

WEB DEVELOPMENT CURRICULUM

Module 1: Introduction to Web Development

- Introduction to Web Development
 - What is Full-Stack Development?
 - Overview of Front-End vs. Back-End Development
 - Tools of the Trade: IDEs, Version Control (Git/GitHub), Command Line, Prototyping etc.

Module 2: HTML & CSS

- HTML Basics
 - HTML Syntax & Structure
 - HTML Elements: Headings, Paragraphs, Lists, Links, Images
 - HTML Tables
 - Forms & Inputs
 - Semantic HTML
- CSS Basics
 - CSS Syntax and Selectors
 - Box Model, Margins, Padding, Borders
 - Layout: Flexbox, Grid, Positioning
 - Responsive Design and Media Queries
 - CSS Frameworks: Introduction to Bootstrap

Module 3: JavaScript (Front-End)

- JavaScript Fundamentals
 - Syntax, Variables, Data Types
 - Functions, Conditionals, Loops
 - Arrays and Objects
- DOM Manipulation
 - Selecting Elements
 - Event Listeners and Handlers
 - Creating and Removing DOM Elements Dynamically
- Advanced JavaScript Concepts
 - Closures, Hoisting, Scope
 - Promises and Asynchronous Programming (fetch API, async/await)
 - Error Handling

Module 4: Version Control

- Git & GitHub Basics
 - Git Commands: Init, Clone, Commit, Push, Pull, Branching
 - Creating Repositories on GitHub
 - Collaboration: Pull Requests, Merging, Handling Conflicts

Module 5: Introduction to PHP

- Basics of PHP
 - What is PHP? History and Usage
 - Installing PHP: XAMPP, MAMP, or LAMP Stack Setup
 - Basic Syntax: Embedding PHP in HTML
 - PHP Variables, Constants, and Data Types
 - Basic Output: `echo` and `print`

Module 6: PHP Syntax and Control Structures

- PHP Control Structures
 - Conditionals: `if`, `else`, `elseif`, `switch`
 - Loops: `for`, `foreach`, `while`, `do-while`
 - Operators: Arithmetic, Assignment, Comparison, Logical
- Functions in PHP
 - Defining and Calling Functions
 - Function Parameters and Return Values
 - Variable Scope and Global Variables
 - Anonymous Functions and Closures

Module 7: Working with Forms

- Handling Forms in PHP
 - GET vs POST Methods
 - Accessing Form Data Using `$_GET` and `$_POST`
 - Sanitizing and Validating Form Input
 - Redirecting with PHP
- Working with Sessions and Cookies
 - Introduction to Sessions: Starting, Storing, and Destroying Sessions
 - Using Cookies: Creating, Accessing, and Deleting Cookies

Module 8: Arrays and Strings

- Working with Arrays
 - Indexed and Associative Arrays
 - Array Functions: `sort()`, `array_merge()`, `array_push()`, etc.
 - Multidimensional Arrays
 - Looping through Arrays (`foreach` and `for`)
- String Manipulation in PHP
 - String Functions: `strlen()`, `strpos()`, `substr()`, etc.
 - Regular Expressions in PHP (`preg_match()`, `preg_replace()`)
 - String Formatting with `sprintf()`

Module 9: Working with Files

- File Handling in PHP
 - Reading and Writing Files: `fopen()`, `fread()`, `fwrite()`, `fclose()`
 - File Uploads in PHP
 - Handling File Permissions and Security Considerations

Module 10: Working with Databases (MySQL)

- Working with Databases
 - Introduction to SQL Databases (MySQL)
 - Basic SQL: `SELECT`, `INSERT`, `UPDATE`, `DELETE`
 - Creating Schemas and Models
 - Querying and Manipulating Data
 - Introduction to NoSQL Databases (MongoDB)
- Introduction to MySQL with PHP
 - Setting Up a MySQL Database
 - Connecting PHP to MySQL with `mysqli` and PDO (PHP Data Objects)
- CRUD Operations with PHP and MySQL
 - Performing CRUD Operations in PHP
 - Handling User Input and Querying the Database Securely (SQL Injection Prevention)
 - Prepared Statements with PDO

Module 11: Advanced PHP Topics

- Error Handling in PHP
 - Types of Errors: Notices, Warnings, and Fatal Errors
 - Error Reporting and Logging
 - Custom Error Handlers with `set_error_handler()`
- Exception Handling
 - Try, Catch, and Throw Mechanisms
 - Creating Custom Exception Classes
 - Best Practices for Error and Exception Handling
- PHP and APIs
 - Working with External APIs
 - Sending HTTP Requests using `cURL`
 - Handling JSON Data with `json_encode()` and `json_decode()`
- Regular Expressions and Data Filtering
 - Advanced Pattern Matching
 - Validation and Data Sanitization Functions
 - Filtering Data with `filter_var()`

Module 12: PHP Security

- Security Best Practices
 - Input Validation and Error Handling
 - Preventing SQL Injection

- Securing File Uploads and Sessions

Module 13: Project Development

- User Authentication and Personalization (Password Hashing with bcrypt)
- Shopping Cart
- Content Management System
- Web Forum
- Mailing List Management
- Email Management

Module 14: Deployment

- Domain Name Registration
- Web Hosting
 - Introduction to Cloud Platforms: AWS, Microsoft Azure, Google Cloud,...
 - Deploying Front-End Applications
 - Deploying Database

Module 15: Career Development

- Discussion on career development

Final Notes

Students who complete all assignments and embark on a project that is hosted with their personalized domain name (web address) get Certificate of Proficiency while other students get Certificate of Participation.