Annexure - 15

PERIYAR UNIVERSITY
SALEM 638 011

PERIYAR INSTITUTE OF DISTANCE EDUCATIONS (PRIDE)

NON – SEMESTER

M.Sc. DEGREE

INFORMATION TECHNOLOGY

REGULATIONS AND SYLLABUS

(Effective from the Academic Year 2008 – 2009 and thereafter)

PERIYAR UNIVERSITY, SALEM – 11

M.Sc. INFORMATION TECHNOLOGY

Regulations

Effective from the Academic year 2008 – 2009 and thereafter

1. OBJECTIVE OF THE COURSE

To Develop Post Graduates in the Information Technology with Particular emphasis as a Specialist in that area. So as to be Employed in the Industry, Research and Development Unit and Academic Institutions without any Further Training.

2. CONDITION FOR ADMISSION

A candidate who has passed any degree of this University or any of the degree of any other University accepted by the syndicate as equivalent thereto subject to such conditions as may be prescribed therefore shall be

permitted to appear and qualify for the M.Sc Information Technology degree examination of this University after a course of study of two academic years.

3. DURATION OF THE COURSE

The course for the degree of Master of Science in Information Technology shall consist of two Academic years divided into two years.

4. COURSE OF STUDY

The Course of Study shall comprise instruction in the following subjects according to the syllabus and books prescribed from time to time.

PRIDE
(Non – Semester)
M.Sc. DEGREE INFORMATION TECHNOLOGY

S.No	Title of the Paper
First Year	
1.	Fundamentals of Information Technology
2.	C and Data Structures
3.	Object Oriented Programming in C++
4.	Operating Systems
5.	Visual Programming
6.	Database Management Systems
7.	Software Engineering
8.	Computer Oriented Statistical and Numerical Methods
9.	Practical I - MS Office and C Lab
10.	Practical II – C++ and Java Lab
11.	Practical III – RDBMS and VB Lab
Second year	
12.	Distributed Systems
13.	Computer Networks
14.	Internet and Web Programming
15.	Elective I
16.	Elective II
17.	Practical IV – Internet and Web Programming Lab

18. Project

Elective 1:

E.1.1 Computer Graphics

E.1.2 Data Mining

E.1.3 Wireless Application Protocol

Elective 2:

E.2.1 E-Commerce

E.2.2 Object Oriented Analysis and Design

E.2.3 Client/Server Computing.

5. EXAMINATIONS

The examination shall be three hours duration to each paper at the end of the Year. The candidate failing in any subject(s) will be permitted to appear for each failed subject(s) in the subsequent examination. Practical Examination should be conducted at the end of each year. At the end of Second year viva-voce will be conducted on the basis of the Dissertation submitted by the student. It should be an individual project. The viva-voce will be conducted by one internal and one external examiner jointly.

6.SCHEME OF EXMINTIONS

The Scheme of Examinations shall be as follows:

S.No	Paper Code	Title of the Paper	Duration	Marks
FIRST YEAR				
1.		Fundamentals of Information Technology	3	100
2.		C and Data Structures	3	100
3.		Object Oriented Programming in C++	3	100
4.		Operating Systems	3	100
5.		Visual Programming	3	100

6.	Database Management Systems	3	100
7.	Software Engineering	3	100
8.	Computer Oriented Statistical and Numerical Methods	3	100
9.	Practical – I MS Office and C Lab	3	100
10.	Practical - II C++ and Java Lab	3	100
11.	Practical – III RDBMS and VB Lab	3	100
SECOND YEAR			
12.	Distributed Systems	3	100
13.	Computer Networks	3	100
14.	Internet and Web Programming	3	100
15.	Elective – I	3	100
16.	Elective – II	3	100
17.	Practical –IV Internet and Web Programming Lab	3	100
18.	Project		200
	Total		**1900**

Elective 1:

E.1.1 Computer Graphics

E.1.2 Data Mining

E.1.3 Wireless Application Protocol

Elective 2:

E.2.1 E-Commerce

E.2.2 Object Oriented Analysis and Design

E.2.3 Client/Server Computing

7. QUESTION PAPER PATTERN

a. For Theory

Time: 3 Hours

Max.Marks: 100

Passing Min: 50

PART – A: 5X5 = 25

(Answer all Questions)

(Two Questions from each unit with Internal Choice)

PART –B: 5X15 = 75

(Answer all Questions)

(Two Questions from each unit with Internal Choice)

b. For Practical

Time: 3 Hours

Max.Marks: 100

Passing Min: 50

One/Two Compulsory Problem(s) to be solved within 3 hours.

c. Distribution of the marks

(i) Practical

- For Writing procedures/Programs in the main answer book 40%
- For listing and debugging 40%
- For Correct and formatted output 20%

(ii) Dissertation

a. Report evaluation 150 marks

b. Viva-Voce 50 marks

8. REGULATIONS FOR DISSERTION

a. Students should do their Project work in Company/ Institutions.

b. The candidate should submit the filled in format as given in **Annexure – I** to the centre for approval during the Ist Week of January in their Project year.

c. Each internal guide shall have maximum of eight Students.

d. Periodically the project should be reviewed minimum three times by the internal guide.

e. The students should prepare three copies of the dissertation and submit the same to the centre on **30th April** for the evaluation by examiners. After evaluation one copy is to be retained in the centre

library and one copy is to be submitted to the University (Co-ordinator-Pride) and the student can hold one copy.

f. A Sample format of the dissertation is enclosed in **Annexure – II.**

g. Format of the **Title Page** and **Certificate** are enclosed in **Annexure – III.**

h. The Students should use OHP/Power Point Presentation during their Viva Voce Examinations.

9. PASSING MINIMUM

The candidate shall be declared to have passed the examination if the candidate secures not less than 50% marks in the University examination in each paper/practical. However submission of a record notebook is a must.

For the project work and viva-voce a candidate should secure 50% of the marks for pass. The candidate should compulsorily attend viva-voce examination to secure pass in that paper.

Candidate who do not obtain the required minimum marks for a pass in a Paper/Project shall be required to appear and pass the same at a subsequent appearance.

10. CLASSIFICATION OF SUCCESSFUL CANDIDATES

Candidates who secure not less than 60% of the aggregate marks in the whole examination shall be declared to have passed the examination in **First Class**. All other successful candidates shall be declared to have passed in **Second Class**. Candidates who obtain 75% of the marks in the aggregate shall be deemed to have passed the examination in **First Class with Distinction** provided they pass all the examinations prescribed for the course at the first appearance.

11. MAXIMUM DURATION FOR THE COMPLETION OF THE PG PROGRAMME

The maximum duration for completion of the PG Programme shall not exceed four academic year from the year of admission.

12. COMMENCEMENT OF THIS REGULATION

These regulations shall take effect from the academic year 2007 – 2008, i.e., for students who are to be admitted to the first year of the course during the academic year 2007 – 2008 and thereafter.

ANNEXURE – I
PERIYAR UNIVERSITY

Name of the Centre :

Course :

Student Name :

Register Number :

Title of the Dissertation :

Address of Organization/Institution :

Name of the External Guide :

Designation :

Place:

Date: Signature of External Guide

(with Seal)

Name of the Internal Guide :

Qualification :

Teaching Experience :

Place:

Date: Signature of Internal Guide

Co-Ordinator

(Approved or not Approved)

[University Use]

ANNEXURE II

BONAFIDE CERTIFICATE

COMPANY ATTENDANCE CERTIFICATE

ACKNOWLEDGEMENT

CONTENTS

CONCLUSION

BIBLIOGRAPHY

A. DATA FLOW DIAGRAMS
B. TABLE STRUCTURES
C. SAMPLE INPUT/FORMS
D. SAMPLE OUTPUTS/REPORTS

*Based on the Dissertation work, the above titles may be varied.

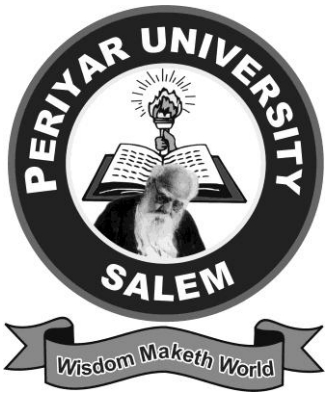
ANNEXURE III

A. Format of the title page

TITLE OF THE DISSERTATION

A Dissertation submitted in partial fulfillment of
the requirements for the degree of
Master of Science in Information Technology
to the
Periyar University, Salem –11.

By
STUDENT NAME
REG.NO.



CENTRE NAME

PERIYAR INSTITUTE OF DISTANCE EDUCATION (PRIDE)

PLACE with Pin Code

MONTH - YEAR

B. Format of the Bonafide Certificate

Name of the Internal Guide

Designation

Department Name

College Address

CERTIFICATE

This is to certify that the dissertation entitled_____submitted in partial fulfillment of the requirement for the degree of Master of Science in _____to the PRIDE, Periyar University, Salem is a record of bonafide work carried out by _____under my supervision and guidance and that no part of the dissertation has been submitted for the award of any degree or diploma.

Date:

Place: Signature of the guide

_____

Signature of the Co-Ordinator

Submitted for the Viva-Voce Examination held on _____

Internal Examiner **External Examiner**

1. FUNDAMENTALS OF INFORMATION TECHNOLOGY

UNIT I:

Information Technology – An Overview of IT – Difference of Data and Information – Information System – Data Types – Value and Quality of Information – Number system – Alpha Numeric Code – Boolean Algebra – Logic Gates –Representation of Boolean Expression – Sum of Products – Flip Flops – Sequential of Combinational Circuit – Counters – Registers.

UNIT II:

Data Compression – Encoding - Entropy of Information – Introduction of Compression - Shanon-Fano Algorithm – Steps of SF Algorithm – Arithmetic Coding - Dictionary Based Compression Method – LZ77 Compression Techniques – JPEG , MPEG and MHEG Compression.

UNIT III:

Evolution of Computing Machines – Computer Generations - Era of Personal Computing – Digital Computers – Micro Computers – I/O

Devices – Auxiliary Storage Devices – Programming Language – Fourth Generation Languages (4GL) – Application Program vs System Program – Memory Hierarchy – File Organization – File Types – Program Development Methodologies – Object Oriented Programming.

UNIT IV:

Model of Data Communication – Analog and Digital Signals – Issues in Analog and Digital Data Conversions – Modulation - Digital Modulation – Multiplexing of Signals – ISDN – Synchronoce and ATM – Object of Windows – Functions – Starting an Application – Knowing Windows – Switching and Various Applications – Windows explorer – DOS Application – Shut Down – Introduction to MS Office – Word- Excel – PowerPoint – Access.

UNIT V:

Internet: A Global Network – TCP/IP – Common Protocols for Internet – WWW – HTML – Web Browser – Internet Addresses – E-Mail – Other Services – External and Internal Modem – Selecting an ISP – Internet Accounts – MS Internet Explorer – Search Engines – Requirement for Internet Access – IT Applications : Introduction - ER NET – NICNET – Dedicated Networks – Development in India – Applications of IT.

Text Book:

1. D.S. Yadav, “Foundations of Information Technology”, New Age, 2006.

Reference Books:

1. Malvino leech, “Digital Principles and Applications”, TMH. Edn.1991.
2. B.Ram , “Computer Fundamentals”, New Age, 1997.
3. Sanjay Saxena, “MS Office 2000 for Everyone" Vikas Publications, 2005.

2. C AND DATA STRUCTURES

UNIT I :

Programming language C – Constant – Variables and Data types – Operators and Expression – I/O operators – IF,IF THEN ELSE, GOTO, SWITCH statements – looping – Arrays – function – String handling functions.

UNIT II:

Structures and Unions – Pointers – Recursion – Files: Opening/Closing a file – file I/O –Error handling during I/O operations – Random access to files - Command line arguments – Preprocessor.

UNIT III:

Data Structure: Introduction – Arrays – Stack and Queues – operations on stack and queues – Evaluation of expressions – circular queue.

UNIT IV:

Linked list operations – Polynomial addition – circular lists – Doubly linked list – operation on doubly linked list – sparse matrix.

UNIT V:

Trees: Introduction – Binary tees – representation – conversion – Applications – Graph: Introduction - representation – breath first search – depth first search – shortest path (Dijikstra's algorithm) – sorting and searching.

Text Books:

1. Balagurusamy.E, "Proramming in C", TMH,2005.

2. Schaums Outline series, “Data Structures “, TMH,2003.
3. John Paul Tremblay and Paul G.Sorenson, “An introduction to Data Structure with Applications”, TMH,2002.

Reference Books:

1. Byron S.Gotfriends “Programming with C”, TMH, 2000.
2. Horowitz E. and Sahani, “Fundamentals of Data Structures”, Galgotia Pub, 2005.

3. OBJECT ORIENTED PROGRAMMING IN C++

UNIT I:

Basic Concepts of OOP – Structure of C++ - Data types – Variables – Control Structures – Functions – Classes and Objects – Constructors and Destructors.

UNIT II:

Overloading: Function, Operator – Inheritance – pointers – Virtual Function – Polymorphism.

UNIT III:

Streams in C++ - Stream Classes – Formatted and Unformatted data – Manipulators – File Streams – Opening and Closing a File – File Pointer Manipulation – Template Classes and Functions – Exception Handling: Try, Catch, Throw.

UNIT IV:

Introduction to Java – Features of Java – Methods and Classes – Array, Strings and Vector – Inheritance – Packages and Interfaces.

UNIT V:

Exception Handling – Multithreading - applets – Graphics Programming.

Text Books:

1. E.Balagurusamy, “Object Oriented Programming with C++”, TMH, Second Edition, 2001.
2. Patrick Naughton, “The Java hand book”, TMGH, 2000.

Reference Books:

1. Robert Lafore, “OOPS in Microsoft C++”, Galgotia Publications 1993.
2. Herbert Schildt, “Complete Reference Java 2”, Fifth Edition, Tata McGraw Hill Pub., Company Ltd, 2002.

4. OPERATING SYSTEMS

UNIT I:

Definition – Early systems – Batch processing – Multiprogramming – Multiprocessing – Time sharing – Personal computer systems – Distributed systems – Parallel systems – Evolution of OS – OS as resource manager.

UNIT II:

Process management: Interprocess communication – Everyday scheduling – Preemptive scheduling – Policy versus mechanism in scheduling – Scheduling in UNIX, OS/2 and WINDOWS NT. Deadlock – condition for deadlock - Deadlock prevention – Deadlock avoidance – Deadlock recovery – Two – Phase locking – Starvation – Synchronization – Separating data transfer and synchronization – Semaphore – implementing semaphores.

UNIT III:

Memory Management: levels of management – Dynamic memory allocation – Design problem and solution – Logical and physical memory static, memory management – Memory protection- Allocation to processes. Virtual Memory: Fragmentation and compaction – Dealing with fragmentation – Swapping – Overlays – Implementing virtual memory - Virtual memory management – page replacement – Global and local page replacement algorithms – Evaluating paging algorithms – Segmentation.

UNIT IV:

File Management: File abstraction – File naming – File systems objects and operations – File system implementation – File system organization – File blocks on disk file storage methods – Implementation of logical to physical block mapping – file system optimization – file system reliability – File security and protection – File system of MS DOS, OS/2 and WINDOWS NT.

UNIT V:

I/O and Resource Management: I/O system software – Disk device driver access strategies – Modeling of disks- Unification of files and I/O devices – Generalize disk drivers – Disk catching – SCSI device drivers. Resource in OS – Protection of resources – User authentication – Mechanism for protecting hardware and software resources – External security.

Text Book:

1. Charles Crowley, "Operating System – A Design – oriented Approach", TMH, 1998.[Reprint of Irwin: Book team].

Reference Books:

1. William Stallings, "Operating Systems", PHI, 1997.
2. Silberschatz, Peterson and Galvin, "Operating System Concept", Addison Wesley, 1991.

5. VISUAL PROGAMMING

UNIT I:

Windows Programming: GUI concept – Hungarian notation – Data types – handles – Message driven architecture – Message Processing & Loop, GDI – Brush, pen, font, cursor, menu, keyboard and mouse handling – Displaying test and graphics – Dialog boxes controls - Win main procedure – Files, clipboard, printer handling – DDE – DLLs, OLE, COM, ODBC – windows registry – New executable [NE] and Portable Executable [PE] files.

UNIT II:

Introduction to Visual Basic – Variables, constants, strings – Data Types – Tools and Techniques.

UNIT III:

Organizing information via code – Arrays – Organizing information via Controls – Control Arrays – List and Combo Boxes – Flex Grid Control – Building Large Projects – Navigating Among Forms.

UNIT IV:

Working with Interface – Microsoft Windows common Controls 6.0 – Menus – MDI Forms. DDE Properties – DDE Events – DDE Methods – OLE properties – Active X controls Creation and image – Database Access – Data Control – Field control – Data grid – Record ser using SQL to manipulate data.

UNIT V:

Introduction to Graphics – Fundamentals of Graphics – Screen Scalar – Line and Shape controls – Graphics via code – Lines and Boxes –

Circles – Ellipse and Charts. Basic File Handling – Building your own Active X controls.

Text Books:

1. Charles Petzold, "Programming Windows 95", Microsoft Press, 2000.
2. Cary Cornel "Visual Basic 5 from the ground up", TMH, 1997.

Reference Books:

1. Mohammed Azam, "Programming with Visual Basic", Vikas Publishing House Pvt Ltd, 2001.
2. Steven Holzner, "Visual Basic 6.0 Programming Black Book, "Dream Tech Press 2003.

6. DATABASE MANAGEMENT SYSTEMS

UNIT I:

Introduction: Purpose of database systems, data abstraction, data models, instances and schemes – data independence, data definition languages, data manipulation language – database manager, database administer database users. Overall system structure.

UNIT II:

Relational model – Structure of relational database – the relational algebra p tuple and domain relational calculus- modifying the databases. Relational commercial languages – SQL – Query-by-example, Query – Integrity Constraints – domain constraints – referential integrity – functional dependencies – assertions – triggers.

UNIT III:

Relational database design – pitfalls initial relational database design normalization using functional dependencies – normalization using Multivalue dependencies, join dependencies. Domain – Key normal form, mapping relational data to files data dictionary storage, buffer management.

UNIT IV:

Network data model- DBTG set construct and restrictions, Expressing M:N relationship DBTG, cycles in DBTG, data description in the network model, scheme and subscheme, DBTG data manipulation facility data base manipulation. Mapping network to files. Hierarchical data model – tree concepts, hierarchical data model, data definition, data manipulation updates implementation of the hierarchical data base, additional features of the hierarchical DML, mapping hierarchies of files.

UNIT V:

Database security, integrity and control – Security and integrity threads defense mechanism security specification in SQL, Statistical database. Case study of database design.

Text Book:

1. Abraham Siberschatz, Henery F.Korth and Sudharshan, S., "Database System Concepts", McGraw-Hill., 1997.

Reference Books:

1. Bipin C.Desai, “An introduction to database systems”, West Publishing Company, 1990.
2. Ragu Rama Krishnan, “Database management system”, McGRaw-Hill,2003.

7. SOFTWARE ENGINEERING

UNIT I:

Introduction: Definition of software and software engineering software Myth - software engineering paradigm. Software project management: Software matrix – cost estimation - project planning.

UNIT II:

Software requirements analysis: Computer systems engineering - System analysis modeling the system architecture – System specification: Fundamentals of requirements analysis – The analyst – Problem areas – analysis principles – Software Prototyping specification; concept of requirements analysis methods – SADT; object oriented analysis and data modeling; Requirement analysis methods – Data structure oriented methods – Jackson system development specification techniques.

UNIT III:

Software design: design fundamentals: dataflow oriented design: Object oriented design; data oriented design; real time system design - concepts, analysis and design.

UNIT IV:

Implementation: Programming languages characteristics Programming language fundamentals – classification – coding style p coding efficiency, Testing software testing techniques –testing fundamentals – white box testing – basis path testing control structure testing black box testing – testing for Real Time systems – Software

strategies – approach – unit testing – Integration testing validation testing – System testing – Debugging techniques software quality assurance.

UNIT V:

Software maintenance – definition and characteristics – maintenance – task – side effects – reverse engineering and re-engineering; software configuration management. Computer aided software engineering (CASE): building blocks – project management tools – support tools analysis and design tools – programming tools – integration and testing tools – maintenance tools; integrated CASE environment (I – CASE)

Text Book:

1. Pressman,"Software Engineering and applications", MCGRAW HILL, Sixth edition, 2005.

Reference Books:

1. M.C.Schooman, "Software Engineering Design", MCGRAW HILL 1985.
2. Richard Fairely, "Software Engineering – Design Reliability And Management", MCGRAW HILL International Edition 1983.

8. COMPUTER ORIENTED STATISTICAL AND NUMERICAL METHODS

UNIT I:

Statistical Methods: Probability and expected values – Correlation Analysis – Meaning – Types – Degrees of Correlation – Scatter diagram - Correlation graph – Karl Pearson's coefficient of Correlation – Rank correlation. Regression Analysis – Meaning – Types of Regression - Regression equations – Regression equations from mean – Regression coefficients – Properties of Regression coefficients – correlation and Regression a comparison.

UNIT II:

Theoretical distributions: Binomial, Poisson, Normal distributions – tests of hypothesis – types of errors – estimation – large sample tests – small sample tests – X^2 test - F test.

UNIT III:

Numerical Methods: Introduction – Errors – Machine computation – Transcendental and polynomial equation initial approximation – bisection, secant, Newton – Raphson, the Muller, the chebyshev and multipoint iterative methods – polynomial equation – The Birge-vieta, Bairstow and Graeffe's root squaring methods.

UNIT IV:

System of linear algebraic equations and eigen value problems – Gauss elimination, Gauss Jordon, Triangularization, Choleskey methods – Gauss Jacobi and Gauss Siedel methods.

UNIT V:

Interpolation and approximation – Newton, Lagrange's methods – Numerical differentiation and Integration – methods based on Interpolation – Trapezoidal rule – Simpson's rule – Romberg Integration.

Text Books:

1. S.P. Gupta, “Statistical Methods”, Sultan Chand & Sons, New Delhi, 2001. (Units I &II).
2. M.K.Jain, SRK Iyangar, R.K.Jain, “Numerical Methods for Scientific and Engineering Computation”, weisly eastern lts – New Delhi – 1997. (Units III,IV & V).

Reference Books:

1. Dr.M.K.Venkatraman, “Numerical methods for science & Engg”,1997.
2. Guptha kapoor, “Mathematics Statistics”, S.Chand & Co, 2004.

9. MS-OFFICE AND C LAB

MS-OFFICE- Lab

1. Create a document and apply alignment and edit properties.
2. Create a table and apply its various properties.
3. Develop “Mail merge”.

MS – Excel

1. Create an Excel sheet uses the following operations
    1. Cell formatting.
    2. Row/ Column formatting.
2. Create Chart applications.
3. Create an excel books that consists of various excel sheets.
    1. A work sheet should consist of tables &text.
    2. A work sheet should consist of charts.
4. Create a Table of values & how apply mathematical functions

MS - Power Point

1. Create Slides with different layout & apply different backgrounds.
2. Create slide with links and change the order of slides.
3. Create a slide with custom animation.
4. Create slides with action button and reverse using for the animation how.

MS - Access

1. Create a new database with various t1ables
2. Create different tables and assign relationships between them.
3. Create tables and develop action & cross tab queries
4. Create forms in column & tables style

C - Lab

1. Control Structures.
2. Arrays
3. String Manipulations
4. Function
5. Recursion
6. Structures
7. Pointers and
    - Arrays
    - Strings
    - Structures
8. File Manipulations
9. Command Line Arguments.

10. C++ AND JAVA LAB

C++:

1. Matrix Manipulation.
2. Implementation of stack using Arrays.
3. Implementation of queue using Arrays.
4. Implementation of Linear Linked List and its Operations.
5. Write a program to convert infix to postfix expressions using arrays.
6. Write a program to add two polynomials using pointers.

JAVA:

1. Classes and objects.
2. Arrays.
3. Inheritance.
4. Packages and Interfaces.
5. Exception Handling.
6. Threads.
7. Simple applet programs.

11. RDBMS AND VB LAB

RDBMS:

1. Creation of tables – executing All Queries.

PACKAGES IN D2K.

2. Library Management Systems.
3. Payroll.
4. Tourist Information System.
5. Banking System.

VISUAL BASIC:

1. Preparation of Arithmetic calculator.
2. Preparation of Students mark sheet.
3. Railway Reservation System.
4. Voters Information System.
5. Banking System.
6. Creating ActiveX Controls.

12. DISTRIBUTED SYSTEMS

UNIT I:

Introduction: Distributed Processing: Models For Distributed Computing – Load Balancing – Remote Procedure Calls-Process Migration – Concurrency Issues on Databases, Hardware Concepts – Bus Based Multiprocessors – Switched Multiprocessors – Software Concepts – Network Operating Systems And NFS – Time Distributed Systems – Multiprocessor Time Sharing System - Design Issue – Transparency – Flexibility – Reliability – Performance And Scalability.

UNIT II:

Communications: Communications in Distributed Systems – The Client-Server Model-Blocking Vs Non Blocking Primitives – Buffered Versus Unbuffered Primitives – Implementation Of Client-Server Model.

UNIT III:

Synchronization: Synchronization In Distributed Systems- Clock Synchronization –Mutual Exclusion – Election Algorithms – Atomic Transactions – Deadlocks In Distributed Systems – Threads – Thread Usage And Implementation Of Thread Packages – Processor Allocation.

UNIT IV:

Distributed file systems: File Service Interface-Semantics Of The Sharing - Distributed File Systems.

UNIT V:

Software concepts: Distributed Programming Languages – Issues – Application – Review Of Distributed Database.

Text Books:

1.Mukesh Singal and Shivaratri N.G.Advanced, “Concepts In Operating System”, McGraw Hill, 1994.

2.Tanenbaum A.S, “Modern Operating Systems”, PHI, 1996.

Reference Books:

1. Paul. M. & Sugart H.J, “Distributes Systems, Methods And Tools For Specification – An Advanced Course”, Springer Verlag, 1985.

2. Pradeep K. Sinha, “Distributed Operating Systems – Concepts And Design”, PHI, 1998.

13. COMPUTER NETWORKS

UNIT I:

Goals and applications of network – Network structure – Network architectures – OSI reference model and services.

UNIT II:

Network topology – Backbone design – Physical layer – Transmission media, - Switching [circuit switching, packer switching, hybrid switching] methods – ISDN terminal handling.

UNIT III:

Data link layer design issues – Error detection and correction – Elementary data link protocols – Sliding window protocols – Protocol specification & verification.

UNIT IV:

Network layer – Design issues – Routing, congestion, internetworking – Routing algorithms – Shortest path, multipath, centralization, isolated, flooding, distributed, optimal, flow based, hierarchical & broadcasting – Congestion control algorithms – Preallocation of buffer, packet discarding, flow control, choke packets, deadlocks.

UNIT V:

Transport layer – Design issues – Connection management – Addressing, establishing & releasing a connection, timer based connection

management, Multiplexing crash recovery, E-Mail – Cryptography – Case studies: Arc net, Ethernet, Arpanet.

Text Book:

1. Andrew S.Tanenbaum, "Computer Network", PHI, 1991.

Reference Book:

1. Dimitri Bertsekar & Robert Gall, "Data Network", PHI, 2004.

14. INTERNET AND WEB PROGRAMMING

UNIT I:

Introduction to Computers and the Internet: History of the World Wide Web – Hardware Trends – The key Software Trend: Object Technology – Java Script: Object – Based Scripting for the Web – Browser Portability – Hyper Text Markup Language: Introduction – Markup Languages – Editing HTML – Common Tags – Headers – Text Styling – Linking – Images – Formatting text with <FONT> - Special Characters, Horizontal rules and more line Breaks - Intermediate HTML: Introduction – Unordered Lists – Nested and Ordered Lists – Basic HTML Tables – Intermediate HTML Tables and Formatting – Basic HTML Forms – More Complex HTML forms – Internal Linking – Creating and Using Image maps <META> Tags - <FRAMESET> Tags.

UNIT II:

Java Script: Introduction – Memory Concepts – Arithmetic – Decision making: Equality ad Relational Operators Selection Structures: if, if else, switch – Repetition Structures: while, for, do/while – Break and Continue Statements – Labeled Break and Continue Statements – Logical Operators – Functions: Introduction – Program Modules in Java Script – Programmer –Defined Functions – Function Definitions – Duration of Identifiers – Scope Rules – Recursion – Recursion Vs Iteration – Java Script Global Functions.

UNIT III:

Arrays: Introduction – Arrays – Declaring and Allocation Arrays – References and Reference Parameters – Passing Arrays to Functions – Sorting Arrays – Searching Arrays – Multiple Subscripted Arrays – Objects: Introduction – Math, String, Data, Boolean and Number Objects – Dynamic HTML: Cascading Style Sheets: Introduction – Inline Styles – Creating Style Sheets with the STYLE Element – Conflicting Styles – Linking External Style Sheets – Positioning Elements – Backgrounds – Element Dimensions – Text Flow and the Box Model – User Style Sheets.

UNIT IV:

Object Model and Collections: Introduction – Object Referencing – Collections all the Children – Dynamic Styles – Dynamic Positioning - Using the frames Collection – navigator Object – Event Model:

Introduction – Event ONCLICK-Event ONLOAD- Error Handling with ONERROR- Tracking the Mouse with Event ONMOUSEMOVE-Rollovers with ONMOUSEOVER and ONMOUSEOUT- form processing with ONFOCUS and ONBLUR-more form processing with ONSUBMIT and ONRESET- event bubbling-Filters and transitions: Introduction-Flip Filters: flipv and fliph-Transparency with the chroma Filter-Miscellaneous Image Filters: invert, gray and x-ray – Adding shadows to Text – Creating Gradients with alpha – Making Text Glow – Creating Motion with blur – Using the wave Filter – Advanced Filters: drop shadow and light – Transitions Filter – Filter blendTrans – Filter revealTrans – Client Side Scripting with VBScript: Introduction – Operators – Data Types and Control Structures – VBScript Functions – Arrays – String Manipulation Classes and Objects.

UNIT V:

Active Server Pages: Introduction – Work – Client – Side Scripting Versus Server – Side Scripting – Using Personal Web Server or Internet Information Server – Server – Side ActiveX Components – File System Objects – Session Tracking and Cookies – Accessing a Database from an ASP – CGI and Perl: Common Gateway Interface – Introduction to Perl – Configuring Personal Web Server for Perl/CGI – String Processing and Regular Expressions - Viewing Client/Server Environment Variables – Form Processing and Business Logic – Server – Side Includes – Verifying a user name and password – Sending E-Mail from a Web Browser – Suing ODBC to Connect to a Database – Cookies and Perl – Extensible Markup

Language: Introduction – Structuring Data – Document Type Definitions – Customized Markup Languages – XML Parsers - XHTML.

Text Book:

1. H.M. Deitel, P.J. Deitel and T.R.Nieto, “Internet and World Wide Web – How to Program”, Pearson Education Asia, 2003.

Reference Books:

1. Thomas A.Powell, “The Complete Reference HTML and XHTML”, Fourth Edition, Tata McGraw Hill Pub., Company Ltd, 2000.
2. Achyut S. Godbole, Atul Kahate, “Web Technologies – TCP/IP to internet Application Architectures”, Tata McGraw Hill Pub. Company Ltd, 2003.

15. ELECTIVE – 1

16. ELECTIVE – 2

17. INTERNET AND WEB PROGRAMMING LAB

Simple Web Page and website design for a department, college, company etc.,

1. Using HTML.
2. Using Java Script.
3. Using DHTML.
4. Using ASP.
5. Using Perl and XML.

ELECTIVE - 1
E 1.1 COMPUTER GRAPHICS

UNIT I:

Geometry and Line generation: Line Segments – vectors – Character generation. Graphics Primitives, Display devices, Display file – coordinators – Text. Polygons: Representation - Interfacing filling – Applications.

UNIT II:

Transformations: Scaling-Rotation – Translation – Transformation – Display procedures, segments creation – Deletion – Image Transformation segment manipulation – Raster Techniques.

UNIT III:

Windowing and clipping – various clipping algorithms – Multiple Windowing Interaction: Device handling algorithms – Simulating devices – Echoing Interactive Techniques.

UNIT IV:

Three Dimension: 3D Fundamentals – projections – clipping in 3D – 3D Viewing transformation.

UNIT V:

Light color and shading, Illumination – specular reflection – shading algorithm Transparency – Shadows – Ray tracing Half tones – color comma correction. Curves and fractals: Curve generation – Interpolation – interpolating algorithms – splines and corners – Bezier curves – Fractals.

Text Book:

1. Steven Harrington “Computer Graphics – A Programming Approach” – MGH 1985.

Reference Books:

1. Foley et.al “Computer Graphics”, Addison Wesley, 2002.
2. Walker B.S, Crane Rustal and Co “Interactive computer graphics”., New York 1976.

ELECTIVE - 1
E 1.2 DATA MINING

UNIT I:

Expanding universe of data – production factor – Data mining – Data mining versus query tools: Data mining in marketing – practical applications. Learning – Self-learning computer systems – machine learning and methodology of science – Concept learning.

UNIT II:

Data warehouse – need – Designing decision support systems – integration with data mining – Client/Server and data warehousing – Multi-processing machine – Cost justification.

UNIT III:

Knowledge discovery process – Data selection – Cleaning Enrichment – Coding – Data mining – Preliminary analysis of the data set using traditional query tools – Visualization technique – like hood and distance – OLAP tools – k – nearest neighbor – Decision trees – Association rules – neural networks – Genetic algorithms – Reporting.

UNIT IV:

Different forms of knowledge – Getting started – Data selection – Cleaning – Enrichment – Coding – Reporting – KDD environment – Ten golden rules.

UNIT V:

Customer profiling – Predicting bid behavior of pilots – Discovering foreign key relationship-results. Learning as compressing of data sets – Content of message – Noise and redundancy – Significance of noise – Fuzzy databases – The traditional theory of the relational database – from relations to tables – from keys to statistical dependencies – Demoralization – Data mining primitives.

Text Book:

1. Pieter Adrianns, Dolf Zantinge, “Data Mining”, Addison Wesley, 1998.

Reference Books:

1. Arun K.Puzari, “Data mining concepts and Techniques”, India pot. Ltd, 2003.
2. Jiawei Han and Micheline kanber, Harcourt, C.S.R. Prabhu, “Data warehousing – Concepts, Techniques, products and Applications”, PHI, 2002.

ELECTIVE - 1
E 1.3 WIRELESS APPLICATION PROTOCOL

UNIT I:

Introduction – Market Convergence – Enabling Convergence – Key Services for the Mobile Internet – Business Opportunities. Making the Internet "Mobile", Challenges and Pitfalls – The Origins of WAP – WAP Architecture – Components of the WAP Standard – Network Infrastructure services Supporting WAP Clients – WAP Architecture Design Principles – Relationship to other Standards.

UNIT II:

The Wireless Markup Language: Overview – The WML Document Model – WML Authoring – URLs Identify Content – Markup Basics – WML Basics – Basic Content – Events, Tasks and Bindings – Variables – Controls – Miscellaneous Markup – Sending Information – Application Security – Document Type Declaration – Errors and Browser Limitations.

UNIT III:

Web Site Design: Computer Terminals versus Mobile Terminals – Designing a usable WAP Site – Structures Usability Methods – User Interface Design Guidelines – Design Guidelines for Selected WML Elements.

UNIT IV:

Tailoring Content to the Client – Push Messaging: Overview of WAP Push – Push Access Protocol – WAP Push Addressing – Push Message – MIME media types for Push Messages – Push Proxy Gateway – Push Over – the – Air Protocol – Push Initiator Authentication and Trusted Content.

UNIT V:

Wireless Telephony Applications: Overview of the WTA Architecture – The WTA Client Framework – The WTA Server and Security – Design Considerations – Application Creation Tool Box – Future WTA Enhancements – mapping the Deployment Chain to the Business value chain – Security Domains – Linking WAP and the Internet – WAP Service Design – The Mobile Internet Future.

Text Book:

1. Sandeep Singhal, Thomas, Bridgman, Lalitha Suryanarayana and Others, “The Wireless Applications Protocol”, Addison – Wesley, 2001.

Reference Book:

1. Charles Arehare, Nirmal Chidambaram and others, “Professional WAP”, Wrox press Ltd., Shroff pub And Dist – Pvt. Ltd, 2001.

ELECTIVE - 2

E 2.1 E- COMMERCE

UNIT I:

E-Commerce in the Beginning: What is E-Commerce – Advantages and Limitations of E-Commerce – The Role of Strategy in E-Commerce – Value Chains in E-Commerce – Integrating E-Commerce – Managerial Implications – The Internet and the World Wide Web: The Internet Today – In the Beginning – Unique Benefits of the internet – Searching Online - Bulletin Board Systems (BBSs) and Pay Services –Some Web Fundamentals – The Language of the Internet – Managerial Implications.

UNIT II:

Launching a Business on the Internet: The Lifecycle Approach – The Business Planning and Strategizing Phase – Hardware, software, Security, and the Setup Phase – The Design Phase – he Marketing Phase – The Marketing Phase – The Fulfillment Phase – The Maintenance and Enhancement Phase – Designing Web Sites: What does a Web Site Do – The Lifecycle of Site Building – How to Build a Web Site – Web Navigation Design – Design Criteria – Hiring a Web Designer – Website Evaluation and Usability Testing: Anatomy of a Site – What's the Big Fuss Over Cookies – What Makes a Web Site Usable – Web Site Content and Traffic Management.

UNIT III:

Payment Systems: Form Barter to Money – Requirements for Internet-based Payments – Electronic Payment Media – Issues and

Implications – E-Security: Security in Cyberspace – Designing for Security – how Much risk Can You Afford – The Virus: Computer Enemy Number One – Security Protection and Recovery – How to Secure Your System.

UNIT IV:

Marketing on the Internet: The Pros and Cons of Online Shopping – Internet Marketing Techniques – The E-Cycle of Internet Marketing – Marketing Your Presence – Attracting Customers to Your Site – Tracking Customers – Customer Service – managing Implications – Web-Based Business-to-Business E-Commerce: What is B2B E-Commerce? – B2B Models – B2B Tools-EDI – Beyond B2B: A2Z – management Implications.

UNIT V:

Intranets and Extranets: Intranets: The Basics – The Technical Infrastructure – Planning an Intranet – E-Mail and the Intranet – Extranets –Management Implications – Legal and Ethical Issues.

Text Book:

1. Elias M.Awad, “Electronic Commerce (From Vision to Fulfillment), PHI, 2003.

Reference Books:

1. Kamalesh K.Bajaj, Debjani Neg, “E-Commerce the Cutting Edge of Business”, TMH, 2000.
2. S.Jaiswal, “Doing Business on the Internet E-Commerce”, Galgotia, 2002.

ELECTIVE - 2

E 2.2 OBJECT ORIENTED ANALYSIS AND DESIGN

UNIT I:

The Object Model: The Evolution of the Object Model – Elements o the Object Model – Applying Object Model, Classes and Objects: The nature of an Object – Relationships among objects.

UNIT II:

Classes and Objects: The nature of the Class – Relationships among Classes – The Interplay of Classes and Objects – On building quality classes and objects. Classification: The importance of proper classification – Identifying proper Classes and Objects – Key Abstraction Mechanism.

UNIT III:

UML- Metal Model – Purpose of Analysis and Design – Overview of the Process – inception – Elaboration – Co9nstruction – Refactoring – Transition – Iterative Development – Use Cases.

UNIT IV:

Class Diagrams: Essentials – Interaction Diagram – Class Diagram: Advanced Concepts.

UNIT V:

Packages and Collaborations – State Diagram – Activity Diagram – Physical Diagram – UML and Programming.

Text Books:

1. Grady Booch, “Object Oriented Analysis and Design”, Pearson Edn, 2000.

2. Martin Fowder, Kendall Scott, "UML Distilled, A brief Guide to the Standard object modeling languages", 2nd edn, Pearson Education, 2003.

Reference Books:

1. Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides, "Design Patterns: Elements of Reusable Object Oriented Software", Pearson Education, 2001.
2. James Rumbaugh et al, "Object Oriented Modeling and Design", Pearson Education, 2005.

ELECTIVE - 2

E 2.3 Client /server computing

UNIT I:

Basic concepts of client /server: Characteristics. File servers – transaction servers – groupware servers – object servers – web severs – fat servers or fat clients – 2-tier – client/server building blocks. Operating system services: Base services –extended services – server scalability-client anatomy.

UNIT II:

NOS middleware peer-to-peer communication –Remote Procedure Calls –MOM middleware – SQL database servers: Server architecture – stored procedures – triggers – rules.

UNIT III:

Online transaction processing – Decision support systems – OLTP vs. DSS – Data warehouses: elements – hierarchies – replication vs. direct

access – replication mechanism – EIS /DSS tools – client/server transaction processing: transaction models – TP monitors - transaction management standards.

UNIT IV:

Groupware: Components – components and distributed objects. CORBA: components - object management architecture – services – business objects.

UNIT V:

Client/server distributed system management-components - management application – the internet management protocols –OSI management protocols – OSI management framework - the desktop management interface - X/OPEN management standards – client/server application development tools - client /server application design.

Text Book

1. Robert Orafli, Dan Harkey and John Wiley, "The Essential client/server Survival guide", 2nd Edition Galgotia Publication, 2005. Chapters: 2, 3, 5, 7, 8, 10, 13, 16, 17, 20, 22, 23, 32, 33, 34.

Reference Book

1. Dawna Travis Dewire, "Client /Server Computing", Tata Mc Graw Hill 2003.