BACHELOR OF SCIENCE
(INFORMATION TECHNOLOGY)

REGULATIONS, CURRICULUM & SYLLABI

(Effect from the Academic Year 2009-10)

PONDICHERRY UNIVERSITY
KALAPET
PONDICHERRY – 605 014.
PONDICHERRY UNIVERSITY
Bachelor of Information Technology
B. Sc (Information Technology)

REGULATIONS
(Effective from the academic year 2009 – 2010)

Aim of the Course

The Degree of Bachelor of Information Technology aims to introduce the students to Computer Science and Communication Technology. At the end of the course, the students are expected to have good working knowledge in Information Systems and Applications.

Eligibility for Admission

Candidates for admission to B.Sc. in Information Technology shall be required to have passed Higher Secondary Examination conducted by the Government of Tamil Nadu 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 / Information Technology / Computer 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.
**PONDICHERRY UNIVERSITY**  
*Bachelor of Science  
(Information Technology)  
CURRICULUM  
(Effective from the academic year 2009-10)*

**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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**Second Semester**

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*Internal Assessment: 50 Marks & Project Report and Viva - Voce: 50 Marks*
List of Electives

1. Network Programming
2. TCP/IP
3. Cryptography
4. Client-Server Technology
5. Data Warehousing and Mining
6. Biometrics
7. Introducing to Bio-Informatics
8. Human Computer Interface
9. Software Quality Management
10. Middle Ware Technologies
11. Multimedia Database
12. Web Service
FIRST SEMESTER
MAIN PAPER – I
FUNDAMENTALS OF INFORMATION TECHNOLOGY

Unit-I


Unit-II


Unit-III


Unit-IV

Number Systems: Decimal, Binary, Octal, Hexadecimal Conversion from one number system to another, Complements, Binary Coded Decimal, Bits, Bytes and Words. Overview of Network: Communication Processors, Communication Media, Types of Network, Network Topologies, Network Protocols, Network Architecture, Introduction to Internet & WWW, E-Mail, Intranet.

Unit-V

Introduction to Software Development: Defining the problem, Problem Design, Coding, Testing, Documentation and Maintenance the program. MS-Word, MS-Excel, Power Point.

Text Book:


Reference:

FIRST SEMESTER
MAIN PAPER –II
PROGRAMMING IN C

Unit-I

Unit – II
Introduction: C character set, Identifiers and Keywords. Data Type, Declarations, Expressions, Statements and symbolic constants. Input-Output: getchar, putchar, scanf, printf, gets, puts, functions, Pre-processor commands, #include, define, preparing and running a complete C program. Operators and Expressions: Arithmetic, Unary, Logical, Bit-wise, assignments and conditional Operator, Library Functions.

Unit –III

Unit – IV

Unit –V
Pointers: Declarations, Passing to a function. Operations on pointers, pointer and arrays, Array of pointers. Structure: Defining and processing. Passing to a function, Union.

Data Files: Open, Close, Create, Process unformatted data files.

Text Books:

Reference Book:
3. E. Balaguruswamy, “Introduction to C”
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, 2001. (Unit –4, 5)
FIRST SEMESTER
PRACTICAL – I
OFFICE AUTOMATION LAB

MS-WORD
1) Text Manipulations and Text Formatting
2) Usage of Bookmarks, Footnotes, Columns & Hyperlink
3) Usage of Header and Footer, Bulleting and Numbering & Boarder 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 and 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, Validations, Goal seek
12) Inserting Clip Arts, Objects, Pictures and Data Filter, Validation, Subtotal
13) Usage of auditing, Comments
14) Graph
15) Usage of Auto Formatting, Conditional Formatting & Style.

POWER POINT
16) Inserting New Slides, Text Box, Objects, Charts, Tables, Pictures, Movies and Sound
17) Slide Layout, Color Schemes, Background and Design Template.
18) Preparation of Organization Charts
19) Preset and Custom Animation, Action Button and Settings, Slide Transitions and Animations, View Show, Slide Sorter View
20) Presentation Using Wizards
21) Usage of Design Templates.
FIRST SEMESTER
PRACTICAL –II
C LAB

1. Check for Prime Number, Armstrong Number, Fibonacci
2. Summation of the series: Sin(x), Cos(x), Exp(x)
3. 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 replace and removal
4. Recursion
   a. Factorial
   b. Reversing a string
   c. Fibonacci sequence
   d. Tower of Hanoi
5. Matrix Multiplication using functions and Case structure
   a. Addition and 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
MAIN PAPER–III
OBJECT ORIENTED PROGRAMMING WITH C++

Unit - I

Unit – II
Introduction to the basic concepts of C++ language – Tokens, keywords, Identifiers, Data Types, Variables, Manipulations - Expressions and control structures – Functions: main function – function prototyping - call by reference - function overloading - friend and inline functions.

Unit - III
Classes and Objects – Constructors and Destructors – Operator Overloading – Type Conversions.

Unit - IV

Unit - V

Text Book:

Reference Book:
4) John R.Hubbard , “Programming with C++” - Schaum’s Outline Series 2007
SECOND SEMESTER
MAIN PAPER – IV
FUNDAMENTALS OF DATA STRUCTURES

Unit – I

Introduction: Sparks-How to create Programs – How to analysis Programs –

Unit – II

Queues: Queue, Operations on Queues, Implementing the Queue, Application.

Unit –III

Linked List: The storage Pool, List representations, Anatomy of a node, Implementing the list operations, inserting into an ordered list, Doubly Linked List, Keeping a stack in a linked list, keeping a Queue in a linked list, Polynomial – Linked list representation.

Unit –IV

Trees: Basic Terminology, Binary Tree, Representation, Traversal, Binary Search Tree, Threaded Binary Tree, Binary Tree Representation of tree, Application: Game Tree, Minimum Spanning Tree, Krushkal’s Algorithm and Prim’s Algorithm.

Unit – V

Graph: Definition and terminology, Representation, Traversals, Shortest path.

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.

Unit - IV

Unit - V

Text Book:
1) Rajaraman, “Computer Oriented Numerical Method”
SECOND SEMESTER
PRACTICAL – III
OOP(C++) LAB

1. Simple Programs using decisions, loops and arrays
2. Simple functions & Inline functions
3. Function overloading & Operator overloading
4. Usage of classes and objects
5. Constructors and Destructors
6. Inheritance and Multiple Inheritance
7. Pointers
8. Virtual Functions, friend functions, this pointer and static functions
9. Files
10. Streams.

SECOND SEMESTER
PRACTICAL – IV
DATA STRUCTURES & NM LAB (Using C)

Data Structures
1. Linear Search & Binary Search
2. Sort by selection, exchange, quick sort
3. Stacks, Queues using arrays & Linked List
4. Singly Linked List : Insertion & Deletion
5. Doubly Linked List: Insertion & Deletion
6. Binary Tree Traversal (Inorder, Preorder, Postorder)

Numerical Methods
1. Solve f(x)=0 by Bi-Section Method
2. Find square root of N by Newton -Raphson Method
4. Interpolate the value of y for given value of x by Lagrange’s Interpolation Method
5. Evaluate f(x) dx by Simpsons 1/3rd rule
6. Solve dy/dx = f(x,y),y(x0)=y0 by R-K Method
THIRD SEMESTER

COMMUNICATION SKILLS - I

Unit - I

i) Communication – Purpose, Need, Importance, Types
ii) Role of communication skills
iii) Role of context and content

Unit - II

Written communication
i) Mechanics of writing – Research, Organization Pattern and Planning
ii) Logical sequencing of ideas and sentences
iii) Length of sentence and choice of words
iv) Using charts, Tables and Graphs

Unit - III

Editing – Omission of repetition, need for Brevity and substituting simple words for complex ideas, avoidance, of unfamiliar words

Unit - IV

Spoken communication
i) Role of speaker and audience
ii) Style – Choice of words, accent
iii) Tone, intonation – stress and Resonance
iv) Body language and voice modulations

Unit - V

Presentation Skills and Delivery
(i) Effective delivery – notes and scripts
(ii) Handling stage freight
(iii) Public speaking – Tips – Language and Gestures
(iv) Jackling questions and criticism
(v) Using Audio visual aids like OHP, Slides, Computer and Charts and LCD, Projectors.

Text Book:
1. How to write and speak better – Readers Digest Editor John Ellison Kahn

Reference:
1. Communication Skills: A Practical Approach, Hema Srinivasan
2. Effective communication (11th Edition)
THIRD SEMESTER
MAIN PAPER – V
DIGITAL PRINCIPLES & COMPUTER ORGANIZATION

Unit – I


Unit – II


Unit – III

Data Representation Data types – Complements – Fixed Point representations – Floating Point representations – Other binary codes – Error Detection Codes.

Unit – IV


Unit – V

Central Processing Unit General Register organization – Stack organization – Instruction formats – Addressing modes – Data transfer and Manipulation – Program Control – Reduced Instruction Set Computer (RISC).

Text Book

THIRD SEMESTER
MAIN PAPER – VI
DATA BASE MANAGEMENT SYSTEMS

Unit - I

Introduction to Database System- Objectives- Entities and Attributes – Data Models

Unit-II

Database Management Systems – Tree Structures – Plex Structures – Data Description Languages. Relational Databases – Third Normal Form – Canonical Data structures - Varieties of data independences

Unit-III

Criteria affecting physical Organization – differences between physical and logical organization – addressing techniques – Indexed sequential organization- Hashing- Pointers- Chains and Ring structure

Unit-IV


Unit-V


Text Book

THIRD SEMESTER
MAIN PAPER – VII
JAVA PROGRAMMING

Unit - I
Object Oriented Concepts: Encapsulation, Inheritance, Polymorphism.
Introduction to Java - Features of Java - Data Types - Variables - Arrays - Operators - Control Statements.

Unit - II
Introducing Classes – Methods and Classes – Inheritance

Unit - III
Packages – Interfaces - Exception Handling – Multithreaded Programming - String Handling

Unit – IV
- Applet Class - Introduction to AWT: Working with Windows, Graphics and Text – Using AWT Controls, - Event Handling - Layout Managers and Menus – Images -

Unit – V
The Java I/O classes and Interfaces: File, Byte Stream, Character Stream

Text Book:

(Chapters 2,3,4,5,6,7,8,9,10,11,12,13,17,19,20,21,22)
THIRD SEMESTER
ALLIED PAPER – III
PRINCIPLES OF MANAGEMENT

Unit I

Meaning, Definition and importance of Management-Functions of a Manager-
Management process-Role of a manager-Social responsibility of management-Co-
ordination-Meaning and scope requirements of effective co-ordination-problems in co-
ordination.

Unit II

Meaning and purpose of planning – steps in planning process-limitations-Types of
plans, objectives, Strategies, policies, procedures, programmers, management by
objectives (MBO) – Decision making- Types of decisions-process of decision making-
difficulties in decision making

Unit III

Nature and purpose of organizations-different forms of organizations-merits and
demerits – linear and staff concepts- organisational charts- departmentations - bases for
departmentation - product, function and territory-span of management

Unit IV

Authority-responsibility-accountability-delegation of authority-principles of
delegation-unity of command – centralization and decentralization –advantages and
disadvantages

Unit V

Nature and scope of direction-motivation meaning-major theories of motivation –
Maslow’s theory - Herbertg’s two factor theory-Leadership styles-Nature and purpose of
controlling

Text Book

THIRD SEMESTER
PRACTICAL - V
DBMS LAB

Use the concepts of data normalization, link between tables by means of foreign keys and other relevant database concepts for the following applications.

1. Library information system
2. Students mark sheet processing
3. Telephone directory maintenance
4. Gas booking and delivering
5. Electricity bill processing
6. Bank Transaction
7. Pay roll processing

PRACTICAL VI
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. Color and Font
FOURTH SEMESTER
COMMUNICATION SKILLS – II

Unit – I

Unit – II
COMPUNICATION: E-mail, E-mail auto response, FTP, Unmoderated usenet newsgroup, Internet relay chat, Cu-see me, Maven, Broadcast messages, Voice Mail, Voice Recognition

Unit – III
CONVERSATIONAL ENGLISH: Conversational English, Group Discussion, Interview, Debate, Meeting, Dialogue Writing

Unit - IV
WRITING SKILLS: Technical Writing – the structure of organized writing – paragraph writing, coherence, cohesion (use of Discourse Markers) and punctuation, Use of titles, nonverbal devices – Layout – Revision strategies – Reading techniques.

Unit - V
LETTER WRITING: Personal/Informal letters: Letters to family members and friends Business / Formal letters: Letters thanking the recipients, announcing functions, extending invitations, congratulating associates on important occasions, letters of application (Resumes), apology and complaint, letters to the editor.

Text Book:
1. Tickoo, Champa and Sasikumar Jaya, Writing with a Purpose, Oxford University Press, 2002.

References:
3. Tickoo and Subramanian Functional Grammar
4. Srinivasan, Hema, Communication Skills – A Practical Approach
FOURTH SEMESTER
MAIN PAPER VIII
DATA COMMUNICATION & COMPUTER NETWORKS

Unit - I:

Unit - II:
Parallel and Serial Transmission - DTE/DCE/such as EIA-449, EIA-530, EIA-202 and x.21 interface - Interface standards - Modems - Guided Media - Unguided Media - Performance - Types of Error - Error Detection - Error Corrections.

Unit - III:
Multiplexing - Types of Multiplexing - Multiplexing Application - Telephone system - Project 802 - Ethernet Token Bus - Token Ring - FDDI - IEEE 802.6 - SMUS - Circuit Switching - Packet Switching - Message switching - Connection Oriented and Connectionless services.

Unit - IV:

Unit - V:

Text Book

Reference:
FOURTH SEMESTER
MAIN PAPER IX
OPERATING SYSTEMS

Unit - I

Unit - II
Memory Management: Relocatable Partitioned Memory Management – Paged Memory Management – Demand Memory Management – Segmented Memory Management – Segmented and Demand-Paged Memory Management – Swapping and Overlays.

Unit - III

Unit - IV

Unit - V

Text Book:

1. Operating System by Stuart E Madnick and John Donovan, Tata McGraw Hill
FOURTH SEMESTER
MAIN PAPER X
E-COMMERCE

Unit – I


Unit – II


Unit – III


Unit – IV


Unit – V


Text Book:

Reference Book:
FOURTH SEMESTER
MAIN PAPER XI
VISUAL PROGRAMMING

Unit - I

Introduction to GUI- Introduction to Visual Basic- Customizing a Form – First Steps in building the User Interface

Unit - II


Unit - III


Unit - IV


Unit - V

Basic File Handling – File System Controls and File System Objects-Database Development using Visual Basic

Text Book:

1. Gary Cornell “Visual Basic 6 from ground up”, TMH 2002. (Chapters 3,4,5,6,7,8,9,10,11,12,14,15,18,19,22)

Reference

FOURTH SEMESTER

PRACTICAL VII

OPERATING SYSTEMS & COMPUTER NETWORKS LAB

The following concepts to be implemented in C/C++/Java.
1. Memory Allocation (Monoprogramming)
2. Memory Allocation (Multiprogramming)
3. Job Scheduling (Monoprogramming)
4. Job Scheduling (Multiprogramming)
5. Process Scheduling (Round Robin)
6. Process Synchronization
7. Information Management (Access Control Verification)
8. General File Management

COMPUTER NETWORKS LAB

Implementation using JAVA

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

PRACTICAL –VIII

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. Creating ActiveX Controls
FIFTH SEMESTER  
MAIN PAPER XII  
WEB TECHNOLOGY  

Unit - I  
Introduction to Internet – Resource H/W & S/W requirement of Internet – Domain Naming System Registering our Domain Name – URL protocol server name port relative URLs – Overview of Web browser – ISDN Dialup or Leased Line Connection – Internet Service Providers – Internet Services protocols Concepts – Internet Client and Internet Server Introduction to TCP/IP FTP SMTP POP3(Brief Treatment)  

Unit - II  

Unit - III  
Introduction to DHTML – Cascading Style Sheet  

Unit - IV  

Unit - V  
Introduction to ASP – ASP Objects - Database access with ASP pages.  

Text Book:  

1. Graham, “HTML 4.0 Source Book”.  
2. Ackermann, “Learning to use the Internet”  
3. Mary Jane Mara, “VB Scripts Source Book”  
4. Complete Reference Intermet
FIFTH SEMESTER
MAIN PAPER – XIII
INFORMATION SECURITY

Unit – I


Unit – II

Public key encryption- RSA- elliptive curve cryptography-number theory concepts

Unit – III

Message authentication-hash functions- digest functions-digital signatures – authentication protocols

Unit – IV

Network security practice-authentication applications-electronic mail security – IP security Web security

Unit – V

System security-firewalls-current standards

Text Book:


Reference:

FIFTH SEMESTER
MAIN PAPER - XIV
SOFTWARE ENGINEERING

Unit - I
Introduction to Software Engineering: Defining – Size Factors – Quality and productivity factors, Managerial Issues, Planning a software project: Defining the problem, Developing a solution strategy, Planning the Development process, Planning an Organizational Structure.

Unit - II

Unit - III
Software Requirements Definition: The Software requirements specification, Formal specification Techniques, Language and Processors for requirements specification.

Unit - IV

Unit - V
Implementation Issues: Structured Coding Techniques, Coding Style, Standards and Guidelines, Documentation Guidelines.

Test Book:


Reference:

FIFTH SEMESTER
MAIN PAPER - XV
MULTIMEDIA TECHNOLOGY

Unit - I

Unit - II

Unit - III
Multimedia Building Blocks: Text – Sound – Images – Animation – Video

Unit - IV

Unit - V
Assembling and Delivering the Project: Planning and Costing – Designing and Producing – Content and Talent – Delivering

Text Book:
FIFTH SEMESTER
PRACTICAL IX
WEB TECHNOLOGY LAB

1. HTML
   1. Usage of simple HTML commands.
   2. Usage of Graphics and image formats and hyperlinks.
   3. Usage of Tables, Forms
   4. Usage of Frames
   5. Usage of Background Graphics and Sound.

2. VBScript
   6. Simple animation
   7. Dynamic style sheet

3. Project
   10. Web page for an Organization

FIFTH SEMESTER
PRACTICAL –X
MULTIMEDIA TECHNOLOGY LAB

1. Text editing
2. Text Rendering
3. 2D and 3D Animation
4. Mixing and Editing Sound Files(Wave, mp3, mid, rmid)
5. Creating Ad banners using Flash
6. Image Morphing
7. Designing Logo using Macromedia
8. Designing of a Portal for the College
9. Project Work – A Comprehensive project on any particular topic that is to be presented as a Multimedia presentation
10. Project Work – Creating a comprehensive help file on any particular topic that is to be presented as a Multimedia Presentation.
Unit - I
Introduction: What is software testing and why it is so hard?, Error, Fault, Failure, Incident, Test Cases, Testing Process, Limitations of Testing, No absolute proof of correctness, Overview of Graph Theory.

Unit - II

Unit - III
Reducing the number of test cases: Prioritization guidelines, Priority category, Scheme, Risk Analysis, Regression Testing, Slice based testing.

Unit - IV

Unit - V

Text Books:

References:
SIXTH SEMESTER  
MAIN PAPER – XVII  
MOBILE COMPUTING

Unit - I  
Introducing the Mobile Internet: The Mobile Internet is here, The Rise of Mobile data. Key Services for the mobile Internet, Business opportunities.

Unit - II  
WAP: the Mobile Internet Standard: Making the Internet Mobile: Challenges and Pitfalls, Overview of the Wireless Application Protocol

Unit - III  

Unit - IV  
Advanced WAP: Tailoring Content to the Client, Push Messaging, Wireless Telephony Applications, Building and Deploying End-to-End WAP Services.

Unit - V  
The Mobile Internet Future

Text Book:

SIXTH SEMESTER
PRACTICAL – XI
SOFTWARE TESTING CASE TOOLS LAB

1. **Study of testing tools**.- Tool support for testing

   Test tool classification, Tool support for management of testing and tests, Tool support for static testing, Tool support for test specification, Tool support for test execution and logging, Tool support for performance and monitoring, Tool support for specific application areas.

2. **Testing Tools – Case study and Practice**
   - **WinRunner, QARun, Silk Test**

   3. Test case design for functional testing.
   4. Test case design for loop testing.
   5. Test case design for synchronization.
   6. Test case design in batch mode
   8. Testing of object oriented application.
   9. Testing with Data Driver Wizard
ELECTIVE -1
NETWORK PROGRAMMING

Unit I


Unit II


Unit III


Unit IV


Unit V


TEXT BOOKS

REFERENCE
ELECTIVE -II
TCP/IP

Unit I

Introduction to TCP/IP - The OSI Model and TCP/IP Protocol Suites - Underlying Technologies

Unit II

IP Addressing - Sub netting and Super netting - Delivery and Routing of IP Packets - Internet Protocol (IP) - ARP and RARP

Unit III

Internet Control Message Protocol (ICMP) - Internet Group Management Protocol (IGMP) - User Datagram Protocol (UDP) - Transmitting Control Protocol (TCP)

Unit IV

Routing Protocols (RIP, OSPF and BGP) - Application Layer and Client-Server Model - BooTP and DHCP - Domain Name System (DNS) - Talent and Rlogin

Unit V

File Transfer Protocol (FTP) - Trivial File Transfer Protocol (SMTP) - Simple Network - Management Protocol (SNMP) - Hyper Text Transfer Protocol (HTTP)

Text Book

ELECTIVE - III
CRYPTOGRAPHY

Unit – I

Overview - Symmetric Ciphers - Classical Encryption Techniques

Unit - II

Block Ciphers And The Data Encryption Standard - Introduction To Finite Fields
- Advanced Encryption Standard

Unit - III

More On Symmetric Ciphers - Confidentiality Using Symmetric Encryption

Unit - IV

Public-Key Encryption And Hash Functions - Introduction To Number Theory -
Public-Key Cryptography And Rsa

Unit-V

Key Management; Other Public-Key Cryptosystems - Message Authentication
And Hash Functions

Text Book:

ELECTIVE -IV
CLIENT/SERVER TECHNOLOGY

Unit – I


Unit – II


Unit – III


Unit – IV

Components of Client/Server Application - Connectivity – Open System Interconnect – Communication Interface technology – IPC

Unit – V


Text Book


Reference

ELECTIVE-V

DATA WAREHOUSING AND MINING

Unit - I
Introduction: Definitions – Taxonomy of data mining tasks - Steps in data mining process –Overview of data mining techniques.

Unit - II
Predictive modeling: Predictive modelling – Classification – Decision trees – Patterns – Association rules – Algorithms

Unit - III
Other approaches: Visualization – Statistical perspective – Clustering – Regression analysis – Time series analysis – Bayesian learning – Inductive logic programming.

Unit - IV

Unit - V
Applications: Tools – Applications.

Text Book:

1. Jiawei Han, Micheline Kamber, Data Mining : Concepts and Techniques, Motgan Kaufmann Publishers, 2006 2nd Edition.
ELECTIVE-VI
BIOMETRICS

Unit-I
Introduction to biometrics – Fingerprint verification – Face recognition.

Unit-II
Hand geometry based verification - Recognizing persons by their Iris pattern – Retina identification.

Unit-III
Automatic online signature verification- Speaker recognition - Infrared identification of faces and body parts – Keystroke dynamics based authentication.

Unit-IV
Automatic gait recognition – Objective odour measurements - Ear biometrics – DNA based identification.

Unit-V
Large scale systems – Multimodal biometrics – Smartcard based authentication.

Text Book:


Reference:

ELECTIVE-VII
INTRODUCTION TO BIOINFORMATICS

Unit – I

Unit – II
Genome Information Resources - DNA Sequence data base – Specialised genomic Resources. DNA Sequence analysis : Why analyse DNA? – Gene structure – Features of DNA sequence analysis – Issues in the interpretation and EST search – Approach of Gene hunting – Cell CDNA libraries and ESTs – Approaches to EST analysis – Effect of EST data on DNA data base examples of EST analysis.

Unit – III

Unit – IV

Unit – V

Text Book:
**ELECTIVE-VIII**  
**HUMAN COMPUTER INTERFACE**

**Unit - I**

Introduction: Importance of user Interface – definition, importance of good design. Benefits of good design. A brief history of Screen design,

**Unit - II**

The graphical user interface – popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Web user – Interface popularity, characteristics- Principles of user interface.

**Unit - III**

Design process – Human interaction with computers, importance of human characteristics human consideration, Human interaction speeds, understanding business junctions.

**Unit - IV**


**Unit - V**


**Text Book:**

1. The essential guide to user interface design, Wilbert O Galitz, Wiley DreamTech. 2. 2.  

**Reference Book:**

2. Interaction Design Prece, Rogers, Sharps. Wiley Dreamtech,  
ELECTIVE-IX
SOFTWARE QUALITY MANAGEMENT

Unit I

Unit II

Unit III

Unit IV

Unit V
Measures and metrics in Process and Project domains: Metrics for software quality - Integrating metrics within Software engineering process - Metrics for small organizations.

Text Books
ELECTIVE-X

MIDDLEWARE TECHNOLOGIES

Unit I


Unit II

EJB – EJB Architecture – Overview of EJB software architecture – View of EJB – Conversation – Building and Deploying EJBs – Roles in EJB.

Unit III

EJB Session Beans – EJB entity beans – EJB clients – EJB Deployment – Building an application with EJB.

Unit IV


Unit V


Text Book:


2. Tom Valesky, ”Enterprise Java Beans”, Pearson Education, 2002.(Unit 2 & 3)

3. Jason Pritchard,”COM and CORBA side by side”, Addison Wesley,2000 (Unit 4 & 5)


Reference:

ELECTIVE-XI

MULTIMEDIA DATABASE

Unit-I

Introduction : An introduction to Object-oriented Databases; Multidimensional Data Structures: k-d Trees, Point Quad trees, The MX-Quad tree, R-Trees, comparison of Different Data Structures

Unit-II


Unit-III

Text/Document Databases : Precision and Recall, Stop Lists, Word Stems, and Frequency Tables, Latent Semantic Indexing, TV-Trees, Other Retrieval Techniques

Unit-IV

Video Databases : Organizing Content of a Single Video, Querying Content of Video Libraries, Video Segmentation, video Standards
Audio Databases : A General Model of Audio Data, Capturing Audio Content through Discrete Transformation, Indexing Audio Data
Multimedia Databases : Design and Architecture of a Multimedia Database, Organizing Multimedia Data Based on The Principle of Uniformity, Media Abstractions, Query Languages for Retrieving Multimedia Data, Indexing SMDSs with Enhanced Inverted Indices, Query Relaxation/Expansion

Unit-V

Spatial Concepts and Data Models: Models of spatial information, Design extending the ER model with spatial concepts, Extending the ER model pictograms, Object oriented data model with UML.

TEXT BOOKS :
2. Spatial Databases, Shashi Shekhar, Sanjiv Chawla, Pearson Education.

REFERENCES :
1. Multimedia Databases: An object relational approach, Lynne Dunckley,
Pearson Education.
ELECTIVE-XII
WEB SERVICES

Unit – I

Introduction – What are web services? SOAP WSDL UDDI-Why web services are important? - The evolution of web applications Not just another distributed computing platform – Web services and enterprises.

Unit – II


Unit – III


Unit – IV


Unit – V

Transactions: ACID Transactions – Distributed Transactions and two phase commit – Dealing with Heuristic outcomes – Scaling transactions to web services – OASIS business transaction protocol
Text Book:

Reference Book: