

Database Management Systems

Program: B.Tech in Computer Science

Semester: 4th Semester

Prerequisites: Data Structures, Basic SQL

Credits: 3 Lecture Hours, 1 Tutorial, 1 Practical

Overall Aim

To provide students with foundational knowledge of relational databases, query languages, normalization, and transaction management.

Course Outcomes (COs)

CO1: Explain the fundamental architecture of a Database Management System (DBMS) and compare it with a file system.

CO2: Design an Entity-Relationship (ER) model for a given real-world scenario.

CO3: Apply relational algebra operations to retrieve and manipulate data from relational databases.

CO4: Construct and analyze SQL queries involving DDL, DML, and various join operations.

CO5: Evaluate and normalize a given database schema to at least BCNF, reducing data redundancy.

CO6: Manage database transactions, ensuring ACID properties and concurrency control.

Program Outcomes (POs)

PO1: Apply knowledge of mathematical, scientific, and engineering fundamentals to solve complex engineering problems.

PO2: Design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.

PO3: Function effectively as an individual, and as a member or leader in diverse teams.

PO4: Communicate effectively with a range of audiences.

PO5: Analyze and interpret data and information to inform conclusions.

PO6: Demonstrate professional and ethical responsibility.