Course Title: MySQL Database Management

Course Duration: 2 Months

Course Description:

This MySQL database management course is designed for beginners and those with some database knowledge. Students will learn the fundamental concepts of relational databases, SQL (Structured Query Language), and practical database management using MySQL. By the end of the course, students will be proficient in creating, managing, and querying databases.

Weeks 1-2: Introduction to Databases and MySQL (8 hours)

Understanding the role of databases

Installing MySQL

Creating a MySQL database

Introduction to SQL

Basic SQL queries (SELECT, INSERT, UPDATE, DELETE)

Weeks 3-4: Data Types and Table Design (8 hours)

Data types in MySQL

Creating and modifying database tables

Constraints (PRIMARY KEY, FOREIGN KEY, UNIQUE)

Normalization principles

Indexes for performance optimization

Weeks 5-6: SQL Queries and Data Manipulation (8 hours)

Retrieving data with SELECT statements

Filtering and sorting data

Joining multiple tables

Modifying data with INSERT, UPDATE, DELETE

Working with aggregate functions (SUM, AVG, COUNT)

Weeks 7-8: Advanced SQL Concepts (8 hours)

Subqueries and correlated subqueries

Views and stored procedures

Transaction management (BEGIN, COMMIT, ROLLBACK)

Triggers for automation

Security and user privileges

Weeks 9-10: Database Administration (8 hours)

Backup and restore databases

MySQL user management

Performance optimization and query tuning

Monitoring and troubleshooting

Replication and high availability concepts

Weeks 11-12: PHP and MySQL Integration (8 hours)

Introduction to PHP and MySQL

Connecting PHP scripts to MySQL databases

Dynamic web application development

Form handling and database interaction

Building a simple dynamic website

Weeks 13-14: Final Project (8 hours)

Students work on a final MySQL database project.

Designing and implementing a database from scratch.

Writing complex SQL queries.

Presentation of the final database project.

Assessment and Evaluation:

Regular quizzes and assignments.

Final project evaluation.

Attendance and class participation.