SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous)

Narsapur, West Godavari District, A.P. 534280

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

TEACHING PLAN

Course Code	Course Title	Semester/ Regulation	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
23CS3T03	DATABASE MANAGEMENT SYSTEMS	II / (R23)	CSE-A,B,C,D,E	5	2024-2025	30-7-2024

COURSE OBJECTIVES

1	Introduce database management systems and to give a good formal foundation on the relational model of data and usage of Relational Algebra
2	Introduce the concepts of basic SQL as a universal Database language.
3	Demonstrate the principles behind systematic database design approaches by coveringconceptual design, logical design through normalization
4	Provide an overview of physical design of a database system, by discussing Database indexing techniques and storage techniques

COURSE OUTCOMES

1	Understand database systems, characteristics, architectures, and ER modeling.
2	Learn the relational model, constraints, and basic SQL operations
3	Perform advanced SQL queries and manage relational databases
4	Apply normalization techniques and understand functional dependencies
5	Grasp transaction properties, concurrency control, recovery, and indexing methods.

UNIT	Out Comes / Bloom's Level	Topics s No.	Topics/ Activity	Text Book/ Reference	Contact Hour	Delivery Method
			UNIT-I			
			INTRODUCTION			
I	CO1: Understand database systems, characteristics, architectures, and ER modeling.	1.1	Introduction to DBMS	T1,T2	1	Chalk ,talk
		1.2	Characteristics	T1,T2	1	Chalk ,talk
		1.3	Database Vs File System	T1,T2	1	Chalk ,talk
		1.4	Database Users	T1,T2	1	Chalk ,talk
		1.5	Advantages of Database systems	T1,T2	1	PPT
		1.6	Database applications	T1,T2	1	PPT

		1.7	Brief introduction of different Data Models	T1,T2	1	PPT
		1.8	Concepts of Schema	T1,T2	1	Chalk ,talk
		1.9	Instance and data independence	T1,T2	1	Chalk ,talk
		1.10	Three tierschema architecture for data independence	T1,T2	1	PPT
		1.11	Database system structure, Environment	T1,T2	1	Chalk ,talk
		1.12	Centralized and Client Server architecture for the database.	T1,T2	1	Chalk ,talk
			ENTITY RELATIONSHIP MODEL			
		1.13	Introduction to ER Model , Representation of entities	T1,T2	2	PPT
		1.14	attributes Entity set, relationship, relationship set, constraints, sub classes	T1,T2	1	Chalk ,talk
		1.15	super class, inheritance, specialization, generalization using ER Diagrams	T1,T2	1	PPT
				Total:	16	
			UNIT-II			
			RELATIONALMODEL			
II	**CO2:** Learn the relational model, constraints, and basic SQL operations	2.1	Introduction to relational model	T1,R2	1	Chalk ,talk
		2.2	concepts of domain, attribute, tuple, relation	T1,R2	1	Chalk ,talk
		2.3	importance of null values, constraints (Domain, Key constraints, integrity constraints) and their importance	T1,R2	2	Chalk ,talk
		2.4	Relational Algebra, Relational Calculus.	T1,R2	2	PPT
			BASIC SQL			
		2.5	Simple Database schema, data types	T1,R2	1	Chalk ,talk
		2.6	Table definitions (create, alter)	T1,R2	1	PPT
		2.7	Different DML operations (insert, delete, update)	T1,R2	1	PPT
				Total:	09	
			UNIT-III			

			SQL			
III	CO3: Perform advanced SQL queries and manage relational databases	3.1	Basic SQL querying (select and project) using where clause, arithmetic & logical operations	T1,R2	2	Chalk ,talk
		3.2	SQL functions(Date and Time, Numeric, String conversion).	T1,R2	2	PPT
		3.3	Creating tables with relationship	T1,R2	1	Chalk ,talk
		3.4	implementation of key and integrity constraints	T1,R2	1	PPT
		3.5	Nested queries, sub queries, grouping,	T1,R2	2	Chalk ,talk
		3.6	aggregation, ordering	T1,R2	1	Chalk ,talk
		3.7	Implementation of different types of joins	T1,R2	1	Chalk ,talk
		3.8	View(updatable and non-updatable)	T1,R2	1	Chalk ,talk
		3.9	Relational set operations	T1,T2	1	PPT
				Total	12	
			UNIT-IV			
			SCHEMA REFINEMENT			
IV	CO4: Apply normalization techniques and understand functional dependencies	4.1	Normalization	T1,R2	2	Chalk ,talk
		4.2	Purpose of Normalization or schema refinement	T1,R2	2	Chalk ,talk
		4.3	concept of functional dependency, normal forms based on functional dependency Lossless join and dependency preserving decomposition, (1NF, 2NF and 3 NF)	T1,R2	3	PPT, Video
		4.4	concept of surrogate key, Boyce-Codd normal form(BCNF)	T1,R2	2	Chalk ,talk
		4.5	MVD, Fourth normal form(4NF), Fifth Normal Form (5NF).	T1,R2	3	Chalk ,talk
			Total		12	
			UNIT-V			
			TRANSACTION CONCEPT			
V	CO5:	5.1	Transaction State, ACID properties	T1,T2	2	Chalk,talk

	Grasp transaction properties, concurrency control, recovery, and indexing methods.	5.2	Concurrent Executions, Serializability, Recoverability	T1,T2	2	Chalk ,talk
		5.3	Implementation of Isolation, Testing for Serializability	T1,T2	2	Chalk ,talk
		5.4	lock based, time stamp based, optimistic, concurrency protocols	T1,T2	2	Chalk ,talk
		5.5	Deadlocks, Failure Classification, Storage	T1,T2	2	Chalk ,talk
		5.6	Recovery and Atomicity, Recovery algorithm.	T1,T2	2	Chalk ,talk
			INTRODUCTION TO INDEXING TECHNIQUES			
		5.7	B+ Trees, operations on B+ Trees	T1,T2	2	Video
		5.8	Hash Based Indexing	T1,T2	2	Chalk ,talk
				Total	**16**	
				CUMULATIVE PROPOSED PERIODS	**65**	

Text Books:

S.No	AUTHORS,BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Database Management Systems, 3rd edition, Raghurama Krishnan, Johannes Gehrke, TMH (For Chapters 2, 3, 4)
2	Database System Concepts,7th edition, Silberschatz, Korth, Sudarsan,TMH (For Chapter 1& 5)

Reference Books:

S.No.	AUTHORS,BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Introduction to Database Systems, 8thedition, C J Date, Pearson.
2	Database Management System, 7th edition, RamezElmasri, Shamkant B. Navathe, Pearson
3	Database Principles Fundamentals of Design Implementation and Management, Corlos Coronel, Steven Morris Peter Robb, Cengage Learning.

Web Details:

https://nptel.ac.in/courses/106/105/106105175/
https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_0127580666728202 2456_shared/overview

		Name	Signature with Date
01.	Faculty-1	Mr. K.Ch.S.Prabhakar	
02.	Faculty-2	Mrs.V.Srilakshmi	
03.	Faculty-3	Mrs.K.Sirisha	
04.	Course Coordinator	Mr. N. Tulasi Raju	
05.	Module Coordinator	Mr.K.Rajesh Kumar	
06.	Programme Coordinator	Dr. P. Srinivasulu	

Principal