

# One Year Program **WEB ENGINEERING**

## Course Outline



### Module 1: (Duration: 04 Months-96 Hours)



#### UI Design with Photoshop

##### Getting Started with Photoshop

###### Work Environment

- Looking at the Work Area
- Customizing Preferences & Keyboard Shortcuts
- Using the tools & Tool Options

###### Working with Selections

- About selecting & selection tools

###### Understanding Layers

- Background layers
- Creating layers
- Rearrange & editing layers
- Opacity & Layer Blending Modes
- Linking Layers
- Applying Layer Styles
- Flattening Layers
- Layer Comps
- Duplicating & Aligning Layers
- Layer Groups

###### Transforming

- Free Transform
- Mathematical transforms: Flip, Rotate, Arbitrary
- Scale, Skew, Distort, Perspective
- Transform with Warp
- Canvas Rotation

###### Basic Photo Corrections

- Understanding Images: Raster & Vector
- Image Resolution
- Exposure & Balance
- Tonal values & Photography
- Image Adjustments Options
- Working with the Adjustments Panel
- Histogram
- Levels Dialog Box
- Curves Dialog Box
- Straightening & Cropping
- Using Automatic & Manual Adjustments  
- Contrast, Shadows & Highlights,

- Rectangular & Oval selections
- Lasso tool, Magnetic Lasso Tool, Polygonal Lasso Tool
- Magic Wand
- Quick Selection Tool
- Feathering - softening selection edges
- Selecting by Color

- Hue & Saturation
- Replacing colors
- Dodge, Sponge & Burn tools
- Black & White Adjustment Feature

###### Retouching & Repairing

- Clone Stamp Tool & Clone Panel Options
- Pattern Tool
- Spot Healing Brush
- Healing Brush & Patch Tools
- Red Eye Removal
- Separate Layer retouching
- Layers - Auto Align Layers
- Spherical Alignment
- Layers -Auto Blend Layers
- Content Aware Healing & Fills
- Typography
- Adding Type
- Character & Paragraph settings
- Justification & Hyphenation
- Tracking, Kerning & Leading
- Warping Type
- Type on a Path
- Vertical Type

###### Brushes

- Working with brushes
- Changing Brush Options

###### Vector Drawing: Paths

- Pen Tool
- Using Paths
- Scaleable Objects

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- Shape Layer
- Importing Smart Objects (Illustrator/ Acrobat)
- Complex Path editing
- Compound Paths
- Saving Paths
- Clipping & Work Paths
- Filling & Stroking paths, selections

### Designing a Website

- Setting up a Grid in Photoshop
- Creating Web-optimized Images from
- **Photoshop Site Mockup**  
The Crop-and-save Method
- The Slice Method
- Taking It to the Web



### Document Markup languages with HTML 5

#### HTML Introduction

- Web Introduction
- What is web browser
- HTML History
- HTML 4 Features
- HTML 5 Features
- HTML IDE Tools
- HTML Elements  
HTML TAG / Attributes
- Web Structure  
Head / Body

#### Basic Syntax

#### HTML Headings

#### HTML Paragraphs

- <p> Element
- <pre> Element

#### HTML - Fonts

#### HTML – Formatting

#### HTML Quotation and Citation Elements

- <q> Element
- <blockquote>
- <abbr>
- <address>
- <cite>

#### HTML Comments

#### HTML Colors

#### HTML Block and Inline Elements

#### HTML – Images

- Insert Image
- Image Location
- HTML File Paths
- Set Image Width/Height
- Set Image Border

#### HTML Links

- <A> Tag
- Types of Links
- Text Links
- Image Links
- Email Link

#### HTML Lists

- Unordered Lists
- Ordered Lists
- Definition Lists
- Type Attribute
- Start Attribute

#### HTML Tables

- Create Tables
- Table Height and Width
- Table Heading
- Cellpadding and Cellspacing Attribute
- Colspan and Rowspan Attributes
- Tables Backgrounds  
Bgcolor, Background attribute
- Table Caption
- Table Header, Body, and Footer  
<thead>, <tbody>, <tfoot>
- Nested Tables (Table layout)

#### HTML Forms

- Form Attributes (Action, method, target, enctype).
- HTML - 4 Form Controls
- HTML - 5 Form Controls
- HTML – 5 Form Validations

#### HTML Marquees

- <marquee> Tag Attributes  
width, height, direction, behavior, scrolldelay, scrollamount, loop, bgcolor, hspace, vspace

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**HTML Frames**

**HTML Iframes**

**HTML Entities**

**HTML Symbols**

**HTML Meta Tags**

**HTML 5 Semantic Elements**

- <article>
- <aside>
- <details>
- <figcaption>

- <figure>
- <footer>
- <header>
- <main>
- <mark>
- <nav>
- <section>
- <summary>
- <time>



**Style Sheet CSS-3**

**CSS Overview**

- Introduction
- Advantages of CSS
- CSS Versions

**CSS Syntax**

- CSS types
- Define Selectors
- Class and Id
- Difference between class and id

**CSS Inclusion**

- Inline CSS
- Internal CSS
- External CSS
- Imported CSS - @import Rule
- CSS Comments

**Measurement Units**

**CSS Colors**

**CSS Background**

**CSS Fonts**

**CSS Text**

**CSS Images**

**CSS Links**

**CSS Tables**

**CSS Display**

**CSS Borders**

**CSS Margin**

**CSS List**

**CSS Padding**

**CSS Cursors**

**CSS Outlines**

**CSS Scrollbars**

**CSS Visibility**

**CSS Positioning**

**CSS Filters**

**CSS Layout**

**CSS Forms**

**CSS3 Transitions**

**CSS3 Animations**

**Templates**

**Creating a template**

**Difference between table base and div base conversion**

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**IDE Tools Dreamweaver CC**



**Responsive Layout with Bootstrap**



**Adobe Muse**

**Introduction to Adobe Muse**

- program overview
- exploring the work area
- overview of tools and panels
- optimizing the workspace

**Plan a Website in Muse**

- create a new site
- organize and diagram a multi-page site using plan mode
- add and remove pages from the site
- adjust site properties

**Design the Look and Feel of a Site**

- Starting with a master page
- choose a browser background color or image
- choose a page background color or image
- create header and footer areas
- design with columns and guides
- add a navigation bar
- add and adjust photos and graphics
- add text to your page

**Navigation, Buttons, and Links**

- customize the nav bar
- add internal page links
- add external web links
- customize the appearance of links
- create buttons and rollovers
- create clickable hotspots
- create and edit link styles

**Working with Text**

- overview of Muse's text formatting controls
- improving your site with web fonts via Typekit
- create and editing paragraph styles in Muse
- create and editing character styles in Muse
- Working with Images
- overview of image formats
- place images
- scale, rotate, and crop images
- create and editing object styles
- drag and drop image library with Bridge

**Adding Advanced Features to your Website**

- compositions
- panels
- slide shows
- employing HTML snippets
- google maps
- shopping carts
- forms
- calendars
- Using pins to keep items constantly on screen

**Publishing a Site to the Web**

- publish with Adobe Business Catalyst
- publish with a 3rd party host
- export to html
- ins and outs of uploading via FTP

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**Module 2: (Duration: 04 Months-96 Hours)**



**Vanilla JavaScript ES5, ES6 (ECMA Script 5, 6)**

**JS Introduction**

- What is JS
- Scripting Languages
- Types of Script
  - Client / Server Side
- Advantages of JS
- Limitations of JavaScript
- JS Development Tools

**JS Syntax**

- Basic Syntax
- JavaScript Placement in HTML

**JS Output**

- Within Body
- Within Head
- Within a Separate File
- Within Terminal

**JS Comments**

- Single line comments
- Multi line comments

**JS Variables and Data Types**

- JS Variable Scope

**JS Operators and Types**

- Arithmetic Operators
- Comparison Operators
- Logical (or Relational) Operators
- Assignment Operators
- Conditional (or ternary) Operators

**JS Control Flow**

- if statement
- if...else statement
- if...else if... statement.
- Switch Case

**JS Loops**

- while Loop
- do...while Loop
- For Loop
- for...in

- Loop Control (Break / Continue)

**JS Functions**

- Built-in Functions
  - JS String
  - JS Math
  - JS Numbers
  - JS Random
  - JavaScript Dates
- User Define Functions

**JS Objects**

**JS Events**

**JS Array**

- Array Properties
- Array Methods

**JS with HTML Form**

- JavaScript Form Validation
- Validate Empty Text Box
- Validate Text Length
- Compare Password
- Validate Email

**JS Errors**

- Try
- Catch
- Throw
- finally

**JS Page Redirection**

**JS Dialog Boxes**

- Alert Box
- Confirmation Box
- Prompt Box

**JS with Images**

**JS Page Printing**

**ES6 (only 1 class)**

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## JQuery



## Create SPA using Angular JS

### AngularJS Overview

- Introduction
- Angular Features
- Angular Advantages / Disadvantages
- AngularJS Components

### AngularJS Environment Setup

- Installation

### AngularJS - MVC Architecture

- Model
- View
- Controller

### Single Page Applications

- Define Single Page Application

### AngularJS – Directives

- ng-app
- ng-init
- ng-model
- ng-repeat

### AngularJS Modules

- ng-model Directive

### Data Binding

- Define Data Binding
- Two-Way Binding

### AngularJS Controllers

- ng-controller

### AngularJS Expressions

- Numbers
- Strings
- Object
- Array

### AngularJS Scope



## JSON (JavaScript Object Notation)

### JSON – Introduction

#### JSON Syntax

- JSON Syntax Rules

#### JSON Data Types

- JSON Strings
- JSON Numbers
- JSON Objects

### AngularJS Filters

- Currency
- Date
- Filter
- JSON
- Limit to
- Lowercase
- Number
- Order by
- Uppercase

### AngularJS Tables

- Display Data in Table
- Looping through ng-repeat

### Angular Forms

- Angular forms vs HTML forms
- Input Controls
- Form events
- Form validation

### AngularJS Includes

- Using Server Side Includes

### AngularJS Views

- ng-view
- ng-template
- ng-template

### AngularJS Routing

- ngRoute

### AngularJS - HTML DOM

- ng-disabled
- ng-show
- ng-hide
- ng-click

- JSON Arrays
- JSON Booleans
- JSON null

### JSON Objects

#### JSON Arrays

#### JSON.parse()

#### JSON.stringify()

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JSON PHP

**Module 3: (Duration: 04 Months-96 Hours)**



**IDE Tool PHP Storm**



**Server Side Scripting with PHP - 7**

**PHP Introduction**

- History of PHP
- Comparison with dynamic content alternatives
- PHP Tools
- How PHP Works

**Web Servers**

- WAMP / XAMP
- Installation / Environment Setup (Configuration)
- Understanding localhost Server

**PHP Syntax**

- Basic PHP Script
- PHP Statements and Whitespace
- PHP Code Placement
- PHP Comments
- Embed PHP In HTML

**PHP Variable**

- Variable Types
- Variable Names
- Variable Scope
- Super Global Variable
- Constants
- Pass PHP variables via the URL.

**PHP Operators and Expressions**

- Arithmetic operators
- Assignment operators
- Comparison operators
- Increment/Decrement operators
- Logical operators
- String operators
- Array operators
- Comparing String and Numbers

**Control Structure**

- If Statement
- If. ....Else Statement
- Nested If Statement

- Switch / Case Statement
- Ternary Statement (? :)

**Loop Structure**

- While
- Do .... While
- For
- Foreach
- Nested Loop
- Break and Continue

**String Manipulation in PHP**

- Concatenation
- String Functions
- Regular Expressions

**PHP Array**

- Create Array
- Types of Array
  - Indexed arrays
  - Associative arrays
  - Multidimensional arrays
- Two / Three Dimensional Arrays
- Array Functions
- Loops with Array

**PHP Functions**

- Purpose of functions
- Built-in functions
- Declaring functions
- Function arguments
- Variables scope

**Taking User Input from Forms via PHP**

- Creating forms with PHP
- Using the form GET Method
- Using the form POST Method
- Obtaining data from forms through variables

**PHP State Management**

- Creating Cookies
- Set Cookies

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- Destroying Cookies
- Creating Session
- Set Session
- Register and modify PHP session variables
- Destroying Session
- Define Headers
- Using query string (URL rewriting)

### File Inclusion

- Include Files
- Require
- Require Once

### File Handling. The Plain Repository of Data

- Handling files and directories in PHP.
- Fetching information from files.
- Uploading and downloading files.

### Error Handling & Exception

#### Sending Email with PHP

- Email Function
- Auto Alert System



## Laravel PHP Framework

### Laravel Overview

- Introduction
- Laravel – Features

### Laravel Installation

- Define Composer
- Define Artisan
- Create Laravel Project

### Laravel Application Structure

- Root Directory
- App Directory

### Laravel Configuration

- Basic Configuration
- Environmental Configuration
- Database Configuration
- Naming the Application

### Laravel Routing

- Basic Routing
- Routing Parameters

### Laravel Middleware

- Define Middleware
- Register Middleware
- Middleware Parameters

### Database (Mysql / Mysqli) with SQL Injections

- Connection / disconnection, login / logout
- Include common access functions
- Doing simple SQL queries via PHP (Select, Insert, Update, Delete)
- SQL Functions in PHP
- Database Relationship
- Database Backup
- Restore Database Backup

### Build A Complete CRUD Application with PHP, MYSQL (CMS)

- Website Backend & Frontend Management
- Insert, update, delete & retrieve site text, Pictures.
- Content Searching

### Publish online Web Site

- Create Online Database
- Upload site

- Terminable Middleware

### Laravel Controllers

- Basic Controllers
- Controller Middleware
- Restful Resource Controllers
- Implicit Controllers
- Constructor Injection
- Method Injection

### Laravel Request

- Retrieving the Request URI
- Retrieving Input

### Laravel Response

- Basic Response
- Attaching Headers
- Attaching Cookies
- JSON Response

### Laravel Views

- Understanding Views
- Passing Data to Views
- Sharing Data with all Views
- Blade Templates Engine

### Laravel Redirections



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- **Redirecting to Named Routes**
  - Redirecting to Controller Actions
- Laravel Working with Database**
- Connecting to Database
  - Insert Records

- Retrieve Records
  - Delete Record
  - Update Record
- Laravel Sending Email**



## WordPress + Woo Commerce

### Introduction / Overview

### Installation

### Dashboard

### WordPress Settings

- General Setting
- Writing Setting
- Reading Setting
- Discussion Setting
- Media Setting
- Permalink Setting

### WordPress Categories

### WordPress Posts

### WordPress Pages

### WordPress Tags

### WordPress Comments

### WordPress Plugins

### WordPress Users

### WordPress Appearance

### WordPress Plugin

### Backing Up the Website

- Installing a Plugin
- Creating a Backup
- Locating the Backup

### Woo-Commerce

- Installation
- Define Setting
- Add Products Categories, Product, Price and Shipping Details.
- Define Payment Method, Orders, Currency and Billing.
- Create Store
- Final Project



## Version Control System (VCS) with GIT

### VCS Introduction

### GIT Introduction

### Installation

### Create GIT Account

### Create a local GIT Repository

### Add file to the repo

### Create a commit

### Push a branch to GitHub

### Create a Pull Request (PR)