

MOHAMMED SATHAK A J COLLEGE OF ENGINEERING

Siruseri IT park, OMR, Chennai - 603103

LESSON PLAN								
Department of Information Technology								
Name of the Subject	Database Management Systems			Name of the handling Faculty	Ms. Uma Maheswari			
Subject Code	CS8492			Year / Sem	II/IV			
Acad Year	2021-2022			Batch	2020-2024			
Course Objective								
To expose the students to the fundamentals of Database Management Systems using ER diagrams.								
To study SQL and relational database design								
To understand the internal storage structures using different file and indexing techniques which will help in physical DB design								
To understand the fundamental concepts of transaction processing concurrency control techniques and recovery procedures								
To make the students to understand the fundamentals of Transaction Processing and Query Processing.								
Course Outcome								
CO1: Design Databases for applications.								
CO2:Explain the Relational model and ER diagrams for various applications.								
CO3:Write queries using normalization criteria and optimize queries.								
CO4:Compare and contrast various indexing strategies in different database systems								
CO5:Appraise how advanced databases differ from traditional databases								
Lesson Plan								
Sl. No.	Topic(s)	T / R*	Periods Required	Mode of Teaching (BB / PPT / NPTEL / MOOC / etc)	Blooms Level L6)	(L1-	CO	PO
		Book						
UNIT I RELATIONAL DATABASES								
1	Purpose of Databse System, Views of Data	T1	1	BB	L1		CO1	PO1
2	Data Models	T1	1	BB	L2		CO1	PO1
3	Database System Architecture	T1	1	BB	L1		CO1	PO1
4	Introduction to Relational Databases	T1	1	BB	L1		CO1	PO1
5	Relational Model	T1/W1	1	BB	L2		CO1	PO1
6	keys	T1/W1	1	BB	L1		CO1	PO1
7	Relational Algebra	T1/W1	1	BB	L2		CO1	PO1
8	SQL Fundamentals	T1/W1	1	BB	L3		CO1	PO1
9	Advanced SQL features	T1/W1	1	BB	L3		CO1	PO2
10	Embedded SQL and Dynamic SQL	T1	1	BB	L2		CO1	PO2
Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if any								
Evaluation method: Assignments and direct Interaction during intervals								
UNIT II DATABASE DESIGN								
11	Entity Relationship Model, E-R diagrams	T1	1	PPT/BB	L2		CO2	PO1,5&6

12	Enhanced E-R model	T1	1	PPT/BB	L2	CO2	PO1,5&6
13	ER- Relational Mapping	T1	1	PPT/BB	L3	CO2	PO1,5&6
14	Functional Dependencies, Non-loss Decomposition	T1	1	PPT/BB	L3	CO2	PO1,5&6
15	First Second Third Normal Forms	T1/W1	1	PPT/BB	L2	CO2	PO1,5&6
16	Dependency Preserving, BCNF	T1	1	PPT/BB	L2	CO2	PO1,5&6
17	Multivalued Dependencies and Fourth Normal Form	T1	1	PPT/BB	L3	CO2	PO1,5&6
18	Join Dependencies and Fifth Normal Form	T1	1	PPT/BB	L2	CO2	PO1,5&6

Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if any :quiz

Evaluation method: Mark based

UNIT III TRANSACTIONS

19	Transaction Concepts, ACID properties	T1	1	BB	L2	CO3	PO1
20	Schedules	T1	1	BB	L2	CO3	PO2
21	Serializability	T1/W1	2	BB	L1	CO3	PO3
22	Concurrency Control , Need for Concurrency	T1	1	BB	L2	CO3	PO3
23	Locking Mechanisms, Two phase Locking	T1	1	BB	L2	CO3	PO3
24	Dead lock, Transaction Recovery	T1/W1	1	BB	L2	CO3	PO3
25	Save points Isolation Levels	T1	1	BB	L2	CO3	PO3
26	SQL Facilities for Concurrency and Recovery	T1	1	BB	L2	CO3	PO3

Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if any: Assignment

Evaluation method: Mark based

UNIT IV IMPLEMENTATION TECHNIQUES

27	RAID, File Organization	T1	1	BB	L2	CO4	PO1
28	Organization of Records in Files	T1	1	BB	L2	CO4	PO2
29	Indexing and Hashing, Ordered Indices	T1/W1	1	BB	L2	CO4	PO1
30	B+ tree Index Files , B tree Index Files	T1	1	BB	L2	CO4	PO3
31	Static Hashing , Dynamic Hashing	T1	1	BB	L3	CO4	PO1,5&6
32	Dynamic Hashing	T1	1	BB	L3	CO4	PO3
33	Query processing overview	T1	1	BB	L2	CO4	PO3
34	Algorithm for SELECT and JOIN operations	T1	1	BB	L2	CO4	PO1,5&6
35	Quer optimization using Heuristics and Cost Estimation	T1	1	BB	L2	CO4	PO1,5&6

Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if any : Quiz

Evaluation method: Mark based

UNIT V ADVANCED TOPIC

37	Distributed Databases,Architecture, Data Storage	T1	1	PPT/BB	L2	CO5	PO1
38	Transaction Processing	T1	1	PPT/BB	L2	CO5	PO2
39	Object based Database: Object Database Cocepts	T1/W1	1	PPT/BB	L2	CO5	PO2
40	Object Relational Features ODMG Object Model	T1	1	PPT/BB	L2	CO5	PO2
41	ODL,OQL	T1	1	PPT/BB	L2	CO5	PO1,5&6
42	XML Databases:XML Heirarichal Model, DTD, XML Schema	T1	1	PPT/BB	L4	CO5	PO1
43	XQuery,Information Retrieval	T1	2	PPT/BB	L4	CO5	PO2
44	IR Concepts	R1	1	PPT/BB	L2	CO5	PO2
45	Retrieval Models , Queries in IR Systems.	T1/R1	1	PPT/BB	L2	CO5	PO1,5&6

Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if any 1. Assignments on XML Databases

Evaluation method:

Content Beyond the Syllabus Planned

1	JDBC connectivity using databases.
2	Data Warehouse and Data Mining

Text Books

1	Ramez Elmasri and ShamKant B. Navathe, "Fundamentals of Database Systems", Sixth edition, Pearsons education, 2011.
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Reference Books

1	Abraham Silberschatz, Henry F. Korth and S. Sudharshan, "Database System Concepts", Sixth Edition, Tata Mc Graw Hill, 2011.
2	C.J.Date, A.Kannan and S.Swamynathan, "An Introduction to Database Systems", Eighth Edition, Pearson Education, 2006.
3	Atul Kahate, "Introduction to Database Management Systems", Pearson Education, New Delhi, 2006.
4	Alexis Leon and Mathews Leon, "Database Management Systems", Vikas Publishing House Private Limited, New Delhi, 2003.
5	Raghu Ramakrishnan, "Database Management Systems", Fourth Edition, Tata Mc Graw Hill, 2010.

Website / URL References

1	https://www.brainkart.com/subject/Database-Management-Systems_181/
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Blooms Level

Level 1 (L1) : Remembering Level 2 (L2) : Understanding Level 3 (L3) : Applying	Lower Order Thinking	Fixed Hour Exams	Level 4 (L4) : Analysing		Higher Order Thinking	Projects / Mini Projects
			Level 5 (L5) : Evaluating			
			Level 6 (L6) : Creating			

Mapping syllabus with Bloom's Taxonomy LOT and HOT

Unit No	Unit Name	L1	L2	L3	L4	L5	L6	LOT	HOT	Total
Unit 1	RELATIONAL DATABASES	4	4	2	0	0	0	10	0	10
Unit 2	DATABASE DESIGN	0	5	3	0	0	0	8	0	8
Unit 3	TRANSACTIONS	1	7	0	0	0	0	8	0	8
Unit 4	IMPLEMENTATION TECHNIQUES	0	8	2	0	0	0	10	0	10
Unit 5	ADVANCED TOPICS	0	7	0	2	0	0	7	2	9
Total		5	31	7	2	0	0	43	2	45
Total Percentage		11.1111	68.8889	15.5556	4.44444	0	0	95.55556	4.44444	100

CO PO Mapping														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	–	2	1	–	1	–	–	–	–	3	2
CO2	3	2	2	–	2	1	–	1	–	–	–	–	3	2
CO3	3	2	2	–	2	1	–	1	–	–	–	–	3	2
CO4	3	2	2	–	2	1	–	1	–	–	–	–	3	2
CO5	3	2	2	–	2	1	–	1	–	–	–	–	3	2
Avg	3	2	2	–	2	1	–	1	–	–	–	–	3	2
Justifications for CO-PO Mapping														
CO1	Design Databases for applications.													
CO2	Explain the Relational model and ER diagrams for various applications.													
CO3	Write queries using normalization criteria and optimize queries.													
CO4	Compare and contrast various indexing strategies in different database systems													
CO5	Appraise how advanced databases differ from traditional databases													
3	High level				2		Moderate level			1		Low level		
Name & Sign of Faculty Incharge :														
Name & Sign of Subject Expert :														
Head of the Department : IT														
Format No :231														