Explore | Expand | Enrich

Course Name: SQL for Data Science and Web engineers

Duration in Hrs: 50 Hrs

Sub-Topics	Departments	Tools	Learning Objectives	Relevance in the industry
Introduction to Databases (10 hours) What is a Database? Definition of a database and its importance in data-driven applications Overview of relational databases: tables, rows, and columns Basic SQL Commands Writing simple SQL queries to select, insert, update, and delete data Creating and modifying tables **SQL for Data Retrieval (15 hours)** Joins and Subqueries Writing queries using INNER, LEFT, and RIGHT JOINs Using subqueries to retrieve data from multiple tables Filtering and Sorting Data Writing WHERE clauses for filtering data Sorting and grouping data using ORDER BY and GROUP BY Aggregating Data Using aggregate functions like COUNT, SUM, AVG, MIN, and MAX **SQL for Data Manipulation (15 hours)**	All Departments	SQL	Write basic SQL queries for data retrieval and manipulation . Perform joins, subqueries, and aggregation in SQL. Understand database integration with web applications.	SQL is a fundamental skill for database management, data science, and back-end web development. It is a required expertise in roles involving database management/administration, data handling and analysis.

Data Integrity and Constraints Working with PRIMARY KEY, FOREIGN KEY, and UNIQUE constraints Ensuring data integrity with NOT NULL, DEFAULT, and CHECK constraints Indexing and Optimization Creating and using indexes for faster query performance Writing optimized queries for large datasets **SQL for Web Development (Introduction) (10 hours)** Integrating SQL with Web Applications Overview of connecting databases to web applications Writing CRUD queries to interact with databases from web apps Introduction to database migrations and version control for schema changes				