**15CSE302 Database Management System 2 0 2 3**

**Syllabus**

**Unit I**

**Introduction:** Overview of DBMS, File Vs DBMS, Elements of DBMS.

**Database Design:** E-R Model, Notations, Constraints, Cardinality and participation constraints, ER design issues, Week and strong entity sets, Reduction of ER model to relational model, Extended ER features.

**Relational Data Model:** Introduction to relational model, Structure of relational model, domain, key, tuples of relational models.

**Unit 2**

**Relational Database Design:** Functional dependency

**Normalization:** 1NF, 2NF, 3NF, BCNF, Relational synthesis algorithm, Lossless join testing algorithm, Decomposition using Functional dependencies, Functional-Dependency theory,

**SQL:** Various DDLs, DMLs and DCLs

**Unit 3**

**Indexing Mechanisms:** clustered, Non-clustered, B-tree, B+ Tree, Hash based.

**Transactions:** Transaction concept, Transaction model, storage structure, Transaction atomicity and durability, Transaction isolation, Serializability.

**Concurrency control:** Lock-based protocols – Locks, granting of locks, The two-phase locking protocol, implementation of locking, Graph-based protocols.

**Deadlock handling:** Deadlock prevention, Deadlock detection and recovery.

**Text Book:**

1. Silberschatz A Korth H F and SudharshanS , “Database System Concepts”, 6th Edition, TMH publishing company limited, 2011.

**References:**

1. Hector Garcia-Molina, Jeffrey D Ullman, JennierWidom, ‘Database System ; The complete book”, 2nd Edition, 2011.
2. Elmasri R and Navathe S B, “Fundamentals of Database Systems”, 5th Edition, Addison Wesley, 2006.
3. Ramakrishnan R and Gehrke J, “Database Management Systems”, 3rd Edition, TMH, 2003.