DATABASE MANAGEMENT SYSTEMS

Course Code	20CS2702A	Year	IV	Semester	I
Course Category:	Open Elective	Offering Branch	CSE	Course Type	Theory
Credits:	3	L – T – P	3-0-0	Prerequisites:	Nil
Continuous 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 commands to find solutions for a given application	L3
CO3	Apply ER Modeling to design a database application	L3
CO4	Apply normalization techniques to improve database design.	L3

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2													
CO2	3								2	2			3	
CO3	3								2	2			3	
CO4		2							2	2			3	3

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 DBMS.	CO1

II	**Relational Model:** The Relational Model Concepts, Relational Model Constraints and Relational Database Schemas. **SQL:** Data Definition, Constraints, Basic Queries and Updates, Views (Virtual Tables) in SQL	**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. **ER-Diagrams:** Refining the ER Design, ER Diagrams, Naming Conventions and Design Issues	**CO3**
IV	**Database Design Theory**: Functional Dependencies, Normal forms based on Primary Keys, Second and Third Normal Forms, Boyce-Codd Normal Form.	**CO4**
V	**Transaction Processing**: Introduction, Transaction and System Concepts, Desirable Properties of Transactions. **Introduction to Protocols for Concurrency Controlling Databases:** Two-Phase Locking Techniques for Concurrency Control- Types of Locks and System Lock Tables.	**CO1**

Learning Resources
Textbooks
1.Database Systems Models, Languages, Design and Application Programming, Ramez Elmasri, Shamkant B.Navathe,6th Edition, Pearson.
References
1. Database Management Systems, Raghurama Krishnan,JohannesGehrke,3rdEdition,TMH. 2. Database System Concepts, Abraham Silberschatz, Henry FKorth,S.Sudarshan,5th Edition,McGrawHill.
e-Resources and other Digital Material
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/