BCA-31 WEB TECHNOLOGIES

UNIT – I

Introduction to Internet and World Wide Web; Evolution and History of World Wide Web; Basic features; Web Browsers; Web Servers; Hypertext Transfer Protocol; URLs; Searching and Web- Casting Techniques; Search Engines and Search Tools;

UNIT – II

Web Publishing: Hosting your Site; Internet Service Provider; Planning and designing your Web Site; Steps for developing your Site; Choosing the contents; Home Page; Domain Names; Creating a Website and the Markup Languages (HTML, DHTML);

UNIT – III

Web Development: Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML command Tags; Creating Links; Headers; Text styles; Text Structuring; Text colors and Background; Formatting text; Page layouts; Images; Ordered and Unordered lists; Inserting Graphics; Table Creation and Layouts;

UNIT – IV

Frame Creation and Layouts; Working with Forms and Menus; Working with Radio Buttons; Check Boxes; Text Boxes. CSS: Introduction, Types of style sheets, Style specification formats, Font properties, List properties, Color, Alignment of text, Background images, The and tags, Features of CSS3.

BCA-32 DATABASE MANAGEMENT SYSTEM

UNIT-I

Basic Terminology, Traditional file based Systems- File Based Approach-Limitations of File Based Approach, Database Approach-Characteristics of Database Approach, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions and Components, Advantages and Disadvantages of DBMS. Roles in the Database Environment - Database Administrator, Database Designers, Applications Developers and End Users.

Unit-II

Database System Architecture – Three Levels of ANSI/SPARC Architecture, Schemas and Instances, Data Independence – Logical and Physical Data Independence. Classification of Database Management System, Centralized and Client Server architecture to DBMS. Introduction to Data Models, Entity-Relationship Model – Entity Types, Entity Sets, Attributes Relationship Types, Relationship Instances and ER Diagrams

Unit-III

Relational Model, Relational Model Terminology-Relational Data Structure, Database Relations, Properties of Relations, Keys, Domains, Integrity Constraints over Relations, Base Tables and Views. Relational Algebra & various operations (with respective SQL commands), Tuple and Domain calculus

Unit-IV

Functional dependencies & NORMALISATION: Data Redundancy and Update Anomalies. Functional Dependencies:-Full Functional Dependencies and Transitive Functional Dependencies, Decomposition and Normal Forms (1NF, 2NF, 3NF & BCNF).

BCA-33 SOFTWARE ENGINEERING

Unit-I

Software and software engineering, Software characteristics, software crisis, Software life cycle, software engineering paradigms, Planning and software project, Software cost estimation, project scheduling, personnel planning, team structure.

Unit-II

Software configuration management: quality assurance, project monitoring, risk management. Software requirement analysis - structured analysis, object oriented analysis, software requirement specification, validation.

Unit-III

Design and implementation of software - software design fundamentals, Structured design methodology and Object Oriented design, design verification, monitoring and control, coding. Software Reliability - metric and specification, fault avoidance and tolerance, exception handling, defensive programming.

Unit-IV

Testing - Testing fundamentals, white box and black box testing, software testing strategies: unit testing, integration testing, validation testing, system testing, debugging. Software maintenance - maintenance characteristics, maintainability, maintenance tasks, maintenance side effects. Case tools, Agile development.

BCA-34 COMPUTER ARCHITECTURE

UNIT – I

Computer Architecture: Evolution of Concept of Computer Architecture, RISC & CISC architectures. Look Ahead & Pipelining: Instruction look ahead, look ahead and look behind, advantages of look ahead systems. Pipelined execution of instruction – operation of pipelines, optimizing a pipeline, speedup due to pipelining.

UNIT – II

Interrupt Structures: Types of interrupts, Interrupt processing, levels and priorities of interrupts, implementing interrupts inside the CPU. Information exchange between devices – serial and parallel modes of transfer, synchronous and asynchronous mode of transfer – source-initiated, destination-initiated asynchronous data transfer, handshaking.

UNIT – III

Computer Arithmetic: Hardware algorithms in flowchart for addition and subtraction - with signed magnitude data, with 2's complement data. Hardware algorithms in flowchart for multiplication & division – booth multiplication, Algorithms for addition, subtraction, multiplication & division with floating-point data.

UNIT – IV

Memory System: Memory hierarchy, characteristics, locality of reference, inclusion, coherence properties of memory hierarchy, Cache Memory, Mapping schemes of Cache, Associative Memory and Interleaved Memory.

BCA- 35 DISCRETE STRUCTURES

UNIT-I

Introduction to Logic. Propositional Logic, Truth tables, Deduction, Resolution, Predicates and Quantifiers, Mathematical Proofs. Infinite sets, well-ordering. Countable and Uncountable sets. Mathematical Induction – weak and strong induction.

UNIT-II

Relations, Equivalence Relations. Functions, Bijections. Binary relations and Graphs: Graphs: Directed and undirected graphs, chains, Circuits, Paths, Cycles, connectivity, Adjacency & incidence matrices, Trees (Basics). Posets and Lattices, Hasse Diagrams. Boolean algebra.

UNIT-III

Counting, Sum and product rule, Principle of Inclusion Exclusion. Pigeon Hole Principle, Counting by Bijections. Double Counting. Linear Recurrence relations – methods of solutions. Generating Functions. Permutations and counting.

UNIT-IV

Structured sets with respect to binary operations. Group And Subgroups: Group axioms, Permutation groups, Subgroups, Co-sets, Normal subgroups, Semigroups. Rings, and Fields.