

DETAILED CONTENT

UNIT- I : (12 hours)

Database System- concepts and architecture: Characteristics of the Database approach, DBMS users, Role of a DBA, Advantage of using DBMS. Data Models, Schemas and Instances; three schema architecture and data independence. Database languages and Interfaces, Data modelling using the Entity Relationship (ER) modelling and Enhanced Entity Relationship (EER) modelling, Specialization and Generalization.

UNIT-II : (7 hours)

The Relational Model: Relational database design using ER to relational mapping, Relational algebra and relational calculus, Tuple Relational Calculus, Domain Relational Calculus, SQL.

UNIT-III : (8 hours)

Database design theory and methodology: Functional dependencies and normalization of relations, Normal Forms, Properties of relational decomposition, Algorithms for relational database schema design.

UNIT-IV : (5 hours)

Transaction processing concepts: Schedules and serializability, Concurrency control, Two Phase Locking Techniques, Optimistic Concurrency Control, Database recovery concepts and techniques..

UNIT-V : (8 hours)

Data Storage and indexing: Single level and multi level indexing, Dynamic Multi level indexing using B Trees and B+ Trees, Query processing and Query Optimization, Introduction to database security.