Course Title: Web Development using PHP and MySQL

Course Overview:

This Web Development course will teach you how to develop dynamic, database-driven websites using **PHP** and **MySQL**. You will learn how to connect your web applications with MySQL databases to store and retrieve data, and how to use PHP to build interactive, secure, and dynamic websites. This course is ideal for those who want to master back-end web development and work with server-side scripting.

By the end of this course, you will have the skills needed to build robust web applications using PHP and MySQL, including working with forms, authentication, sessions, and much more.

Course Duration:

- **Duration:** 3-4 months
- **Mode of Delivery:** Online/Offline

Prerequisites:

- Better to have basic understanding of HTML, CSS, and JavaScript (front-end technologies).
- Familiarity with computer programming concepts is a plus, but not required.

Course Modules:

Module 1: Introduction to Web Development with PHP

- What is PHP and Why is it Important?
- Understanding Client-Server Architecture
- Setting Up Your PHP Development Environment (XAMPP/WAMP)
- Basic Syntax and Structure of PHP
    - PHP Tags and Variables
    - Data Types and Constants
    - Operators in PHP
    - Control Structures (if, else, loops)
- PHP Functions (Built-in and User-defined Functions)

- Error Handling in PHP

Module 2: Working with Forms in PHP

- Introduction to HTML Forms and Form Methods (GET, POST)
- Handling Form Data with PHP
- Form Validation with PHP
- Sending Form Data to a PHP Script
- Managing File Uploads using PHP

Module 3: Introduction to MySQL and Database Concepts

- What is MySQL and its Role in Web Development?
- Setting Up MySQL Database (Using phpMyAdmin)
- MySQL Database Management (Tables, Queries, Indexes)
- Basic SQL Commands (SELECT, INSERT, UPDATE, DELETE)
- Database Design and Relationships (One-to-Many, Many-to-Many)
- Introduction to MySQLi and PDO for Database Connections

Module 4: Connecting PHP with MySQL

- Introduction to MySQLi and PDO (PHP Data Objects)
- Connecting to MySQL Database using PHP
- Performing SQL Queries with PHP
- Fetching and Displaying Data from the Database
- Preventing SQL Injection with Prepared Statements
- Handling Errors in Database Operations

Module 5: PHP Sessions and Cookies

- What are Sessions and Cookies?
- Creating and Managing Sessions in PHP
- Storing Session Data and Retrieving it
- Understanding Cookies and How to Use Them
- Implementing Session-based Authentication (Login/Logout)
- Storing User Data in Cookies

Module 6: CRUD Operations in PHP

- Introduction to CRUD (Create, Read, Update, Delete)
- Creating Data Entry Forms for CRUD Operations
- Displaying Data from the Database in HTML Tables
- Implementing Update and Delete Functionalities
- Handling Database Errors and Validations

Module 7: User Authentication and Security

- Introduction to User Authentication in PHP
- Creating a User Registration System with PHP
- Password Hashing and Salting for Security
- User Login System (Session Management)
- Preventing Cross-Site Scripting (XSS) and Cross-Site Request Forgery (CSRF)
- Securing User Inputs (Sanitizing and Validating)

Module 9: Advanced PHP Features

- Working with File System in PHP (Reading, Writing, Uploading Files)
- Sending Emails using PHP (PHP Mailer)
- Using PHP for Creating APIs (RESTful APIs)
- Introduction to Frameworks (Laravel, CodeIgniter)
- Introduction to AJAX in PHP (Asynchronous Data Loading)
- Error Logging and Debugging in PHP

Module 10: Final Project

- **Project 1: Dynamic Blog Website**
  Build a dynamic blog website where users can register, login, and post articles.
- **Project 2: E-commerce Website**
  Develop an e-commerce site with product listing, cart functionality, and user authentication.
- **Project 3: Content Management System (CMS)**
  Build a CMS where an admin can manage content, users, and posts.

In these projects, you will apply your knowledge of PHP, MySQL, and best practices in web development to build real-world applications.

Course Resources:

1. **PHP Manual** – The official PHP documentation for syntax, functions, and best practices.
2. **MySQL Documentation** – The official MySQL reference manual.
3. **W3Schools PHP Tutorial** – A beginner-friendly PHP tutorial for learning PHP from scratch.
4. **PHP: The Right Way** – A guide to best practices in PHP development.
5. **phpMyAdmin** – A web-based tool to manage MySQL databases.
6. **Visual Studio Code** – An advanced code editor for writing PHP and HTML.
7. **XAMPP/WAMP** – Local server environments to run PHP and MySQL on your computer.

Evaluation:

- **Assignments:** Weekly assignments on PHP and MySQL to strengthen your skills.
- **Midterm Project:** Create a fully functional web application with CRUD operations.
- **Final Project:** Develop a complete web application that involves user authentication and database interaction.

Certification:

Upon successful completion of the course, students will receive a **Certificate of Completion**