

Course Title: Database Management Systems Laboratory	Course Code: 20CS57L
Credits: 1.5	Contact Hours (L: T: P): 0:0:39
Type of Course: Practical	Category: Professional Core Course
CIE Marks: 50	SEE Marks: 50

Pre-requisite: Data Structures

Course Objectives: The course should enable the students to:

Sl. No.	Course Objectives
1	Learn to design entity relationship and relational models for given user requirements.
2	Formulate SQL statements.
3	Apply database design theory and normalization techniques.

Weeks	List of Programs	No. of Hours
1	Consider a structure named Student with attributes as SID, NAME, BRANCH, SEMESTER, ADDRESS. Write a program in C/C++/ and perform the following operations using the concept of files. a. Insert a new student b. Modify the address of the student based on SID c. Delete a student d. List all the students e. List all the students of CSE branch. f. List all the students of CSE branch and reside in Kuvempunagar.	3
2	Create a table for the structure Student with attributes as SID, NAME, BRANCH, SEMESTER, ADDRESS, PHONE, EMAIL, Insert atleast 10 tuples and perform the following operations using SQL. a. Insert a new student b. Modify the address of the student based on SID c. Delete a student d. List all the students e. List all the students of CSE branch. f. List all the students of CSE branch and reside in Kuvempunagar.	3
3, 4,5,6	Data Definition Language (DDL) commands in RDBMS Consider the database schemas given below. Write ER diagram and schema diagram. The primary keys are underlined and the data types are specified. Create tables for the following schema listed below by properly specifying the primary keys and foreign keys. Enter at least five tuples for each relation. Altering tables, Adding and Dropping different types of constraints. Also adding and dropping fields in to the relational schemas of the listed	3

	<p>problems. Delete, Update operations A.Sailors database SAILORS (sid, sname, rating, age) BOAT(bid, bname, color) RSERVERS (sid, bid, date)</p> <p>B. Insurance database PERSON (driver id#: string, name: string, address: string) CAR (regno: string, model: string, year: int) ACCIDENT (report_ number: int, acc_date: date, location: string) OWNS (driver id#: string, regno: string) PARTICIPATED(driver id#:string, regno:string, report_ number: int,damage_amount: int)</p> <p>C. Order processing database Customer (Cust#:int, cname: string, city: string) Order (order#:int, odate: date, cust#: int, order-amt: int) Order-item (order#:int, Item#: int, qty: int) Item (item#:int, unitprice: int) Shipment (order#:int, warehouse#: int, ship-date: date) Warehouse (warehouse#:int, city: string)</p> <p>D. Student enrollment in courses and books adopted for each course STUDENT (regno: string, name: string, major: string, bdate: date) COURSE (course#:int, cname: string, dept: string) ENROLL(regno:string, course#: int,sem: int,marks: int) BOOK-ADOPTION (course#:int, sem: int, book-ISBN: int) TEXT (book-ISBN: int, book-title: string, publisher: string,author: string)</p> <p>E. Company Database: EMPLOYEE (SSN, Name, Address, Sex, Salary, SuperSSN, DNo) DEPARTMENT (DNo, DName, MgrSSN, MgrStartDate) DLOCATION (DNo,DLoc) PROJECT (PNo, PName, PLocation, DNo) WORKS_ON (SSN, PNo, Hours)</p>	
7,8,9,10	<p>Data Manipulation Language (DML) and Data Control Language (DCL) Write valid DML statements to retrieve tuples from the databases. The query may contain appropriate DML and DCL commands such as:</p> <p>Select with</p> <ul style="list-style-type: none"> – %like, between, where clause – Order by – Set Operations – Exists and not exists 	3

	<ul style="list-style-type: none"> – Join operations – Aggregate functions – Group by – Group by having – Nested and correlated nested Queries Grant and revoke permission 	
11,12	Views and Triggers Views: creation and manipulating content. Triggers: creation and execution of database triggers on every insert, delete and update operation.	3
13	Lab Test/Event: Note (question no. 1 and 2 only for practice)	3

Text Books:

Sl. No.	Author/s	Title	Publisher Details
1	Elmasri and Navathe	Fundamentals of Database Systems	7 th Edition, Pearson Education, 2016.
2	Raghu Ramakrishnan and Johannes Gehrke	Database Management Systems	3rd Edition, McGraw-Hill, 2015.

Reference Books:

Sl. No	Author/s	Title	Publisher Details
1	Silberschatz, Korth and Sudharshan	Data base System Concepts	6th Edition, McGrawHill, 2016.
2	C.J. Date, A. Kannan, S. Swamynatham	An Introduction to Database Systems	8th Edition, Pearson Education, 2016.
3	Carlos Coronel, Steven Morris and Peter Rob	Database Systems design, Implementation, and Management	9th Edition, Cengage Learning, 2016
4	Hector Garcia-Molina, Jeffrey D. Ullman and Jennifer Widom	The Database Systems – The Complete Book	Pearson Prentice Hall, 2017

Web Resources:

Sl. No.	Web Link
1	http://nptel.ac.in/courses/106106093/
2	https://nptel.ac.in/courses/106/104/106104135/

Course Outcomes: After completing this course, students should be able to:

CO1	Understand the fundamental concepts of database system environment.
CO2	Implement a database schema for a given problem specifications and user-requirements.
CO3	Use SQL language to create, populate, maintain, and query a database.
CO4	Apply normalization theory to validate and revise the logical database design.

Mapping Course Outcomes with Program Outcomes & Program Specific Outcomes:

Course Outcomes	Program Outcomes												PSO's			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO1	2	3	1	2	1	2	1	0	1	0	1	1	2	3	2	1
CO2	2	2	2	2	2	1	0	1	1	2	1	1	3	2	2	1
CO3	2	0	3	2	2	1	0	1	1	2	1	1	3	3	2	1
CO4	1	0	3	1	2	1	1	1	1	2	1	1	2	3	2	1

0-No association, 1-Low association, 2-Moderate association, 3-High association