Database Management System
Code: EC704C
Credits: 3

Introduction
Concept & Overview of DBMS, Data Models, Database Languages, Database Administrator, Database Users, Three Schema architecture of DBMS.

Entity-Relationship Model
Basic concepts, Design Issues, Mapping Constraints, Keys, Entity-Relationship Diagram, Weak Entity Sets, Extended E-R features.

Relational Model
Structure of relational Databases, Relational Algebra, Relational Calculus, Extended Relational Algebra Operations, Views, Modifications Of the Database.

SQL and Integrity Constraints
Concept of DDL, DML, DCL. Basic Structure, Set operations, Aggregate Functions, Null Values, Domain Constraints, Referential Integrity Constraints, assertions, views, Nested Subqueries, Database security application development using SQL,PL/SQL, Stored procedures and triggers, Cursors.

Relational Database Design
Functional Dependency, Different anamolies in designing a Database., Normalization using funtional dependencies, Decomposition, 1NF, 2NF, 3NF, Boyce-Codd Normal Form, Nomalization using multi-valued depedencies, 4NF, 5NF, 6NF.

Internals of RDBMS
Physical data structures, Query optimization : join algorithm, statistics and cost bas optimization. Transaction processing, Concurrency control and Recovery Management : transaction model properties, state serializability, lock based protocols, two phase locking, Deadlocks, Deadlock avoidance, Wait die & wound wait protocol.

File Organization & Index Structures
File & Record Concept, Placing file records on Disk, Fixed and Variable sized Records, Types of Single-Level Index (primary, secondary, clustering), Multilevel Indexes, Dynamic Multilevel Indexes using B tree and B+ tree .