

DATABASE MANAGEMENT SYSTEMS

Course Code	20EC4702D	Year	IV	Semester	I
Course Category	Program Elective-IV	Branch	ECE	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	--
Continuous Internal Evaluation	30	Semester End Evaluation	70	Total Marks	100

Course Outcomes	
Upon successful completion of the course, the student will be able to	
CO1	Understand the basic concepts of database management systems (L2)
CO2	Apply SQL to find solutions to a broad range of queries (L3).
CO3	Apply normalization techniques to improve database design (L3)
CO4	Analyze a given database application scenario to use ER model for conceptual design of the database

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)														
Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation														
* - Average value indicates course correlation strength with mapped PO														
COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2
CO1	2							2		2		2		
CO2	3				3			3		3		3	3	
CO3	2							2		2				
CO4		2						2		2				2
Average * (Rounded to nearest integer)														

Syllabus		
Unit No.	Contents	Mapped CO
I	Introduction to Databases: Characteristics of the Database Approach, Advantages of using the DBMS Approach, A Brief History of Database Applications. Overview of Database Languages and Architectures: Data Models, Schemas and Instances, Three-Schema Architecture and Data Independence, Database Languages and Interfaces, Database System environment, Centralized and Client-Server Architecture for DBMSs.	CO1
II	Relational Model: The Relational Model Concepts, Relational Model Constraints and Relational Database Schemas. SQL: Data Definition, Constraints, and Basic Queries and Updates, SQL: Advanced Queries, Assertions, Triggers, and Views	CO1, CO2

III	Conceptual Data Modeling: High-Level Conceptual Data Models for Database Design, A Sample Database Application, Entity Types, Entity Sets, Attributes and Keys, Relationship Types, Relationship Sets, Roles, and Structural Constraints, Weak Entity Types, Refining the ER Design, ER Diagrams, Naming Conventions and Design Issues, Relational Database Design Using ER-to-Relational Mapping.	CO1,CO3
IV	Database Design Theory: Functional Dependencies, Normal forms based on Primary Keys, Second and Third Normal Forms, Boyce-Codd Normal Form, Multi valued Dependencies and Fourth Normal Form,	CO1,CO4
V	Transaction Processing: Introduction, Transaction and System Concepts, Desirable Properties of Transactions, Characterizing Schedules Based on Recoverability & Serializability, Transaction Support in SQL. Introduction to Concurrency Control: Two-Phase Locking Techniques: Types of Locks and System Lock Tables, Guaranteeing Serializability by Two-Phase Locking.	CO1

Learning Resources	
Text Books	
<ol style="list-style-type: none"> 1. Ramez Elmasri, Shamkant B. Navathe, Database Systems Models, Languages, Design and Application Programming, 6th Ed., Pearson 2. Abraham Silberschatz, Henry F Korth, S. Sudarshan, Data base System Concepts, 5th Ed., McGraw Hill. 	
Reference Books	
<ol style="list-style-type: none"> 1. Raghurama Krishnan, Johannes Gehrke, Data base Management Systems, 3rd Ed., TMH. 2. C.J.Date, Introduction to Database Systems, 8th Ed. , Pearson 	
e- Resources & other digital material	
<ol style="list-style-type: none"> 1. https://nptel.ac.in/courses/106/105/106105175/ 2. https://onlinecourses.nptel.ac.in/noc21_cs04/ 3. https://nptel.ac.in/courses/106/106/106106093/ 	