Unit I   **(20 teaching hours – 33% weight-age)**

An Introduction to Computers : Definition – Computer system characteristics - logical organization of digital computers - computer hardware – software – types of computers (Analog Vs Digital Computers) – development of computers – computer generations – The shapes of computers today (Super Computers, Mainframe Computers, Mini Computers, Micro Computers)– data - representation of data, transferring of data into information**. Processing data :** CPU, Main memory, Factors affecting the processing speed (registers, internal clock, bus, memory (RAM and Cache), Math processor). Interfacing with Computer: Keyboard, mouse and other input devices, Monitors, Printers and other output devices**. Storage information**: Primary memory (Semi conductor memory) - Secondary memory: diskettes, Hard disks, tapes and CDs - Memory performance.

Unit II   **(12 teaching hours – 20% weight-age)**

Software concepts: System software and Application software, Introduction to Operating Systems, types, functions. Operating System as a Resource manager, Managing files and managing hardware, user interface, parts and services, command line interface, Graphic User Interface**.** Utilities, Purpose of the utilities, enhancing the OS with utilities software - Introduction to DOS, DOS internal commands, DOS External Commands – Introduction to Windows, Desktop, File, Folder, My Computer, My documents, Recycle bin, Internet Explorer, Windows Explorer - Compilers and translators - High level and low level languages and their relative advantages.

Unit-III   **(15 teaching hours – 25% weight-age)**

Fundamentals of Data Communication and Networks: Communication Concepts: Digital and Analog, Serial and Parallel, Synchronous and Asynchronous, simplex, half duplex, full duplex, Multiplexing. **Networks:** Uses of networks, Categories of Networks LAN, WAN, Client Server (a brief introduction of each) - Network Topologies for LANs**.**

The Internet: Internet History - The way the Internet works. **Electronic Mail:** E-mail, Advantages and Disadvantages-userids, passwords and email addresses-Message components-Message composition-Mailer Features- E-mail inner workings- E-mail Management.

Unit – IV   **(13 teaching hours – 22% weight-age)**

MS- Word: Overview of Word features – Creating header and footer – creating tables – Using clipart inserting an image –Defining a macro – Creating a Mail Merge document.

MS-Excel: Overview of Excel features – Introduction to excel functions: abs, even, fact, int, odd, sqrt, roman, power, sum, product, lower, upper – Creating a chart.

MS-Access: Overview of Access features - Creating Tables – Creating Forms – Designing Queries – Sorting - Generating reports.

Power Point: Overview of power point features **-** Creating a sample Presentations.

Text Books :

1.   Suresh K. Basandra : Computers Today, Galgotia
2.   Peter Norton's Introduction to Computers TMH (4th edn.) 2001
3.   Reymond Greenlaw and Ellen Hepp Fundamentals of the Internet TMH
4.   Using Information Technology – Sawyer & Williams – Mcgraw Hill Pub.
5.   Ron Mansfield, Working in Microsoft Office, Tata McGraw Hill (2008)

UNIT – I   **(9 teaching hours – 15% weight-age)**

Fundamentals of Object Oriented programming: Object Oriented paradigm – Basic concepts of Object Oriented Programming – Benefits of OOP – Applications of OOP.

Java Evolution : Java Features – How Java differs from C and C++ - Java and Internet – Java and World Wide Web – Web Browsers – Hardware and Software Requirements – Java Environment.

Overview of Java Language: Simple Java Program – Java Program Structure – Java Tokens- Java Statements – Implementing a Java Program – Java Virtual Machine – Command Line Arguments.

Constants, Variables and Data types: Constants – Variables – Data types – Declaration of Variables- Giving Values to variables- Scope of Variables-Symbolic Constants-Type Casting.

UNIT – II   **(15 teaching hours – 25% weight-age)**

Operators and Expressions: Arithmetic Operators – Relational Operators- Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operators – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – Operator Precedence and Associativity.

Decision Making and Branching: Decision Making with If statement – Simple If Statement-If else Statement-Nesting If Else Statement- the ElseIf Ladder-The switch Statement – The ?: operator.

Decision Making and Looping: The while statement – The do statement – The for statement – Jumps in Loops.

 Class, Objects and Methods: Defining a Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing class members – Constructors – Methods Overloading – Static Members – Nesting of Methods – Inheritance – Overriding Methods – Final Variables and Methods – Final Classes – Abstract Methods and Classes – Visibility Control.

UNIT – III   (18 teaching hours - 30% weight-age)

Arrays, Strings and Vectors: One-dimensional Arrays-creating an Array – Two dimensional Arrays – Strings – Vectors – Wrapper Classes – Enumerated Types.

Interfaces: Multiple Inheritance : Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables.

Packages: Java API Packages – Using system Packages – Naming Conventions – Creating Packages – Accessing a Package – Using a Package – Adding a Class to a Package – Hiding Classes – Static Import.

UNIT – IV   (18 teaching hours - 30% weight-age)

Multithreaded Programming: Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods – Thread Exceptions – Thread Priority – Synchronization.

Managing Errors and Exceptions: Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple Catch Statements – Using Finally Statement – Throwing our own Exceptions – Using Exceptions for debugging.

Applet Programming: How Applets differ from Applications – Preparing to write Applets – Building Applet Code – Applet Life Cycle – Creating an executable Applet – Designing a WebPage – Applet Tag – Adding Applet to HTML file – Running the Applet – More about Applet Tag – Passing parameters to Applets – Aligning the display – More about HTML tags – Displaying Numerical Values – Getting Input from the user.

Prescribed books   :

1. E.Balaguruswamy, Programming with Java, A primer, 3e, TATA McGraw-Hill Company (2008).

Reference Books   :

1. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series, Tata McGrawhill (2007).

2. Timothy Budd, Understanding Object Oriented Programming with Java, Pearson Education (2007).

3. Jana, Java and Object Oriented Programming Paradigm, PHI (2007).

4. Deitel & Deitel. Java TM: How to Program, 7th Edition, PHI (2008).

UNIT – 1   **(13 teaching hours – 30% weight-age)**

THE DATA BASE MANAGEMENT:

Basic Concepts and Definitions. File Processing Systems at Pine Valley Furniture Company. The Range of Database Applications. Advantages of the Database Approach. Costs and Risks of the Database-Approach. Components of the Database Environment.

DATA DEVELOPMENT PROCESS.

Database Development within Information systems Development. Database Development Process. Three-Schema Architecture for Database Development. Three-Tiered Database location Architecture.

UNIT – II   **(15 teaching hours – 33% weight-age)**

MODELING DATA IN THE ORGANIZATION.

Modeling the Rules of the Organization. The E-R Model . Entity – Relation Ship Model Constructs. Relationships. E-R Modeling Example : Pine Valley Furniture Company.

THE ENHANCED E-R MODEL AND BUSINESS RULES.
Representing Super types and Subtypes. Specifying Constraints in Super type/Subtype Relationships. EER Modeling Example: Pine Valley Furniture. Entity Clustering. Business Rules Revisited.

UNIT – III   **(8 teaching hours – 17% weight-age)**

LOGICAL DATABASE DESIGN AND THE RELATIONAL MODEL.

The Relational Data Model. Integrity Constraints. Transforming EER Diagrams into Relations. Introduction to Normalization. The Basic Normal Forms. Merging Relations.

UNIT – IV   **(9 teaching hours – 20% weight-age)**

ADVANCED NORMAL FORMS.
Boyee-Codd Normal Form. Fourth Normal Form. Higher Normal Forms.

SQL :

The SQL Environment. Defining a Database in SQL. Inserting, updating and deleting data. Viewing data in the tables. Internal Schema Definitions in RDBMS. Processing Single Tables. Oracle functions – Data constraints - Processing Multiple Tables – Subqueries – Joins.

Prescribed Books:

1. Modern Data Base Management : Jeffery A. Hoffer. Mary B. Prescott and Fred R. Mc.Fadden. Pearson Education Asia - Sixth Edition.
2. SQL PL SQL :Ivan Baross (BPB)

Reference Books:

1. Database Systems : Rarnez Eirnasri and Shamkant B.Navathe (Pearson Education Asia) 2002.
2. Database Systems Concepts . Abraham Silberschatz. Henry F.Korth and S.Sudarshan. Tata Mc.Graw Hill 2002
3. Database Applications Design and Development Michael V.Manino. Mc. Graw Hill Irwin.
4. Database Management Systems Raghurama Krishnan and Johannes Gehrke. Me Graw Hill 2002.
5. Database Management Systems Geraid V.Post. Tata MeGraw Hill 2002.
6. SQL PL SQL . Deshpande (Dreamtech Press)

UNIT – I   **(11 teaching hours – 26% weight-age)**

PHYSICAL DATABASE DESIGN AND PERFORMANCE.
Physical Database Design Process. Designing Fields. Designing Physical Records and normalization. Designing Physical Fields. Using and selecting Indexes. Designing Databases. Optimizing for Query Performance.

UNIT – II   **(9 teaching hours – 20% weight-age)**

ADVANCED SQL & PL/SQL.

Indexes-Views-Sequences-The generic PL/SQL block-Ensuing Transaction Integrity. What is a Cursor-Error handling in PL/SQL-User-defined exception handling-Stored Procedures and Functions-Data Dictionary Facilities. SQL-99 Enhancements and Extensions to SQL. Triggers and Routines. Embedded SQL and Dynamic SQL.

UNIT – III   **(12 teaching hours – 27% weight-age)**

TRANSACTION MANAGEMENT IN DBMS ENVIRONMENT

Transaction Management and Concurrency Control: What is transaction, Concurrency control, Concurrency control with locking Methods, Concurrency control with time stamping methods, concurrency control with optimistic methods, database recovery management.

Distributed Database Management Systems: The evolution of Distributed Database Management Systems, DDBMS advantages and Disadvantages, Distribution Processing and Distribution Databases, Characteristics of Distributed database management systems, DDBMS Components, Levels of Data and Process distribution, Distributed database Transparency Features, Distributed Transparency, Transaction Transparency, Performance Transparency and Query Optimization, Distributed Database Design, Client Server VS DDBMS.

UNIT - IV   **(13 teaching hours – 30% weight-age)**

DATA WAREHOUSE CONCEPTS AND DATABASE ADMINISTRATION

The Data Warehouse: The need for data analysis, Decision support systems, The data warehouse, Online analytical processing, Star schemas, Data mining, SQL extension for OLAP.
Database Administration: Data as a Corporate asset, The need for and role of databases in an organization, The evolution of the database administration function, The database environment's Human Component, Database administration Tools, The DBA at work: Using Oracle for Database Administration.

Prescribed Books:
1. Modern Data Base Management : Jeffery A. Hoffer. Mary B. Prescott and Fred R. Mc.Fadden. Pearson Education Asia - Sixth Edition.
2. Database Systems Design, Implementation and Management: Peter Rob, Carlos Coronel Thomson(2007) - Seventh Edition.
3. SQL PL SQL :Ivan Bayross (BPB)

Reference Books:
1. Database Systems : Rarnez Eirnasri and Shamkant B.Navathe (Pearson Education Asia) 2002.
2. Database Systems Concepts . Abraham Silberschatz. Henry F.Korth and S.Sudarshan. Tata Mc.Graw Hill 2002
3. Database Applications Design and Development Michael V.Manino. Mc. Graw Hill Irwin.
4. Database Management Systems Raghurama Krishnan and Johannes Gehrke. Me Graw Hill 2002.
5. Database Management Systems Geraid V.Post. Tata MeGraw Hill 2002.
6. SQL PL SQL . Deshpande (Dreamtech Press)

III BBM
V Semester
WEB TECHNOLOGIES

UNIT – I   **(09 teaching hours 20% weightage)**

JUMP-START. BROWSING AND PUBLISHING: Browser Bare Bones. Coast -to-Coast Surfing. Hyper Text Markup Language: Introduction. HTML Formatting and Hyperlink creation.

THE INTERNET : Internet Congestion. Internet Culture. Business Culture and the Internet.

THE World Wide Web: Web Browser Details.

UNIT – II   **(11 teaching hours 25% weightage)**

SEARCHING THE World Wide Web: Directories. Search Engines and Metasearch Engines. Search Fundamentals.

TELNET AND FTP : Telnet and Remote login. File Transfer. Computer Viruses.

BASIC HTML: Semantic Versus Syntactic Based Style Types. Headers and Footer.

UNIT – III   **(11 teaching hours 25% weightage)**

WEB GRAPHICS: GIF - Features. Image Tag. Image Maps. Scanners.

ADVANCED HTML : Frames. HTML forms. CGI Scripts. Dynamic Documents. HTML Tools.

UNIT – IV   **(14 teaching hours 30% weightage)**

NEWS GROUPS, MAILING LISTS, CHAT ROOMS AND MUDs
Newsgroup fundamentals. Mailing list Fundamentals. Newsgroups and Mailing lists Availability.

MULTIMEDIA: Audio. Movies and Video. Virtual Reality and 3D Modeling.

CASCADING STYLE SHEETS: Introduction, Using styles: Simple examples, Defining your own styles, Properties and values in styles, Style sheets- A worked example, Formatting blocks of information, Layers.

TEXT BOOK

1. Fundamentals of the Internet and the WWW . Reymond Greenlaw and Ellen Hepp. Tata Mc Graw Hill.

2. Chris Bates, Web Programming Building Internet Applications, Second Edition, Wiley (2007)

REFERENCE BOOKS

1. Web Technologies : Achyut S.Godbole and Atul Kahate. TMGH.2003.
2. Web Programming Building Internet Applications . Chris Bates. Wiley Dream Tech Press.

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III BBM
VI Semester
WEB PROGRAMMING

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UNIT-1   **(14 teaching hours 30% weight-age)**

An introduction to Java Script: What is dynamic html, Java Script, Javascript—The basics, Variables, String manipulation, Mathematical functions, Statements, Operators, Arrays, Functions.

Objects in Java Script: Data and objects in java script, Regular expressions, Exception Handling, Built in objects, Events.

Dynamic HTML with Java Script: Data validation, Opening a new window, Messages and Confirmations, The status bar, Writing to a different frame, Rollover buttons.

UNIT-2   **(11 teaching hours 25% weight-age)**

CGI Scripting : What is CGI? Developing CGI Applications, Processing CGI, Returning a basic HTML page, Introduction to CGI.pm, CGI.pm methods, Creating HTML pages Dynamically, using CGI.pm – an example, Adding Robustness.

Some CGI Examples: Uploading files, Tracking users with cookies, Tracking users with hidden data, Using Data Files, Restricting access with session ID's.

UNIT-3   **(11 teaching hours 25% weight-age)**

Active Server Pages and Java: Active Server Pages, Java.
XML: Defining Data for Web applications: Basic XML, Document type definition, XML schema, Document Object Model, Presenting XML.

UNIT-4   **(09 teaching hours 20% weight-age)**

Useful Software: Web browsers, Web servers, Databases, Accessing your ISP, Exercises.

Protocols: Protocols, IP and TCP, Hyper Text Transfer Protocol, Common Gateway Interface, The Document Object Model, introducing the Document Object Model, Exercises.

Prescribed Book:
1. Chris Bates, Web Programming Building Internet Applications, Second Edition, Wiley (2007)

Reference Books:
1. Paul S.Wang Sanda S. Katila, An Introduction to Web Design Plus Programming, Thomson(2007).
2. Robert W.Sebesta, Programming the World Wide Web, Third Edition, Pearson Education (2007).
3. Thomas A.Powell, The Complete Reference HTML & XHTML, Fourth Edition, Tata McGraw Hill (2006).
4. Abders Moller and Michael Schwartzbach, An Introduction to XML and Web Technologies, Addison Wesley (2006).
5. Joel Sklar, Principles of Web Design, Thomson (2007).
6. Raj Kamal, Internet and Web Technologies, Tata McGraw Hill (2007).
7. Deitel, et al.,Internet and World Wide Web: How to Program, 3rd Edition, PHI (2008).
8. Gopalan & Akilandeswari, Web Technology: A Developer's Perspective, PHI (2008).