SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by
NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING & DATA SCIENCE
TEACHING PLAN

Course Code	Course Title	Semester/ Regulation	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
23CS3T03	DATABASE MANAGEMENT SYSTEM	II / (R23)	CSE&DS	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
I	CO – 1	1.1	Introduction to DBMS	T1, T2	2	Chalk, talk
		1.2	Characteristics	T1, T2	1	Chalk, talk
		1.3	Database Vs File System	T1, T2	2	Chalk, talk
		1.4	Database Users	T1, T2	1	Chalk, talk

SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by
NAAC with "A" Grade – 3.32 CGPA Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W G DT., Narsapur-534280, (Andhra Pradesh)

		1.5	Advantages of Database systems	T1, T2	1	Chalk, talk
		1.6	Database applications	T1, T2	1	Chalk, talk
		1.7	Brief introduction of different Data Models	T1, T2	2	Chalk, talk
		1.8	Concepts of Schema	T1, T2	2	Chalk, talk
		1.9	Instance and data independence	T1, T2	1	Chalk, talk
		1.10	Three tierschema architecture for data independence	T1, T2	2	Chalk, talk
		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
		1.13	Introduction to ER Model Representation of entities	T1, T2	2	Chalk, talk
		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	Chalk, talk
Total:					21	
		2.1	Introduction to relational model	T1, R2	1	Chalk, talk
		2.2	concepts of domain, attribute, tuple, relation,	T1, R2	2	Chalk, talk
		2.3	importance of null values, constraints (Domain, Key constraints, integrity constraints) and their importance,	T1, R2	3	Chalk, talk
		2.4	Relational Algebra, Relational Calculus.	T1, R2	2	Chalk, talk
II	CO – 2	2.5	BASIC SQL: Simple Database schema, data types	T1, R2	2	Chalk, talk
		2.6	Table definitions (create, alter),	T1, R2	1	Chalk, talk
		2.7	Different DML operations (insert, delete, update)	T1, R2	1	Chalk, talk
				Total:	12	
III	CO – 3	3.1	Basic SQL querying (select and project)	T1, R2	2	chalk, talk

2

SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by
NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

			using where clause, arithmetic & logical operations,			Chalk, talk
		3.2	SQL functions(Date and Time, Numeric, String conversion).	T1, R2	2	Chalk, talk
		3.3	Creating tables with relationship	T1, R2	2	Chalk, talk
		3.4	implementation of key and integrity constraints	T1, R2	2	Chalk, talk
		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	Chalk, talk
				Total	14	
IV	CO – 4	4.1	Schema Refinement	T1, R2	2	Chalk, talk
		4.2	(Normalization): 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	Chalk, talk
		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	
V	CO-5	5.1	Transaction Concept: Transaction State, ACID properties,	T1, T2	2	Chalk, talk
		5.2	Concurrent Executions, Serializability, Recoverability	T1, T2	2	Chalk, talk
		5.3	, Implementation of Isolation, Testing for Serializability,	T1, T2	2	Chalk, talk

SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)
Accredited by National Board of Accreditation, AICTE, New Delhi,Accredited by
NAAC with "A" Grade – 3.32 CGPA,Recognized under 2(f) & 12(B) of UGC Act 1956,
Approved by AICTE, New Delhi,Permanent Affiliation to JNTUK, Kakinada
Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

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
5.7	Introduction to Indexing Techniques: B+ Trees, operations on B+Trees,	T1, T2	2	Chalk, talk
5.8	Hash Based Indexing	T1, T2	2	Chalk, talk
		Total	**16**	
	CUMULATIVE PROPOSED PERIODS		**71**	

Text Books:

S. No	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Raghurama Krishnan, Johannes Gehrke, TMH (For Chapters 2, 3, 4), Database Management Systems,3RD Edition,2002.
2	Silberschatz, Korth, Sudarsan, TMH (For Chapter 1& 5) Database System Concepts, McGraw_Hill Education 5th edition,2005.

Reference Books:

S. No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	C J Date, Introduction to Database Systems,8thedition, Pearson 2006.
2	Ramez Elmasri, Shamkant B. Navathe, Database Management System, 6th edition Pearson,2010.

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
i.	Faculty	P. PRASANNA	
ii.	Course Coordinator	Dr. G.SUDHAKAR.	
iii.	Module Coordinator	V.SUBRAMANYAM	
iv.	Programme Coordinator	Dr. B. RAMA KRISHNA	

Principal