Besant Technologies

JavaScript Essentials - Detailed Syllabus

1. Introduction to JavaScript

1.1 What is JavaScript?

1.2 Role of JavaScript in Web Development

1.3 Setting Up the Environment (Browser Console, Code Editors)

1.4 JavaScript Syntax and Structure

2. Basics of JavaScript

2.1 Variables and Constants (`var`, `let`, `const`)

2.2 Data Types (String, Number, Boolean, Undefined, Null, Object)

2.3 Operators (Arithmetic, Assignment, Comparison, Logical)

2.4 Conditional Statements (`if`, `else`, `else if`, `switch`)

2.5 Loops (`for`, `while`, `do-while`, `for...in`, `for...of`)

3. Functions in JavaScript

3.1 Defining and Calling Functions

3.2 Function Parameters and Return Values

3.3 Arrow Functions (`=>`)

3.4 Callback Functions

3.5 IIFE (Immediately Invoked Function Expression)

4. JavaScript Objects

4.1 Introduction to Objects

4.2 Object Properties and Methods

4.3 Object Destructuring

4.4 Object-Oriented Programming Concepts

4.4.1 Classes and Constructors

4.4.2 Prototypes and Inheritance

5. Arrays and Array Methods

5.1 Creating and Accessing Arrays

5.2 Common Array Methods (`push`, `pop`, `shift`, `unshift`)

5.3 Advanced Array Methods (`map`, `filter`, `reduce`, `forEach`)

5.4 Multidimensional Arrays

6. DOM Manipulation

6.1 What is the DOM?

6.2 Selecting Elements (`getElementById`, `querySelector`, etc.)

6.3 Changing Element Content and Styles

6.4 Adding and Removing Elements (`appendChild`, `removeChild`)

6.5 Event Handling (`addEventListener`, Inline Events)

7. JavaScript Events

7.1 Mouse Events (`click`, `dblclick`, `mouseover`, etc.)

7.2 Keyboard Events (`keydown`, `keyup`)

7.3 Form Events (`submit`, `change`, `input`)

7.4 Event Bubbling and Capturing

8. JavaScript Error Handling

8.1 Understanding Errors in JavaScript

8.2 `try`, `catch`, `finally` Blocks

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8.3 Throwing Custom Errors

9. Advanced JavaScript Concepts

9.1 Closures and Scope

9.2 Asynchronous JavaScript

9.2.1 Callbacks

9.2.2 Promises

9.2.3 `async` and `await`

9.3 ES6+ Features

9.3.1 Template Literals

9.3.2 Destructuring

9.3.3 Default Parameters

9.3.4 Spread and Rest Operators

10. JavaScript APIs

10.1 Introduction to Browser APIs

10.2 Working with the `fetch` API

10.3 Local Storage and Session Storage

10.4 Geolocation API

10.5 Working with JSON

11. Debugging and Best Practices

11.1 Debugging in the Browser

11.2 Using `console.log` and Breakpoints

11.3 Writing Clean and Modular Code

11.4 Avoiding Common Mistakes

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12. Introduction to Frameworks and Libraries

12.1 What are JavaScript Frameworks and Libraries?

12.2 Introduction to jQuery

12.3 Overview of Modern Frameworks (React, Angular, Vue.js)

13. Project

13.1 Building an Interactive Web Page

13.2 Implementing Dynamic Content with JavaScript

13.3 Using APIs for Data Fetching

13.4 Adding Event Handling and DOM Manipulation

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