PONDICHERY UNIVERSITY
BACHELOR OF SCIENCE
(COMPUTER SCIENCE)
REGULATIONS
(Effective from the academic year 2009-2010)

Aim of the Course
The Degree of Bachelor of Computer Science aims to introduce the students to the Computer Science and its applications. At the end of the course, the students are expected to have good working knowledge in Computer Systems and Applications.

Eligibility for Admission
Candidates for admission to B.Sc. in Computer science shall be required to have passed Higher Secondary Examination conducted by the Government of TamilNadu with Computer Science / Mathematics / Business Mathematics as one of the subjects of study or an examination accepted as equivalent thereto, subject to such conditions as may be prescribed therefore.

Lateral Entry
Candidates who have passed Diploma in Computer Science / Computer Technology / Information Technology / Computer Application in I Class (10+3 years of study) are eligible to apply for the lateral entry to the 2nd year of the course subject to availability of seats, but limited to 10% of the sanctioned intake.

Duration of the Course
The course shall be of three years duration spread over six semesters. The maximum duration to complete the course shall be 5 years.

Medium
The medium of instruction shall be English.

Passing Minimum
Passing Eligibility & Classification for the award of the Degree as existing for the other B.Sc. Degree Courses.
FIRST SEMESTER

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Paper</th>
<th>Lecture hrs/week</th>
<th>Practical hrs/week</th>
<th>Duration of Exam</th>
<th>Max. Marks</th>
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<tr>
<td>1.</td>
<td>Language –I</td>
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<td>3.</td>
<td>Main Paper –I- Fundamentals of Computer Science</td>
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SECOND SEMESTER

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<td>Main Paper –III-Principles of Programming and C</td>
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<td>Practical -IV.- Numerical Methods Lab (Using C)</td>
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THIRD SEMESTER

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<td>2.</td>
<td>Main Paper –V- Data Structures</td>
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<td>Main Paper-VII- Microprocessors and Assembly language Programming</td>
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<td>Allied – III - Probability and Statistics</td>
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<td>Practical –V- Data Structure and OOPs lab</td>
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<td>Practical –VI- Microprocessors and Assembly language Programming Lab</td>
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FOURTH SEMESTER

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<td>Main paper –IX- Computer Algorithm</td>
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<td>Practical –IX- Computer Networks Lab and OS ( UNIX )Lab</td>
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### SIXTH SEMESTER

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<td>Main Paper –XVI- Artificial Intelligence</td>
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* Internal Assessment : 50 marks & Project Report and Viva-Voce: 50 marks
LIST OF ELECTIVES

1. Multimedia Concepts
2. Resource Management Techniques
3. Distributed Computing
4. Information Security
5. Software Testing
6. Soft Computing
7. Computer Graphics
8. Data Warehousing and Mining
9. Mobile Computing
10. Compiler Design
11. Automata Theory
12. Software Project Management
FIRST SEMESTER

MAIN PAPER - I

FUNDAMENTALS OF COMPUTER SCIENCE

UNIT I


UNIT II


UNIT III

Programming Languages; Machine Language, Assembly Language, High Level Language, Types of High Level Language - Introduction to Software Development: Defining the Problem, Program Design, Coding, Testing, Documenting, and maintaining the program.

UNIT IV

Introduction to C- Character set, Tokens, Identifiers and keywords. Data type, Declarations, Expressions, statements and symbolic constants, Input-Output: getchar, putchar, scanf, printf, gets, puts, Pre-processor commands, #include, define, preparing and running a complete C program.

UNIT V

Operators and expressions: Arithmetic, Unary, Logical, bit-wise, assignments and conditional operator, comma operator, Library functions. Control statements: While, do, for statement, jump in loops, nested loops, if-else, switch, break, continue and goto statements.

TEXT BOOK

FIRST SEMESTER

MAIN PAPER – II

DIGITAL ELECTRONICS

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V
Design of sequential circuits : Flip flop excitation table – design procedure – design with unused state – design of counters – design of BCD counters – design with state equation.

TEXT BOOK


REFERENCE


FIRST SEMESTER
ALLIED PAPER – I
MATHEMATICS FOR COMPUTER SCIENCE

Unit I

Unit II

Unit III

Unit IV

Unit V

Text Books
2. Narsingh Deo, “Graph Theory with applications to Engineering and Computer Science”, PHI, 1997. (Unit –4, 5)
FIRST SEMESTER
PRACTICAL – I
COMPUTER PRACTICE LAB

MS-WORD

1. Text Manipulations and Text Formatting
2. Usage of Bookmarks, Footnotes, Columns & Hyperlink
3. Usage of Header, Footer, Bulleting and Numbering & Borders and Shading
4. Usage of Tables - Sorting & Formatting
5. Usage of Spell Check, Find and replace
6. Picture insertion and alignment
7. Creation of documents using templates
8. Mail Merge, Envelopes and Labels

MS-EXCEL

9. Cell Editing and Formatting
10. Usage of Formulae and Built-in functions
11. Data Sorting, filter, form, subtotal, validation, Goal seek
12. Inserting Clip arts, objects, pictures and Data Filter, Validation, Subtotals
13. Usage of auditing, comments
14. Graph
15. Usage of Auto Formatting, Conditional Formatting & Style

MS - POWER POINT

16. Inserting New slides, text box, object, charts, tables, pictures, movies and sound
17. Slide layout, Colour Scheme, Background and Design template
18. Preparation of organizational charts
19. Preset and custom animation, action buttons and settings, Slide Transitions and animations, view show, slide sorter view
20. Presentation using Wizards
21. Usage of Design templates

Introduction to C- PROGRAMMING

22. Check for Biggest Number ,Prime Number, Armstrong number,
23. Fibonacci Series
24. Summation of the series: Sin (x) , Cos(x), Exp(x)
FIRST SEMESTER
PRACTICAL- II
DIGITAL ELECTRONICS LAB

1. Study of the logic gates
   i) AND
   ii) OR
   iii) Inverter
   iv) Buffer

2. Study of the logic gates
   i) NAND
   ii) NOR
   iii) XOR
   iv) EXCLUSIVE – NOR

3. Simplification of Boolean functions XY + X’Z + YZ

4. Simplification of Boolean functions F = X’YX + X’YZ’ + XY’Z’ + Xy’Z

5. Design the HALF-ADDER.

6. Design the HALF-SUBTRACTOR

7. Design the FULL-ADDER circuit.

8. Design the FULL-SUBTRACTOR circuit.


10. Design the Multiplexer.
SECOND SEMESTER
MAIN PAPER – III

PRINCIPLES OF PROGRAMMING AND C

UNIT I


UNIT II

Arrays: Defining and processing. One dimensional arrays- Two dimensional arrays. Initializing One and Two dimensional arrays- Multi dimensional arrays. Character Arrays and Strings- Introduction. Declaring and initializing String variables – Comparison of Two Strings –String -handling functions, Table of Strings

UNIT III


UNIT IV

Structure: Defining and processing. Structure initialization – Operations on individual members—Arrays of structures – Arrays within Structures– Structures and Functions- Passing to a function, Union.

UNIT V

Pointers: Declarations and initialization of pointer variables ,Accessing pointer variables, Passing to a function. Operations on pointers, pointer and arrays. Array of pointers, Pointer to Functions. Data Files: Open, close, create, process unformatted data files.

TEXT BOOK


REFERENCE

SECOND SEMESTER

MAIN PAPER – IV

COMPUTER ORGANIZATION

UNIT I

UNIT II
Register transfer logic – Inter register transfer – Arithmetic, Logic and shift micro operations – Conditional control statements – fixed point binary data – overflow – Arithmetic shifts – Instruction codes – Design of simple computer.

UNIT III

UNIT IV
Control Logic Design – Control Organization – Hard Wired Control with example – Microprogram Control – Control of Processor Unit – PLA Control with example – Microprogram Sequencer.

UNIT V

TEXT BOOK

REFERENCE BOOK
SECOND SEMESTER
ALLIED PAPER – II
NUMERICAL METHODS

UNIT I

UNIT II

UNIT III
Interpolation – Finite differences – Newton forward and backward Interpolation formula – operators and the relationship between them. Interpolations with unequal intervals, Lagrange’s Interpolation formula, Newton’s Divided Differences Interpolation formula.

UNIT IV

UNIT V

TEXT BOOK
SECOND SEMESTER
PRACTICAL - III
PROGRAMMING IN C

1. Array Operations
2. String Manipulations
   a. Counting number of vowels, consonants, words, white spaces in a string
   b. Reversing a string and check for palindrome
   c. Finding the number of occurrences of a sub string in a given string
   d. Sub string replacing and removal
3. Using Functions
4. Recursion
   a. Factorial
   b. Reversing a string
   c. Fibonacci Sequence
5. Matrix Manipulations using functions and Case structure
   a. Addition & Subtraction
   b. Multiplication
   c. Transpose
   d. Check if the given matrix is a Magic square
6. Searching
7. Sorting
8. Structures
9. Pointers
10. Files
SECOND SEMESTER
PRACTICAL – IV

NUMERICAL METHODS LAB USING C

1. Solve $f(x) = 0$ by Bi-section method.

2. Solve $f(x) = 0$ by Newton – Raphson method.

3. Solve $n$ simultaneous equations with $n$ – variables by Gauss – Seidel method

4. Construct a finite difference table.

5. Interpolate the value of $y$ for given value of $x$ by Lagrange’s Interpolation formula.

6. Evaluate $\int_a^b f(x) \, dx$ by Simpsons $1/3^{rd}$ rule.

7. Evaluate $\int_a^b f(x) \, dx$ by Trapezoidal rule.

8. Solve $\frac{dy}{dx} = f(x,y)$, $y(x_0) = y_0$ by R-K method.
THIRD SEMESTER
ENGLISH – COMMUNICATION SKILLS –I

A. The Basic - Applied Grammar and Usage

UNIT I
Rules of the Language:
Parts of Speech: Nouns and Pronouns -Correct usage; Adjectives and Degrees of 'Comparison; Verbs -kinds; Tenses; Tense forms; Adverbs; Agreement of the subject with the verb; Phrasal verbs, voice change; Auxiliaries; prepositions -common errors; conjunctions - their correct uses, Clauses -kinds -usage; Articles -determiners, question, tags; Direct and Indirect speech, correction of sentence; Punctuation.

UNIT II
Vocabulary Building:
Idioms -different kinds, Phrases, Fixed Expressions, common foreign words and expressions (e.g. adhoc) -Word for formation - different processes; spelling; one-word substitutes; word often confused and misused.

B. Spoken English

UNIT III
Pronunciation Drills (Identifying problem areas), vowels consonants, IPA, Phonetic Notations -how to look up a word Dictionary for correct pronunciation.

UNIT IV
Conversational English (both theory and practical) stress, Tonal Variations, their importance; what is an interview? How to face an interview?; How to participate in a debate?; What is a Meeting? - Procedures -How to convene?; Discussion -How to participate.

C. Process of writing

UNIT V
Sentence Patterns and Paragraph writing. Logical writing - topical sentences -arrangement of facts -supporting materials.

Text Books
1. Functional Grammar: Tickoo and Subramanian
2. English Grammar. Composition and Commercial Correspondence: Pink and Thomas.
4. English for competitive examination Dr. V. Ayothi and Dr. R. Vedavali , New century book house, 2002
THIRD SEMESTER
MAIN PAPER – V

DATA STRUCTURE

UNIT I

UNIT II

UNIT III
More on Linked Lists – Double Linked Lists – Dynamic storage Management garbage collection and compaction

UNIT IV

UNIT V

TEXT BOOK

REFERENCE
1. Bhagat Singh And Thomas L.Nayos , “Introduction to Data Structure” ,Galgotia Book Source
THIRD SEMESTER

MAIN PAPER – VI

OBJECT ORIENTED PROGRAMMING

UNIT I
Introduction to Object Oriented Programming (OOP), C++ programming basic, Loops and decisions: Relational operators, loops, decision, logical operators, precedence.

UNIT II
Structures, enumerated data types. Function: simple functions, passing argument to functions, returning values from functions, reference arguments, overloaded functions, inline functions, variable and storage classes.

UNIT III
Objects and classes: Classes and Objects, Specifying the class, using the class, constructors, destructors, object as function arguments, returning object from function. Arrays: Arrays fundamentals, Array a Class member data, Array of objects, Strings. Operator overloading: unary operator, overloading binary operators, Data conversion.

UNIT IV
Inheritance: Derived Base class, derived class constructors, overloading member functions, class hierarchies, public and private inheritance, levels of inheritance multiple inheritance. Pointers: Address and pointers, pointers and arrays, pointers and functions, pointers and strings, Memory management, pointer to objects.

UNIT V
Virtual functions and other functions: Virtual functions, Friend functions, Static functions, this pointer. Files and Stream: String I/O, Object I/O with multiple objects, file pointer, disk I/O with member functions.

TEXT BOOK

REFERENCE
2. E.Balagurusamy, Object Oriented Programming with C++”
THIRD SEMESTER

MAIN PAPER – VII

MICROPROCESSOR and ASSEMBLY LANGUAGE PROGRAMMING

UNIT I

UNIT II

UNIT III

UNIT IV
Interfacing Memory and I/O devices – address space partitioning – Memory interfacing – Memory mapped I/O and I/O mapped I/O – Parallel I/O interfacing basic concepts – PPI.

UNIT V
Methods of data transfer – Programmed data transfer schemes namely synchronous, asynchronous and interrupt driven methods – 8085 interrupts – hardware and software interrupts – enabling, disabling and masking of interrupts – DMA method of data transfer, Software Controlled asynchronous I/O using SID and SOD lines. Applications of microprocessor – A temperature monitoring System.

TEXT BOOK
THIRD SEMESTER

ALLIED – III

PROBABILITY AND STATISTICS

UNIT I

UNIT II

UNIT III
Expectation – Introduction – Moments – Expectation of functions of more and than one random variable.

UNIT IV
Test of Hypothesis: Introduction – Procedure of testing hypothesis – Type 1 & Type 2 Errors – Standard errors & Sampling distribution – Test for significance for large samples

UNIT V
Test of significance for sample’s – Students T distributions – Test the Significant of the mean of random sample – Tests for difference between the mean’s of two samples [Independence samples – Dependent samples] F.

TEXT BOOK
THIRD SEMESTER

PRACTICAL - V

DATA STRUCTURE and OOPS LAB

DATA STRUCTURES

1. Stacks, Queues using arrays
2. Linked List: Insertion and Deletion
3. Polynomial addition using linked list and Arrays
4. Stack and Queue using Linked List
5. Doubly linked List: Insertion and Deletion
6. Binary tree Traversal [inorder, preorder, postorder]
7. Graph Traversal [breadth first, depth first]

OOPS LAB

1. Simple functions & Inline functions
2. Function overloading & Operator Overloading
3. Usage of classes and Objects
4. Constructors and Destructors
5. Inheritance & Multiple Inheritance
6. Pointers
7. Virtual Functions, Friend functions, this pointer and Static functions
8. Files
THIRD SEMESTER

PRACTICAL – VI

MICROPROCESSOR AND ASSEMBLY LANGUAGE PROGRAMMING

1. Addition and Subtraction
2. Multiplication and Division
3. Sorting
4. Evaluation of expression
5. Block operations
6. Code Conversion
7. Applications
FOURTH SEMESTER
ENGLISH – COMMUNICATION SKILLS - II

UNIT I
Study Skills:
  a) How to use a dictionary and a library.
  b) Effective writing -reasoning out passages.
  c) Reading Comprehension.
  d) Note-taking.

UNIT II
Precise writing

UNIT III

UNIT IV
Commercial Correspondence (The form and arrangement of commercial letters - varieties)
  a) Trade Inquiries
  b) Orders, Offers, Quotations
  c) Confirmation and Execution of orders
  d) Refusal and Cancellation of orders
  e) Letters of Complaints
  f) Circular letters
  g) Sales letters

UNIT V
Drafting
  a) Drafting of official/non-technical reports (routine and non-routine)
  b) Drafting of minutes, short speeches, memoranda, News releases, Postal cards and Reply cards, Telegrams, Mailgrams, Cablegrams, Radiograms.
  c) Application for a situation (Curriculum vitae etc.,)

TEXTBOOKS
1. Communication Skills: A Practical Approach, Hema Srinivasan
2. Market Reports: Lorenzo
5. Effective communication (7th Edition)
6. Business Correspondence: Lorenzo
7. Commercial Correspondence: M. Majumdar
FOURTH SEMESTER

MAIN PAPER - VIII

JAVA PROGRAMMING

UNIT I
Basic concepts of Oops : objects and classes, Abstraction , encapsulation , Inheritance ,polymorphism-constructor- and destructors.

UNIT II
Introduction to JAVA : JAVA features, Java program structure – Java tokens – Java Literals –Java Datatypes-Type Casting Operators –Arrays, Multi Dimensional array –Control statements.

UNIT III
Classes-Objects-Methods-method Overloading –Array of Objects . Inheritance: Types-Method Overriding , Abstract classes-Interfaces , packages

UNIT IV

UNIT V

TEXT BOOK

REFERENCE

FOURTH SEMESTER

MAIN PAPER – IX

COMPUTER ALGORITHM

UNIT I

UNIT II

UNIT III

UNIT IV
Dynamic programming ; General method – multistage graphs .Backtracking – The General method – The 8 Queen problems – Sum of subsets – Graph coloring

UNIT V

TEXT BOOK

REFERENCE
FOURTH SEMESTER

MAIN PAPER - X

OPERATING SYSTEM

UNIT I

UNIT II

UNIT III

UNIT V

UNIT V

TEXT BOOK
2. Prof. R. Sriddhar , “Fundamentals of Operating System” , Dynaram Publication , Bangalore Company
FOURTH SEMESTER

MAIN PAPER – XI

DATA BASE MANAGEMENT SYSTEMS

UNIT I

UNIT II

UNIT III

UNIT IV
Difference between the Physical and Logical Organization – Addressing Techniques – Hashing – Indexed searching techniques, chains and Rings structures.

UNIT V

TEXT BOOK

REFERENCE
FOURTH SEMESTER

PRACTICAL VII

JAVA LAB

I Application

1. Finding area and Perimeter of a circle. Use buffered reader class
2. Substring removal from a string. Use StringBuffer class
3. Determining the order of numbers generated randomly using random class
4. Implementation of Point class for image manipulation
5. Usage of calendar class and manipulation
6. String manipulation using char array
7. Database creation for storing telephone numbers and manipulation
8. Usage of vector classes
9. Implementing thread based applications and exception handling
10. Implementing Packages

II Applets

11. Working with frames and various controls
12. Dialogues and Menus
13. Panel and Layout
14. Graphics
15. Colour and Font
FOURTH SEMESTER

PRACTICAL VIII

RDBMS LAB

1. Creating tables.
3. Practising all Sql Queries.
4. Creating Pl- Sql programs for any 3 applications
5. Generating reports.
6. Relating databases using keys and generating required reports such as
   Electricity bill processing
   Pay roll processing
   Personal information system
   Question database and conducting Quiz
FIFTH SEMESTER

MAIN PAPER – XII

COMPUTER NETWORK

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V

TEXT BOOK

REFERENCE
UNIT I

UNIT II
Adding code and using events: Using literals – data types - declaring and using variables – using the operator – subroutines and functions – looping and decision control structures – if then else structure – select structure, for next, do.. loop and while.. wend.- Using intrinsic Visual basic Controls with methods and Properties: Label, Text box, Command button, Frame, Checkbox, option button, List box, Combo box, Drive List box, directory List box and file list box – Formatting controls – control arrays, Tab order

UNIT III
Functions and Procedure - Passing arguments by value and reference – Arrays, dynamic arrays – User defined datatypes – symbolic constants – using Dialog boxes: Input box, Message box functions - String functions, date and Time function, numeric functions

UNIT IV
Menus: creating menus, adding code to menus, using MDI forms - MDI form basic – building MDI form – creating MDI Child Forms

UNIT V

TEXT BOOKS
4. Eric A. Smith, Valar Whisler, and Hank Marquis “Visual Basic 6 programming”
FIFTH SEMESTER

MAIN PAPER – XIV

SOFTWARE ENGINEERING

UNIT – I

UNIT – II

UNIT – III

UNIT – IV

UNIT – V

TEXT BOOK

REFERENCE
FIFTH SEMESTER

MAIN PAPER – XV

SYSTEM SOFTWARE

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V

TEXT BOOK
1. John J. Donavan ,” System programming “.
2. Leland L.Bec “System Software – Introduction to system program “
3. Damdhare,. “Introduction to system software “
FIFTH SEMESTER
PRACTICAL - IX
COMPUTER NETWORKS LAB and OS(UNIX) LAB

1. Text Message Sending and Receiving
2. File Transmission
3. Basic Chat Application
4. Simple Mailing Application
5. Client Server Application

OS (UNIX) LAB

1. Practicing UNIX Commands System Calls
2. Shell Programming
3. Inter Process Communication (Message passing)
FIFTH SEMESTER

PRACTICAL -X

VISUAL PROGRAMMING LAB

1. Building simple applications
2. Working with intrinsic controls and ActiveX controls
3. Application with multiple forms
4. Application with dialogs
5. Application with Menus
6. Application using data controls
7. Application using Common Dialogs
8. Drag and Drop Events
9. Database Management
10. Library information system
11. Students mark sheet processing
12. Telephone directory maintenance
13. Gas booking and delivering
SIXTH SEMESTER
MAIN PAPER –XVI
ARTIFICIAL INTELLIGENCE

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V

TEXT BOOK
SIXTH SEMESTER
MAIN PAPER – XV II
WEB TECHNOLOGY

UNIT I
Introduction to Internet – Resource of Internet H/W & S/W requirement of Internet – Domain naming system registering our domain name – URL protocol server name port relative URLs Overview of web browsers – ISDN dialup of leased line connection – Internet service providers – Internet services protocols concepts, Internet client and Internet servers, Introduction to TCP/IP FTP SMTP POP3 (Brief treatment)

UNIT II


UNIT III
Introduction to DHTML – Introduction to style sheets – Setting the default style sheet language – Inline style information – External Style sheets – Cascading Style sheets.

UNIT IV

UNIT V
Introduction to ASP – Database Management with ASP: Database access with ADO, working with ADO’s Connection object, Using Command objects, Working with ADO’s Recordset Object.

TEXT BOOK
1. HTML 4.0 Source Book
2. Ackermann, “Learning to use the Internet”
3. Mary jane Mara, “VB Script Source Book”
SIXTH SEMESTER

PRACTICAL - XI

WEB TECHNOLOGY LAB

1. Usage of Simple HTML commands, Graphics and image formats and hyperlinks
2. Usage of Tables, Frames, Forms, Background Graphics and Color
3. Simple Website using HTML
4. Simple DHTML and Cascading style sheet
5. Simple VbScript
6. Web page using VBScript
7. ASP Application
SIXTH SEMESTER

ELECTIVE - 1

MULTIMEDIA CONCEPTS

UNIT I

UNIT II
Multimedia Components Audio: Definition – MDI and digital audio – file extensions.
Animation: Object and cell animation. 2D and 3D animation techniques – software tools – File extensions.

UNIT III

UNIT IV

UNIT V
Introduction to basic HTML tags.

TEXT BOOK
ELECTIVE- II

RESOURCE MANAGEMENT TECHNIQUES

UNIT I
Concept and scope of operation research (OR) – Development of OR – Phases of or – Model in OR.Linear programming: Methods of solution – Graphical and SIMPLEX methods of solution – Standard form and pivoting, canonical form, optimal, unbounded and infeasible forms, solving linear programs in canonical forms, obtaining canonical forms from standard form, the SIMPLEX algorithm.

UNIT II

UNIT III
LP Transportation Model: Definition and application of the transportation model, solution of the transportation model, the assignment model, the transshipment model, Travelling Salesman problems.

UNIT IV
Network Scheduling by PERT/CPM : Introduction, Network and basic components, Rules of network construction, time calculation in networks, critical path method (CPM), PERT, PERT calculations, Negative float and negative slack, advantages of PERT/CPM.

UNIT V
Sequencing models and related problems : Processing n Jobs through two Machines, Processing n Jobs through three Machines, Processing two Jobs through m Machines, Processing n Jobs through m Machines.

TEXT BOOK
UNIT I
Introduction – Evolution of Distributed computing system- Distributed computing System modules- Why are Distributed computing system gaining popularity -What is Distributed operating system -Issues in Designing a Distributed operating system.

UNIT II
Introduction to Distributed computing Environment (DCE)-DCE components Communication protocols-Example of message transfer in the OSI modules- Message passing-Desirable features of a good message passing system-Issues in IPC By message passing-Synchronization-Buffering

UNIT III

UNIT IV

UNIT - V

TEXT BOOK

REFERENCE
UNIT I
Introduction to Computer Security: information security and network basics; information security and its role in an organization; legal and regulatory issues; government homeland security initiatives and how they impact business and individuals

UNIT II
Threats; internal threats: employees, contractors, third parties; external threats: criminals, corporate espionage, hackers, cyber warfare, cyber terrorism; psychology of computer criminals and info-terrorists and associated ethical issues

UNIT III
Cryptography -Secret Key Cryptography -Public Key Cryptography -Key Distribution and Management

UNIT IV
OS Security -Access Control -Vulnerability Analysis -Computer Viruses and Worms

UNIT V

TEXTBOOK
1. M. Bishop, “Computer Security Art and Science”, Addison Wesley,


ELECTIVE - 5

SOFTWARE TESTING

UNIT I

UNIT II

UNIT III

UNIT IV

UNIT V

REFERENCE

ELECTIVE -6

SOFT COMPUTING

UNIT I

ARTIFICIAL NEURAL NETWORKS
Basic concepts - Single layer perception – Multilayer perception – Supervised and unsupervised learning – Back propagation networks –

UNIT II

FUZZY SYSTEMS

UNIT III

NEURO-FUZZY MODELING

UNIT IV

GENETIC ALGORITHMS

UNIT V

SOFTCOMPUTING AND CONVENTIONAL AI

REFERENCE

ELECTIVE-7

COMPUTER GRAPHICS

UNIT I

UNIT II
Two-dimensional transformations- windowing and clipping- clipping algorithms

UNIT III
Segmented display files-display file compilation-modeling and modeling transformation.

UNIT IV
Three-dimensional concepts-three-dimensional representations-three-dimensional transformations.

UNIT V
Three-dimensional viewing-hidden surface and hidden line removal-shading and color models

TEXT BOOK

REFERENCE
ELECTIVE – 8
DATA WARE HOUSING AND MINING

UNIT I

Evolution of database technology – Introduction to Data warehousing and data mining

UNIT II

Data warehouse: Differences between operational database systems and data warehouses, multidimensional data model, data warehouse architecture, Data warehouse implementation

UNIT III

Data mining: Data preprocessing, Data mining primitives, languages & system architectures, concept description: characterization and comparison, Mining association rules, classification and prediction

UNIT IV

Applications and trends in data warehousing

UNIT V

Applications and trends in data mining

TEXT BOOKS

2. Jiawei Han, et.al., “Data mining: concepts and techniques”, Morgan Kaufmann publishers, 2001.
ELECTIVE – 9

MOBILE COMPUTING

UNIT I

Introduction – Medium access control – Telecommunication systems – Satellite systems – Broadcast systems.

UNIT II


UNIT III

Adhoc Networks – Characteristics – Performance issues – Routing in mobile hosts.

UNIT IV


UNIT V


TEXT BOOKS

ELECTIVE -10

COMPILER DESIGN

UNIT I

UNIT II
Symbol Table Organization-Elementary symbol-Table organisation – Hash Table Organisation-Linked List and Tree Structured Symbol Tables.

UNIT III

UNIT IV
Compilation of control structures- Control Transfers-procedure Calls-Conditional Execution-Iteration Control Constructs.

UNIT V

TEXT BOOK
1. Compiler Construction Principles and practice by D.M. Dhamdhere

REFERENCE
ELECTIVE -11

AUTOMATA THEORY

UNIT I
Preliminaries-Strings, alphabets and languages-Graphs and trees-inductive proofs-set notation-relations-Finite Automata and Regular Expressions-Finite State systems-basic definitions Nondeterministic finite automata-finite automata with E moves-Regular expressions-automata with output-Applications of finite automata.

UNIT II
Properties of Regular Sets-The pumping lemma for regular sets-Closure properties of regular sets.

UNIT III

UNIT IV
Pushdown Automata – Informal description-definitions-Pushdown automata and context-free languages. Properties of context-free languages-the pumping lemma for CFL’s-closure properties of CFL’s.

UNIT V
Turing Machines-Introduction-The turing machine model-Computable languages and functions-Techniques for Turing machine construction-Modifications of Turing machines.

TEXT BOOK

1. Introduction to Automata Theory, Languages and Computation by John E.Hopcroft and Jeffery D.Ullman
ELECTIVE-12
SOFTWARE PROJECT MANAGEMENT

UNIT I
Introduction to Project Management Importance of software project management - Project Problems with Software Projects - Project Management- Stages of Project - The Feasibility Study - The Cost-benefit Analysis

UNIT –II
Planning - Project Execution--Project and Product Life Cycle - The Stakeholder of Project - All parties of project - The Role of Project Manager - Project Management Framework - Software Tools for Project Management - Project Planning

UNIT – III

UNIT – IV

UNIT – V

TEXT BOOKS