Name of the Programme: MCA
Course Code: CSA-511
Title of Course: Database Management Systems LAB
Number of Credits: 2 (0L-0T-2P)
Effective from AY: 2022-23

Prerequisites for the course	Hands-on experience in object-oriented programming.	
Objectives	This course aims at enabling learners to develop a skill set to design and implement a realistic application, representative of a typical real-life software system.	
Content	**Installation of DBMS Softwares**	2 hours
	Data Definition Language(DDL) Statements ● Creating a Database. ● Creating a table, with or without constraints. ● Understanding Data types. ● Altering the structure of the table like adding attributes at a later stage, modifying size of attributes or adding constraints to attributes. ● Removing the table created, i.e Drop table in SQL. ● Creating Sequence (Auto increment field)	4 hours
	Query in Data Dictionary ● To view the structure of the table created by the user. ● To view user information. ● To view integrity constraints. ● Altering Session Parameters	2 hours
	Data Manipulation Language(DML) Statements ● Inserting Data into the table. ● Updating Data into the table. ● Deleting Data from the table.	4 hours
	Simple SQL statements ● Displaying all the attributes and tuples from the table. ● Displaying selected attributes/tuples from the table. ● Using Logical and comparison operators. ● String manipulation ● Date Comparisons	6 hours
	Complex SQL Statements ● Using aggregate functions (using Group by and having clauses). ● Sorting Data. ● Creating SQL Aliases and Views. ● Joins and Nested queries. ● Correlated subquery ● Derived tables ● Given a complex table structure, display records from tables.	14 hours
	Transaction Control Language(TCL) statements ● Transactions could be made permanent in memory ● To rollback the transaction.	2 hours
	Embedded SQL statements ● Loops/ if else statements ● Creating Triggers/Procedures/packages ● ArrayList and Cursor. ● PL/SQL Strings ● PL/SQL Object Oriented ● Exceptions	16 hours

	No SQL	4 hours
	Project ● The analysis of project ● Design (ER diagram and normalized tables) and implementation of a real life project of students choice. ● The project report that they submit consists of (i) Feasibility study (ii) ER Diagrams (iii) Tables normalized in an appropriate normal form with integrity and domain constraints noted. (iv) User Interface Design -Form and Report design , including triggers that may need to be written (v) User Manual Peer reviews of ERDs are held in the class.	6 hours (in class)
Pedagogy	Hands-on assignments / tutorials / peer-teaching / troubleshooting	
References/ Readings	1. Korth, Silberchartz, " Database System Concepts" McGrawhill Publication. 2. Elmasri and Navathe, " Fundamentals of Database Systems", Addison Wesley, New Delhi.	
Course Outcomes	1. Design and implement a database schema for a given problem-domain 2: Create and maintain tables using SQL 3: Populate and query a database 4. Use Transaction Control Language 5. Creating and Using User Defined Data Types 6. Writing Triggers & Stored Procedures 7. Prepare reports 8. Application development using PL/SQL & front end tools	

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