Database Management System

Module I :   **(10 hours)**
Database System Architecture - Data Abstraction, Data Independence, Data Definitions and Data Manipulation Languages. Data models - Entity Relationship(ER), Mapping ER Model to Relational Model, Network .Relational and Object Oriented Data Models, Integrity Constraints and Data Manipulation Operations.

Module II :   **(12 hours)**
Relation Query Languages, Relational Algebra and Relational Calculus, SQL.

Relational Database Design: Domain and Data dependency, Armstrong's Axioms, Normal Forms, Dependency Preservation, Lossless design.

Query Processing Strategy.

Module III: **(10 hours)**
Transaction processing: Recovery and Concurrency Control. Locking and Timestamp based Schedulers.
Database Recovery System: Types of Data Base failure & Types of Database Recovery, Recovery techniques

<u>Text Books</u>:

1. Database System Concepts by Sudarshan, Korth (McGraw-Hill Education)
2. Fundamentals of Database System By Elmasari & Navathe- Pearson Education

<u>References Books</u>:

(1) An introduction to Database System – Bipin Desai, Galgotia Publications
(2) Database System: concept, Design & Application by S.K.Singh (Pearson Education)
(3) Database management system by leon &leon (Vikas publishing House).
(4) Fundamentals of Database Management System – Gillenson, Wiley India
(5) Database Modeling and Design: Logical Design by Toby J. Teorey, Sam S. Lightstone, and Tom Nadeau, "", 4th Edition, 2005, Elsevier India Publications, New Delhi