



SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous)

Narsapur, West Godavari District, A.P. 534280

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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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

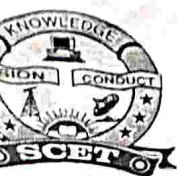
COURSE OBJECTIVES

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 covering conceptual 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 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



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		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				
		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				
	II CO2: Learn the relational model, constraints, and basic SQL operations	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				

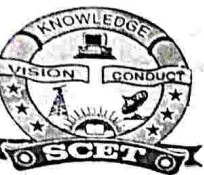


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			SQL			
III	CO3: Perform advanced SQL queries and manage relational databases	3.1	Basic SQL querying (select and project) using where clause, arithmetic & logical operations	T1,R2	2	Chalk ,talk
		3.2	SQL functions(Date and Time, Numeric, String conversion).	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



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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, 3 rd edition, Raghurama Krishnan, Johannes Gehrke, TMH (For Chapters 2, 3, 4)
2	Database System Concepts, 7 th 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, 8 th edition, C J Date, Pearson.
2	Database Management System, 7 th 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



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


Principal