

SQL Fundamentals Curriculum

Module 1: Introduction to Databases & SQL

- What is a Database? What is SQL?
- Types of SQL commands: DDL, DML, DQL, DCL/TCL (just intro).
- Creating a database and tables.
- Practice: Create Employees and Departments tables.

Module 2: Basic SQL Queries

- SELECT statement basics.
- Filtering with WHERE (operators: =, >, <, BETWEEN, IN, LIKE).
- Sorting with ORDER BY.
- Using aliases (AS).
- Practice: Retrieve employee details with filters.

Module 3: SQL Functions

- String functions: CONCAT, UPPER, LOWER, SUBSTR.
- Date functions: NOW, YEAR, MONTH, DATEDIFF.
- Numeric functions: ROUND, FLOOR, CEIL.
- Practice: Format employee names, calculate ages.

Module 4: Aggregate Functions & Grouping

- COUNT, SUM, AVG, MAX, MIN.
- GROUP BY and HAVING.
- Practice: Find average salary per department, departments with more than 5 employees.

Module 5: Joins & Relationships

- Primary & Foreign Keys.
- INNER JOIN, LEFT JOIN.
- Practice: Show employee name with department, list employees without a department.

Module 6: Subqueries & Set Operations

- Subqueries in WHERE and SELECT.
- IN vs EXISTS.
- UNION basics.
- Practice: Find employees earning above average salary.

Module 7: Data Modification

- INSERT single/multiple rows.
- UPDATE with conditions.
- DELETE with conditions.

- Practice: Add new employees, update salaries.

Module 8: Mini Project

- Build a small database (Employees, Departments, Projects).
- Write queries to answer:
 - - Top 3 highest-paid employees.
 - - Number of employees per department.
 - - Employees not assigned to any project.

Duration Suggestion

Beginner course length → ~3–4 weeks (5 sessions per week, 1 hour each).
Can also be compressed into a 1-week bootcamp (2–3 hours daily).