CS630203 - DATABASE MANAGEMENT SYSTEMS					
Course Category: Programme Core	**Course Type: Theory**	**L**	**T**	**P**	**C**
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COURSE OBJECTIVES:

- To study the basic organization of a Database Management System.
- To study about Relational Database Management Structure
- To study about the design issues of a Database
- To study about transaction management of the database
- To study about various implementation techniques

UNIT 1: INTRODUCTION	**9**

Purpose of Database System - Files versus database systems – View of Data – Database Language - Database Architecture – Database users and administrators – History of Database
System - E-R model – Constraints- E-R Diagram

UNIT 2: RELATIONAL MODEL	**9**

Relational Model – Structure of Relational Databases – Relational Algebra Operations – Null Values – Modification of Relational Databases- SQL – Advanced SQL- Integrity Constraints
– Authorization – Embedded SQL – Dynamic SQL- The Tuple Relational Calculus – The Domain Relational Calculus - QBE – Triggers.

UNIT 3: DATABASE DESIGN	**9**

Functional Dependencies – Non-loss Decomposition – Functional Dependencies – 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 4: TRANSACTIONS	**9**

Transaction Concepts - Transaction Recovery – ACID Properties – System Recovery – Media Recovery – Two Phase Commit - Save Points – SQL Facilities for recovery – Concurrency – Need for Concurrency – Locking Protocols – Two Phase Locking – Intent Locking – Deadlock- Serializability – Recovery Isolation Levels – SQL Facilities for Concurrency.

UNIT 5: IMPLEMENTATION TECHNIQUES	**9**

Physical Storage Media – Magnetic Disks – RAID – Tertiary storage – File Organization – Organization of Records in Files – Indexing and Hashing –Ordered Indices – B+ tree Index Files – B tree Index Files – Static and Dynamic Hashing – Query Processing Overview – Catalog Information for Cost Estimation – Selection Operation – Sorting – Join Operation – Web Technology and DBMS – Web as a Database Application Platform

TOTAL: 45 PERIODS

COURSE OUTCOMES: At the end of the course, the student will be able to,
CO1: Understand the major objectives of database technology
CO2: Understand the relational model for databases
CO3: Design issues of Database
CO4: Identify the problems in Transaction
CO5:Analyze the issues involved in Implementation