DPG Institute of Technology and Management
Sector 34, Gurugram HR 122004

Lesson Plan

Course Name: DBMS

Faculty Name: Dr. Poonam Sharma

No. of Lecture Hours/Week	**3**	**Exam Hours**	**3**
Total No. of Lecture Hours	**36**	**Exam Marks**	**75**
Course Code:	**PEC-CSE-201G**		

Course Objectives:

1. To understand the different issues involved in the design and implementation of a database system.
2. To study the physical and logical database designs, database modeling, relational, hierarchical, and network models
3. To understand and use data manipulation language to query, update, and manage a database.
4. To develop an understanding of essential DBMS concepts such as: database security, integrity, concurrency, distributed database, and intelligent database, Client/Server (Database Server), Data Warehousing.
5. To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

Lecture No	Topics to be covered	Teaching Methodology / Pedagogy	Activity	Remarks
SECTION A(Unit-1)(CO 201.3.1)				
1	Introduction to Database and DBMS	Chalk &Talk	Group discussion	
2	Three schema architecture	Chalk &Talk	Home assignment	
3	Database languages	Chalk &Talk	Do lab experiments on various type of commands	
4	Data models	Chalk &Talk	Discuss how models can be applied in real life	
5	Data models and their pros and cons	Chalk &Talk	Group discussions	
6	Introduction to Database and DBMS	Chalk &Talk	Quiz	
7	Three schema architecture	Chalk &Talk	Home assignment	
8	Database languages	Chalk &Talk	Tutorial sheet	
SECTION B(Unit-2)(CO 201.3.2 and CO 201.3.3)				
9	Integrated constraints		Quiz	
10	Data operators	Chalk &Talk	Home assignment	
11	Relational algebra basic operations	Chalk &Talk	Tutorail sheet	
12	Relational algebra advanced operations	Chalk &Talk	Home assignment	

13	Domain relational caculus	Chalk &Talk	Home assignment	
14	E R diagrams	Chalk &Talk	Case study	
15	E R diagram practice	Chalk &Talk	Case study: Retail management	
16	Functional dependency	Chalk &Talk	Case study	
17	Normal forms (1NF, 2 NF, 3NF)	Chalk &Talk	Text/ reference material	
18	Normalization practice problems		Examples	
19	Revision for sessional 1		Text/ reference material	
20	Query processing and optimization		Group discussion	
SECTION (Unit-3)(CO 201.3.4)				
21	Indexes and hashing	Chalk &Talk	Home assignment	
22	B trees and B+ trees for designing databases	Chalk &Talk	Home assignment	
23	**Trasactions and ACID properties**	Chalk &Talk	Group discussion	
24	Transaction life cycle	Chalk &Talk	Quiz	
25	Concurrency control	Chalk &Talk	Text/ reference material	
26	2 Phase locking protocols	Chalk &Talk	Text/ reference material	
27	Time stamp based protocols	Chalk &Talk	Text/ reference material	
28	Deadlock and recovery	Chalk &Talk	Text/ reference material	
SECTION D(Unit-4)(CO 201.3.5)				
29	security in databases	Chalk &Talk	Text/ reference material	
30	Distributed databases	Chalk &Talk	Text/ reference material	
31	Authorization and access control	Chalk &Talk	Text/ reference material	
32	Data ware house and data mining	Chalk &Talk	Text/ reference material	
33	Web databases	Chalk,Talk & NPTEL Video	Text/ reference material	
34	Revision	Chalk,Talk & NPTEL Video	Quiz	
35	Revision	Chalk,Talk & NPTEL Video	Text/ reference material	

Suggested Text / Reference Books

Text books:

1. "Fundamentals of Database systems", Elmsari Navathe.

Reference books

1. "An Introduction to Database systems", C.J. Date, A.Kannan.
2. "Database systems", 2nd Impression Korth, Pearson Education.

Course Outcomes:

At the end of the course, the student will be able:

C201.3.1 Understand and write relational algebra expressions for that query and optimize the developed expressions

C201.3.2 Design the databases using E R method and normalization.

C201.3.3 Construct the SQL queries for Open source and Commercial DBMS -MYSQL, ORACLE, and DB2.

C201.3.4 query optimization and execution using Query optimization algorithms

C201.3.5 D e termine the transaction atomicity, consistency, isolation, and durability.

C201.3.6 Implement the isolation property, including locking, time stamping based on concurrency control and Serializability of scheduling.

CO-PO-PSO Mapping:

CO Statement	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
C201.3.1	2	1	1		1	1	0	1	1	2	2	1		2	1
C201.3.2	2	2	3	2	3	2	1	2	2	2	3	2	1	3	2
C201.3.3	2	2	2	1	2	2	1	2	2	2	2	2	2	2	3
C201.3.4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
C201.3.5	2	1	2		2	1	1	1	1	2	2	1	1	2	2
C201.3.6	2	3	2	2	2	1		1	2	2	1	2	1	1	1

Signature of Staff In-charge

Signature of HOD