

BSc IT

DSC-12: Database Management Systems (LTP::4:0:2)

6 Credits

UNIT I

Introduction to Database System Concepts and Architecture

Databases and Database Users, Characteristics of the Database Approach, Actors on the Scene, Advantages of Using a DBMS

Data Models, Schemas and Instances, DBMS Architecture and Data Independence, Database Languages and Interfaces, The Database System Environment

Data Modeling Using the Entity-Relationship Model

Entity Types, Entity Sets, Attributes, and Keys, Relationship Types, Relationship Sets, Roles, and Structural Constraints, Weak Entity Types, ER Diagrams, Naming Conventions and Design Aspects

UNIT II

Relational Data Model, Relational Constraints, and Relational Algebra

Relational Model Concepts, Relational Model Constraints and Relational Database Schemas, Basic Relational Algebra Operations, Additional Relational Operations, Examples of Queries in Relational Algebra.

Unit III

Normalization- Functional Dependencies, Transitive and Multivalued dependency, Axiomatization of functional dependencies, First Normal form, Second Normal Form, Third Normal Form and Boyce Codd Normal Form.

Storage structures, trees, balanced trees.

UNIT-IV

SQL-The Relational Database Standard

Data Definition, SQL Data Types and Schemas, Constraints, Basic Queries in SQL, Insert, Delete, and Update Statements in SQL, Set Operations, Aggregate functions, Views (Virtual Tables) in SQL, Joins – Inner, Outer and Self, Additional Features of SQL, DCL-commit, Rollback, Save-point, Grant privileges.

TEXT BOOKS:

1. Fundamentals of Database Systems by Navathe and Elmasri –Pearson Education, Fifth Edition.
2. Database Systems Concepts, 3rd edition by Abraham Silberschatz, Henry Korth and S. Sudarshan McGraw Hill International Editions.

REFERENCE BOOKS:

1. Introduction to Database systems by CJ Date, Published by Addison-Wesley.
2. Principles of database systems by Ullman, Computer Science press, 1984.
3. Introduction to database systems by Bipin C.Desai, Galgotia.