

# **B.C.A. (Bachelor of Computer Applications)**

SEMESTER - V

## **BCA 5001 INTERNET AND WEB TECHNOLOGY**

**Internet Basics:** Basic concepts, Communication on the Internet, Internet Domains, Internet Server Identities, Establishing Connectivity on the Internet, Client IP Address, A Brief Overview of TCP/IP and its Services, Transmission Control Protocol, Web Server , Web Client, Domain Registration

**Introduction to HTML:** HTML, HTML Tags, Commonly Used HTML Commands, Title and Footers, Text Formatting, Text Style, Lists, Adding Graphics to HTML Documents, Tables, Linking Documents, Frames.

**Java Script :** Java Script in Web Pages, Advantages of Java Script, Advantages of Java Script, Data Types and Literals, Type Casting , Java Script Array, Operators and Expression, Conditional Checking , Function, User Defined Function.

**Understanding XML:** SGML,XML, XML and HTML, Modeling XML Data, Styling XML with XSL, XHTML

**Creation of Dynamic Web pages using JSP:** Dynamic Web Page, Introduction of JSP, Pages Overview, JSP Scripting, Standard Action, Page Directive, Include Directive

### ***Text Books:***

1. Ivan Bay Ross- Web Enable Commercial Application Using HTML, DHTML, BPB Publication
2. Michel Morrison -HTML and XML for Beginners, PHI, New Delhi- 2001
3. H.M Dietal and P.J Dietal -Java How to Program, PHI, New Delhi- 2005

### ***Reference Book:***

1. Java Server Side Programming -WROX Publication

## **BCA 5002 ADVANCED DATABASE MANAGEMENT SYSTEM**

***Design Theory for Relational Database:*** Functional Dependencies, Decomposition of Relation Schemes, Normal Forms for Relations. Schemes, Multivalued and other kinds of Dependencies.

***Query Optimization:*** Basic Optimization Strategies, Algebraic Manipulation, Optimization of Selections in System, Exact Optimization for a Subset of Relational Queries, Optimization under Weak Equivalence.

***Database Protection:*** Integrity, Constraints in Query-by-Example, Security, Security in Query-by- Example, Security in Statistical Databases.

***Concurrent Operations on the Database:*** Basic Concepts, A simple Transaction Model, Model with Read- and Write-Locks, Read-only, Write-only Model, Concurrency for Hierarchically Structured Items, Protection against Crashes, Optimistic Concurrency Control.

***Database Recovery Techniques:*** Recovery Concepts, Recovery Techniques Based on Deferred Update, Recovery Techniques Based on Immediate Update, Shadow Paging, The ARIES Recovery Algorithm, Recovery in Multidatabase Systems, Database Backup and Recovery from Catastrophic Failures.

### ***Text Books:***

1. J.D.Ullman- Principles of Database Systems, Galgotia, New Delhi .
2. S.Ceri and G. Relagatti- Distributed Databases, McGraw-Hill.

### ***Reference Books:***

1. M.T.Ozsu & P.Valduriez-Principles of Distributed Database Systems, 2<sup>nd</sup> Edn, Pearson Education, New Delhi-2001.
2. Elmasri & Navathe- Fundamentals of Database Systems, 3<sup>rd</sup> Edn, Pearson Education, New Delhi , 2001.

## **BCA 5003 FUNDAMENTALS OF COMPUTER ALGORITHMS**

***Introduction:*** Algorithm and their Complexity, Randomized Algorithm

***Design of Efficient Algorithm:*** Data Structure, Set Representation, Graphs, Trees, Recursion, Divide and Conquer, Balancing, Dynamic Programming.

***Divide- and -Conquer:*** Generate Method, Binary Search, Finding Maximum and Minimum, Merge Sort, Quick Sort.

***The Greedy Method:*** The General Method, Tree Vertex Splitting Job, Optimal Merge Patterns, Minimum Cost Spanning Trees.

***Data structure for Set Manipulation Problems:*** Fundamental Operations on Set, Hashing Technique, Binary Search Trees, Optimal Binary Search Trees.

***Algorithm on Graphs:*** Depth First Search, Biconnectivity, Depth First Search of a Directed Graph.

***Text Book:***

1. Horowitz E- Computer Algorithms, Galgotia Publication, New Delhi -2000

***Reference Book:***

1. Aho A.V, Hopcroft J.E & Ullman J.D - The Design and Analysis of Computer Algorithm, Addison Wesley, 1998.

## **BCA 5004 FUZZY LOGIC AND APPLICATIONS**

### ***Classical Theories:***

***Crisp Set Theory:*** Introduction, Relation between Sets, Operations on Sets, Characteristic Functions.

***Propositional Logic:*** Introduction, Syntax of PL(1), Semantics of PL(1), Properties Satisfied by then Connectives, Inference Rules.

***Predicate Logic:*** Introduction, Syntax of PL(2), Semantics of PL(2), Properties Satisfied by Connectives and Quantifiers, Resolution in PL(2).

***Boolean Algebra:*** Introduction to Boolean Algebra, Normal Forms, Complete Disjunctive Normal Form (CDNF).

### ***Fuzzy Theories:***

***Fuzzy Set Theory:*** Introduction to Fuzzy set, Relation between Fuzzy Set, Operations on Fuzzy Sets, Properties of the Standard Operations, Certain Numbers Associated with a Fuzzy Set, Certain Crisp Sets Associated with Fuzzy Set, Extension Principle, Fuzzy Set of Type-K and Level-K, Generation of Membership Functions.

***Fuzzy Relations:*** Fuzzy Relations, Operations on Fuzzy Relations,  $\alpha$ -Cuts of a Fuzzy Relations, Composition of Fuzzy Relations, Cylindric Closure, Fuzzy Relation on a Domain.

***Fuzzy Logic:*** Introduction, Three-valued Logics, N-valued Logics for  $N \geq 4$ , Infinite-valued Logic, Fuzzy Logics, Fuzzy Propositions and Their Interpretations in Terms of Fuzzy Sets, Fuzzy Rules and Their Interpretations in Terms of Fuzzy Relations, Fuzzy Inference or Approximate Reasoning, Generalizations of Fuzzy Logics.

### ***Text Book:***

1. M. Ganesh- Introduction to Fuzzy Sets and Fuzzy Logic, PHI, 2004

### ***Reference Books:***

1. Klir G.J. and Yuan B. - Fuzzy Sets and Fuzzy Logic, PHI, 2001.
2. Pedryes W. and Gomide F. - An Introduction to Fuzzy Sets: Analysis and Design, PHI.

## **BCA 5005 MANAGEMENT INFORMATION SYSTEM**

***Introduction to MIS:*** The Technical and Business Perspective, Organization Structure, Evaluation of MIS through Information System, MIS Organization within the Company.

***Information Systems for Decision Making:*** Evolution of an Information System, Basic Information Systems, Decision Making and MIS, Decision Assisting Information System, Concepts of Balanced MIS Effectiveness and Efficiency Criteria.

***Development of MIS:*** Methodology and Tools/Techniques for Systematic Identification, Evaluation and Modification of MIS.

***Advanced MIS:*** Concepts, Needs and Problems in Achieving Advanced MIS, DSS.

***Pitfalls in MIS Development:*** Fundamental Weakness, Soft Spots in Planning and Design Problems

### ***Text Book:***

1. Murdic, Rose and Clagett- Information Systems for Modern Management, PHI, New Delhi .

### ***Reference Book:***

1. Laudon-Laudon- Management Information Systems, Pearson Education, New Delhi .