

# Secure PHP Development

## Course Syllabus

Learn PHP programming from fundamentals to dynamic web application development, including forms, sessions, MySQL integration, CRUD applications, file handling, and secure database operations with hands-on practical exercises.

### // COURSE INFORMATION

## Course Information

DURATION	1 Months / 4 Weeks / 30 Hours
LEVEL	Beginner to Intermediate
MODULES	19
FORMAT	Hands-on Labs / Hybrid (Online + Indore Classroom)

### // COURSE OVERVIEW

## Course Overview

The PHP Programming Essentials course is designed for beginners and aspiring web developers who want to build dynamic and database-driven web applications using PHP and MySQL. This course provides practical training on PHP fundamentals, variables, control structures, functions, form handling, sessions, cookies, MySQL database integration, CRUD application development, file handling, and secure coding practices. PHP powers the majority of dynamic websites and understanding it is essential for both web developers and security professionals.

### // LEARNING OBJECTIVES

## Learning Objectives

- Write PHP applications following security best practices
- Build dynamic web applications with MySQL integration
- Process user input securely with validation and sanitization
- Implement secure authentication and session management
- Prevent SQL injection using prepared statements
- Prevent XSS, CSRF, and file inclusion vulnerabilities
- Handle file operations and uploads securely
- Create complete CRUD applications with proper validation
- Connect PHP applications to MySQL databases
- Debug and troubleshoot PHP applications effectively
- Understand PHP vulnerabilities from both developer and attacker perspectives

## // PREREQUISITES

### Prerequisites

- Basic computer knowledge
- Basic understanding of HTML (recommended)
- Familiarity with any text editor
- No prior programming experience required

## // MODULE BREAKDOWN

### Module Breakdown

#### 01 Introduction to PHP

- Introduction to PHP
- What is PHP?
- History of PHP
- Advantages of PHP
- Server-Side vs Client-Side Scripting
- PHP Installation Overview
- Development Environment Setup (XAMPP/LAMP)

#### 02 First Steps in PHP

- Embedding PHP Code in HTML
- PHP Tags and Syntax
- Outputting Dynamic Text
- echo and print Statements
- Operational Trail
- Code Comments (Single-line and Multi-line)
- PHP Configuration (php.ini)

#### 03 Variables & Data Types

- Variables in PHP
- Strings and String Functions
- Integers and Floating Points
- Booleans
- NULL and Empty Values
- Type Juggling and Type Casting
- Constants
- Variable Naming Conventions

#### 04 Arrays & Associative Arrays

- Indexed Arrays
- Associative Arrays
- Multidimensional Arrays
- Array Functions
- Array Manipulation
- Array Sorting

- Array Iteration
- Array Pointers

## **05 Control Structures**

- Logical Expressions
- If Statements
- Else and Elseif
- Logical Operators
- Comparison Operators
- Switch Statements
- Ternary Operator
- Match Expression

## **06 Loops & Iterations**

- While Loops
- Do-While Loops
- For Loops
- Foreach Loops
- Loop Control (Break and Continue)
- Nested Loops
- Infinite Loop Prevention
- Iteration Best Practices

## **07 User-Defined Functions**

- Defining Functions
- Function Arguments
- Returning Values from Functions
- Multiple Return Values
- Default Argument Values
- Type Declarations
- Anonymous Functions and Closures
- Recursive Functions

## **08 Scope & Global Variables**

- Variable Scope Rules
- Local vs Global Scope
- Global Keyword and \$GLOBALS
- Static Variables
- Superglobal Arrays (\$\_GET, \$\_POST, \$\_SESSION)
- Environment Variables
- Variable Variables

## **09 Debugging & Error Handling**

- Common PHP Problems
- Warnings and Errors
- Error Types (Notice, Warning, Fatal)
- Debugging Techniques

- var\_dump and print\_r
- Error Reporting Configuration
- Troubleshooting Strategies
- Error Logging Best Practices

## 10 Building Dynamic Web Pages

- Links and URLs
- GET Values and Query Strings
- HTML Encoding and Security
- Include and Require Statements
- include\_once and require\_once
- Modifying HTTP Headers
- Page Redirection
- Output Buffering

## 11 Working with Forms & Validation

- Building HTML Forms
- GET and POST Methods
- Detecting Form Submissions
- Single-Page Form Processing
- Form Validation Techniques
- Displaying Validation Errors
- Input Sanitization
- CSRF Protection Basics
- File Uploads via Forms

## 12 Cookies & Sessions

- Working with Cookies
- Setting Cookies
- Reading Cookie Values
- Unsetting Cookies
- Cookie Security Considerations
- Working with Sessions
- Session Creation and Management
- Session Security (Fixation, Hijacking Prevention)
- Login System Implementation

## 13 MySQL Fundamentals

- MySQL Introduction
- Relational Database Concepts
- SQL Commands Overview
- Creating Databases
- Creating Tables
- Data Types and Constraints
- Relational Tables and Foreign Keys
- SQL Joins (INNER, LEFT, RIGHT)

## 14 CRUD Operations

- Create Records (INSERT)
- Read Records (SELECT)
- Update Records (UPDATE)
- Delete Records (DELETE)
- CRUD Workflow
- WHERE Clauses and Filtering
- ORDER BY and LIMIT
- Aggregate Functions

## 15 PHP & MySQL Integration

- Connecting PHP with MySQL
- PDO (PHP Data Objects)
- MySQLi Extension
- Retrieving Data from Database
- Inserting Data from PHP
- Updating and Deleting Records
- Error Handling in Database Operations
- Connection Management

## 16 SQL Injection Prevention

- Understanding SQL Injection
- SQL Injection Attack Vectors
- Input Validation Techniques
- Parameterized Queries
- Escaping User Input
- Security Testing for SQLi
- OWASP Guidelines
- Secure Database Design

## 17 Prepared Statements

- PDO Prepared Statements
- MySQLi Prepared Statements
- Binding Parameters
- Binding Results
- Named vs Positional Placeholders
- Transaction Handling
- Secure Query Execution
- Performance Benefits

## 18 File & Directory Handling

- File System Basics
- File Permissions
- Reading Files (fopen, fread, file\_get\_contents)
- Writing Files (fwrite, file\_put\_contents)
- Deleting Files (unlink)

- Directory Handling (opendir, readdir)
- File Upload Security
- Path Traversal Prevention

## 19 Secure PHP Development Practices

- Input Validation and Sanitization
- Output Encoding (XSS Prevention)
- Secure Session Configuration
- Password Hashing (bcrypt)
- HTTPS and Secure Headers
- File Inclusion Vulnerability Prevention
- Error Handling in Production
- Security Audit Checklist

### // TOOLS & HANDS-ON LABS

## Tools & Hands-On Labs

- LAMP/XAMPP local development environment
- MySQL database server with phpMyAdmin
- Code editor with PHP support (VS Code)
- Browser developer tools for debugging
- Vulnerable PHP applications for security exercises
- Progressive project-based CRUD application development

### // TRAINING MODE

## Training Mode

Every Armour Infosec course runs as a unified programme delivered in two parallel modes — the same curriculum, the same trainers, the same certification, regardless of how you join.

- ✓ Online Live Classes — real-time, instructor-led, fully interactive sessions
- ✓ On-Premise Classroom Training — in-person at our Indore centre (Sudama Nagar)
- ✓ Both modes run concurrently in every batch; switch between them as your schedule needs
- ✓ Same syllabus, lab access, and certification track for online and on-premise students

### // CERTIFICATIONS & CAREER OUTCOMES

## Certifications & Career Outcomes

This course aligns with industry-recognised certifications and prepares graduates for offensive-security, application-security, and infrastructure-security roles.

- CEH (Certified Ethical Hacker)
- Zend PHP certification foundations
- Web development security fundamentals
- OWASP secure coding principles
- Foundation for web application pentesting

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## Enrol With Armour Infosec

Reach out to discuss enrolment, batch schedule, and lab access. Our Indore training centre runs both in-person and live online cohorts with placement assistance.

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