

SQL with AI — Course Syllabus

Beginner to Job-Ready | 60 minutes a day



Module 0 — SQL & Database Basics

What is Data , SQL , databases & tables, primary/foreign keys, etc.

CORE SQL FOUNDATION

Module 1 — Databases, Tables & Real-World Data

Schema design, keys in depth, table relationships, etc.

Module 2 — Data Types & Constraints

Numeric/string/date types, NOT NULL, UNIQUE, DEFAULT, CHECK, etc.

Module 3 — INSERT, UPDATE, DELETE

Adding & modifying rows, DELETE vs TRUNCATE, safe updates, etc.

Module 4 — SELECT & WHERE

Filtering rows, comparison & logical operators, LIKE, BETWEEN, IN, etc.

Module 5 — Sorting, DISTINCT & LIMIT

ORDER BY, LIMIT/OFFSET, DISTINCT, Top-N queries, etc.

Module 6 — Aggregate Functions

COUNT, SUM, AVG, MIN/MAX, GROUP BY, HAVING, etc.

Module 7 — Joins

INNER, LEFT, RIGHT joins, multi-table joins, common mistakes, etc.

Module 8 — Subqueries & Nested Queries

Subqueries in WHERE/SELECT/FROM, correlated subqueries, etc.

DATA CLEANING

Module 9 — Data Cleaning Using SQL

Handling NULLs, duplicates, text/date cleaning, AI-assisted cleaning, etc.

ADVANCED SQL

Module 10 — CASE WHEN & Conditional Logic

CASE syntax, categories, conditional flags, etc.

Module 11 — Window Functions

ROW_NUMBER, RANK, DENSE_RANK, running totals, etc.

Module 12 — Common Table Expressions (CTEs)

WITH clause, breaking down complex queries, etc.

Module 13 — Views, Indexes & Performance

CREATE VIEW, indexing basics, query performance, etc.

Module 14 — Stored Procedures & Transactions

Parameters, ACID properties, error handling, etc.

SQL + AI

Module 15 — Using AI for SQL Logic & Debugging

AI-assisted query writing, debugging queries, etc.

Module 16 — Using AI for Documentation & Interviews

Explaining SQL, writing documentation, interview prep, etc.

PROJECTS

Module 17 — Project 1

End-to-end analysis with mandatory data cleaning, etc.

Module 18 — Project 2

Advanced cleaning, analytics, KPIs, AI-assisted validation, etc.

One final exam and project submission is mandatory.

