

GOBI ARTS & SCIENCE COLLEGE (AUTONOMOUS) : GOBICHETTIPALAYAM

SCHEME OF EXAMINATIONS - B.Sc. (COMPUTER SCIENCE) (15 BATCH)

| No. | Code | Subject Title | Hrs | CIA | EOSE | Total | Credit |
|--------------|----------|--|-----|-----|------|-------|--------|
| SEMESTER : 1 | | | | | | | |
| 1 | 15U1TM11 | PART I : TAMIL - I | 3 | 25 | 75 | 100 | 3.0 |
| 2 | 13U2EN01 | PART II : ENGLISH - I | 3 | 25 | 75 | 100 | 3.0 |
| 3 | 08UACS03 | PART III : MAJOR CORE : PROGRAMMING IN C | 3 | 25 | 75 | 100 | 3.5 |
| 4 | 10UACS02 | DIGITAL COMPUTER FUNDAMENTALS & ARCHITECTURE | 3 | 25 | 75 | 100 | 3.5 |
| 5 | 11UBMA51 | PART III : ALLIED CORE: MATHEMATICS - I | 3 | 25 | 75 | 100 | 5.0 |
| 6 | 15UACSPA | MAJOR CORE PROGRAMMING LAB-I (C) | 3 | 25 | 75 | 100 | 2.0 |
| 7 | 15U4HE01 | PART-IV: i)HUMAN EXCELLENCE:PAPER-I BASICS OF YOGIC LIFE | 3 | 25 | 75 | 100 | 1.0 |
| 8 | 14U4EN01 | ii)FOUNDATION SUBJECT-A: REMEDIAL ENGLISH-I | 3 | 25 | 75 | 100 | 1.0 |
| SEMESTER : 2 | | | | | | | |
| 9 | 15U1TM12 | PART I : TAMIL - II | 3 | 25 | 75 | 100 | 3.0 |
| 10 | 13U2EN02 | PART II : ENGLISH - II | 3 | 25 | 75 | 100 | 3.0 |
| 11 | 10UACS01 | PART III : MAJOR CORE : OBJECT ORIENTED PROGRAMMING IN C++ | 3 | 25 | 75 | 100 | 3.5 |
| 12 | 10UACS05 | SYSTEM PROGRAMMING | 3 | 25 | 75 | 100 | 3.5 |
| 13 | 11UBMA52 | PART III : ALLIED CORE : MATHEMATICS-II | 3 | 25 | 75 | 100 | 5.0 |
| 14 | 10UACSPB | MAJOR CORE PROGRAMMING LAB-II (C++) | 3 | 25 | 75 | 100 | 2.0 |
| 15 | 15U4HE02 | PART-IV : i)HUMAN EXCELLENCE:PAPER-II SUBLIMATION AND SOCIAL WELFARE | 3 | 25 | 75 | 100 | 1.0 |
| 16 | 13U4HEP1 | PRACTICAL - I: YOGA PRACTICE-I | | 100 | | 100 | 1.0 |
| 17 | 14U4EN02 | ii)FOUNDATION SUBJECT-A: REMEDIAL ENGLISH - II | 3 | 25 | 75 | 100 | 1.0 |
| 18 | 12U4FN01 | GENERAL AWARENESS | 1.5 | | 100 | 100 | 1.0 |
| SEMESTER : 3 | | | | | | | |
| 19 | 08UACS06 | PART III : MAJOR CORE : DATA STRUCTURES | 3 | 25 | 75 | 100 | 3.5 |
| 20 | 14UACS04 | CLIENT SERVER COMPUTING | 3 | 25 | 75 | 100 | 3.5 |
| 21 | 08UACS07 | MICROPROCESSORS AND ASSEMBLY LANGUAGE PROGRAMMING | 3 | 25 | 75 | 100 | 3.5 |
| 22 | 10UACS08 | PROGRAMMING IN COBOL | 3 | 25 | 75 | 100 | 3.5 |
| 23 | 14UBCS01 | PART III : ALLIED CORE: NUMERICAL METHODS | 3 | 25 | 75 | 100 | 5.0 |
| 24 | 10UACSPC | MAJOR CORE PROGRAMMING LAB-III (DATA STRUCTURES IN C) | 3 | 25 | 75 | 100 | 2.0 |
| 25 | 10UACSPD | MAJOR CORE PROGRAMMING LAB-IV (COBOL) | 3 | 25 | 75 | 100 | 2.0 |
| 26 | 14U4HE03 | PART-IV : i)HUMAN EXCELLENCE: PAPER-III MENTAL PROSPERITY AND HUMAN EXCELLENCE | 3 | 25 | 75 | 100 | 1.0 |
| 27 | | ii)FOUNDATION SUBJECT-B | 3 | | 100 | 100 | 2.0 |

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SEMESTER : 4

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| 28 | 08UACS10 | PART III : MAJOR CORE : VISUAL BASIC | 3 | 25 | 75 | 100 | 4.0 |
| 29 | 14UACS09 | COMPUTER ORIENTED STATISTICAL METHODS | 3 | 25 | 75 | 100 | 4.0 |
| 30 | 11UABM51 | ACCOUNTING AND MANAGEMENT | 3 | 25 | 75 | 100 | 4.0 |
| 31 | | PART III : ALLIED OPTIONAL : | 3 | 25 | 75 | 100 | 5.0 |
| 32 | 15UACSPE | MAJOR CORE PROGRAMMING LAB-V (VISUAL BASIC) | 3 | 25 | 75 | 100 | 2.0 |
| 33 | 15UACSPF | MAJOR CORE PROGRAMMING LAB-VI (SPSS AND TALLY) | 3 | 25 | 75 | 100 | 2.0 |
| 34 | 14U4HE04 | PART-IV : i)HUMAN EXCELLENCE: PAPER-IV SCIENCE OF DIVINITY AND REALIZATION OF SELF | 3 | 25 | 75 | 100 | 1.0 |
| 35 | 13U4HEP2 | PRACTICAL - II: YOGA PRACTICE-II | | 100 | | 100 | 1.0 |
| 36 | | ii)FOUNDATION SUBJECT-B | 3 | | 100 | 100 | 2.0 |
| 37 | | PART V : CO-CURRICULAR ACTIVITIES | | | | | 1.0 |

SEMESTER : 5

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| 38 | 11UACS11 | PART III : MAJOR CORE : JAVA PROGRAMMING | 3 | 25 | 75 | 100 | 4.5 |
| 39 | 11UACS12 | SOFTWARE ENGINEERING | 3 | 25 | 75 | 100 | 4.5 |
| 40 | 11UACS13 | RELATIONAL DATABASE MANAGEMENT SYSTEMS | 3 | 25 | 75 | 100 | 4.5 |
| 41 | 11UACS17 | MAJOR ELECTIVE-I : COMPUTER NETWORKS | 3 | 25 | 75 | 100 | 4.5 |
| 42 | 11UACSPG | MAJOR CORE PROGRAMMING LAB-VII (JAVA) | 3 | 25 | 75 | 100 | 2.5 |
| 43 | 14UACSPH | MAJOR CORE PROGRAMMING LAB-VIII (RDBMS) | 3 | 25 | 75 | 100 | 2.5 |
| 44 | | PART III : MAJOR OPTIONAL : | 3 | 25 | 75 | 100 | 4.0 |

SEMESTER : 6

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| 45 | 12UACS16 | PART III : MAJOR ELECTIVE-II: WEB DESIGN | 3 | 25 | 75 | 100 | 4.5 |
| 46 | 11UECS01 | MAJOR SKILL BASED PAPER: COMPUTER GRAPHICS | 3 | 25 | 75 | 100 | 4.5 |
| 47 | 15UACSPI | MAJOR CORE PROGRAMMING LAB-IX (WEB DESIGN) | 3 | 25 | 75 | 100 | 2.5 |
| 48 | 14UECSPJ | MAJOR SKILL BASED PRACTICAL: PROGRAMMING LAB-X (COMPUTER GRAPHICS) | 3 | 25 | 75 | 100 | 2.5 |
| 49 | 14UACS15 | MAJOR CORE: OPEN SOURCE SCRIPTING TOOL | 3 | 25 | 75 | 100 | 4.5 |
| | 15UACSPK | PROGRAMMING LAB-XI(OPEN SOURCE SCRIPTING TOOL) | 3 | 25 | 75 | 100 | 2.5 |
| | | (OR) | | | | | |
| | 11UACSV1 | PROJECT WORK | | 25 | 75 | 100 | 7.0 |

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CREDIT:

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|-------------|-------------|----------------------|--|
| PART I : 6 | PART II : 6 | PART III MAJOR : 100 | |
| | | ALLIED: 20 | |
| | | ----> 120 | |
| PART IV :13 | PART V : 1 | TOTAL : 146 | |

SEMESTER I PROGRAMMING IN C

Instructional Hrs: 60

Objectives: 1. To know about basics of Programming Language.

2. To understand C programming fully.

3. To learn about Array, Structure, Pointer, File, Preprocessor in C.

UNIT-I

15 Hrs

INTRODUCTION: Introduction – Overview of C – Constants, Variables and Data Type- Operators and Expression – Managing Input and Output Operators.

UNIT –II

10 Hrs

CONTROL STATEMENT: Decision Making and Branching – IF, IF ... ELSE, SWITCH CASE, WHILE, DO...WHILE, FOR, GOTO, Loops, Storage Classes – Programs.

UNIT-III

12 Hrs

ARRAYS AND STRUCTURE: Arrays – Multi Dimension Arrays – Programs – Handling of Character Strings – Structure and Union – Sample Programs.

UNIT-IV

12 Hrs

FUNCTIONS: Types of Functions.

POINTERS: Introduction – Understanding Pointers – Pointer Expressions – Pointers and Array – Pointers and Character Strings – Pointers and Structure – Pointers and Functions.

UNIT-V

11 Hrs

FILE AND THE PREPROCESSOR: File Management in C – Sequential and Random File – Dynamic Memory Allocation and Linked List Simple Programs – The Preprocessor.

TEXT BOOK :

1. E. Balagurusamy, “Programming in ANSI C”, Tata McGraw Hill Publishing Company Limited, (1992)

SEMESTER I

DIGITAL COMPUTER FUNDAMENTALS & ARCHITECTURE

Instructional Hrs: 60

- Objectives:
1. To understand about the number systems.
 2. To know about concepts of Logic gates.
 3. To learn about Flip-flop & multiplexer, CPU detaily.

UNIT-I

12 Hrs

Number System: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3, Gray codes – Convention between Number Systems.

UNIT-II

12 Hrs

Digital Logic: The Basic Gates – NOR, NAND, XOR Gates – Arithmetic Circuits: Half Adder, Full Adder, Parallel Binary Adder, BCD Adder, Half subtractor, Full subtractor, Parallel binary subtractor.

UNIT-III

12 Hrs

Combinational Logic Circuits: Boolean Algebra, simplification of Boolean functions – Karnaugh map – Canonical form – Don't care condition – Product of sum, Sum of products, K- map Computational circuits.

Sequential circuits: Flip-flop: RS, D, JK, T – Multiplexers – Demultiplexers Decoder – Encoder.

UNIT-IV

12 Hrs

CENTRAL PROCESSING UNIT: General Register Organization – Control word- Examples of Micro operations – Stack organization – Instruction formats – Addressing modes – Data Transfer and manipulation program control.

UNIT-V

12 Hrs

Input – Output Organization: Input-Output Interface- I/O Bus and Interface –I/O Bus Versus Memory Bus – Isolate Versus Memory – Mapped I/O – Example of I/O Interface. Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy – Chaining Priority, Parallel priority Interrupt, Direct Memory Access: DMA Controller, DMA Transfer. Input-Output Processor: CPU – IOP Communication.

TEXT BOOK:

Computer System Architecture, M.MORRIS MANO, Prentice Hall of India, Third Edition.

REFERENCE BOOK:

C.BARTEE, "Digital Computer Fundamentals", Tata McGraw Hill.

SEMESTER-I

MATHEMATICS-I

Instructional Hrs: 90

Objectives: 1. To know about the basic concepts of Mathematics.

2. To Develop the mathematical skills.

3. To improve the Differential, integral knowledge.

Unit-I ALGEBRA 18 Hrs

Binomial, Exponential and Logarithmic theorems (statements only) Summations related to Binomial, Exponential and Logarithmic series.

Unit-II THEORY OF EQUATIONS 18 Hrs

Theory of Equations – Transformation of Equations : Reciprocal Equations – To Increase or Decrease the Roots – Removal of Terms – Descartes Rule of Signs – Matrices – Addition, Subtraction, Multiplication, Determinant, Inverse, Linear Equations, Cramer's Rule, Rank of Matrices.

Unit-III TRIGONOMETRY 18 Hrs

Expansions: Expansions of $\sin\theta$, $\cos\theta$, $\tan\theta$ – power of sines and cosines of θ – Expansions of $\sin\theta$ and $\cos\theta$ – Expansions of $\sin\theta$ and $\cos\theta$ in a series of ascending power of θ – Hyperbolic functions – Inverse Hyperbolic functions.

Unit –IV DIFFERENTIAL CALCULUS 18 Hrs

Partial Differentiation – successive partial Derivatives – function of function rule – Total Differential Co-efficients – Implicit functions. Euler's Theorem (problems only) – Jacobian.

Unit-V INTEGRAL CALCULUS 18 Hrs

Definite Integrals – Properties of Definite Integrals – Integration by parts – Reduction formula for x^n , e^{ax} , $x^n \cos ax$, $\sin^n x$, $\cos^n x$, $\tan^n x$, $\sin^m x$, $\cos^n x$.

TEXT BOOKS:

1. Manicavachagom Pillay and Narayanan, "Ancillary Mathematics Book I" J. Viswanathan (Printers & publishers) Pvt. Ltd., 1995. (UNIT I & II)
2. Narayanan & Manicavachagom Pillay, "TRIGONOMETRY" 1995. (UNIT III)
3. Narayanan and Manicavachagom Pillay, "Ancillary Mathematics Book II" J.S. Viswanathan (Printers & Publishers) Pvt. Ltd., 1995. (UNIT IV & V)

SEMESTER-I

PROGRAMMING LAB I – (C)

Instructional Hrs: 60

Objectives: 1. To learn the basic structure of programming.
2. To learn programs with decision making statements and loops.
3. To learn about building Block of statements.

1. Write a C program to calculate the sum of digits of a given number.
2. Write a C program to find a factorial for given number.
3. Write a C program to print the Fibonacci series.
4. Write a C program to find the Ramanujam number.
5. Write a C program to print the numbers between some interval which divisible by four.
6. Write a C program to find the Maximum and Minimum value in a array.
7. Write a C program to sort a given number.
8. Write a C program to add two matrices.
9. Write a C program for converting numbers into words.
10. Write a C program to find and count number of vowels in a word or string.
11. Write a C program for sorting string in a alphabetical order.
12. Write a C program to find the roots of a Quadratic Equation.
13. Write a C program for swapping two values using pointers.
14. Write a C program to print Electricity Bill using File.
15. Write a C program to Maintain Student Mark List using Structure.

SEMESTER – II

OBJECT ORIENTED PROGRAMMING IN C++

Instructional Hrs: 60

- Objectives:
1. C++ is the Most popular language used for software development World wide.
 2. To train to write C++ program for practical applications.
 3. To help in understanding Object Oriented Programming Logics.

UNIT-I

12 Hrs

Principles of object oriented programming – software evolution – procedure and object oriented paradigm – Basic concepts of OOP– Benefits of OOP - Object Oriented Languages – Application of OOP in Beginning with C++ - What is C++ - Application of C++ - C++ statements – structure of C++ program – Tokens – Identifiers and Constants – Basic and User Defined data types – Declaration and Dynamic Initialization of Variables – Reference Variables – Operators in C++ - Operator precedence – Control Structures.

UNIT-II

12 Hrs

Functions in C++ - The main function – function prototyping – call by value and call by reference – Inline functions – function overloading – Class and objects – Introduction – specifying a class – defining member function – nesting of member functions – private member functions – arrays within a class – static member and member functions – arrays of objects – object as function arguments – friendly functions.

UNIT-III

12 Hrs

Constructors and Destructors: Introduction – Constructors – Constructor overloading – constructors with default arguments – dynamic Initialization of objects- copy constructor – dynamic constructor – Destructors – Operator Overloading – Defining Operator Overloading – overloading unary and binary operators – overloading binary operators using friends – manipulation of strings using operators – Rules for overloading operators.

UNIT-IV

12 Hrs

Inheritance – Defining derived classes – Single, Multilevel, Multiple, Hierarchical and Hybrid Inheritance – Virtual Base classes – Abstract classes – Constructors in derived classes – Pointers, virtual function and polymorphism – pointers to objects – This pointer – pointers to Derived classes – Virtual functions.

UNIT-V

12 Hrs

Managing Console I/O operations – C++ streams – C++ stream classes Unformatted I/O operations – formatted console I/O operations – Managing output with manipulators – working with files – classes for file stream operations – opening and closing a file – file pointers and their manipulations – Sequential I/O operations – Error Handling functions.

TEXT BOOKS:

1. E.Balagurusamy, “Object Oriented Programming with C++”, Tata McGraw Hill publishing company Ltd., 2004. [UNIT I-V]

SYSTEM PROGRAMMING

Instructional Hrs: 60

- Objectives: 1. Consolidate the programming skills from the previous core courses.
2. Easily learn to write Multiprocess & Multi Threaded Programs.

UNIT-I

12 Hrs

INTRODUCTION: Evolution of the Components of the Programming System - Assemblers, Loaders, Macros, Compilers, Formal Systems, Assemblers.

ASSMBLERS : General Design Procedure – Design of assembler - Statement of problem, data structure, Format of database, Algorithm, Look for Modularity.

UNIT-II

12 Hrs

LOADERS : Loader Schemes – General Loader Scheme, Absolute Loaders, Subroutine Linkages, Relocating Loaders, Direct – linking Loaders, Other Loader Schemes – Binders, Linking Loaders, Overlays, Dynamic Binders, COMPILERS : Phrases of the Compiler, Lexical Phase, Syntax Phase, Interpretation Phase, Optimization, Storage Assignment, Code Generation, Assembly Phase, Passes of a compiler.

UNIT-III

12 Hrs

OPERATING SYSTEM: Process Management – Introduction to Operating system – Process – Process state transitions – Process control block – Operations on Process – Suspend and Resume – Interrupt Processing – Nucleus of operating system – ASYNCHRONOUS CONCURRENT PROCESSES : Mutual Exclusion – Critical sections – Mutual Exclusion Primitives, SEMEPHORES : Process synchronization with semaphores – Producer, Consumer relationship – Implementing semaphores, P&V Event Counters & Sequences.

UNIT-IV

12 Hrs

DEADLOCK : Necessary conditions for deadlock – Deadlock Prevention – Avoidance – Banker’s Algorithm – Deduction – Recovery from deadlock – Real storage organization – storage management – Hierarchy management strategies – Continuous vs Non continuous Storage Allocation – Fixed and Variable partition Multiprogramming – Virtual Storage – Multilevel Storage Organization – Block Mapping – Paging – Segmentation – Virtual storage Management Strategies – Page Replacement Strategies.

UNIT-V

12 Hrs

PROCESS MANAGEMENT : Scheduling levels – Objectives – Criteria – Preemptive vs Non preemptive – The internal timer or Interrupt Clock – Properties – Deadline Scheduling – Scheduling FIFO-RR-SJF-SRT-HRN-Multilevel Feedback Queue – Fair sharing scheduling, DISK PERFORMANCE OPTIMIZATION: operations of moving head disk storage – Desirable Characteristics of disk Scheduling – seek optimization – Rotational optimizations.

TEXT BOOKS:

1. JOHN J. DONOVAN, “Systems Programming”, McGraw Hill Computer Science Series. (UNIT I,II)
2. H.M. DEITEL, “Operating Systems”, Addison – Wesley Publications (UNIT III, IV, V)

MATHEMATICS-II

Instructional Hrs: 90

Objectives: 1. To learn difference between partial Differential equation and ordinary Differential Equation.

2. To learn mathematical logic simple concept of differentiation and integration.

Unit-I DIFFERENTIAL EQUATIONS 18 Hrs

Introduction – Definitions – Solutions of Differential Equations – Formation of differential Equations – Equations of the first order and of the first Degree – variable separable – Homogeneous Equations – Linear Equations – Bernoulli's Equation – Exact Differential Equations.

Unit-II LINEAR EQUATION WITH CONSTANT CO-EFFICIENTS: 18 Hrs

Definitions – The operator D-Complementary function of a Linear Equation with constant Co-efficient – particular integral – General method of finding P.I. – special method of finding P.I. – variation of parameters.

Unit-III VECTOR CALCULUS 18 Hrs

Differentiation of vectors – Gradient Direction and magnitude of Gradient – Divergence and curl – Formulae involving operator ∇ , Vector Integration – Line integral.

Unit-IV MATHEMATICAL LOGIC 18 Hrs

Introduction – connectives – Tautologies – Implications – Duality – Principle Disjunctive Normal form – Principle conjunctive Normal form – Ordering and uniqueness of Normal form.

Unit-V SET THEORY 18 Hrs

Relations and ordering : Relations – Properties of Binary Relations in a set – Relation matrix and the Graph of a Relation – Partition and covering of a set – Equivalence Relations – Compatibility relations – Composition of Binary relations.

Functions: Definition and Introduction – Composition of functions – Inverse functions.

TEXT BOOKS:

1. Narayanan and Manicavachagom Pillay, “Ancillary Mathematics Book II”, S.Viswanathan (printers & publishers) Pvt. Ltd., 1991.
UNIT – I (Chapter I (sections 1-3), chapter – II (sections 1 & 2, 4 to 6.3))
UNIT –II (Chapter III (section 1-4 and 6))
2. Narayanan and Manicavachagom pillay, “Vector Calculus”, S. Viswanathan (printers & publishers) Pvt. Ltd., 1997. (UNIT III chapter I (sections 1-11)
Chapter III (sections 1-3)
3. J.P. Trembly & R. Manohar “Discrete Mathematical Structures with Applications To Computer Science”, McGraw Hill International edition, 1987.

UNIT-IV-[Chapter I (sections 1-1 to 1-2.4; 1-2.6 to 1-2.13; 1-3.1 to 1-3.5)]

UNIT-V-[Chapter II (section 2-3.1 to 2-3.7; 2-4.1 to 2-4.3)]

PROGRAMMING LAB –II (C++)

Instructional Hrs: 60

Objectives: 1. Simple concept in C++ & OOP program.

2. Polymorphism, overloading & other OOP program

3. Constructor & other OOP program.

1. Write a C++ program to find the factorial of the given number using recursive function.
2. Write a C++ program to perform arithmetic operations using Inline function.
3. Write a C++ program to perform function overloading for finding area of different shapes.
4. Write a C++ program for String Manipulations.
5. Write a C++ program for Complex Number Addition using constructor.
6. Write a C++ program for finding the large value using Friend Function.
7. Write a C++ program to perform Arithmetic Operations using the Operator Overloading.
8. Write a C++ program to find the Biggest Among the N numbers.
9. Write a C++ program for Constructor and Destructor.
10. Write a C++ program to join two strings using Dynamic Constructor.
11. Write a C++ program for displaying Personal Details using Classes and Objects.
12. Write a C++ program for Electricity Bill Preparation.
13. Write a C++ program for Pay Bill Calculation.
14. Write a C++ program to create Mark Sheet for your Current Semester.
15. Write a C++ program to display Bank Details.

DATA STRUCTURES

Instructional Hrs: 60

- Objectives:
1. To make familiar with basic techniques of algorithm analysis.
 2. To be familiar with writing recursive methods.
 3. To Master the implementation of Data Structure such as Linked Lists and Binary Trees.

UNIT-I

12 Hrs

Introduction – Overview – Sparks – How to Create Programs – How to Analyze Programs – Ordered List – Sparse Matrices – Representation of Arrays – Operations – Applications.

UNIT-II

12 Hrs

Stacks – Representation – Operations – Applications – Queues – Representation – Operations – Applications – Evaluation of Expressions – Multiple Stacks and Queues.

UNIT-III

12 Hrs

Single Linked List – Linked Stacks and Queue – Polynomial Addition – Equivalence Relations – Double Linked List – Generalized list – Garbage Collection & Compaction – Trees – Binary Trees – Representation – Tree Traversals – Threaded Binary Trees – Applications of Trees.

UNIT-IV

12 Hrs

Graphs – Terminology & Representation – Traversals - Connected Components and Spanning Trees – Shortest Paths and Transitive Closure – Activity Network, Topological Sort and Critical Paths – Enumerating all Paths.

UNIT-V

12 Hrs

Searching – Linear Search – Binary Search – Insertion Sort – Quick Sort- Merge Sort – Heap Sort – Sorting With Disks – Sorting With Tapes

TEXT BOOK:

1. Ellis Horowitz and Sartj Sahni, “Fundamentals of Data Structures”, Galgotia Book Source, New Delhi

CLIENT SERVER COMPUTING

Instructional Hrs: 60

- Objectives:
1. To know about Client/Server Building Blocks.
 2. To learn about Transaction Processing.
 3. To know about Groupware & Distributed Objects and Components.

UNIT-I 12 Hrs

INTRODUCTION TO CLIENT/SERVER COMPUTING: What is client/server?, File Servers, Database Servers, Transaction Servers, Groupware Servers, Object Servers, Web Servers, Middleware, Fat Servers, Fat Clients, 2-tier versus 3-tier. CLIENT/SERVER BUILDING BLOCKS: Operating Systems, Base Services, Extended Services, Server Scalability- Remote Procedure Call (RPC), Messaging and Queuing.

UNIT-II 12 Hrs

SQL DATABASE SERVERS – SQL and Relational Databases, SQL Database Server Architecture, Stored Procedures, Triggers and Rules - DATA WAREHOUSE – What Is OLTP?, Information Hounds, DSS, EIS, Elements Of Data Warehousing, Warehouse Hierarchies, Replication Versus Direct Access, The Mechanics Of Data Replication.

UNIT-III 12 Hrs

CLIENT/SERVER TRANSACTION PROCESSING: The ACID Properties, Transaction Models, TP MONITORS: TP Monitors, Transaction Management Standards – TP Lite, TP Heavy.

UNIT-IV 12 Hrs

CLIENT/SERVER GROUPWARE: Importance of Groupware, What is Groupware?, The Components of Groupware, Groupware trends, Lotus Notes 4.0.

UNIT-V 12 Hrs

DISTRIBUTED OBJECTS AND COMPONENTS: Benefits of distributed objects, From Distributed Objects to Components, 3-tier Client/Server, Object Style – CORBA – Distributed Objects, CORBA style, OMG's Object Management Architecture, Object Request Broker (ORB), Anatomy of a CORBA 2.0 ORB, CORBA Object Services, CORBA Common Facilities, CORBA Business Objects.

Text Book :

Robert Orfali, Dan Harkey, Jeri Edwards, "THE ESSENTIAL CLIENT/SERVER SURVIVAL GUIDE", Galgotia Publications Private Ltd., Second Edition, 2001. (Unit I to V).

Reference Book :

- 1) Dawna Travis Dewire, "CLIENT SERVER COMPUTING", Tata Mcgraw Hill, Second Edition, 2003.
- 2) Patrick Smith, Steve Guengerich, "CLIENT SERVER COMPUTING", PHI Learning Private Limited, Second Edition, 2012.

SEMESTER – III

MICROPROCESSOR AND ASSEMBLY LANGUAGE PROGRAMMING

Instructional Hrs: 60

Objectives: 1. To know the Basics of Microprocessor.

2. To Develop Assembly Language Program for up.

3. Learn other devices support for Microprocessor and It's Application.

UNIT-I

12 Hrs

Microprocessor Architecture and Micro Computer Systems – Internal Architecture and Memory Interfacing, Interfacing I/O Devices – Introduction to Instructions.

UNIT-II

12 Hrs

Programming Techniques – Looping, Counting and Indexing 16-Bit Arithmetic Instructions – Logic Operations Rotate, Compare, Stack And Subroutine Counters and Time Relays, Code Conversion and BCD Arithmetic.

UNIT-III

12 Hrs

Interrupts – Interfacing Data Converters – Digital to Analog Converts, Analog to Digital Conversion. Programmable Devices Interfacing Keyboard and Seven Segment Display, Programmable Interrupt Controller – Direct Memory Access and DMA Controller.

UNIT-IV

12 Hrs

General Purpose Programmable Peripheral Devices: 8255A Programmable Peripheral Interface, 8279A Programmable Keyboard Display Interface – 8259A Programmable Interrupt Controller. Serial I/O and Data Communication – 8251 USART.

UNIT-V

12 Hrs

Applications: Designing Scanned Display, Matrix Keyboard, Memory Design – Trends in Microprocessors Technology – Single Chip Micro Controllers – 16 Bit and 32 Bit Microprocessors.

TEXT BOOKS:

S.Goankar, “Microprocessors Architecture, Programming And Applications With The 8085”, Penram International Publishing(India), 3rd Edition 1997.

PROGRAMMING IN COBOL

Instructional Hrs: 60

- Objectives: 1. Understand the structure of COBOL programs.
2. Understand the purpose of the IDENTIFICATION, ENVIRONMENT DATA AND PROCEDURE DIVISIONS.
3. Be aware of the significance of COBOL in market place.

UNIT-I

15 Hrs

Introduction to COBOL – Character Set – Constants and Variables – Arithmetic Operations Flow Charting – Layout of COBOL Program – Division, Paragraph, Section Concepts – Various Entries in IDENTIFICATION DIVISION, ENVIRONMENT DIVISION, CONFIGURATION and INPUT – OUTPUT SECTION, DATA DIVISION Level Numbers 77, 88, 66. Picture Clause – Edit Characters – PROCEDURE DIVISION Use of Paragraphs Verbs like MOVE, ACCEPT, DISPLAY, COMPUTE, ADD, SUBTRACT, MULTIPLY, DIVIDE, MOVE & ADD WITH CORRESPONDING option etc. STOP, RUN, GOTO, ON GOTO, DEPENDING ON Statements Simple COBOL Programs.

UNIT-II

15 Hrs

FILE SECTION and FD Entries in DATA DIVISION – 01 LEVEL and Sublevel entries and their Usage in FILE and WORKING STORAGE SECTION – OPEN, CLOSE, READ, WRITE, Statement AT END clause for Sequential File Handling – Conditional Statements IF, Nested IF, PERFORM (All Possible Ways), EXIT, EXHIBIT Statements.

UNIT-III

10 Hrs

Tables in COBOL SEARCH ALL and SET Verbs – Examples Using Tables – Strings in COBOL – INSPET – STRING & UNSTRING Verbs – Examples in Tables and Strings.

Random Files in COBOL – READ, WRITE, REWRITE and DELETE statements in Random Files – KEYS and their importance – INVALID KEY Clause – Examples in Random Files.

UNIT-IV

10 Hrs

SORT, MERGE verbs in COBOL – SD File Entries – RETURN and RELEASE Verbs – Execution Procedure During SORT – The COPY Statement – SPECIAL NAMES – Paragraph in COBOL – Examples for SORT & COPY Statement. REPORT SECTION SCREEN Section – DECLARATIVES – Examples

UNIT-V

10 Hrs

APPLICATIONS: Simple Programs illustrating the following Business aspects.
1. FINANCIAL ACCOUNTING 2. INVOICE PREPARATION 3. INVENTORY 4.
PAYSLIP PREPARATION 5. ELECTRICITY BILL PREPARATION 6. MARKSHEET
PREPARATIONS.

TEXT BOOKS:

M.K. Roy & G. Dastidar, "COBOL Programming", Tata McGraw Hill, Second
Edition, 1989.

**B.Sc- COMPUTER SCIENCE
III SEMESTER
NUMERICAL METHODS**

Instructional Hours: 60

- Objectives:**
- 1. To learn about computer oriented numerical problems**
 - 2. To learn scientific computing methods.**
 - 3. To familiarize optimized calculations.**

[NOTE- Derivation is not necessary]

UNIT –I

The Solution of Numerical Algebraic & Transcendental Equation –Bisection Method- Iteration Method-Newton –Raphson Method –The method of false position.

UNIT-II

The Solution of Simultaneous Linear Algebraic Equation –Gauss Elimination Method- Gauss Jordon Elimination Method-Triangularization Method- Gauss Seidal Method-Gauss Jacobi Method.

UNIT-III

Interpolation –Newton Forward Interpolation Formula- Newton Backward Interpolation Formula-LaGrange’s formula-Numerical Differentiation-Newton’s Forward Difference formula-Newton’s Backward Difference formula.

UNIT-IV

Numerical Integration-Trapezoidal Rule-Simpson’s one-third Rule- Simpson’s three-eighths Rule

UNIT-V

Numerical solution of ordinary differential equation- Taylor Series-Euler’s Method-Euler’s Modified Method-Runge Kutta Method-Predictor and Corrector Method-Adam’s Method-Milne’s Method

Text Books:

- 1. NUMERICAL METHODS - P.Kandasamy, K.Thilagavathi, K.Gunavathi, S.Chand & Company Ltd., New Delhi Revised Edition 2005**
- 2. NUMERICAL METHODS - N.Kalavathi.**

REFERENCE BOOKS:

- 1. COMPUTER ORIENTED NUMERICAL METHOD - V.Rajaraman, PHI Pub.**
- 2. INTRODUCTORY METHODS OF NUMERICAL ANALYSIS - S.Sastry, Perntice Hall India Ltd., New Delhi, 1994.**

SEMESTER III

Programming Lab-III (DATA STRUCTURES IN C)

Instructional Hrs: 60

Objectives: 1. Become familiar with Basic Techniques of Algorithm Analysis.

2. Master the implementation of Linked Data Structures such as Linked Lists & Binary Trees.

3. Familiar with Writing Recursive Methods such as Search, Sort etc.

1. Write a C program to find factorial of the given number using recursion.
2. Write a C program to find Fibonacci series up to the given limit using recursion.
3. Write a C program to find GCD for the given two numbers using recursion.
4. Write a C program display the movement disks to give a tower using recursion.
5. Write a C program to find binomial co-efficient for the given numbers.
6. Write a C program to search the given number by linear search.
7. Write a C program to search the given number by Binary search.
8. Write a C program to sort the given numbers using Insertion sort.
9. Write a C program to sort the given number using Quick sort.
10. Write a C program to display the sparse matrix.
11. Write a C program to perform Stack operations.
12. Write a C program to perform Queue operations.
13. Write a C program to convert infix to postfix expression.
14. Write a C program to evaluate postfix expression.
15. Write a C program to add two polynomial equations.

SEMESTER III

Programming Lab – IV(COBOL)

Instructional Hrs: 60

- Objectives:
1. Understand the structure of COBOL programs.
 2. Understand the purpose of the IDENTIFICATION, ENVIRONMENT, DATA and PROCEDURE DIVISIONS.
 3. Be aware of the significance of COBOL in ACCOUNTANCE PROGRAMS.
-
1. Write a COBOL program for finding biggest number among three numbers.
 2. Write a COBOL program for display Armstrong number.
 3. Write a COBOL program to change numbers into words.
 4. Write a COBOL program for UNSTRING THE STRING.
 5. Write a COBOL program for counting vowels.
 6. Write a COBOL program for calculate factorial of a number.
 7. Write a COBOL program for simple interest calculation.
 8. Write a COBOL program to find the year the leap year or not.
 9. Write a COBOL program for replacing the portion of the string.
 10. Write a COBOL program to find the sum of given numbers.
 11. Write a COBOL program to reverse the given number.
 12. Write a COBOL program for Fibonacci Series.
 13. Write a COBOL program for matrix addition.
 14. Write a COBOL program for searching customer details.
 15. Write a COBOL program for student marksheet.
 16. Write a COBOL program for paybill.
 17. Write a COBOL program for merging two files.
 18. Write a COBOL program for sorting a file.
 19. Write a COBOL program for electricity bill.

SEMESTER IV

VISUAL BASIC

Instructional Hrs: 75

- Objectives:
1. It help to develop windows applications.
 2. It helps to writing sophisticated window programs.
 3. It is GUI oriented developing tool.

UNIT-I

15 Hrs

Getting Started – Visual Basic Environment – Initial VB Screen – Single document Interface – Tools Bars and Custom Control & Components – Use of File, Edit, View, Project, Format, Run And Debug, Tools, Window Menu, Properties Window, Procedures – Image Controls, Text Boxes, Labels, Navigating Between Controls, Message Boxes And Grids.

UNIT-II

15 Hrs

Steps in Programming – The Code Window – Editing Tools – Statement In VB – Assignment And Property Setting – Variables, Strings, Numbers, Constants, Displaying Informations – Controlling Program Flow – Repeating Operations – Making Decisions – GOTO – String Functions – RND Functions – Data and Time Functions – Financial Functions.

UNIT-III

15 Hrs

Control Arrays – Lists: One Dimensional Arrays – Arrays With more than One Dimension – Using Lists and Arrays with Functions and Procedures – Passing by Reference / Passing by values – Code Module – Global Procedure and Global Variables – User Defined Types- With statements – Common Dialog Box – MDI Forms.

UNIT-IV

15 Hrs

Fundamentals of Graphics and Files – Screen Scales – The Line and shape Controls – Graphics via Code, Lines & Boxes, Circle, Ellipse, Pie Charts, Curves, Paint Picture Method – Graph Control.

UNIT-V

15 Hrs

File Commands – File System Controls – Sequential Files – Random Access Files– Binary File, Clip Board, OLE, Data Control – Programming with Data Control.

TEXT BOOK:

Gray Cornell, “Visual Basic 6.0 From Ground Up”, Tata McGraw Hill.

SEMESTER IV
COMPUTER ORIENTED STATISTICAL METHODS

Instructional Hrs: 90

- Objectives:
1. To learn about the probability and distributions.
 2. Working with computer oriented statistical problems.
 3. To make students aware of SPSS package in accounting.

UNIT-I

Probability: Definition – Addition, Multiplication and Baye’s theorems – Simple problems – Random variables – Expectation and Random variable- **Probability Distributions:** Binomial – Poission – Normal Distribution – Simple Problems. (Derivations not necessary)

UNIT-II

Statistics: Definition – Classification and Tabulation of Data – **Measures of Central values:** Mean – Median – Mode – Their Relationship - Geometric mean – Harmonic mean – Problems.

UNIT- III

Measures of Dispersion: Range – Quartile Deviation - Mean Deviation – Standard Deviation - **Skewness, Moments and Kurtosis:** Introduction - Measures of Skewness, Moments and Kurtosis.

UNIT-IV

Correlation: Meaning - Types – Methods – Scatter diagram - Karl Pearson’s coefficient of correlation – Rank correlation – Problems - **Regression:** Uses – Regression lines – Regression equations – Curve Fitting – Straight line, parabola and exponential curves.

UNIT-V

SPSS: SPSS for windows – SPSS Windows process – Creating and editing data file – Managing Data - Graphs

TEXT BOOKS:

1. “STATISTICS” - R.S.N.Pillai & Bagavathi, S.Chand & Company Ltd, New Delhi..(UNIT I - IV)
2. “SPSS FOR WINDOWS STEP BY STEP” - Darren George & Paul Mallery, Pearson Education, Eight Edition (UNIT V)

ACCOUNTING AND MANAGEMENT

Instructional Hrs: 90

- Objectives: 1. To learn basics of Accounting and methods.
2. To acquaint with functional areas of management.

UNIT-I

26 Hrs

Accounting – Definition and Functions – Accounting Conventions, Concepts – System of Accounting – Rules for Double Entry System of Book Keeping – Preparation of Journal, Ledger, Trial Balance (excluding rectification of errors) Final Accounts – Trading, Profit and Loss Accounts and Balance Sheet with simple adjustments.

UNIT-II

10 Hrs

Cost Accounting – Meaning – Significance – Difference Between cost and Financial Accounting – Elements of costing – Types of costing – Preparation of simple cost sheet (problems)

UNIT-III

18 Hrs

Management Accounting – Meaning, Functions, Difference between Management Accounting and Financial Accounting – Marginal cost – BEP Analysis (Problems) – Preparation of Various Budgets (Cash, Production, Sales and Flexible – Simple Problems only)

UNIT-IV

18 Hrs

Nature and Objectives of Business – Types of Business Organization – Merits and Demerits.

Management – Meaning, Principles, Functions – Planning – Importance – Process, Organizing – Features, Importance, directing – Elements of directions (Basic Concepts) – Controlling – Importance – Process.

UNIT-V

18 Hrs

Functional Management-Production Management – Objectives and Functions , Marketing Management – Objectives and functions – Human Resource Management – Objectives and functions – Financial Management – Objectives and Function.

Note: 60% of questions should be related problems (from first 3 unit) and 40% relating to theory.

TEXT BOOK:

1. **T.S GREWAL** : Introduction to Accountancy
2. **JAIN & NARANG** : Cost Accountancy
3. **SHARMA & GUPTA** : Principles of Management Accounting
4. **Y.K.BHUSAN** : Business Organization and Management

SEMESTER IV

[Common for CS, BCA, IT, CT]

Programming Lab – V (VISUAL BASIC)

Instructional Hrs: 60

Objectives: 1. It is help to develop windows oriented project.

2. Programs are developing in IDE (Integrated Development Environment).

3. It is used to learn number of tools in VB.

1. Write a VB program to find the sum of digits of the given number.
2. Write a VB program to exchange items among two list boxes.
3. Write a VB program to change the text foreground color and textbox background color using scroll bar.
4. Write a VB program to view an image using file control commands.
5. Write a VB program to move the text in the label box using slider control.
6. Write a VB program to change the size of image in a picture box.
7. Write a VB program to use the various options of the common dialog control.
8. Write a VB program for moving an object randomly with in a window using timer control.
9. Write a VB program to change the size of shapes using menu editor.
10. Write a VB program for free hand drawing.
11. Write a VB program to design a calculator for performing arithmetic operations.
12. Write a VB program to design a calendar for the given month and year.
13. Write a VB program to store and retrieve text using sequential file.
14. Write a VB program to generate a telephone bill stored in an Access table using ADO connectivity.
15. Write a VB program to view the employee details stored in an Oracle table using ADO connectivity.

SEMESTER IV

Programming Lab – VI (SPSS AND TALLY)

Instructional Hrs: 60

- Objectives:
1. To learn how to create the ledger accounts for a company.
 2. To learn how to Generate various Accounting Reports.
 3. To learn how to prepare various statistical reports from the given data.
1. From the following particular prepare the ledger accounts of Mr. Ilango for the year of Dec, 2009.

| Date | Particulars | Amount (Rs) |
|-------------|------------------------------------|--------------------|
| Dec 1 | Cash balance | 8000 |
| Dec 7 | Bought goods for cash | 25000 |
| Dec 9 | Purchase goods on credit from Guru | 6000 |
| Dec 12 | Goods sold to Somu on credit | 8000 |
| Dec 14 | Paid Guru | 6000 |
| Dec 17 | Cash received from Somu | 8000 |
| Dec 20 | Paid trade expenses | 10000 |
| Dec 21 | Received cash from Krishna | 10000 |
| Dec 27 | Commission received | 5000 |

2. Prepare the ledger accounts of Mr. Raja for the year of March, 2009.

| Date | Particulars | Amount (Rs) |
|-------------|------------------------------|--------------------|
| Mar 1 | Cash in hand | 46000 |
| Mar 2 | Paid into bank | 12000 |
| Mar 3 | Cash sales | 24000 |
| Mar 5 | Credit sales to Mani | 3000 |
| Mar 7 | Painting charges | 3000 |
| Mar 9 | Received cheque from Natesan | 8000 |
| Mar 12 | Dividend received | 2000 |
| Mar 14 | Computer purchased | 35000 |
| Mar 17 | Cash received from Mani | 3000 |
| Mar 24 | Cash withdraw from bank | 2000 |

3. From the following particular prepare the ledger accounts of Mr. Ilango for the year of April, 2009.

| Date | Particulars | Amount (Rs) |
|-------------|---------------------------|--------------------|
| Apr 5 | Bought goods from Velan | 6750 |
| Apr 8 | Cash purchase | 3000 |
| Apr 11 | Cash sales | 4000 |
| Apr 15 | Sold goods to Guru | 2000 |
| Apr 17 | Cash paid to Ramu | 850 |
| Apr 19 | Paid salary | 1000 |
| Apr 21 | Received cash from Ramesh | 200 |
| Apr 25 | Paid for advertisement | 100 |
| Apr 27 | Bought goods | 3000 |
| Apr 30 | Cash withdraw from bank | 2000 |

4. From the following particular prepare the ledger accounts of Mr. Ram

| Date | Particulars | Amount (Rs) |
|-------------|-------------------------------|--------------------|
| 1 | Ram invested cash in business | 200000 |
| 2 | Paid into bank | 50000 |
| 3 | Purchased building | 70000 |
| 4 | Purchased Goods | 50000 |
| 5 | Sold goods | 60000 |
| 6 | Withdraw cash from bank | 10000 |
| 7 | Paid electronic charges | 300 |
| 8 | Paid salary | 1500 |

5. From the following particular prepare the ledger accounts of Mr. Surya for the year ended January 2010

| Date | Particulars | Amount (Rs) |
|-------------|---------------------------------|--------------------|
| 1 | Surya invested cash in business | 50000 |
| 2 | Purchase flat | 10000 |
| 3 | Purchased goods from Krishna | 8000 |
| 4 | Purchased Goods for cash | 120000 |
| 5 | Sold goods to Balu | 10000 |
| 6 | Sold goods for cash | 12000 |
| 7 | Purchased furniture | 6000 |
| 8 | Paid salary | 4000 |
| 9 | Paid rent | 2000 |
| 10 | Received commission | 1000 |

6. From the following particular prepare the ledger accounts of Mr. Sekar&Co for

the year ended Feb 2010

| Date | Particulars | Amount (Rs) |
|-------------|------------------------------------|--------------------|
| 1 | Sold on credit to Ram & Co | 325 |
| 2 | Purchase on credit from Hari | 1200 |
| 3 | Purchased for cash from Mohan & Co | 300 |
| 4 | Sold to Gopal on credit | 125 |
| 5 | Return to Hari | 2000 |
| 7 | Purchased from Murugan&Co | 500 |
| 8 | Gopal returned goods to us | 25 |

7. From the following particular prepare the ledger accounts of Mr. Ilango for the year of April, 2009.

| Date | Particulars | Amount (Rs) |
|-------------|------------------------------|--------------------|
| Apr 7 | Bought goods from Suresh | 5500 |
| Apr 8 | Cash Sales | 5000 |
| Apr 12 | Cash Purchase | 4000 |
| Apr 15 | Sold goods to Guru on credit | 2000 |
| Apr 16 | Cash received from Ramu | 850 |
| Apr 19 | Paid salary | 1000 |
| Apr 21 | Received cash from Ramesh | 200 |
| Apr 25 | Paid for advertisement | 100 |
| Apr 27 | Bought goods | 3000 |
| Apr 30 | Cash withdraw from bank | 2000 |

8. From the following particular prepare the ledger accounts of Mr. Mano.

| Date | Particulars | Amount (Rs) |
|-------------|--------------------------------|--------------------|
| 1 | Mano invested cash in business | 100000 |
| 2 | Paid into bank | 5000 |
| 3 | Purchased stationary | 7000 |
| 4 | Purchased furniture for cash | 40000 |
| 5 | Sold goods for cash | 75000 |
| 6 | Withdraw cash from bank | 10000 |
| 7 | Paid for advertisement | 7000 |
| 8 | Paid salary | 3500 |

9. From the following particular prepare the ledger accounts of Mr. Sethu&Co for the year ended Feb 2010.

| Date | Particulars | Amount (Rs) |
|-------------|----------------------------------|--------------------|
| 1 | Sold on credit to Ram | 3000 |
| 2 | Purchase goods from Hari | 12000 |
| 3 | Purchased for cash from Mohan | 30000 |
| 4 | Sold to Gopal on credit | 125 |
| 5 | Return from Hari | 20000 |
| 7 | Purchased from Murugan on credit | 5000 |
| 8 | Returned goods to Murugan | 2500 |

10. From the following particular prepare the ledger accounts of Mr. Eswar for the year of Dec, 2009.

| Date | Particulars | Amount (Rs) |
|-------------|------------------------------------|--------------------|
| 1 | Cash balance | 12000 |
| 7 | Bought furniture for cash | 20000 |
| 9 | Purchase goods on credit from Guru | 5000 |
| 12 | Goods sold to Raj on credit | 8000 |
| 14 | Cash received from Somu | 6000 |
| 17 | Paid trade expenses | 8000 |
| 20 | Received cash from Krishna | 10000 |
| 21 | Commission paid | 5000 |
| 25 | Paid rent | 2500 |

11. Prepare the ledger accounts of Mr. Deepak for the year of March, 2009.

| Date | Particulars | Amount (Rs) |
|-------------|------------------------------|--------------------|
| 1 | Cash in hand | 45000 |
| 3 | Cash purchase | 34000 |
| 5 | Credit sales to Mani | 3000 |
| 7 | Stationary charges | 3000 |
| 9 | Received cheque from Natesan | 8000 |
| 12 | Dividend paid | 2500 |
| 14 | Purchased computer for sales | 25000 |
| 17 | Cash received from Mani | 3000 |
| 24 | Paid into bank | 2000 |

12. 10 individuals choose at random from a population and their height are found to be inches 63, 65, 66, 67, 68, 69, 70, 71, 71, 50 in the height of the data. Discuss the suggestion that the mean height in the populations is 66 inches apply 'T' test once sample.

13. 11 school boys were given a test in statistics they were given a month's tuition and a school test were held at the end of its. Do the marks given evidence that the students have benefited by the extra – working applying paired T – test.

| | | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|----|----|
| X | 23 | 20 | 19 | 21 | 18 | 20 | 18 | 17 | 23 | 16 | 19 |
| Y | 24 | 19 | 22 | 18 | 20 | 22 | 20 | 20 | 23 | 20 | 17 |

14. The three table samples below have been obtained from normal population which equal variances. Test for hypothesis that the sample means are equal by using one way ANOVA method [F-Test].

| | | | | | |
|---------|----|----|----|----|----|
| Sample1 | 8 | 10 | 7 | 14 | 11 |
| Sample2 | 7 | 5 | 10 | 9 | 9 |
| Sample3 | 12 | 9 | 13 | 12 | 14 |

15. Calculate the co-efficient of correlation between X and Y for the following Data.

| | | | | | | | | | |
|---|---|---|----|----|----|----|----|----|----|
| X | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Y | 9 | 8 | 10 | 12 | 11 | 13 | 14 | 16 | 15 |

SEMESTER V JAVA PROGRAMMING

Instructional Hrs: 60

Objectives: 1. Understand fundamentals of programming such as variables, conditional & iterative execution, methods etc.

2. Understand fundamentals of object oriented programming in Java including defining classes, invoking methods using class libraries etc.

3. Be aware of the important to pus & principles of software development.

UNIT-I OBJECT ORIENTED FUNDAMENTALS AND JAVA REVOLUTION 12 Hrs

Object Oriented Programming – Encapsulation – Inheritance – Polymorphism – Java Genesis – Characteristics – Java Programming Techniques – Reserved Words – Identifiers Literals – Operators – Separators – Variables – Types – Arrays – Operator Precedence.

UNIT-II FLOW – CONTROL AND CLASSES 12 Hrs

If – Else – Break – Switch – Return Statements – Looping – While – Do While – For – Comma Statements – Continue – Classes – Declaration – Object References – Instance Variables – New Operator – Method Declaration – Method Calling – this Operator Constructors – Methods Overloading – Inheritance – Super Class – Dynamic Method Dispatch – Final Static – Abstract Classes.

UNIT-III PACKAGES AND INTERFACES 12 Hrs

Packages – The Package Statement – Import Statement – Interface Statement – Implements Statement – Constructors – String Creation – String Concatenation – Character Extraction – Exception Handling Fundamentals – Types – Uncaught Exceptions – Nested try Statement – The Java thread Model Priorities – Synchronization – Runnable – The Synchronized on Statement -Dead Lock – Thread API Summary.

UNIT-IV UTILITIES AND APPLETS 12 Hrs

Dictionary Class – Hash Tables – String Tokenizer – Runtime – System Class – Comparison – Input and Output – File Directory – Filename Filter- File Streams.

UNIT-V 12 Hrs

Applets – HTML Applet Tab – Order of Applet initialization – Sizing Graphics – Simple Graphics Method – Draw line – Draw Arc – Font Manipulation – Simple Image Loader – Image Observer – Summary.

TEXT BOOKS:

1. Partick Naughton, “The java Hand Book”, Tata McGraw Hill Publishers Company Pvt. Ltd., 1996.
2. Fenny chu, “The Complete Reference Java”, Tata McGraw Hill Publishers Company Pvt. Ltd., 1996.

SEMESTER V SOFTWARE ENGINEERING

Instructional Hrs: 60

- Objectives:
1. Define Software Engineering and explain its importance.
 2. To discuss the concepts of software products and its process.
 3. To explain the importance of process visibility. To know the notation of professional responsibility.

UNIT-I

12Hrs

INTRODUCTION TO SOFTWARE ENGINEERING – Definition – Project size Categories – Quality and Productivity Factors – Managerial Issues – PLANNING A SOFTWARE PROJECT – Defining a Problems – Planning the development Process – Developing a Solution Strategy – Phased Life Cycle Model – Milestones – Documents and Reviews – Cost Model – Prototype Life Cycle Model – Successive Versions – Planning a Organizational Structure – Project Structure – Programming Team Structure.

UNIT-II

12 Hrs

SOFTWARE COST ESTIMATION – Software Cost Factors – The Software Cost Estimation Techniques – Expert Judgment – DELPHI Cost Estimation – Work Break Down Structures – Algorithmic Cost Models – Staffing – Level Estimation – Estimating Software Maintenance Costs - SOFTWARE REQUIREMENTS DEFINITION – The Software Requirements Specification – Formal Specification Techniques – Relational and State Oriented Notations.

UNIT-III

12 Hrs

SOFTWARE DESIGN – Fundamental Design Concepts – Modules and Modularization Criteria – Coupling and Cohesion – Design Notations – Design Techniques – Stepwise Refinement – Levels of Abstraction – Structured Design – Integrated Top-Down Development – Detailed Design Consideration – Test Plans – Milestones – Walkthroughs and Inspections – Design Guidelines.

UNIT-IV

12 Hrs

VERIFICATION AND VALIDATION TECHNIQUES – Definition – Quality Assurance – Walkthroughs and Inspections – Static Analysis – Symbolic Execution – Unit Testing and Debugging – System Testing – Integration Testing – Acceptance Testing.

UNIT-V

12 Hrs

SOFTWARE MAINTANCE – Enhancing maintainability during Development – Managerial Aspects of Software Maintenance – Configuration Management – Source Code Metrics – Other Maintenance Tools and Techniques.

TEXT BOOK:

1. Richard E. Fairly – “Software Engineering Concepts”, Tata McGraw Hill publications, 2008 edition. [UNIT-V]

SEMESTER V

RELATIONAL DATABASE MANAGEMENT SYSTEMS

Instructional Hrs: 60

Objectives: 1. We know the functions of RDBMS.

2.To perform the steps of an Entity- Relationship model.

3. Design and Develop a relation database system with appropriate functionality to process data with constraints data integrity and avoid data redundancy.

UNIT-I

12 Hrs

INTRODUCTION: RDBMS Terminology – The Relational Data Structure Relation Data Integrity – Codd’s Rules. DATABASE ARCHITECTURE AND DATA MODELING: Conceptual, Physical and Logical Database Models – Database Design – Design Constraints – Functional Dependencies. ENTITY RELATIONSHIP MODELING: E-R Model – Components of an E-R Model, E-R Modeling Symbols.

UNIT-II

12 Hrs

DATA NORMALIZATION: Introduction – First(1NF), Second(2NF), Third(3NF) Normal Forms, Boyce-Codd Normal Form(BCNF), Fourth(4NF), Fifth(5NF) Normal Forms, Domain-key Normal Form, Denormalization, RELATIONAL ALGEBRA AND RELATIONAL CALCULUS: Relational Algebraic operations: union, intersection, difference, Cartesian product, select, project, rename, join, division. – Tuple Relational Calculus, Domain Relational Calculus.

UNIT-III

12 Hrs

SQL PLUS: Menus – commands – Editing the Command Line – The Describe Command – The COLUMN Command – Basic SQL: SQL Language Basics – The SELECT Command – Data Types – Expressions and operators – Functions – The INSERT Command – The UPDATE Command – The DELETE Command – Transactions.

UNIT-IV

12 Hrs

Scheme Object – Data Integrity: Types – Integrity Constraints. Creating and Manipulating Tables: The CREATE TABLE Command – Modifying Tables – Deleting a Table. Indexes: Creating Indexes – Changing an Index. SEQUENCES: The create sequence command – Pseudo columns – Deleting, Changing, using Sequence. VIEWS: How a view works – Creating a View – Deleting a View – Replacing a View. SYNONYMS: Creating, Renaming and Removing Synonyms.

PL/SQL: Blocks – Control Structures – Integrating SQL in a PL/SQL Program.
TRIGGERS: Components – Types – creating, Modifying, Enabling/Disabling a Trigger, Deleting, Replacing a Trigger – Stored Procedures and Functions: Creating, Executing, Deleting a Stored Procedure – Functions, Packages: Structure – Using Navigator – Referencing, Recompiling, Deleting a Package – Cursors – Transactions. Users, Privileges and Roles.

TEXT BOOKS:

1. Alexis Leon & Mathews Leon, “Database Management Systems”, Vikas Publishing House Pvt. Ltd., (UNIT I, II)
2. Jose A. Ramalho, “Learn Oracle 8i”, BPB Publications. (UNIT III, IV, V)

SEMESTER V

COMPUTER NETWORKS

Instructional Hrs: 60

- Objectives:
1. To know the basics of computer network along with telephone networks development.
 2. To understand the OSI reference model with every layer.
 3. To know about [WWW](#), [Internet](#), E-mail & DNS.

UNIT-I

12 Hrs

INTRODUCTION – Uses of Computer Networks – Network Hardware – Network Software – Reference models – PHYSICAL LAYER – Guided Transmission Media, the public switched telephone network.

UNIT-II

12 Hrs

DATA LINK LAYER – Data link Layer design Issues – Elementary Data Link protocols – Sliding Window Protocols.

UNIT-III

12 Hrs

NETWORK LAYER – Network layer Design Issues – Routing Algorithms – Congestion Control Algorithms.

UNIT-IV

12 Hrs

TRANSPORT LAYER – The Transport Service – Elements of Transport Protocols – The Internet Transport Protocols: UDP

UNIT-V

12 Hrs

THE APPLICATION LAYER – DNS – The Domain Name System – Electronic Mail – The World Wide Web.

TEXT BOOK:

Andrew S. Tanenbaum, “Computer Networks”, PRENTICE HALL OF INDIA, Fourth Edition, [UNIT I-V]

SEMESTER V

Programming Lab – VII (JAVA Programming)

Instructional Hrs: 60

Objectives: 1. Have the ability to write a computer program to solve specified programs.

2. Be able to use the Java SDK environment to create.

3. Easily understand the basics of object oriented programming debug & run simple java programs.

1. Write a java program to find the number of odd, even and prime numbers.
2. Write a java program to display Floyd's triangle upto the given limit.
3. Write a java program to (i)display the number in reverse order (ii) find the sum of the digits.
4. Write a java program to count the number of vowels in the given string.
5. Write a java program to arrange the given set of names in alphabetical order.
6. Write a java program to find matrix multiplication for the given numbers.
7. Write a java program to perform arithmetic and scientific operations.
8. Write a java program to perform stack operation using Interface.
9. Write a java program to display any two subject marks and sports marks of the student and find the total marks using Interface.
10. Write a java program to handle different Exceptions.
11. Write a java program for i) assigning thread priority ii) executing thread methods yield(), stop() and sleep().
12. Write a java program for traffic light simulation using Applet.
13. Write a java program to display digital clock using Applet.
14. Write a java program to display different fonts using Applet.
15. Write a java program using File to get the string and display it using Byte stream classes.

B.Sc. (CS) - SEMESTER-V
PROGRAMMING LAB-VIII (Relational Data Base Management Systems)
B.Sc. (IT) / B.Sc. (CT) - SEMESTER-IV
PROGRAMMING LAB-VI (Relational Data Base Management Systems)

Instructional Hrs : 60

Objectives :

1. To create MYSQL programs to work within tables
2. To create SQL programs to manipulate within tables
3. To make the students to know about the various functions used when working within tables.

1. Write a MYSQL program to create table for employee details and alter table, update and delete values in that table
2. Write a MYSQL program to create table and write queries with built in function for the following constraints.
 - comparison , logical and set operators
 - sorting and grouping operators built in functions for ceil , sysdate ,
 - minus ,square , round, length, count and sum.
3. Create a table called 'product' with the following details:

| SL NO | Field Name | Data made of | Constraints |
|-------|----------------|--|---|
| 1. | Product code | First characters 'P' Other 3 characters are digits | Should not be empty and should be made of unique values |
| 2. | Product Name | Alphabets | Should not be empty |
| 3. | Qty on hand | 9999 | Should not be empty |
| 4. | Cost price(RS) | 9999.99 Format | Should not be empty |

- Insert at least 15 records for that table.
 - List of all products having 'a' as the second letter in their names.
 - List the Product codes and names where the Cost price is greater than Rs.100/-
 - List the Product codes where the quantity on hand is more than 50.
 - List the Product Name,Qty on hand,Cost price and the Total cost price of each product.
4. Write a PL/SQL program to find and display the number of ones, tens, hundreds and thousands in the given number.
 5. Write a PL/SQL program to display names of the employees in the employee table whose names are palindrome.
 6. Write a PL/SQL program to check Armstrong number condition for 3 digit numbers and Ramanujam number condition for 4 digit number.
 7. Write a PL/SQL program to find the number of occurrences of a character in the given string.
 8. Write a PL/SQL program with recursive concept to create a set of value for ROLL NO using a sequence and store the generated ROLL NO in the ROLL NO field of the student table.
 9. Create two tables one called EMP and another called DEPT with EMP having Employee Number, Employee Name, Department Number, Salary, Commission, Manager Number and the DEPT table with Department Number, Department Name and Department Location.

Write SQL queries to:

1. List the names of all the employees having salary of atleast Rs.5000/-
2. List the names of employees and also the names of their managers.
3. List the names of all employees with manager name as "Ram".
4. List the names of all employees whose total earning is more than Rs.7500/-
5. List the details of employees working in the production department.

6. List all the programmers working in Chennai.
7. List the names of all employees whose salary is greater than the average salary of their department.
8. List the names of all the managers.
9. List the names of the Accounts department whose salary is either Rs.2500 or Rs.5000/-
10. List the names, salaries of employees of the Accounts department who are not earning any commission.
10. Write a Trigger to store the deleted records of the Department table in to a record table.
11. Write a PL/SQL program to raise divide by Zero Exception.
12. Write a PL/SQL program for fixing the salaries of employee using functions.
13. Write a PL/SQL program to calculate the commission payable to employees of the employee table using stored procedures.
14. Create the table SSLC mark (Regno, Name, Tamil mark, English mark, Maths mark, Science mark, Social science mark) with the necessary integrity constraints write SQL statements to
 1. Find the topper in the class.
 2. Find the names of the students who have scored more than 90 percent marks in each subject.
 3. Find the Names of student who have scored centum in Maths.
 4. List the Names and total marks of students who have scored more than 75 in the Maths and Science subjects put together.
 5. List the names of the students and their marks in the language who have scored more than 60% in each of the language papers.
15. Write a PL/SQL program to split the SSLC mark sheet table into two tables with one containing the names of passed students and the other one containing the names of failed students.

WEB DESIGN

Instructional Hrs: 90

Objectives: 1. To learn design a web page.

2. To learn scripting languages.

3. To learn create a website.

UNIT-I

18 Hrs

Markup Languages – HTML – Basic Structure – HTML Document – Inside the Body – Inserting Special Characters – Images and Object – Lists – Hyperlinks – Frames – Tables – Forms – Style Sheets – Sample Applications.

UNIT-II

18 Hrs

DHTML – Introduction – Dynamic Styles – Positioning and Animation – Dynamic Content – Text Range Objects – Selection Object – Filters – Data Binding, Sample Applications.

UNIT-III

18 Hrs

XML – Introduction to XML – DTD – XML Style Sheet (XSL) – Sample Applications.

UNIT-IV

18 Hrs

Scripting Languages – Introduction to JavaScript and VBScript – Data Types – Variables – Constants – Controlling Program Flow – Procedures – Sample Applications.

UNIT-V

18 Hrs

ASP Concepts – Using Server Side includes – Using the Request Object – Using the Response Object – Using Cookies – Using the Application, Session and Server Objects – Sample Applications

TEXT BOOKS:

1. A. Williams, Paul New Kirk and Kim Barber, “Active Server Page Solutions” [UNITS – I, II, IV]
2. A.K Saini and Sumint Tuli, “Mastering XML” [UNIT III]
3. Eric A.Smity, “ASP 3 Programming Bible”, MCSD[UNIT V]

COMPUTER GRAPHICS

Instructional Hrs: 75

- Objectives:
1. Know and be able to use underlying algorithms, mathematical concepts, supporting computer graphics.
 2. Know able to select among models for lighting / shading able to design and implement for surface, light, sound.

UNIT-I

15 Hrs

Graphics Input Device – Storage Devices – Common Display Devices, Raster CRT – Scan Converting a Point, a Straight Line, a Circle, an Ellipse, Filling – Side Effects of Scan Conversion.

UNIT-II

15 Hrs

2-D Transformations – Translation and Rotation – Matrix Representations and Homogeneous Co-ordinates – Composite transformations – Reflection and Shear Transformation Commands – Windowing and Clipping – Windowing Concepts – Clipping algorithms – Line, Area, Text and Blanking – Interactive Picture Construction Techniques – Positioning Methods, Rubber Band Methods.

UNIT-III

15 Hrs

3-D Transformations – Translation, Rotation & Scaling, Three Dimensional Concepts – Co-Ordinate Systems, Display Techniques and Graphics Packages – Three Dimensional Representations – Polygon Surfaces, Curved Surfaces.

UNIT-IV

15 Hrs

Hidden Surface and Hidden Removal – Classification of Algorithms – Black – Face, Depth – Buffer, Scan Line, Depth – Sorting, Area Subdivision, Octree, Hidden Line Elimination, Curved Surfaces.

UNIT-V

15 Hrs

Shading and Color Models – Modeling Light Intensities – Displaying Light Intensities – Surface Shading Methods – Color Models. Properties of Light, Standard Primaries, Intuitive Color Concepts, RGB Color Model, HSV Color Model – HLS Color Model.

TEXT BOOKS:

1. Roy A. plastock & Gorden Kalley, “Theory & Problems of Computer Graphics”, Schaum’s Outline Series, 1987, [UNIT-I].
2. Donald Hearn & M. Pauline Baker, “Computer Graphics”, Prentice Hall Of India, First Edition 1983, [UNIT II, III, IV, V]

SEMESTER VI

MAJOR CORE PROGRAMMING LAB – IX (Web Design)

Instructional Hrs: 60

- Objectives:
1. To develop program based on HTML Web.
 2. To understand the DHTML program concept.
 3. To learn ASP, Script tool for web page design.

HTML

1. Write a HTML program to design an invitation card (using text and block level tags)
2. Write a HTML program to design a transfer certificate application from using list.
3. Write a HTML program to design the class time table using table
4. Write a HTML program to design a student mark sheet using table
5. Write a HTML program to design the Gobi Arts & Science College website using hyperlinks.
6. Write a HTML program to design an advertisement for mobile phone using frames.
7. Write a HTML program to design student bio-data using forms.

DHTML & Scripting

8. Write a DHTML program to display the super market offers using timeout function.
9. Write a DHTML program to change the given content style using dynamic style content properties (inner text)
10. Write a DHTML program to perform text effect using visual and transition filters.
11. Write a program to display current date & time using Java Script.
12. Write a program to display stars using VB Script.

XML

13. Write a XML program to display bank details using style sheet.
14. Write a XML program to display to retrieve a record for employee details using data islands
15. Write a XML program to display book details using data source.

ASP

16. Write an ASP program to display the student's details using MS-Access as back end (Register number, Name, Class, DOB, Address, Phone number)

B.Sc – CT SEMESTER - III
PROGRAMMING LAB – X (COMPUTER GRAPHICS)

Instructional hours: 60

Objectives:

1. To learn about graphical algorithms with programming.
 2. To learn about displaying principles.
 3. To learn fundamental graphical functions in C language.
-
1. Write a C program to plot a Line using DDA Line Drawing Algorithm.
 2. Write a C program to plot a Line using Bresenham's Line Drawing Algorithm.
 3. Write a C program to plot a Line using Bresenham's Circle Drawing Algorithm.
 4. Write a C program to plot a Line using Mid Point Circle Drawing Algorithm.
 5. Write a C program to display a Man Walking.
 6. Write a C program to Clip a Line Using Line Clipping Algorithm.
 7. Write a C program for Flag Hoisting.
 8. Write a C program for Text Animation.
 9. Write a C program to display different shapes.
 10. Write a C program for Eye Blinking.
 11. Write a C program to display a Chess Board.
 12. Write a C program to display a clock.
 13. Write a C program for 2D Translation and Scaling about fixed point.
 14. Write a C program for 2D Rotation about fixed point.
 15. Write a C program for movement of an object using 3D object representation.

OPEN SOURCE SCRIPTING TOOL

Instructional Hrs: 90

- Objectives:
1. To know about the PHP and MySQL basics.
 2. Working with Database for PHP scripts.
 3. To develop a dynamic web page by using PHP.

UNIT-I

18 Hrs

Introduction of PHP: What is PHP? Advantages of PHP –**PHP Language structure:** The Building blocks of PHP – Variables – Data types – type casting – Operator and Expressions – Constants - **Introduction to MYSQL:** Data types – table creation - insert, select, replace, update and delete commands – using where in your Queries.

UNIT-II

18 Hrs

Flow control function in PHP: Switching Flow – Loops – code block and browser output -**Working with arrays:** Array definition – creating arrays – Array related functions – **working with function:** Definition - calling functions – Defining a function – returning values from user defined functions – variable scope – static statement – more about arguments – testing for existence of a function.

UNIT-III

18 Hrs

Working with Strings, Date and Time: Formatting strings with PHP – Investigating strings in PHP – Manipulating strings with PHP – using Date and Time functions– **Working with objects:** Creating an object – properties of object – object methods – constructors - Object Inheritance.

UNIT-IV

18 Hrs

Working with forms: Creating a simple input form – Accessing form – combining HTML and PHP code on a single page – using hidden fields to save state – redirecting the user – sending mail on form submission - working with file uploads – **Working with cookies and user sessions:** Introducing cookies – setting a cookies– Deleting a cookie – session function – starting a session - working with session variables – passing session IDs - Destroying sessions and unsetting variables.

UNIT-V

18 Hrs

Working with files and Directories: Including files with include() – validating files - Creating and Deleting file – opening a file for writing, reading and appending – reading from files – Writing or appending to a file - working with directories - Opening pipes to and from processes using popen()- Running commands with exec(), system() or passthru() – **Working with images:** Image creation process – Drawing a new image – Creating pie charts - modifying existing images – using images created by scripts – **Working with XML:** Accessing XML in PHP using DOM – Using simple XML function in PHP.

TEXT BOOKS:

1. Julie C.Meloni, “PHP, MYSQL and Apache”, Dorling Kindersley (India) Pvt. Ltd., 2005.

REFERENCE BOOKS:

1. Jeremy Allen & Charless Hornberger “PHP, Apache, Mysql, Web development”, Wiley Publications, 2006.
2. Vikram, Vaswani, “A Beginner’s Guide PHP” Tata McGraw Hill, Fourth Edition, 2005.

SEMESTER VI

OPEN SOURCE SCRIPTING TOOL

Instructional Hrs: 60

Objectives: 1. Simple PHP Script program for Dynamic web page.

2. Learn DB connectivity’s for PHP page

3. Learn controls in PHP page.

1. Write a PHP program to validate the text box.
2. Write a PHP program to draw different shapes.
3. Write a PHP program to perform the string manipulation.
4. Write a PHP program to perform the file uploading.
5. Write a PHP program to perform the user registration form using HTML tags.
6. Write a PHP program to calculate age using date and time function.
7. Write a PHP program to check the user login.
8. Write a PHP program to create a college website.
9. Write a PHP program for cookies and session concepts.
10. Write a PHP program to perform the file read, write, open and append operation.
11. Write a PHP program to create a library information using inheritance.
12. Write a PHP program for online examinations.
13. Write a PHP program to create mail server application using MYSQL database (send and view mail).
14. Write a PHP program for supermarket.
15. Write a PHP program for online recharging.

B.Sc. Computer Science

Question paper pattern:

SECTION-A

Answer all Questions. No choice. One question from each unit. Each question carries two Marks. (5 x 2 = 10)

SECTION-B

Short answer questions of either or type – 5 questions – One question from each unit. (5 x 4 = 20)

SECTION-C

Essay type questions – Answer any three out of five – One question from each unit. (3 x 15 = 45)

ALLIED OPTIONAL
For students of other than Computer Science Department
SEMESTER IV

PRINCIPLES OF INFORMATION TECHNOLOGY

Instructional Hrs: 90

- Objectives:
1. Communicate information technology to a range of audiences.
 2. To get the information about IT field.
 3. To gather information about H/W and S/W and internet applications.

UNIT-I

18 Hrs

Data and Information: Introduction – Types of Data – A simple model of a computer – Data processing using a computer – Desktop computer. Input units – Internal representation of Numeric Data – Representation of Characters in computers – Acquisition of Textual Data.

UNIT-II

18 Hrs

Data storage – Introduction – Memory Cell – Physical Devices used as Memory Cells – Ram – Rom – Secondary memory – Floppy Disk Drive – CDROM – Archival Memory – The Structure of a Central Processing Unit – Output Devices – Printers.

UNIT-III

18 Hrs

Computer Networks – LAN – Applications of LAN – WAN – Internet – Computer S/W – Operating System – Programming Languages – A classification of programming Languages.

UNIT-IV

18 Hrs

Data Organization – Organizing a Database – Structure of a Database – Database Management System – Use of SpreadSheets – Word Processor – Desktop Publishing.

UNIT-V

18 Hrs

Internet Applications – E-mail – WWW – Information Browsing service – Electronic Commerce – Classification – Advantages & Disadvantages – EDI – Social Impacts of IT.

Books for Study:

1. Introduction to Information Technology – V. Rajaraman, PHI – New Delhi 2005

QUESTION PAPER PATTERN

PART – A

Answer all questions. No choice. One question from each unit. Each question carries two marks. (5 x 2 = 10)

PART – B

Short answer questions of either or type – 5 questions – One question from each unit (5 x 4 = 20)

PART – C

Essay type questions – Answer any three out of five – One question from each unit. (3 x 15 = 45)

ALLIDE OPTIONAL
For students of other than Computer Science Department
SEMESTER IV

INTRODUCTION TO SYSTEM PROGRAMMING

Instructional Hrs: 90

Objectives: 1.To know about Design concepts.

2. To know about Data flow between source of destination.

3. To know about Testing & security measures.

UNIT-I

18 Hrs

Basic computer organization – **Computer software:** What is software – Relationship between H/W & S/W – types of S/W – Logical system Architecture – Acquiring S/W – S/W development steps – Firmware.

UNIT-II

18 Hrs

Planning the computer program: Purpose of program planning – Algorithm – Flowcharts – What is a flowchart? **Computer languages:** Machine language – Assembly language – High level language.

UNIT-III

18 Hrs

Operating system: What is an OS? – Measuring System Performance – Process Management – Some Popular Operating System.

UNIT-IV

18 Hrs

Application S/W Packages: Word Processing Packages – Spreadsheet Package – Graphics Package – Personal Assistant Package.

UNIT-V

18 Hrs

Business Data programming: What is a data processing? – Data Storage Hierarchy – standard method of Organizing Data file Management System – file utilities – Main Components of a DBMS.

Text Book:

Pradeep K.Sinha, Priti Shinha, “COMPUTER FUNDAMENTALS” – BPB Publications – Third Edition – 2003.

ALLIED OPTIONAL
For students of other than Computer Science Department
SEMESTER IV

INTRODUCTION TO ENTERPRISE RESOURCE PLANNING

Instructional Hrs: 90

Objectives: 1.To know the basics of ERP.

2. ERP is important S/W to work in company side.

3. ERP is related with datamining and storage concepts of computer science.

UNIT-I

18 Hrs

Introduction to ERP: Introduction to computer – Parts of a Computer – Introduction to ERP – Evolution of ERP – What is ERP? – Reasons for the growth of the ERP market – The advantages of ERP – Why do many ERP implementations fail? Why are Packages being used now?

UNIT-II

18 Hrs

Enterprise – An Overview: Integrated Management Information – Business Modeling – Integrated Data model.

ERP and Related Technologies: Introduction – Business Process Reengineering – Management Information System(MIS) – Decision Support System(DSS) – Executive Information System(EIS) – Data Warehousing – Data Mining – Online Analytical Processing(OLAP) – Supply Chain Management.

UNIT-III

18 Hrs

ERP Modules: Finance – Sales and Distribution – Manufacturing – Human Resources – Plant Maintenance – Quality Management – Materials Management.

UNIT-IV

18 Hrs

ERP Implementation Life Cycle: Introduction – Pre-evaluation Screening – Package Evaluation – Project Planning Phase – GAP analysis – Reengineering – Configuration – Implementation – Team Training – Post Implementation.

UNIT-V

18 Hrs

Vendors – Consultants and Users: Vendors – Consultants – End Users.

Future Direction in ERP: Introduction – New Markets – New Channels – Faster Implementation Methodologies – Web Enabling – Market Snapshot.

TEXT BOOK:

ALEXIS LEON, “ENTERPRISE RESOURCE PLANNING”, Tata McGraw – Hill Publishing Company Ltd – 2004.

QUESTION PAPER PATTERN

PART-A

Answer all questions. No choice. One question from each unit. Each question carries two marks.

(5 x 2 = 10)

PART-B

Short answer questions of either or type – 5 questions – One question from each unit.

(5 x 4 = 20)

PART-C

Essay type questions – Answer any three out of five – One question from each unit

(3 x 15 = 45)

MAJOR OPTIONAL
For students of other than Computer Science Department
SEMESTER – V

PROGRAMMING FUNDAMENTALS

Instructional Hrs: 60

Objectives: 1.To get an idea to write programs.

2. To learn programming techniques.

3. To get an idea about visual basic.

UNIT - I

10Hrs

Software - Programming Languages - Common High Level languages - Program Execution Modes - Problem solving and flowcharts - Problem solving - Flowcharting - Branching - Looping - Connection - hints for Flowcharts.

UNIT - II

10Hrs

Importance of BASIC - Sample program - Program Analysis - Getting BASIC into the computer - listing and Editing BASIC programs - Saving and Running programs - Erasing programs.

UNIT - III

15Hrs

Constants and Variables - Character set - Constants - Variables - Naming the variables - Getting Data into Memory - Restore statement - Expressions in BASIC - Arithmetic Expressions - Hierarchy of operations - Rules of Arithmetic - Evaluation of Expressions- Relational Expressions - Logical Operations.

UNIT - IV

13Hrs

Jumping - Branching - Looping - Subscripted Variables - Functions and Subroutines.

UNIT - V

12Hrs

Visual Programming - Basic controls - Properties - Methods - Text box - Label box - Command Button - Sample codes.

Text Books:

1. E. BALAGURUSAMY, “Programming in BASIC”, TATA McGraw – Hill Publications.
2. Visual basic 6 Programming, Wallece Mary, IDG Books India (p) Ltd.

PROGRAMMING FUNDAMENTALS

Instructional Hrs: 30

Objectives: 1. To understand the fundamental knowledge on programming concepts.
2. To learn basic level control and flow of programming logics.
3. To visualize the interaction with system by programming concepts.

1. Write a BASIC program to check the given number is prime or not.
2. Write a BASIC Program to calculate sum of digits of the given number.
3. Write a BASIC Program to print the multiplication table.
4. Write a BASIC program to find out the factorial value of a given number.
5. Write a BASIC program to find the biggest value among three numbers
6. Write a BASIC program to find the area of circumstances.
7. Write a VISUAL BASIC program to perform Arithmetic Operations.
8. Write a VISUAL BASIC program to check whether the given year is leap year or not.
9. Write a VISUAL BASIC Program to count the occurrence of a character.
- 10 Write a VISUAL BASIC program to change the colors using scroll bar.
11. Write a VISUAL BASIC program to check the given number is odd or even.
12. Write a VISUAL BASIC program to generate Fibonacci series.

MAJOR OPTIONAL
For students of other than Computer Science Department
SEMESTER - V
LINUX & SHELL PROGRAMMING

Instructional Hrs: 60

Objectives: 1. To learn open source software.
2. Linux is an OS for all type of H/W platform.
3. Linux is one of the basic multi uses OS.

UNIT - I

12Hrs

Introduction to Linux operating system:

Introduction - the Linux operating system - history - Linux architecture - features and utilities - shell available in Linux. **Creating files using the vi editor:** Editor available with Linux - The vi editor.

UNIT - II

12Hrs

Managing files and directories:

The Linux file system - Directory commands in Linux - Basic Linux commands: password, man, find, who, sh, grep, wc and exit.

UNIT - III

12Hrs

Automating tasking using shell scripts:

Introduction - Variables - local and global variables - Command substitution - Redirection - Pipes - Test and [] commands.

UNIT -IV

12Hrs

Using conditional execution in shell scripts:

Conditional execution - IF, Else IF, Caseeasc constructs. **Managing repetitive:** While, Until, for constructs - Linux with C programs.

UNIT - V

12Hrs

File commands - date & time commands - The Command, Break and continue commands - Functions.

Text book:

NIIT, "OPERATING SYSTEM LINUX", - Prentice - hall of India Pvt.Ltd 2003.

MAJOR OPTIONAL - LINUX AND SHELL PROGRAMMING LAB PROGRAM LIST

Instructional Hrs: 30

Objectives: 1. Creating own power tools / utilities.

2. Creating simple Applications.

3. Automating command input or entry.

1. Write a Linux shell program to find the biggest among 3 numbers.
2. Write a Linux shell program to find the factorial of given number.
3. Write a Linux shell program to display the Fibonacci series for the given limit.
4. Write a Linux shell program for sum of digits.
5. Write a Linux shell program to find the reverse of the given numbers.
6. Write a Linux shell program to find check whether the given string is palindrome or not.
7. Write a Linux shell program to display time, date and list using basic Linux commands.
8. Write a Linux shell program to find the length of given string.
9. Write a Linux shell program to display the calendar.
10. Write a Linux shell program to display the employee pay bill.
11. Write a Linux shell program to display the electricity bill.
12. Write a Linux shell program the display the student mark sheet.

QUESTION PAPER PATTERN

PART-A

Answer all questions. No choice. One question from each unit. Each question carries two marks.

(5 x 2 = 10)

PART-B

Short answer questions of either or type – 5 questions – One question from each unit.

(5 x 4 = 20)

PART-C

Essay type questions – Answer any three out of five – One question from each unit

(3 x 15 = 45)

