DATABASE MANAGEMENT SYSTEMS **3 0 0 3**

OBJECTIVE

classify modern and futuristic database applications based on size and complexity; design a database from understanding an Universe of Discourse, using ER diagrams; map ER into Relations and to normalize the relations; create a physical database from a design using DDL statements with appropriate key, domain and referential integrity constraints; analyze different ways of writing a query and justify which is the effective and efficient way; and compare and contrast various indexing strategies in different database systems and list key challenges in advanced database systems and to critique how they differ from traditional database systems.

UNIT – I INTRODUCTION TO DATABASE SYSTEMS 9

Data - Database Applications - Evolution of DB & DBMS - Need for data management – Data models & Database Architecture - Professions in DBMS - Key issues and challenges in Database Systems

UNIT – II ER & RELATIONAL MODELS 9

ER Diagrams - Relational Model - ER to Relational Mapping - Constraints - Keys - Dependencies - Relational Algebra - Normalisation - First, Second, Third & Fourth Normal Forms - BCNF – Join Dependencies

UNIT – III DATA DEFINITION & QUERYING 8

Basic DDL - Introduction to SQL - Data Constraints - Triggers - Database Security – Advanced SQL - Embedded & Dynamic SQL - Views

UNIT – IV TRANSACTIONS & CONCURRENCY 10

Introduction to Transactions - Transaction Systems - ACID Properties - System & Media Recovery - Two Phase Commit Protocol - Recovery with SQL - Need for Concurrency - Locking Protocols - Deadlocks & Managing Deadlocks - SQL Support for Concurrency

UNIT – V ADVANCED TOPICS IN DATABASES 9

Indexing & Hashing Techniques - Query Processing & Optimization - Sorting & Joins – Database tuning - Introduction to Special Topics - Spatial & Temporal Databases - Data Mining & Warehousing - Data Visualisation - Mobile Databases - OODB & XML Databases - Multimedia & Web Databases.

TOTAL : 45

TEXT BOOKS:

1. Abraham Silberschatz, Henry F. Korth, S. Sudharshan, “Database System Concepts”, Sixth Edition, Tata McGraw Hill, 2010
2. Ramez Elmasri, Shamkant B. Navathe, “Fundamentals of Database Systems”, Sixth Edition, Pearson / Addision wesley, 2010
3. Raghu Ramakrishnan, “Database Management Systems”, Third Edition, McGrawHill, 2002.