MCA303 INFORMATION MANAGEMENT SYSTEM

L	T	P	Cr
3	0	2	4.0

Course objective: Emphasis is on the need of information systems. Main focus is on E-R diagrams, relational database, concepts of normalization and de-normalization and SQL commands.

Introduction: Data, data processing requirement, desirable characteristics of an ideal data processing system, traditional file based system, its drawback, concept of data dependency, Definition of database, database management system, 3-schema architecture, database terminology, benefits of DBMS, Database development process - conceptual data modeling, logical database design, physical database design, database implementation, database maintenance.

Database Analysis: Conceptual data modeling using E-R data model -entities, attributes, relationships, generalization, specialization, specifying constraints. 5 – 6 practical problems based on E-R data model.

Relational Database: Relational data model: Introduction to relational database theory: definition of relation, relational model integrity rules, relational algebra and relational calculus.

Relational Database Design: Normalization- 1NF, 2NF, 3NF, BCNF, 4NF and 5NF. Concept of De-normalization and practical problems based on these forms.

Indexing of Data: Impact of indices on query performance, basic structure of an index, creating indexes with SQL, Types of Indexing and its data structures.

Database Implementation: Introduction to SQL, DDL aspect of SQL, DML aspect of SQL – update, insert, delete & various form of SELECT- simple, using special operators, aggregate functions, group by clause, sub query, joins, co-related sub query, union clause, exist operator.

Laboratory work: Students will learn SQL and other databaseconcepts.One project, which should include database designing & implementation.

Recommended Books:

1. H. F. Korth&Silverschatz, A., Database System Concepts, Tata McGraw Hill, 2010, 6th ed.
2. Elmasri&Navathe, Fundamentals of Database Systems, Addison-Wesley, 2011, 6th ed.
3. Hoffer, Prescott, Mcfadden, Modern Database Management, Paperback International, 2012, 11th ed.
4. Martin Gruber, Understanding SQL, BPB Publication, 1994, Revised ed.