

## Lesson Plan

**Name of the Faculty** : MS. Bharti(Ass. PROFESSOR)

**Discipline** : MCA

**Semester** : 3rd

**Subject** : Database Management Systems

(MCA-503)( MCA-523)

**Lesson Plan Duration** : 15 weeks (from july, 2018 to november 2018)

**Work Load (Lecture/Practical) per week (in hours):**Lecture: 3 practical:2

Week	Theory		Practical	
	Lecture Day	Topic(including Assignment/Test)	Practical Day	Topic
1st	1 <sup>st</sup>	DBMS an overview, Advantages of DBMS	1 <sup>st</sup>	Introduction to SQL
	2 <sup>nd</sup>	Network, Hierarchical Model	2 <sup>nd</sup>	create database, create table, use , drop, insert
	3 <sup>rd</sup>	Relational Model		
	T1	Tutorial---review of lectures		
2nd	4 <sup>th</sup>	Levels of abstraction, Data Independence,	3 <sup>rd</sup>	Create a database named 'Employee'.
	5 <sup>th</sup>	Data Models	4 <sup>th</sup>	Use the database 'Employee' and create a table 'Emp' with attributes'ename', 'ecity', 'salary', 'enumber', 'eaddress', 'depttname'.
	6 <sup>th</sup>	Assignment on above topics/ Test 1		
	T2	Tutorial---problem/review of lectures		
3rd	7 <sup>th</sup>	Instances and schemes, Data independence	5 <sup>th</sup>	Create another table 'Company' with attributes'cname', 'ccity', 'numberofemp', 'empnumber'in the database 'Employee'.
	8 <sup>th</sup>	Structures of a DBMS	6 <sup>th</sup>	To study the viewing commands (select , update)  Find the names of all employees who live in Delhi.  Increase the salary of all
	T3	Tutorial---problem/review of lectures		

				employees by Rs. 5,000.
	9 <sup>th</sup>	Application Programmers & Data Base administrators – their function		
4th	10 <sup>th</sup>	Entities, Attributes and Entity Sets, Relation and Relationships sets	7 <sup>th</sup>	Find the company names where the number of employees is greater than 10,000.  Change the Company City to Gurgaon where the Company name is 'TCS'.
	11 <sup>th</sup>	mapping and participation constraints, Aggregation	8 <sup>th</sup>	To study the commands to modify the structure of table (alter, delete) execute the following queries 1>Add an attribute named 'Designation' to the table 'Emp'.2>Modify the table 'Emp', Change the datatype of 'salary' attribute to float.
	12 <sup>th</sup>	Assignment on above topics/ Test 2		
	T4	Tutorial--- problem/review of lectures		
5th	13 <sup>th</sup>	Specialization and Generalization, Features of E-R Model.	9 <sup>th</sup>	3>Drop the attribute 'deptname' from the table 'emp'.4>Delete the entries from the table 'Company' where the number of employees are less than 500.
	14 <sup>th</sup>	Introduction to relational model, Integrity constraints over relations	10 <sup>th</sup>	To study the commands that involve compound conditions (and, or, in, not in, between, Not between, like, not like) and execute the following queries  1>Find the names of all employees who live in 'Gurgaon' and whose salary is between Rs.20,000 and Rs. 30,000.2>Find the names of all employees whose names begin with either letter 'A' or 'B'.
	15 <sup>th</sup>	Enforcing Data Integrity, Integrity Constraints		

				3>Find the company names where the company city is 'Delhi' and the number of employees is not between 5000 and 10,000.4>Find the names of all companies that do not end with letter 'A'.
	T5	Tutorial--- problem/review of lectures		
6th	16 <sup>th</sup>	Relational Data, Logical Data Base Design,	11 <sup>th</sup>	To study the aggregate functions (sum, count, max, min, average) and execute the following queries:  1>Find the sum and average of salaries of all employees in computer science department.2>Find the number of all employees in company 'TCS'.3>Find the maximum and the minimum salary in the HR department.
	17 <sup>th</sup>	Reduction of E-R Diagrams to relations, Introduction to views	12 <sup>th</sup>	To study the grouping commands (group by, order by) and execute the following queries:  1>List all employee names in descending order.2>Find number of employees in each department where number of employees is greater than 5.3>List all the department names where average salary of a department is Rs.10,000.
	18 <sup>th</sup>	Assignment on above topics/ Test 3		
7th	19 <sup>th</sup>	Querying Relational Algebra and Relational Calculus	13 <sup>th</sup>	To study the commands involving data constraints and execute the following queries :  1> Alter table 'Emp' and make 'enumber' as the primary key.2>Alter table 'Company' and add the foreign key constraint
	20 <sup>th</sup>	Operations on Relational Algebra, Operations on Relational Calculus	14 <sup>th</sup>	3>Add a check constraint in the table 'Emp' such that salary has the value between 0 and

	21 <sup>st</sup>	Tuple Relational Calculus		Rs.1,00,000.
	T6	Domain Relational Calculus		
8th	22 <sup>nd</sup>	Tutorial--- problem/review of lectures	15 <sup>th</sup>	To study the commands for aliasing and renaming and execute the following queries using these commands:  1>Rename the name of database to 'Employee1'.
	23 <sup>rd</sup>	Database Design, Data Redundancy	16 <sup>th</sup>	2>Rename the name of table 'Emp' to 'Emp1'.
	24 <sup>th</sup>	Assignment on above topics/ Test 4		3> Change the name of the attribute 'ename' to 'empname'.
	T7	Tutorial--- problem/review of lectures		
9th	25 <sup>th</sup>	Introduction to Schema Refinement, Functional Dependencies	17 <sup>th</sup>	To study the commands for joins ( cross join, inner join, outer join) and execute the Following queries using these commands:  1> Retrieve the complete record of an employee and its company from both the table using joins.  2> List all the employees working in the company 'TCS'.
	26 <sup>th</sup>	Normal Forms-First , Second, Third	18 <sup>th</sup>	To study the various set operations and execute the following queries using these commands:
	27 <sup>th</sup>	Boyce code, Fourth and Multivalued Dependencies		1>List the enumber of all employees who live in Delhi and whose company is in Gurgaon or if both conditions are true.
	T8	Tutorial--- problem/review of lectures		
10th	28 <sup>th</sup>	Basic SQL Queries	19 <sup>th</sup>	2>List the enumber of all employees who live in Delhi but whose company is not in Gurgaon.
	29 <sup>th</sup>	Nested Queries	20 <sup>th</sup>	To study the various scalar

	30 <sup>th</sup>	Assignment on above topics/ Test5		functions and string functions ( power, square, substring, reverse, upper, lower, concatenation)
	T9	Tutorial--- problem/review of lectures		
11th	31 <sup>st</sup>	Aggregate operator, Null Values	21 <sup>st</sup>	1>Reverse the names of all employees.  2>Change the names of company cities to uppercase.  3> Concatenate name and city of the employee.
	32 <sup>nd</sup>	implementation of Various Relational Algebra operations	22 <sup>nd</sup>	To study the commands for views
	33 <sup>rd</sup>	implementation of Various Relational Algebra operations		
	T10	Tutorial--- problem/review of lectures		
12th	34 <sup>th</sup>	Embedded SQL	23 <sup>rd</sup>	execute the following queries using these commands: 1>Create a view having ename and ecity.2> In the above view change the ecity to 'Delhi' where ename is 'John'.
	35 <sup>th</sup>	ACID Properties	24 <sup>th</sup>	3>Create a view having attributes from both the tables.4> Update the above view and increase the salary of all employees of IT department by Rs.1000.
	36 <sup>th</sup>	Transaction states		
	T11	Tutorial--- problem/review of lectures		
13th	37 <sup>th</sup>	Concurrency Control – Overview, Concurrency control problems	25 <sup>th</sup>	Study of Integrity Constraints in SQL.
	38 <sup>th</sup>	Locks, Locking Protocols, Deadlocks, Serializability	26 <sup>th</sup>	Study of Integrity Constraints in SQL.
	39 <sup>th</sup>	Assignment on above topics/ Test6		
	T12	Tutorial---problem/ review of lectures		
14th	40 <sup>th</sup>	HTTP, URL registration,	27 <sup>th</sup>	Study of Use of Group By and

		browsers		Having Clause.
	41 <sup>st</sup>	Types of Failures	28 <sup>th</sup>	Study of various types of Views.
	42 <sup>nd</sup>	Recovery Techniques, ARIES		
15th	43 <sup>rd</sup>	Problem session	29 <sup>th</sup>	Study of Indexes in SQL.
	44 <sup>th</sup>	Problem session	30 <sup>th</sup>	Study of Aggregate Functions in SQL.
	45 <sup>th</sup>	Problem session		

#### IMPORTANT DATES (KEY DATES)

(Ms.Bharti)

Ass. PROFESSOR