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Web Design & Development – PSDF Program

Course Guide

Web development is a broad term for the work involved in developing a web site for the Internet (World Wide Web) or an intranet (a private network).
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Web Design & Development Contents

This curriculum is for the course of Web Design & Development and comprises of 06 modules.

Module 1: Explain Internet Working

Learning Unit - 1
Discuss the history and evolution of internet
- Learn definition of internet Comprehend working of internet
- Read about history and evolution of internet

Learning Unit - 2
Define and differentiate software and hardware
- Learn definition of software Learn history of software Identify types of software
- Practise installation of a software Experience working of software
- Study role of software in a computer system Learn definition of hardware
- Learn history of hardware Identify types of hardware
- Study role of hardware in a computer system Identify different hardware components in a computer
- Examine hardware of a network Compare software and hardware

Learning Unit - 3
Elaborate the working of different Computer Networks
- Learn definition of network Learn history of networks
- Read about Network topologies such as Bus topology, Ring topology, Star topology, Mesh topology
- Basic components of a computer network Experience working of a computer network

Learning Unit - 4
Differentiate different types of networks, Read in detail about the following:
Personal Area Network
Local Area Network
- Campus Area Network
- Metropolitan Area Network
Wide Area Network
- Virtual Private Network
- Difference among network types

Module 2: Elaborate World Wide Web

Learning Unit - 1
Discuss different Eras of web
- Define world wide web Define website and webpage Narrate history of web
- Read about Web 1.0 (Read Web), Web 2.0 (Social Web), and
- Web 3.0 (Semantic Web)
- Compare Web 1.0, Web 2.0 and Web 3.0 Study examples of Web 1.0, Web 2.0 and Web 3.0

Learning Unit - 2
Compare Static websites with Dynamic websites
- Learn to define static website Learn to define dynamic website
- Examine workflow of a static website Examine workflow of a dynamic website Differentiation between static and dynamic websites
- Study examples of static and dynamic websites
- Study and design architecture of a static website
- Study and design architecture of a dynamic website

Learning Unit - 3
Elaborate and differentiate different web browsers
- Learn definition of a web browser Read about working of a web browser Install and use Internet Explorer Install and use Mozilla Firefox
- Install and use Google Chrome Install and use Safari
- Study features/options of different web browsers
- Compare different web browsers
- Study cross browser compatibility of websites

Learning Unit - 4
Compare different types of websites
- Learn Definition and read in detail about different types of websites such as personal websites, information websites, web portals, webmail, social networking websites, blogs, forums, wiki websites, search engine websites, community websites, News websites etc.
- Study examples of different types of websites Knowledge.

Learning Unit - 5
Identify different Web Threats and explain their security measures
- Study in detail different web threats such as Viruses, Computer Worms, Trojans, Malware, SQL Injection, Cross-site Scripting (XSS), Email Spam, Phishing, Denial-of-service attack (DoS Attack) etc.

- Read in detail about security measures for different web threats
- Install an antivirus software
- Use antivirus to scan a computer for viruses and removal of viruses.

Learning Unit - 6
Highlight the process of domain registration and Web Hosting
- Search internet service providers (ISPs) Learn about web hosting process
- Learn about domain registration process Make selection of any ISP for the website Observe getting the web hosting package from the ISP
- Observe getting domain registration package from the ISP
- Experience uploading a website to the web server / web space provided by the ISP Practice testing the uploaded website on a web browser

Learning Unit - 7
Discuss shopping carts and ecommerce
- Learn definition and explanation of E- commerce
- Become familiar with some common business applications of E-commerce

Module 3: Design a Website

Learning Unit - 1
Explain the basics Website designing

- Define website designing
- Learn history of website designing Identify types of Design
- Identify basic elements of design
- Read in detail about Web Design Standards and Principles
- Difference between web design and web development
- Locate difference between web design and graphics designing
- Exhibit understanding of the importance of design in a website

Learning Unit - 2
Analyze different software to design a website
- Make a list of different design software Features and options of different designing software
- Experience installation of different software to design a Website.
- Practice design in designing software like Adobe Photoshop, Macromedia Dreamweaver, Microsoft FrontPage, Microsoft Publisher, Adobe Flash etc.

Learning Unit - 3

Apply appropriate website Templates in your website
- Explanation of a website template
- Manage to searching free and paid website templates on internet
- Downloading website templates to a computer
- Learn how to test website templates using any web browser
- Execute editing of different website templates in any web editor such as Macromedia Dreamweaver

Module 4: Plan Website and Explain Software Development Life Cycle for Web Applications

Learning Unit – 1

Devise Website Project Plan
- Build understanding about how to arrange and manage project meetings
- Gather and implement the project requirements
- Learn to execute storyboarding Learn to develop timelines
- Carry out financial evaluation (budgeting and costing)
- Recognize and share differences between functional requirements and non-functional requirements
- Recount the significance of client management

Learning Unit - 2

Utilize the software development life cycle in a web project
Recount software development life cycle:
- Project analysis phase
- Design phase
- Implementation phase
- Testing phase
- Maintenance and support phase

Module 5: Use Databases in Web Development

Learning Unit – 1

Discuss the basic and historical perspectives of databases
- Learn definition of basic database concepts such as Row, Column, Table, Relationships, Quires, Normalization, Denormalization, Database, Relational Database Management System, Primary Key, Foreign Key, indexing, Entity Relationship Diagram etc.
- Identify differences between free database and licensed database Elucidate the role of database in web applications

Learning Unit - 2

Differentiate different Database Management Systems (DBMS)
- Carry out comparative study of Options/Features of different database management systems
- Practice installation of different database management systems on a computer Examine the features and options of different database management systems like Microsoft Access, Microsoft SQL Server and MySQL

Learning Unit - 3

Create a database of a website in a database management system.
- Demonstrate database designing of a web project
- Create Tables
- Draw Entity Relationship Diagram
- Carry out Normalization / De-normalization of the Entity Relationship Diagram Implement indexing and cascading to the database

Module 6: Develop Website using Client-Side Scripting Languages

Learning Unit – 1

Write HTML code for a Website
- Learn definition of Hypertext Mark-up Language (HTML)
- Communicate and implement HTML concepts such as HTML Editors, Elements, Attributes, Headings, Paragraphs, Formatting, Links, Head, Images Tables, Lists, Block, Layout, Forms, IFrames, Colours, Entities, URL Encode, Form, input types, Media, Object, Audio, Video.
- Employ HTML in Macromedia Dreamweaver / Microsoft FrontPage.

Learning Unit - 2

Use JavaScript in a website
- Learn definition of client side scripting language
- Learn definition of JavaScript Communicate and implement the basic JavaScript concepts such as JavaScript Statements, Objects, Output, Comments, Variables, Data Types, Functions, Operators, Comparisons, Conditions, Switch, For Loop, While Loop, Breaks, Errors and Validation.

Learning Unit - 3

Implement Cascading Style Sheets (CSS) in a website
- Learn definition and share explanation of Cascading Style Sheets (CSS) Recount and put into practice the basic

concepts of CSS such as CSS Syntax, Id and Class, Styling of Backgrounds, Text, Fonts, Links, Lists & and Tables, CSS Border, Outline, Margin, Padding, Dimension, Positioning, Floating, Align, Colours, and Colour HEX.
- Employ CSS using Macromedia Dreamweaver / Microsoft FrontPage

Module 7: Develop Website using Server-Side Scripting Languages

Learning Unit - 1

Develop a website using ASPNET
- Learn definition of Asp.Net
- Installation of Visual Studio.Net / Visual Web Developer to a computer
- Spell out the Dot Net Framework Communicate details of the environment of Visual Studio.Net / Visual Web Developer
- Explore the toolbars and windows of Visual Studio.Net / Visual Web Developer Recount what is the Design View, Source View and Code View of a web page Illustrate and implement:
- HTML Controls such as Table, Div, Image, Text area etc.
- Server Controls such as Button, Textbox, Hyperlink, Radio Button, Calendar, Panel, Label etc.
- Data Server Controls such as Grid View, Details View, Form View, SqlDataSource, AccessDataSource etc. Share details of and implement:
- Validation Controls such as RequiredFieldValidator, Range Validator, Validation Summary, etc.
- Navigation Controls such as Menu, Tree View etc.
- Give an account of and implement Login Controls such as Login, Login View, and Password Recovery etc.
- Web Form, Master Page, Web User Control, HTML Page and Style Sheet.

Learning Unit - 2

Develop a website using PHP
- Learn definition of PHP
- Install PHP Editor such as Macromedia Dreamweaver to a computer
- Narrate details of the PHP Environment and Syntax
- Identify and implement PHP Variable Types
Give an account of and implement:
- PHP Constants
- Operator Types
- PHP Decision Making
- PHP Loop Types

- PHP Arrays
- PHP Strings
- PHP GET and POST
- PHP Files
- PHP Functions
- PHP Cookies and Sessions
- PHP Sending Emails PHP File Uploading

Study and demonstrate:
- PHP Coding Standard
- PHP Predefined Variables
- PHP Regular Expressions
- PHP Error Handling
- PHP Built-in Functions Installation and configure MySQL database with a PHP website Create dynamic web pages in PHP

Module 8: Design and Present Final Project

Learning Unit - 1
Develop a dynamic website in ASP.Net / PHP
- Practice interface design in designing software.
- Carry out development of a static or dynamic website in a web development software
- Put into practice Software Development Life Cycle (SDLC) phases in a web project

Learning Unit - 2
Prepare a project document
- Analyze web project document Devise:
- Web projects Design document
- Web projects Implementation document
- Web projects Testing document
- Web projects Deployment document
- Web projects Maintenance & Support document
- Web projects User Manual

Module 9: Perform Duties and Exhibit Rights at the workplace

Learning Unit - 1
Demonstrate Ethics and Professional Conduct
- Exhibit ownership of the decisions/actions s/he makes or fails to make and their consequences. (Role Play)
- Show high regard for resources entrusted to him/her. Including subordinates, tangible assets (equipment), company profile.
- Make decisions and act impartially/objectively free from self- interest. (Quantified Self-assessment can be

performed e.g. case studies/white papers.) Areas like Conflict of Interest
- Act in truthful manner in conduct/communication. e.g. daily attendance enrolment on register- "What you say is what you did"

Learning Unit - 2
Plan Business- Process Activities
- Provide due assistance to in-line manager
- e.g. coordinate recurring meetings, intimate resource availability, create and keep documentations, validate applicable company defined standards.
- Define activities, e.g. Apply specific life cycle methodologies – (Requirement gathering, design solution, prototype, testing, documentations)
- Estimate time, e.g. calculation of hours for an activity; consider calendar year official leaves, company working timings.
- Achieve work breakdowns, divide module in smaller and more manageable components. e.g. test a product that may have components like interface, performance, and test cases.
- Level resource due to work load, e.g. calculation of leisure hours of a worker.

Learning Unit - 3
Develop awareness of rights
- Inform the concerned authority and uphold the policies, rules/regulations that govern the work and workplace.
- Report illegal conduct or illegitimate action to appropriate management.
- Protect propriety or confidential information.

Practical Approach
- A real example will be given throughout the lectures/course.

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