Teacher's Name	Program Name	Academic Year
Sagara Samarawickrama	**FSDM/CPCM**	**2023S**

Course Code	Course Name	Credit Value
CSD-2206	**Database Design and Programming**	6

Week 1				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	1.1	Database Concepts Define database and database management system. Describe the steps for the database development process. Explain the purpose of conceptual, logical and physical database design. Explain the relational database model	**Lab 1** Discussion About Relational Databases NO-SQL databases ORACLE – SQLite Databases	

Week 2				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	1.3 1.4 1.5	Data Modeling Using ERD Diagram Explain what entity relationship Diagrams (ERD) are Identify and explain the steps for developing and ERD Develop ERD Diagrams	**Lab2** How to Create Entity Relationship Diagrams Free Software Tools for ERD Modelling Sample ERD's for a given scenario	

Week 3				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	1.6 1.7 1.8	Many to Many Relationships Recursive Relation Sub types	**Lab 3** ERD Diagrams Recursive Relations	**Practical Activity 1- 2%**

Week 4				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	1.10 1.11 1.12	Normalization Explain the term normalization Explain the different normal forms Use 1NF,2NF, and 3NF	**Lab 4** Normalization by Various Examples Step by Step Normalization De Normalization	**Practical Activity 2- 2%**

Week 5				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	2.1 2.2 2.3	Physical Data Modelling Explain what physical data modelling is Explain the hierarchy of Database, tables, rows and columns Explain what a schema is	**Lab 5** Install Oracle Express / Sqldeveloper Create Online Oracle – Live Account Create Table Using ORACLE and SQLite Databases	**Practical Activity 3- 2%**

Week 6				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	2.4 2.5	Create schemas, tables, data types and indexes Insert data into tables Explain and use different data types	**Lab 6** Create Table Insert Data Indexes Using ORACLE /SQLite Databases	**Practical Activity 4- 2%**

Week 7				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	2.4 2.5	INSERT UPDATE DELETE DROP Lab on DELETE INSERT UPDATE	Lab 7 Lab on CRUD Operation	**Upload Design Project 25%**

Week 8				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
		STUDY WEEK		

Week 9				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	2.14 2.15 2.16	Create Constrains NOT NULL DEFAULT PRIMARY REFERENCIAL INTEGRITY Drop Constraints	**Lab 8** Lab on Constraints	**MidTerm Exam + Practical Activity 5- 2% SQL Project - 15%**

Week 10				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	5.1 5.2 5.3 5.4	Single Table Queries – A ❖ Use SQL commands to retrieve data from a database table ❖ Use computed columns in the selected list. ❖ Use Simple and Compound conditions in WHERE clauses	**Lab 9** Write SQL Statements for a given database - WHERE Clause - Logical / Arithmetic Operators - Operator Precedence Pattern Matching With LIKE	**Practical Activity 6- 2%**

Week 11				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	5.5 5.6	Single Table Queries – B ❖ AND / OR Operators ❖ Use the DISTINCT keyword ❖ Use the CONCAT, BETWEEN, LIKE and IN operations Sort the results of a SELECT statement using the ORDER BY clause	**Lab 10** Write SQL Statements for a given database - Use of DISTINCT Keyword - BETWEEN, IN, NOT IN Operators - String Concatenation - Sorting	**Practical Activity 7- 2%**

Week 12				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	5.6 5.7 5.8	Multiple Table Queries ❖ Explain the different types of join ❖ LEFT, RIGHT, INNER, CROSS Joins Multiple Table Queries	**Lab 11** Write SQL Statements to Join Multiple Tables - INNER JOIN - LEFT/RIGHT JOIN	**Practical Activity 8- 2%**

		- SELF JOIN - CROSS JOIN UNION /UNION ALL EXISTS/ NOT EXITS		

Week 13				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	5.8 5.9	Functions Group Functions Single Row Functions	**Lab 13** Write SQL Statements with Single Row and Group Functions	**Practical Activity 10- 2%**

Week 14				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	6.1 6.2 6.3 6.4	Views ❖ Create Views Process Tables using views	**Lab 14** Create Views Using Single Table Multiple Tables	**Test 2 – 20%** **Design Project Due** **SQL Project Due**

Week 15				
Sync/Async	Learning Outcomes	Topic	Activities	Evaluation
Sync	7.1 7.2 7.3	Create Database Application using MVC Architecture	**Lab 15** Sample Application Using MVC Architecture i.e., ASP.NET MVC Application	