

Web Development Syllabus

HTML 5

A. Introduction to HTML

- What is HTML, and why is it essential for web development?
- Differences between HTML4 and HTML5
- New web standards and evolution of HTML

B. Tags, Elements, and Attributes

- Inline vs. Block-level elements
- Custom data attributes (data-*)
- Global attributes in HTML5

C. Basic Syntax

- HTML document structure: <html>, <head>, <body>, and the importance of the DOCTYPE declaration
- Valid and invalid HTML syntax examples

D. Tables

- Advanced table styling using CSS
- Table layout techniques
- Responsive tables

E. Lists

- Customizing lists with CSS
- Nesting lists within other lists

F. Forms

- Form validation techniques in HTML5
- New input elements in HTML5: date, number, email, tel, etc.

G. Semantic and Non-Semantic Tags

- The transition from HTML4 to HTML5

- HTML5's new structural elements: <header>, <footer>, <article>, <section>, <nav>
- Deprecation and removal of tags in HTML5
- List of non-semantic tags and their usage (<div>,)

I. HTML5 Features

- Web Storage (localStorage, sessionStorage)
- Geolocation API
- HTML5 Forms and Validation

K. Forms Attributes

- Formaction , formmethod(get,post)
- HTML5 form validation attributes: pattern, required, minlength

L. Audio and Video Tags

- Implementing HTML5 audio and video
- Handling media events and controls with JavaScript

CSS

A. CSS Selectors and Attributes (Style, Title)

- Overview of common CSS attributes
- Types of Selectors
- Differences between id and class selectors

B. CSS Types (Inline, Internal, External)

- Advantages and disadvantages of each CSS method
- Linking external stylesheets and using inline styles

C. Box-Model

- Understanding the CSS box model (Content, Padding, Border, Margin)
- Modifying box model properties to affect layout

D. Display Property (Block, Inline, None)

- The difference between block, inline, and inline-block elements
- display: none vs visibility: hidden

E. Visibility-Hidden

- Practical usage of visibility property
- Difference between visibility: hidden and display: none

F. Position Property (Static, Relative, Absolute, Fixed)

- Positioning elements: static, relative, absolute, fixed, and sticky
- Practical examples of element positioning

G. Z-Index Property

- Layering elements using z-index
- Importance of stacking context

H. Combinators

- Descendant Selector (space), Child Selector (>), Adjacent Sibling Selector (+), General Sibling Selector (~)
- Practical examples for combining selectors

I. CSS Pseudo-Classes

- Pseudo-classes like :hover, :focus, :nth-child, and :not
- Styling interactive elements with pseudo-classes

J. CSS Pseudo-Elements

- Styling the first letter, first line, and content insertion using ::before, ::after
- Selection and ::selection pseudo-element

K. Static Web Page

- Overview of static web pages and their applications
- Building a simple static web page

L. Viewport Meta Tag

- Making websites mobile-friendly with the viewport meta tag
- How the viewport affects layout on different screen sizes

Advanced CSS

A. Background and Multiple Backgrounds

- Applying background colors, images, and gradients
- Layering multiple backgrounds

B. Font-Related Features

- Using custom web fonts via @font-face and Google Fonts
- Font properties: font-family, font-size, font-weight, font-style, etc.

C. Text-Effect and Box-Effect

- Text shadow, box shadow, text transform
- Adding 3D effects using CSS properties

D. Gradients (Linear and Radial)

- Creating linear and radial gradients with CSS
- Practical uses for gradient backgrounds

E. Transition

- Introduction to CSS transitions for smooth state changes
- Common transition properties: transition-property, transition-duration, transition-timing-function

F. Transformation

- Using transform to rotate, scale, skew, and translate elements
- Combining transformations for advanced effects

G. Media Queries

- Creating responsive layouts using @media queries
- Customizing designs for various screen sizes and devices

Bootstrap

A. Introduction to Bootstrap (Responsive)

- The power of Bootstrap's grid system
- Importance of mobile-first design

B. Typography

- Font styles, sizes, and alignments in Bootstrap

- Bootstrap typography classes

C. Tables

- Advanced table designs using Bootstrap
- Responsive tables with `.table-responsive`

D. Images, Buttons

- Using Bootstrap classes for styling images and buttons
- Responsive image classes: `.img-fluid`

E. Grid Structure and Types of Columns

- Understanding the Bootstrap grid system: Rows, Columns, and Breakpoints
- Creating flexible layouts with `col-xs`, `col-sm`, `col-md`, and `col-lg`

F. Forms

- Styling forms with Bootstrap's built-in form controls
- Using custom input groups and validation styles

G. Jumbotron

- Using `.jumbotron` for prominent page sections
- Customizing jumbotrons for different screen sizes

H. Navbar and Nav Tabs

- Building responsive navigation bars using Bootstrap's Navbar component
- Styling navigation tabs and pills

I. Carousel

- Creating Bootstrap Carousels for image sliders

J. Responsive Web Page

- Best practices for responsive design with Bootstrap
- How to make websites mobile-friendly using the grid system

JavaScript

A. Introduction to JavaScript

- JavaScript in web development

- History and evolution of JavaScript

B. Use of JavaScript

- JavaScript in interaction and behavior of websites
- Integrating JavaScript with HTML and CSS

C. Variables

- Declaring variables using var, let, and const

D. Keywords

- JavaScript reserved keywords and naming conventions

E. Data Types

- Primitive types (String, Number, Boolean, Null, Undefined)
- Non-primitive types (Objects, Arrays, Functions)

F. JS Conditions

- Using if, else, switch, and conditional operators

G. Loops

- Using for, while, and do-while loops
- Loop control with break and continue

H. Functions

- Defining and calling functions
- Function parameters and return values

I. Arrays:

- Creating and accessing arrays.
- Array methods (push(), pop(), shift(), unshift(), map(), filter(), reduce(), etc.).
- Iterating through arrays using for, forEach(), map().
- Destructing of array

J. String and their method

- Using backticks for multi-line strings and variable interpolation.

K. Spread and Rest Operators:

- Spread (...) for arrays and objects.
- Rest (...) for function parameters.

L. Objects:

- Creating objects: object literals, new Object().
- Accessing object properties: dot notation, bracket notation.
- Methods inside objects.
- Destructuring of object

M. setTimeout and setInterval

- Using setTimeout() and setInterval() for time-based actions

N. HTML DOM

- Introduction to the Document Object Model (DOM)
- DOM methods for interacting with HTML elements
- Selecting DOM Elements:
 - getElementById (), getElementsByClassName()
 - Changing text content (innerText).
 - Changing HTML content (innerHTML).
 - Changing attributes (setAttribute(), getAttribute()).
 - Adding/removing elements (createElement(),removeChild(),appendChild())

O. Event Handling:

- Adding event listeners (addEventListener()).

P. Asynchronous JavaScript:

- Understanding synchronous vs asynchronous code.
- Callback functions.
- Promises
- Async/Await.
- Error Handling: try, catch, finally.

Q. JavaScript Classes and Prototypes:

- Introduction to ES6 Classes.
- Constructor function, this in classes.
- Inheritance and Polymorphism

R. JQuery and Its Methods

JQuery introduction ,syntax and its method