

**CS8492 DATABASE MANAGEMENT SYSTEMS SYLLABUS**

**L T P C 3 0 0 3**

**UNIT I RELATIONAL DATABASES 10**

Purpose of Database System – Views of data – Data Models – Database System Architecture – Introduction to relational databases – Relational Model – Keys – Relational Algebra – SQL fundamentals – Advanced SQL features – Embedded SQL– Dynamic SQL

**UNIT II DATABASE DESIGN 8**

Entity-Relationship model – E-R Diagrams – Enhanced-ER Model – ER-to-Relational Mapping – Functional Dependencies – Non-loss Decomposition – First, Second, Third Normal Forms, Dependency Preservation – Boyce/Codd Normal Form – Multi-valued Dependencies and Fourth Normal Form – Join Dependencies and Fifth Normal Form

**UNIT III TRANSACTIONS 9**

Transaction Concepts – ACID Properties – Schedules – Serializability – Concurrency Control – Need for Concurrency – Locking Protocols – Two Phase Locking – Deadlock – Transaction Recovery - Save Points – Isolation Levels – SQL Facilities for Concurrency and Recovery.

**UNIT IV IMPLEMENTATION TECHNIQUES 9**

RAID – File Organization – Organization of Records in Files – Indexing and Hashing –Ordered Indices – B+ tree Index Files – B tree Index Files – Static Hashing – Dynamic Hashing – Query Processing Overview – Algorithms for SELECT and JOIN operations – Query optimization using Heuristics and Cost Estimation.

**UNIT V ADVANCED TOPICS 9**

Distributed Databases: Architecture, Data Storage, Transaction Processing – Object-based Databases: Object Database Concepts, Object-Relational features, ODMG Object Model, ODL, OQL - XML Databases: XML Hierarchical Model, DTD, XML Schema, XQuery – Information Retrieval: IR Concepts, Retrieval Models, Queries in IR systems.

**TEXT BOOKS:**

1. Abraham Silberschatz, Henry F. Korth, S. Sudharshan, —Database System ConceptsII, Sixth Edition, Tata McGraw Hill, 2011.
2. Ramez Elmasri, Shamkant B. Navathe, —Fundamentals of Database SystemsII, Sixth Edition, Pearson Education, 2011.

**REFERENCES:**

1. C.J.Date, A.Kannan, S.Swamynathan, —An Introduction to Database SystemsII, Eighth Edition, Pearson Education, 2006.
2. Raghu Ramakrishnan, —Database Management SystemsII, Fourth Edition, McGraw-Hill College Publications, 2015.

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**For Questions, Notes, Syllabus & Results**

3. G.K.Gupta, "Database Management Systems", Tata McGraw Hill, 2011.