

St. Xavier's University, Kolkata
Faculty of Science
Value-Added/Skill Enhancement Courses to be Offered
By
Department of Computer Science

Course Name: Fundamental of Database Management System & Basic Structured Query Language

Credit: 2

Duration: 30 contact hours

Start Date: 03.02.2025

End Date:

Mode of Class (Online/Offline/Hybrid): Offline

Intake Capacity: 30

Full Marks (FM): 100

Marks (QM): 50

Enrolment Date: 26/01/2025

Eligibility: Pursuing Graduate & above

Course Coordinator(s): Dr. Mrinmoyee Bhattacharya, Dr. Sayan Das & Dr. Soma Debnath

About the Course:

This course aims to provide a foundational understanding of Database Management Systems (DBMS) and their practical applications. It introduces key concepts such as data models, database languages, and the three-schema architecture, along with the Entity-Relationship model for effective database design. Students will gain hands-on experience with SQL for managing data, ensuring integrity, and implementing security measures. The course covers essential operations for creating and handling databases, tables, and records, as well as techniques for retrieving and managing data using advanced queries, joins, and views. By the end, students will be prepared for efficient database application development and administration.

Syllabi of the Course:

Module No.	Module Name	Module Description	Lecture No.
1	Introduction	Concept & Overview of DBMS, Data Models, Database Languages, Database Administrator, Database Users, Three Schema architecture of DBMS	4

2	Entity-Relationship Model	Basic concepts, Design Issues, Mapping Constraints, Keys, Entity-Relationship Diagram, Weak Entity Sets, Extended E-R features	5
3	SQL and Integrity Constraints	Concept of DDL, DML, DCL. Basic Structure, Set operations, Aggregate Functions, Null Values, Domain Constraints, Referential Integrity Constraints, assertions, views, Nested Subqueries, Database security application development using SQL, Stored procedures and triggers	5
4	Creating Database	Creating a Database, Creating a Table, Specifying Relational Data Types, Specifying Constraints, Creating Indexes.	4
5	Table and Record Handling	INSERT statement, Using SELECT and INSERT together, DELETE, UPDATE, TRUNCATE statements, DROP, ALTER statements	4
6	Retrieving Data from a Database	The SELECT statement, Using the WHERE clause, Using Logical Operators in the WHERE clause, Using IN, BETWEEN, LIKE , ORDER BY, GROUP BY and HAVING Clause, Using Aggregate Functions, Combining Tables Using JOINS, Subqueries	4
7	Database Management	Creating Views: Creating Column Aliases, Creating Database Users, Using GRANT and REVOKE	4