

MYSQL SYLLABUS

Module 1: Introduction to MySQL

- What is MySQL and RDBMS
- Features of MySQL
- Database vs DBMS vs RDBMS
- Installing MySQL & Workbench
- Overview of MySQL environment

Module 2: Database Basics

- Creating and dropping databases
- Tables, rows, columns
- Data types (INT, VARCHAR, DATE, etc.)
- Constraints (NOT NULL, UNIQUE, PRIMARY KEY)

Module 3: SQL Fundamentals

- Introduction to SQL
- DDL (CREATE, ALTER, DROP)
- DML (INSERT, UPDATE, DELETE)
- DQL (SELECT)
- Filtering data (WHERE, AND, OR, LIKE)

Module 4: Sorting & Grouping

- ORDER BY
- GROUP BY
- HAVING clause
- Aggregate functions (COUNT, SUM, AVG, MAX, MIN)

Module 5: Joins

- Introduction to Joins
- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- SELF JOIN

Module 6: Subqueries

- Nested queries
- Correlated subqueries
- Using subqueries in SELECT, WHERE

Module 7: Constraints & Keys

- Primary Key
- Foreign Key
- Unique & Check constraints
- Auto Increment

Module 8: Indexes

- What are indexes
- Types of indexes
- Creating and dropping indexes
- Performance benefits

Module 9: Views

- What are views
- Creating and updating views
- Advantages of views

Module 10: Stored Procedures & Functions

- Creating stored procedures
- Input/output parameters
- Functions
- Triggers basics

Module 11: Transactions

- ACID properties
- COMMIT, ROLLBACK
- SAVEPOINT
- Transaction management

Module 12: Normalization

- Database design concepts
- Normal forms (1NF, 2NF, 3NF)
- Reducing redundancy

Module 13: Security & User Management

- Creating users
- Granting and revoking permissions
- Password management
- Database security best practices

Module 14: Backup & Recovery

- Database backup methods
- Export/Import data
- Recovery techniques

Module 15: Performance Optimization

- Query optimization
- Using indexes effectively
- Analyzing slow queries
- Best practices

Module 16: Integration with Applications

- Connecting MySQL with PHP
- Using MySQL in web applications
- CRUD operations in real projects

Module 17: Real-World Projects

- Student Management Database
- E-commerce Database Design
- Inventory Management System
- Blog Database Structure