

Since 2007, Making IT Experts & Products

## Course: Sql

Duration: 20 Hrs (Changeable) | Fees: Individual / Batch

Since 2007, Nestsoft TechnoMaster has been providing training, internships, and services in IT technologies, both online and offline, with the expertise of **over 250 industry experts**. We have delivered internships, training, and seminars to more than 50,000 students, resulting in numerous success stories. **We offer 100% placement support through JobsNEAR.in**

### Our Courses/Internship

- Python/Django Fullstack
- Artificial Intelligence
- Machine Learning
- Data Science
- Software Testing (All)
- Wordpress, Woocommerce
- Digital Marketing, SEO
- Php/MySQL, Laravel
- Flutter, Android, IOS
- Asp.net MVC
- Web Design, Javascript
- Angular JS, React JS
- CCNA, MCSA, CCNP
- AWS, GCP, Azure
- Odoo, Salesforce, Sap
- Microsoft Excel
- Ethical Hacking



Syllabus on the Next Page ..



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## Module 1: Introduction to Databases and SQL

- \* What is a Database?
- \* Introduction to databases and their importance
- \* Types of databases: Relational, NoSQL, etc.
- \* Introduction to SQL
- \* History and purpose of SQL
- \* Basic SQL terminology (tables, rows, columns, etc.)
- \* Setting Up SQL Environment
- \* Installing database management systems (e.g., MySQL, PostgreSQL)
- \* Installing SQL clients (e.g., MySQL Workbench, pgAdmin)


## Module 2: SQL Basics


- \* SQL Data Types
- \* Common data types (e.g., INT, VARCHAR, DATE)
- \* Choosing the right data type for columns
- \* Creating and Managing Tables
- \* Creating tables using CREATE TABLE
- \* Altering tables using ALTER TABLE
- \* Deleting tables using DROP TABLE
- \* Inserting and Manipulating Data
- \* INSERT, UPDATE, and DELETE statements
- \* Understanding SQL transactions

## Module 3: Querying Data

- \* SELECT Statement

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- \* Retrieving data from tables
- \* Using SELECT DISTINCT and aliases
- \* Filtering and Sorting Data
- \* WHERE clause for filtering
- \* ORDER BY clause for sorting
- \* Aggregate Functions
- \* SUM, AVG, COUNT, MIN, MAX
- \* GROUP BY and HAVING clauses


### **Module 4: Joins and Relationships**


- \* Understanding Relationships
- \* Primary keys and foreign keys
- \* Types of relationships: one-to-one, one-to-many, many-to-many
- \* INNER JOIN and OUTER JOIN
- \* Joining tables to retrieve related data
- \* LEFT JOIN, RIGHT JOIN, FULL JOIN
- \* Subqueries
- \* Using subqueries to retrieve data
- \* Correlated subqueries

### **Module 5: Advanced SQL Concepts**

- \* Indexes and Performance Optimization
- \* Creating and managing indexes
- \* Query optimization techniques

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- \* Views
- \* Creating and using views
- \* Advantages of using views
- \* Stored Procedures and Functions
- \* Creating and executing stored procedures
- \* Creating and executing user-defined functions

## **Module 6: Transactions and Concurrency**

- \* Transactions
- \* ACID properties
- \* Managing transactions using COMMIT and ROLLBACK
- \* Locking and Concurrency Control
- \* Understanding locks and their types
- \* Handling concurrent database access


## **Module 7: Security and Permissions**


- \* User Accounts and Permissions
- \* Creating and managing user accounts
- \* Granting and revoking privileges
- \* SQL Injection Prevention
- \* Protecting against SQL injection attacks
- \* Best practices for secure coding

## **Module 8: Case Studies and Real-world Applications**

- \* Building SQL Applications

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- \* Developing a simple web application with a database backend
- \* Data Modeling
- \* Entity-Relationship Diagrams (ERD)
- \* Normalization techniques

### Module 9: Reporting and Business Intelligence (Optional)

- \* Introduction to Reporting Tools
- \* Using SQL for generating reports
- \* Integration with reporting tools like Tableau, Power BI, etc.

### Module 10: NoSQL and Big Data (Optional)


- \* Introduction to NoSQL databases
- \* Overview of popular NoSQL databases (e.g., MongoDB, Cassandra)
- \* SQL in the context of Big Data
- \* Basics of working with large datasets

### Module 11: Advanced Topics (Optional)

- \* Window Functions
- \* Understanding window functions for advanced querying
- \* JSON and XML Processing
- \* Working with JSON and XML data in SQL

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**- Thank You -**


**N.B:** This syllabus is not final and can be customized as per requirements / updates.

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