Syllabus for Web Page Developer using HTML, CSS, JavaScript and PHP

Course Name	**Web Page Developer using HTML, CSS, JavaScript and PHP**
Sector	**IT-ITeS**
Course Code	**ITE/2024/WPDP/280**
Level	**4**
Occupation	**Web Page Developer**
Job Description	The Web Page Developer is responsible for designing web-based applications with static and dynamic content using HTML, CSS, JavaScript, and PHP. They will also be responsible for crafting dynamic, secure web pages, demonstrating proficiency in internet concepts.
Course Duration	**Total Duration 450 Hrs (T- 120, P- 210, OJT-60 and ES-60)**
Trainees' Entry Qualification	• 12th grade pass • Completed 2nd year of 3-year diploma (after 10th) • Pursuing 2nd year of 3-year regular Diploma (after 10th) • 10th grade pass with two years of any combination of NTC/NAC/CITS or equivalent. • 8th pass plus 2-year NTC plus 1-Year NAC plus 1-Year CITS • 10th grade pass and pursuing continuous schooling (for 2-year program) • 11th Grade Pass and pursuing continuous schooling • Previous relevant Qualification of NSQF Level 3.0 with minimum education as 8th Grade pass with 3-year relevant experience • Previous relevant Qualification of NSQF Level 3.5 with 1.5-year relevant experience
Trainers Qualification	Degree in Engineering/ Technology in Computer Science/ IT/ Electronics & Communication AICTE/UGC recognized Engineering College/ university with one year experience in the relevant field. OR Diploma in Computer Science / IT from AICTE/recognized board of technical education with two years' experience in the relevant field. OR NTC/ NAC passed in the trade of IT/ICTSM with three years experience in the relevant field.

Structure of Course:

Module No.	Module name	Outcome	Theory (Hrs)	Practical (Hrs)	Total (Hrs) [Multiple of 30]
1	**Basics of Internet**	Execute the setting of digital communication for internet browsing and e-mail services.	20	10	30
2	**Concepts of Web Designing**	Design and create Static, Interactive & Dynamic Web Pages and its related	20	40	60

Module No.	Module name	Outcome	Theory (Hrs)	Practical (Hrs)	Total (Hrs) [Multiple of 30]
		operations using HTML			
3	Working With CSS	Formulate the application of different styles and its use in web pages, including the design, layout.	20	40	60
4	Working With JavaScripts	Apply JavaScript Fundamentals and Web Development Techniques to create dynamic and user-friendly web pages	20	40	60
5	Introduction to PHP	Create PHP Scripting for Dynamic Web Development	20	40	60
6	Security awareness	Apply security principles in web development to protect against common vulnerabilities and ensure the secure transmission of data	20	40	60
7	OJT	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).		60	60
8	Employability Skill	As per guided curriculum	60	--	60
		TOTAL	**180**	**270**	**450**

SYLLABUS:

Module 1: Basics of Internet

Outcome
Execute the setting of digital communication for internet browsing and e-mail services.

Theory Content:
- Introduction to the history and applications of Internet
- Introduction to World Wide Web, Web Browsers, and Search engines.
- Concepts of Domain Naming Systems, URL and E-mail structure and communication process.
- Definition of Internet, Intranet, and Extranet.
- Concepts of Servers, Clients, Ports and ISP
- Basic concepts of HTTP / HTTPS and TCP/IP communication Protocols

Practical Content:
- Demonstrate the use of Web Browser, Search Engine and World Wide Web for accessing information
- Hands on exercises on Internet browsing, setting up of Internet access & digital communication
- Demonstration on the use of e-mail service, URL parts (Protocol, Port No, Domain name)

Tools & Equipment needed :
>   Desktop PC, Laptop, Wi–Fi Router, Structured Cabling in Lab, Switch, Internet connectivity.

Module 2: Concepts of Web Designing

Outcome

Design and create Static, Interactive & Dynamic Web Pages and its related operations using HTML

Theory Content:
- Concepts of Static, Interactive and Dynamic Web pages.
- Introduction to HTML and various tags in HTML.
- Concepts of different controls used in Web Pages.
- Introduction to HTML Tags and Attributes, HTML Basic Tags, Formatting Tags, HTML Color Coding, Div and Span Tags for Grouping Lists: Unordered Lists, Ordered Lists, Definition list. Images: Image and Image Mapping , Various attributes of tags.
- Explain the use of Frame, Table , Form tags, Header tags., Working with Text
- Concept of Uniform Resource Locator, URL Encoding, Hyperlink, HTML Meta Tag, XHTML

Practical Content:
- Practice with basic HTML elements (e.g. head, title, body), tag and attributes.
- Create simple web page with text, paragraph and line break using HTML tags
- Format text, insert text, check and combo box, change background colour and insert pictures in a web page
- Create simple web page with tables and lists.
- Demonstration on the use of marquees, hyperlinks and mail to link in designing web pages
- Create frames, add style and design layout.
- Display a web page within a web page using iframes.
- Assist to design web page using password field, Submit button, Reset button and Radio button etc.
- Assist to design a web page adding flash file, audio and video files.
- Assist to design web page with forms and form controls using HTML tags

Tools & Equipment needed :
>   Desktop PC, Laptop, Wi–Fi Router, Structured Cabling in Lab, Switch, Internet connectivity.

Module 3: Working With CSS

Outcome

Formulate the application of different styles and its use in web pages, including the design, layout.

Theory Content:
- Discuss CSS concepts and types, features and benefits of CSS, CSS Syntax, External Style Sheet using <link>, Multiple Style Sheets, Value Lengths and Percentages.
- Identify various CSS selectors, such as ID, class, grouping, universal, descendant/child, and attribute selectors, along with CSS pseudo-classes.
- Demonstrate CSS properties for background, cursor, fonts, lists, tables, box model, and display positioning
    - **Color Background Cursor:** background-image, background-repeat, background position, CSS Cursor

- ▪ **Text Fonts:** color, background-color, text-decoration, text-align, vertical-align, text-indent, text-transform, white-space, letter-spacing, word-spacing, line-height, font-family, font-size, font-style, font-variant, font-weight.
  - ▪ **Lists Tables:** List-style-type, list-style-position, list-style-image, list-style, CSS Tables (border, width & height, text-align, vertical-align, padding, color)
  - ▪ **Box Model:** Borders & Outline, Margin & Padding, Height and width, CSS Dimensions.
  - ▪ **Display Positioning:** CSS Visibility, CSS Display, CSS Scrollbars, CSS Positioning (Static Positioning, Fixed Positioning, Relative Positioning, Absolute Positioning), CSS Layers with Z-Index.
- • Utilize floats, clear property, and clearfix hack for effective page layout**.**

Practical Content:
- • Apply CSS syntax, Add colors, fonts, backgrounds, images borders, text alignment, text transformation etc.
- • Identify and select various types of CSS
- • Apply various concepts of CSS to HTML pages.
- • Demonstrate the application of CSS in working with lists and table
- • Create navigation bars (vertical/horizontal) using CSS
- • Assist to design CSS drop-downs and forms for interactive user experiences
- • Apply CSS counters and evaluate website layout including multiple backgrounds and external stylesheet usage
- • Demonstrate CSS Animations & CSS Buttons

Tools & Equipment needed:
Desktop PC, Laptop, Wi–Fi Router, Structured Cabling in Lab, Switch, Internet connectivity.

Module 4 : Working With JavaScripts

Outcome
Apply JavaScript Fundamentals and Web Development Techniques to create dynamic and user-friendly web pages.

Theory Content:
- • Explore **n**ature of JavaScript, Script Writing Basics, Enhancing HTML Documents with JavaScript, The Building Blocks.
- • Introduction to JavaScript, JavaScript Engines, Values, Variables and Operators, Variable Mutation, Basic Operators, Operator Precedence, JavaScript Types. Types Definition, Types in JavaScript, Objects, Type Conversion and Coercion, Static vs Dynamic Type Checking.
- • Examine conditionals in JavaScript, encompassing ternary operators, conditional ladders, and switch statements.
- • Introduction to Arrays, Declaring and Mutating Arrays, Array Methods and Properties, Replication with Array Methods, Multi-dimensional Arrays.
- • Explore loops in JavaScript, including while, do/while, for loops, break and continue statements, and iterating arrays and objects
- • Introduction to Functions, Functions in JavaScript, Nested Functions in JavaScript, Arrow Functions in JavaScript, Function as an Argument, Function as the Returned Object,
- • Discuss JavaScript scope, including scope introduction, scope in JavaScript, lexical scope, and module scope
- • Discuss methods of Adding Interactivity to a Web Page,
- • Creating Dynamic Web Pages, Concept of Java Scripting the Forms. Java Scripting the Forms, Basic Script Construction, Talking to the Form Objects. Organizing the Objects and Scripts, Field-Level Validation, Check Required Fields like Validating Zip Code, Automated Formatting, Format Phone, For Money, Automatic Calculation, Calculate Expiration Date, Calculate Amount etc.

Practical Content:
- Demonstration on Programming and Scripting Languages.
- Familiarize with JavaScript basics for web application
- Demonstrate web servers and their features
- Apply JavaScript basics, including using data types, variables, constants, and converting between data types
- Apply Arithmetic, Comparison, Logical Operators in JavaScript. Operator precedence.
- Utilize program control statements and loops in JavaScript for practical problem-solving.
- Work with arrays in JavaScript, covering concepts, types, and practical usage.
- Identify String data type in JavaScript.
- Demonstrate concepts related to string, math, and date.
- Use functions in JavaScript, including built-in functions, as part of web page development.
- Apply concepts of pop-up boxes in JavaScript for enhanced user interaction.
- Explore and apply Document Object Model concept in JavaScript.
- Create animation and multimedia files in Java Script.

Tools & Equipment needed:
Desktop PC, Laptop, Wi–Fi Router, Structured Cabling in Lab, Switch, Internet connectivity.

Module 5: Introduction to PHP

Outcome
Create PHP Scripting for Dynamic Web Development

Theory Content
- Discuss the process of scripting on the server side, covering PHP basics, including variables, data types, operators, expressions, constants, and decision-making with loops.
- Explore concepts related to strings (creation, accessing, searching, replacing, and formatting) and arrays (creation, accessing, and handling multidimensional arrays)
- Explain the concept of PHP functions

Practical Content
- Create simple PHP scripts for websites
- Evaluate relevant decision making control statement to solve the given problem
- Apply iterative solutions using loop statements
- Modify the provided arrays to achieve the desired outcome.
- Apply specified string functions to the given array.
- Capture form data in a PHP script.
- Utilize and work with PHP functions.

Tools & Equipment needed :
Desktop PC, Laptop, Wi–Fi Router, Structured Cabling in Lab, Switch, Internet connectivity.

Module 6: Security awareness
Outcome: Apply security principles in web development to protect against common vulnerabilities and ensure the secure transmission of data
Theory Content

- Importance of web security
- Authentication and authorization
- Introduction to HTTPS and SSL/TLS protocols
- Importance of input validation in preventing injection attacks
- Security headers and content security policy
- Web application firewalls

Practical Content
- Configure SSL/TLS certificates for secure communication
- Implement HTTPS on a web server
- Building a secure login system with password hashing
- Conducting security audits and vulnerability assessments
- Implement parameterized queries to prevent SQL injection
- Create and deploy a content security policy
- Setting up security monitoring tools

Tools & Equipment needed :
Desktop PC, Laptop, Wi–Fi Router, Structured Cabling in Lab, Switch, Internet connectivity.

Module 7: OJT

Outcome:
Work in real job situation with special emphasis on basic safety and hazards in this domain

Practical Content:

Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for **60 Hours.**)

Module 8: Employability Skills

Key Learning Outcomes

Introduction to Employability Skills   Duration: 1.5 Hours

   After completing this programme, participants will be able to:
   1. Discuss the Employability Skills required for jobs in various industries
   2. List different learning and employability related GOI and private portals and their usage

Constitutional values - Citizenship   Duration: 1.5 Hours

   3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
   4. Show how to practice different environmentally sustainable practices.

Becoming a Professional in the 21st Century   Duration: 2.5 Hours

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
7. Describe the benefits of continuous learning.

Basic English Skills   Duration: 10 Hours

8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e -mail using basic English

Career Development & Goal Setting   Duration: 2 Hours

11. Create a career development plan with well-defined short- and long-term goals

Communication Skills   Duration: 5 Hours

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

Diversity & Inclusion   Duration: 2.5 Hours

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

Financial and Legal Literacy   Duration:5 Hours

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely

19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

Essential Digital Skills   Duration: 10 Hours

21. Describe the role of digital technology in today's life
22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

Entrepreneurship   Duration: 7 Hours

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan

28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
29. Create a sample business plan, for the selected business opportunity

Customer Service   Duration: 5 Hours

30. Describe the significance of analyzing different types and needs of customers
31. Explain the significance of identifying customer needs and responding to them in a professional manner.
32. Discuss the significance of maintaining hygiene and dressing appropriately

Getting Ready for apprenticeship & Jobs   Duration: 8 Hours

33. Create a professional Curriculum Vitae (CV)
34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
35. Discuss the significance of maintaining hygiene and confidence during an interview
36. Perform a mock interview
37. List the steps for searching and registering for apprenticeship opportunities

<u>Learning Outcome – Assessment Criteria</u>

Module No.	Outcome	Assessment Criteria
1	Execute the setting of digital communication for internet browsing and e-mail services.	**After completion of this module students will be able to:** 1.1 Illustrate the applications of internet 1.2 Explain the use of Web Browser, Search Engine and World Wide Web for accessing information 1.3 Apply the process of Sending and receiving messages & Sending attachment with E-mail 1.4 Define Internet, Intranet. 1.5 Demonstrate Servers, Clients, Ports and ISP 1.6 Learn about Domain Name System and DNS Servers 1.7 learn the basic concepts of Protocol and TCP/IP
2	Design and create Static, Interactive & Dynamic Web Pages and its related operations using HTML	**After completion of this module students will be able to:** 2.1 Describe basics of web design 2.2 Demonstrate various HTML tags and their uses 2.3 Format text, change background colour and insert pictures in web page 2.4 Design simple web page with tables and lists. 2.5 Use marquees, hyperlinks and mail to link in designing web pages 2.6 Design web page with forms and form controls using HTML tags
3	Formulate the application of different styles and its use in web pages, including the design, layout.	**After completion of this module students will be able to:** 3.1 Define CSS to control presentation style of webpage

Module No.	Outcome	Assessment Criteria
		3.2 Identify and select different types of CSS
		3.3 Demonstrate the use of basic CSS syntax for styling text, font, page backgrounds
		3.4 Describe styling lists and tables in CSS
		3.5 Illustrate CSS classes and IDs
		3.6 Create navigation bars using CSS
		3.7 Explain working process with CSS Box Model
		3.8 Demonstrate use of CSS Counter in website layout.
4	Apply JavaScript Fundamentals and Web Development Techniques to create dynamic and user-friendly web pages	**After completion of this module students will be able to:**
		4.1 Summarize variable naming rules and Java Script data types
		4.2 Identify expressions and operators
		4.3 Summarize flow control and loops
		4.4 Demonstrate objects and arrays usage
		4.5 Define functions and methods
		4.6 Demonstrate Working process with Document Object Model
5	Create PHP Scripting for Dynamic Web Development.	**After completion of this module students will be able to:**
		5.1 Describe PHP basics, variables and data types
		5.2 Create simple PHP scripts for websites
		5.3 Identify expressions and operators in PHP
		5.4 Demonstrate Working process with PHP control structures and loops
		5.5 Illustrate working process with Strings
		5.6 Create and access Strings & arrays
		5.7 Demonstrate working process with PHP functions
6	Apply security principles in web development to protect against common vulnerabilities and ensure the secure transmission of data	**After completion of this module students will be able to:** 6.1 Set up SSL/TLS certificates on a web server 6.2 Verify the secure communication through appropriate tools 6.3 demonstrate the process of enabling HTTPS on a web server 6.4 Develop a secure login system incorporating password hashing 6.5 Utilize security auditing tools such 6.6 Implement parameterized queries to prevent SQL injection 6.7 Develop a content security policy for a web application 6.8 Install and configure security monitoring tools
7	OJT	Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual

Module No.	Outcome	Assessment Criteria
		workplace under any supervisor / contractor for 60 Hours.)
8	Employability Skill	As per guided curriculum

List of Tools, Equipment & materials needed for 30 Trainees (Practical)

Sl No	Items Name	Specification	Qty
1	Desktop PC	Desktop Computer (Core i5/ Core i7 processor) with the computer setup and different types of system Software and application software	30
2	Laptop	4th Gen Ci5 or higher Processor, 8GB RAM, 1TB Hard Disk, Win10/latest reloaded Licensed OS, 2GB Graphic Card, DVD Writer, Standard ports and connectors.	1
3	Wi–Fi Router	With wireless connectivity	1
4	Structured Cabling in Lab	To enable working with wired networks for practical	As required
5	Switch	16 port	1
6	Internet connectivity	Broadband connection with min. 10 mbps speed	As required
7	Laser Printer	Standard	1
8	Micro Phone Cum Head Phone	Wired	5
9	LCD Projector	3000 lumens or higher	1
10	Projector Screen	Matte(antiglare) screen roll type	1

Marks Distribution

Outcome	Outcome Code	Total Th marks	Total Pr marks	Total OJT marks
Execute setting up digital communication for internet browsing and e-mail services.	ITE/2121/OC1	20	50	0
Design and create Static, Interactive & Dynamic Web Pages and its related operations using HTML	ITE/2121/OC2	20	120	0
Formulate application of different styles and its use in web pages, including the design, layout.	ITE/2121/OC3	30	120	0
Apply JavaScript Fundamentals and Web Development Techniques to create dynamic and user-friendly web pages	ITE/2121/OC4	30	120	0
Create PHP Scripting for Dynamic Web Development	ITE/2121/OC5	20	120	0
Apply security principles in web development to protect against common vulnerabilities and ensure the secure transmission of data	ITE/2121/OC6	30	120	0
Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	ITE/2121/OC7	0	0	150
Employability Skills – 60 Hrs	DGT/VSQ/N0102	50	0	0