Paper: 205 / Subject: Database Management System (DBMS)

Credits 4 **Total Hrs/Week: 4**

Aim: **To make students understand the basic concepts of Database Management System, Create Databases and Manage Databases using Structured Query Language (SQL).**

Prerequisite: **Basic Operating Knowledge of Computer and Basic Knowledge of Programming.**

1. Introduction to Database Systems
- 1.1. Drawbacks of Conventional File Processing System
- 1.2. Need of Database Management System
- 1.3. Organization of database (Physical, Conceptual, Logical)
- 1.4. Data Models
  - 1.4.1. Object based data models: E-R Model
    - 1.4.1.1. E-R Diagram
    - 1.4.1.2. Entities & entity sets
    - 1.4.1.3. Types of relationships
  - 1.4.2. Record based data models: Network, Hierarchical & Relational
  - 1.4.3. Physical data models
- 1.5. Components of Data Base Management System
  - 1.5.1. Query Language: DDL, DML, TCL
  - 1.5.2. Database Users: DBA, Programmer, Other Users
- 1.6. Data independence: Logical & Physical
- 1.7. Functional Dependencies & Closure of Functional Dependencies
- 1.8. Keys: Super Key, Candidate Key, Primary Key, Alternate Key, Foreign Key
- 1.9. Constraints
  - 1.9.1. Domain Integrity
  - 1.9.2. Referential Integrity
  - 1.9.3. Entity Integrity

2. Normalization
- 2.1. Need of Normalization (Consequences of Bad Design-Insert, Update & Delete Anamolies)
- 2.2. Normalization
  - 2.2.1. First Normal Form
  - 2.2.2. Second Normal Form
  - 2.2.3. Third Normal Form
  - 2.2.4. BCNF

3. Microsoft Access
- 3.1. Working with databases & tables
- 3.2. Managing Constraints & Relationships
- 3.3. Using SQL Queries

Reference Books:

1. Database System Concepts – Henry F. Korth & Abrahim Silberschatz - IMR
2. Introduction to Database Management System – Bipin C. Desai - Galgotia
3. Principles of database systems – Jeffery Ullman – Galgotia Publication
4. An introduction to Database Systems – C.J. Date – Addison Wesley
5. Introduction to database Management – Navin Prakash -TM
6. Access- The Complete Reference – Virginia Andersen – McGraw-Hill
7. Access Database Design & Programming – Steven Roman –O'Reilly
8. ABC of Microsoft Access: Cowart Robert: BPB Publication