.

Graphs: Definition, Representation, Traversals.

Suggested Reading:

1. Walter Savitch, Problem Solving with C++, 6th Edition, Pears Education Publishing, 2009.
2. Bjarne Stroustrup, The C++ Programming Language, 3rd Edition, Pearson Education, 2013.
3. Sartaj A Sahani, Data Structures and Algorithms, Tata McGraw Hill, 3rd Edition, 2013,

COMPUTER ORGANIZATION

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

UNIT-I

Digital Logic Circuits: Digital Computers, Logic Gates, Boolean Algebra, Map Simplification, Combinational Circuits, Flip Flops, Sequential Circuits.

Digital Components: Integrated Circuits, Decoder, Multiplexers, Registers, Shift Registers, Binary counter, Memory unit.

Data Representation: Data types, Complements, Fixed and Floating Point Representation, Other binary codes and error Detection codes.

UNIT-II

Register Transfer and Micro operations: Register Transfer language, Register transfer, Bus and Memory Transfer, Arithmetic Micro operations, Logic Micro operations, Shift Micro operations and Arithmetic logic shift unit.

Basic Computer Organization and Design: Instruction codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycles, Memory Reference Instructions, Input, Output and Interrupts, Design of Accumulator logic.

UNIT-III

Programming the Basic Computer: Introduction, Machine Language, Assembly Language, The Assembler, Programming Arithmetic and Logic Operations, Subroutines, and input-output, Programming.

Micro programmed Control: Control Memory, Address Sequencing, Micro program Example, Design of Control Unit.

UNIT-IV

Central Processing Unit: Introduction, General Register Organization, Stack Organization, Instruction Formats, Addressing Modes, Data Transfer and Manipulation, Program Control, RISC.

Parallel Processing: Pipelining, Arithmetic Pipeline, Instruction Pipeline, RISC Pipeline.

Computer Arithmetic: Addition and Subtraction, Multiplication algorithms, Division Algorithms, Floating point arithmetic operations, decimal arithmetic unit, and decimal arithmetic operations.

UNIT-V

Input – Output Organization : Peripheral Devices, I/O output interface, Asynchronous data transfer, Modes of transfer, Priority Interrupt, DMA, Input output Processor, Serial Communication.

Memory Organization: Memory Hierarchy, Main Memory, Cache Memory.

Suggested Reading:

1. M. Morris Mano, “Computer System Architecture”, Pearson Education Asia, Third Edition, 2007.
2. Mile Murdocca, Vincent Heuring, “ Computer Architecture and Organization”, John Wiley & Sons, 2007.
3. Sivarama P Dandamudi “Fundamentals of Computer Organization and Design”, Wiley Dream Tech Publishers, 2003.
4. William Stallings, “Computer Organization & Architecture”, Pearson Education, Sixth : Edition, 2003.
5. G.V.Anjaneyulu, “Computer Organization”, Himalaya Publishing House, 2nd Edition, 2010.

Communication Skills

Instruction	4 Periods per week
Duration of University Examination	3 Hours
University Examination	80 Marks
Sessional	20 Marks

The following are the objectives of the courses, to enable the students to

- Communicate clearly, accurately and appropriately
- Learn different models of interpersonal communication
- Work in teams effectively and learn how to be effective in using time
- Comprehend the difference between technical and general writing
- Write reports, scientific papers, letters, Statement of Purpose, Resume
- Learn how to plan and prepare to face interviews effectively

UNIT – I

Business Communication: Importance of business communication; ABC of technical communication – Accuracy, Brevity, Clarity; Channels of communication: Downward communication, Upward communication, Diagonal communication, Horizontal communication; Organisational GDs

UNIT – II

Interpersonal Communication and Personality Development: Models of interpersonal development, Johari window, Knapp's model, styles of communication; Team work; Persuasion techniques; Mobile Etiquette, e-mail Etiquette; Time Management

UNIT – III

Technical Written Communication: Differences between Technical Writing and General Writing; Report Writing: Types of Reports, Structure/Format, Language Style, Writing Technical Reports; Writing Scientific Papers

UNIT – IV

Career Oriented Written Communication: Writing SOPs; Job Application: Language style and Format; Résumé writing: design and style; Cover Letter; Business Letters: Letters of enquiry and responses, Letters of complaint, Letters of adjustment, Sales letters; Agenda and minutes of the meeting

UNIT – V

Interview Skills and Group Discussions: Interviews: Purpose, Planning, Preparation, Language and style, Sample interview questions and answers; Group discussions: Types of GDs, Features of good GDs, Preparing for a group discussion

Textbook prescribed:

1. E. Suresh Kumar, *Engineering English*, Orient Blackswan, 2014.

Books Recommended:

1. E. Suresh Kumar et al., *Communication Skills and Soft Skills*. Pearson, 2011.
2. E. Suresh Kumar et al., *English for Success*. Cambridge University Press India Private Ltd, 2010.
3. Sanjay Kumar and Pushp Lata. *Communication Skills*. OUP, 2011.
4. Kavita Tyagi and Padma Misra. *Professional Communication*. PHI, 2011.
5. Meenakshi Raman and Sangeeta Sharma. *Technical Communication: Principles and Practice*. OUP, 2011.

**Programming Lab-III
(OOP LAB)**

Instruction	3 Periods per week
Duration of University Examination	3 Hours
University Examination	50 Marks
Sessional	25 Marks

1. A program to illustrate the concept of class with constructors, methods and overloading.
2. A program to illustrate the concept of inheritance and dynamic polymorphism.
3. A program to illustrate the usage of abstract class.
4. A program to illustrate multithreading.
5. A program to illustrate thread synchronization.
6. A program to illustrate Exception handling.
7. A program to illustrate user-defined Exceptions
8. A program to demonstrate use of User-defined Packages.
9. A program using String Tokenize.
10. A program using Linked list class
11. A program using Tree Set class
12. A program using Hash Set and Iterator classes
13. A program using Map classes.
14. A program using Enumeration and Comparator interfaces.
15. A program using File and Filename Filter
16. A program to illustrate the usage of Byte and Character I/O streams.
17. A program to illustrate the usage of Serialization.
18. Program using Data class.
19. An application involving GUI with different controls, menus and event handling.
20. A program to implement an applet.

**Programming Lab-IV
(C++ PROGRAMMING LAB)**

Instruction	3 Periods per week
Duration of University Examination	3 Hours
University Examination	50 Marks
Sessional	25 Marks

1. Call-by-Value and Call-by-Reference example programs
2. Program on Function Overloading
3. Program on Inline Functions and Default Arguments
4. Program to check Identity Matrix, Upper Triangular and Lower Triangular Matrices
5. Program to find A U B using Dynamic Memory Allocation
6. Implementation of Rational Numbers using classes
7. Program on Complex Numbers Class.
8. Implementation of Matrix Class.
9. Programs on Constructors, Destructors, and Friend Functions
10. Programs on Inheritance, Virtual Functions, Dynamic Polymorphism
11. Programs on Operator Overloading and Templates
12. Implementation of Stacks using Arrays
13. Program on Linear Lists using Arrays
14. Implementation of Queues using Linked Representation
15. Program on Single Linked List Operations
16. Program on Binary Tree Traversal Techniques