Day-Wise Course Schedule

Web Development from Scratch

Course Focus: HTML, CSS, and JavaScript
Duration: 40 Hours - 20 Days
Session Duration: 90 minutes
Target Audience: Beginners

Week 1: Foundations of Web Development with HTML and CSS

Day 1: Introduction to Web Development

1. Overview of Web Development (HTML, CSS, JavaScript roles).
2. Setting up the Development Environment (VS Code, Live Server).
3. Writing the Basic HTML Skeleton.
4. Understanding the <html>, <head>, and <body> tags.
5. Displaying "Hello World" on a Web Page.

Practical Program: Create a web page displaying "Hello World" with a title and description.

Day 2: Basic HTML Tags and Attributes

1. Headings (<h1> to <h6>) and Paragraphs (<p>).
2. Text Formatting Tags (, , <u>).
3. Hyperlinks with <a> and absolute/relative paths.
4. Inserting Images with <img> tag and attributes (alt, width, height).
5. Introduction to HTML Attributes (id, class).

Practical Program: Create a page with headings, formatted text, and an image with a caption.

Day 3: HTML Lists and Tables

1. Creating Ordered and Unordered Lists.
2. Nested Lists for complex structures.
3. Basic Table Structure (<table>, <tr>, <td>).
4. Adding Headers with <th> and Captions.
5. Styling Tables using inline CSS.

Practical Program: Create a menu list and a styled table of student grades.

Day 4: HTML Forms

1. Understanding <form> and its attributes (action, method).
2. Input Types: Text, Password, Email.
3. Using Radio Buttons and Checkboxes.
4. Creating a Dropdown with <select> and <option>.
5. Submit and Reset Buttons.

Practical Program: Create a registration form with text inputs, radio buttons, checkboxes, and a submit button.

Day 5: Introduction to CSS

1. Understanding CSS Syntax and Selectors.
2. Adding CSS to HTML: Inline, Internal, External.
3. Styling Text: Font Properties, Colors, Sizes.
4. Adding Backgrounds (solid colors, gradients).
5. Applying Borders and Shadows.

Practical Program: Style the registration form with fonts, colors, and a gradient background.

Week 2: Advanced HTML and CSS Techniques

Day 6: HTML5 Semantic Elements

1. Introduction to Semantic Elements (header, footer, section, article).
2. Structuring a Page Using Semantic Tags.
3. Introduction to <aside> and <nav>.
4. Accessibility Benefits of Semantic HTML.
5. SEO Optimization with Semantic Tags.

Practical Program: Create a blog page structured with semantic tags.

Day 7: Advanced CSS Styling

1. Background Images and Patterns.
2. Styling Borders and Rounded Corners.
3. Adding Box Shadows and Text Shadows.
4. Styling Links and Buttons.
5. Creating Hover Effects.

Practical Program: Design a styled navigation bar with hover effects.

Day 8: CSS Layouts: Box Model and Flexbox

1. Understanding the Box Model (Margin, Padding, Border, Content).
2. Flexbox Basics (container, item properties).
3. Aligning Items with Flexbox.
4. Justify Content and Align Items.
5. Using Flexbox for Responsive Layouts.

Practical Program: Create a responsive card layout using Flexbox.

Day 9: CSS Grid Layout

1. Introduction to CSS Grid.
2. Defining Grid Containers and Rows/Columns.
3. Placing Items in the Grid.
4. Grid Gap and Area Naming.
5. Combining Grid and Flexbox for Complex Layouts.

Practical Program: Create a responsive photo gallery using CSS Grid.

Day 10: Responsive Design with Media Queries

1. Importance of Responsive Design.
2. Writing Media Queries.
3. Adjusting Layout for Different Screen Sizes.

4. Testing Responsiveness on Multiple Devices.
5. Optimizing Images for Web Performance.

Practical Program: Create a responsive homepage that adapts to mobile, tablet, and desktop screens.

Week 3: JavaScript Basics and Interactivity

Day 11: Introduction to JavaScript

1. Adding JavaScript to HTML (script tag).
2. Declaring Variables with var, let, and const.
3. Understanding Data Types (string, number, boolean, null, undefined).
4. Basic Operators (+, -, *, /, %).
5. Displaying Output using console.log() and alert().

Practical Program: Write a JavaScript program to display a welcome message using alert() and log calculations in the console.

Day 12: JavaScript Control Structures

1. Conditional Statements (if, else, else if, switch).
2. Comparison and Logical Operators.
3. Iteration: for and while loops.
4. Writing Nested Loops.
5. Breaking Out of Loops (break, continue).

Practical Program: Write a program to check if a number is even or odd and print the first 10 multiples of a given number using a loop.

Day 13: JavaScript Functions and Events

1. Writing and Invoking Functions.
2. Function Parameters and Return Values.
3. Introduction to JavaScript Events (onclick, onmouseover, onchange).

4. Handling Button Clicks with JavaScript.
5. Event Propagation (bubbling and capturing).

Practical Program: Create a program to change the background color of a web page when a button is clicked.

Day 14: Arrays and Objects

1. Creating Arrays and Accessing Elements.
2. Array Methods (push, pop, slice, splice).
3. Defining Objects and Accessing Properties.
4. Adding Methods to Objects.
5. Iterating Through Arrays and Objects.

Practical Program: Write a program to display the names of five students in an array and their grades using an object.

Day 15: JavaScript DOM Manipulation

1. Accessing Elements (getElementById, querySelector).
2. Changing Styles Dynamically.
3. Modifying Element Content (innerHTML, textContent).
4. Adding and Removing Classes.
5. Creating and Appending New Elements to the DOM.

Practical Program: Create a program to dynamically add a list of items to a webpage using JavaScript.

Week 4: Advanced JavaScript Features

Day 16: Form Validation Using JavaScript

1. Validating Text Input (required, minLength, maxLength).
2. Validating Email Input (regex).
3. Preventing Form Submission on Invalid Input.
4. Displaying Error Messages.
5. Enhancing User Experience with Real-Time Validation.

Practical Program: Validate a registration form, ensuring all fields are correctly filled.

Day 17: Introduction to ES6 Features

1. Using let and const for Block Scope.
2. Arrow Functions and Their Syntax.
3. Template Literals for Dynamic Strings.
4. Destructuring Arrays and Objects.
5. Understanding Default Function Parameters.

Practical Program: Write a program to calculate the area of a rectangle using arrow functions and display it using a template literal.

Day 18: JavaScript Events and Listeners

1. Adding Event Listeners Dynamically (addEventListener).
2. Understanding Event Object Properties.
3. Keyboard and Mouse Events.
4. Debouncing in JavaScript.
5. Removing Event Listeners.

Practical Program: Create a program that listens for keyboard inputs and displays the pressed key on the screen.

Day 19: Introduction to Local Storage

1. Overview of Local and Session Storage.
2. Storing Data in Local Storage (setItem, getItem).
3. Removing and Clearing Data (removeItem, clear).
4. Using JSON to Store Complex Data Structures.
5. Practical Applications of Local Storage in Web Development.

Practical Program: Create a program that stores and retrieves a user's name from local storage.

Day 20: Combining HTML, CSS, and JavaScript

1. Integrating JavaScript for Form Interactivity.
2. Making Web Pages Responsive with Media Queries.
3. Enhancing User Experience with Animations and Transitions.
4. Testing Cross-Browser Compatibility.
5. Tips for Further Learning in Web Development.

Practical Program: Develop a fully interactive single-page web application that dynamically updates content based on user input.