

1. Name of the Faculty: **Dr. Neeraj Chugh**
2. Course : Advance Database Management Systems
3. Program : B.Tech (CSE)- **CCVT**
4. Target : Level-2

Course Code: CSEG2005
 L: 3
 T: 0
 P: 0
 C: 3

UNIT-I

Lecture No.	Topics to be Covered	CO Mapped
1	Database & Database users and basics of SQL, characteristics and advantages of the database, Database systems, concepts and architecture	CO1
2	Data models, schemas & instances, Codd's Rule	CO1
3	Three-Schema architecture & data independence	CO1
4	Database languages & interfaces, Centralized and Client/Server Architecture of DBMS	CO1
5	Classification of DBMS	CO1
6	ER Diagrams	CO1
7	EER Diagrams	CO1
8	Mapping of ER and EER Model to Relations	CO1

UNIT-II

Lecture No.	Topics to be Covered	CO Mapped
9	Relational model Concepts, Relational model constraint & relational database schemas, transactions, and dealing with constraint Violation,	CO3
10	DBMS Keys	CO3
11	Relational Algebra, Unary relational operation, Binary relational operations and, relational algebra operations from set Theory	CO3
12	Relational Calculus; and implementation in SQL	CO3
13	Informal Design guideline for relational Schemas, Functional Dependencies, Normal forms based on primary keys, (1NF, 2NF, 3NF & BCNF)	CO3, CO4
14	lossless join and dependency preserving decomposition, Multivalued dependencies (4NF, 5NF), domain key normal form	CO3, CO4

UNIT-III

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Lecture No.	Topics to be Covered	CO Mapped
15	DBMS Instance, DBMS Internal Memory Structure, Background Processes, Data Types, Roles & Privileges	CO3
16	Introduction to Query Processing	CO3
17	Translating SQL Queries into Relational Algebra	CO3
18	Translating Relational Algebra into SQL Queries	CO3
19	Algorithms for External Sorting	CO3
20	Algorithms for SELECT and JOIN Operations	CO3
21	Algorithms for PROJECT and SET Operations	CO3
22	Implementing Aggregate Operations and Outer Joins	CO3

UNIT-IV

Lecture No.	Topics to be Covered	CO Mapped
23	Introduction, Secondary Storage Devices, Buffering of Blocks and Placing File Records on Disk, Operations on Files	CO2
24	Heap Files, Sorted Files	CO2
25	Hashing Techniques	CO2
26	Parallelizing Disk Access using RAID Technology	CO2
27	Secondary Access Paths, Types of Single-Level Ordered Indexes	CO2
28	Multilevel Indexes, Dynamic Multilevel Indexes Using B-Trees and B+ Trees	CO2
29	Indexes on Multiple Keys	CO2

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UNIT-V

Lecture No.	Topics to be Covered	CO Mapped
30	Introduction to Transaction Processing, Transaction and System Concepts	CO5
31	Desirable Properties of Transactions	CO5
32	Characterizing Schedules based on Recoverability	CO5
33	Characterizing Schedules based on Serializability	CO5
34	Introduction to Concurrency Control	CO5
35	Two Phase Locking Techniques	CO5
36	Concurrency Control on Timestamp Ordering	CO5
37	Validation Concurrency Control Techniques	CO5
38	Granularity of Data items	CO5
39	Multiple Granularity Locking, Recovery Concepts, Recovery Techniques Based on Deferred and Immediate Update	CO5
40	Shadow Paging	CO5

UNIT-VI

Lecture No.	Topics to be Covered	CO Mapped
41	Overview of Object-Oriented Concepts, Object Model of ODMG, Object Definition Language, Object Query Language	CO6
42	Object Database Conceptual Design, Distributed Database Concepts	CO6
43	Data Fragmentation, Replication and Allocation Techniques for Distributed Design	CO6
44	Types of Distributed Database Systems	CO6
45	Query Processing in Distributed Databases, Overview of Concurrency Control and recovery techniques in Distributed Databases	CO6

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*Green highlighted lectures are in asynchronous mode.

ASYNCHRONOUS SESSION PLAN

Session Plan		
Lect.	Topics to be Covered	CO-Mapped
1	Centralized and Client/Server Architecture of DBMS	CO1
2	Classification of DBMS	CO1
3	EER Diagrams	CO1
4	Multivalued dependencies (4NF, 5NF), domain key normal form	CO3,CO4
5	DBMS Instance, DBMS Internal Memory Structure, Background Processes, Data Types, Roles & Privileges	CO3
6	Algorithms for PROJECT and SET Operations	CO3
7	Implementing Aggregate Operations and Outer Joins	CO3
8	Hashing Techniques	CO2
9	Parallelizing Disk Access using RAID Technology	CO2
10	Indexes on Multiple Keys	CO2
11	Multiple Granularity Locking, Recovery Concepts, Recovery Techniques Based on Deferred and Immediate Update	CO5
12	Shadow Paging	CO5
13	Overview of Object-Oriented Concepts, Object Model of ODMG, Object Definition Language, Object Query Language	CO6
14	Types of Distributed Database Systems	CO6
15	Query Processing in Distributed Databases, Overview of Concurrency Control and recovery techniques in Distributed Databases	CO6

Signature of Faculty

Date: