# PHP303 : Advanced PHP Programming

**Code :**   PHP303       **Duration :**   4 days       **Category :**   PHP

**Audience :**

PHP web developers with basic knowledge of PHP who want to make advanced use of PHP to write dynamic Web pages.

**Prerequisites :**

To participate in this course knowledge and experience with PHP is required, as is discussed in the course PHP100, PHP Programming.

**Realization :**

The concepts are treated on the basis of presentation slides. Demos are used to clarify the theory. The theory is interspersed with exercises. PHP is installed in a WAMP package with the Apache Web server and MySQL.

**PHP Advanced Programming**

**Contents :**

The course Advanced PHP Programming covers advanced features of PHP. In the first place it is addressed how to deal with Object Orientation in PHP. Attention is paid to the known object oriented concepts like classes and objects, encapsulation and inheritance and how PHP deals with them. Also the concept of Exception Handling is covered. Another issue is how to handle XML in PHP. Various XML libraries in PHP are discussed, such as libraries for SAX, DOM, SimpleXML and XPath. The use of regular expressions in PHP is also part of the subject matter. Attention is paid to various libraries for database access such as PDO, PHP Data Objects. Database abstraction, transactions and SQL joins are also discussed. Further attention is payed to several aspects of security such as security threats, authentication and SSL. In the following module it is discussed how interactive PHP Ajax Web Applications can be developed. The XAJAX Framework is addressed in this respect. Finally an overview of Design Patterns is given and a number of Design Patterns in PHP applications are treated. In conjunction with the PHP100 course, PHP Programming, this course covers the requirements for the Zend PHP 5 Certification exam.

### Module 1 : Classes and Objects

Object Oriented Programming
Classes and Objects
Example Class and Objects
Class Definition
Creating Objects
Encapsulation
Data Hiding
Private Data
Constructors and Destructors
$this Variable
Default Field Values
Static Members
Class Constants
Object References
Cloning Objects

### Module 2 : Inheritance

Inheritance
Derived Classes
Accessing the Base Class
Constructor Visibility
Overriding Methods
Pseudo Constants
Final Classes and Methods
Abstract Classes
Interfaces
Implementing Interfaces
instanceOf Operator
Polymorphism
Type Hinting
Catchable Type Errors
Poor Object Model PHP 4
PHP 5 Object Model

### Module 3 : Exception Handling

Types of Errors
Exceptions
Exceptions in PHP
Exception Handling
Exception Handling Example
Exception Handling Rules
Exception Class
Exception Specialization
User Defined Exceptions
Multiple catch Clauses
Standard PHP Exceptions
Main Exception Branches
RunTime Exceptions
Turn Errors into Exceptions

### Module 4 : PHP and XML

PHP and XML
XML Extensions for PHP 5
SimpleXML
SimpleXMLElement Class
Load XML from File and String
Reading Attributes and Elements
Creating XML Data
SimpleIterator and Using XPath
Error Handling with libxml
XML Parsing
Document Object Model
DOM Navigation and Manipulation
DOM Validation
SAX, Simple API for XML
SAX Callbacks
Using XPath in PHP
XMLReader

### Module 5 : Regular Expressions

What are Regular Expressions?
Simple Regular Expressions in PHP
PHP Regular Expression Functions
Meta Characters
Quantifiers
Character Classes
Regular Expressions Examples
Regular Expression Modifiers
Matching Text with preg_match
Matching on Word Boundaries
Matching Text with preg_match_all
Greediness
Greedy and Non-Greedy Quantifier
Replacing Text with preg_replace
Splitting Text with preg_split
Searching Text with preg_grep

### Module 6 : Database Access

Web Database Applications
PHP and Data Access
Database Abstraction
What is PDO?
PDO Installation
Creating Connections
Closing Connections
Error Information
Error Handling Mode
PDO Error Retrieval
Query Execution
Fetching Results
Direct Query Execution
Select Queries
Array Fetching
Fetch Column
PDO Transactions
Prepared Statements
Calling Stored Procedures

### Module 7 : Security

Security Issues
Register Globals
Spoofed Form Submissions
Cross Site Scripting
Preventing Cross Site Scripting
SQL Injection
Magic Quotes
HTTP Basic Authentication
HTTP Digest Authentication
SSL Overview
SSL Handshakes
Configuring SSL in Apache

### Module 8 : PHP and Ajax

What is Ajax?
Classic Web Application Model
Ajax Web Application Model
Typical Ajax Interactions
Drawbacks of Ajax
Creating the XMLHttpRequest
Object Methods
Sending the Request
Object Properties
XMLHttpRequest readyState
Handling the Response
PHP and Ajax, XAJAX

### Module 9 : Web Services

What is a Web Service?
Role of Interface
RPC Interaction
Document Interaction
What is SOAP?
Structure SOAP Message
SOAP Message Example
SOAP Messages as Payload
What is WSDL?
Basic Structure WSDL
WSDL and Code Generation
PHP SOAP Extension
Simple SoapService
WSDL for SoapService
Soap Services
Simple Soap Client
Requests and Responses

**Module 10 : Design Patterns**

What are Patterns?
Singleton Pattern Defined
Singleton Pattern Usage
Adapter Pattern
Adapter Pattern Usage
Factory Patterns
Factory Method Pattern
Factory Method Usage
Abstract Factory Pattern
Abstract Factory Usage
Observer Pattern
Iterator Pattern
Infinite Iterato