Web Development II - JavaScript

Course Overview

This intermediate course introduces students to JavaScript, allowing them to create interactive and functional web pages. Starting from basic programming principles, it progresses to advanced JavaScript techniques and introduces JQuery to simplify client-side scripting. Through practical projects, students will gain the skills to enhance web usability and interactivity, preparing them for diverse web development challenges.

Course Objectives

- Understand JavaScript fundamentals, including syntax, control structures, functions, and DOM manipulation.
- Create dynamic web content and respond to user events with JavaScript.
- Master advanced JavaScript features, such as object-oriented programming, asynchronous operations, ES6 enhancements, and web APIs.
- Learn JQuery basics, including syntax, selectors, effects, and DOM manipulation, to streamline JavaScript coding.
- Apply advanced JQuery techniques for AJAX calls, event handling, and incorporating plugins to enhance web page functionality.
- Design and implement a comprehensive web development project, incorporating responsive design principles and performance optimization strategies.

Unit 1: Intro to JavaScript

Familiarize students with JavaScript fundamentals and basic programming concepts.
- ☐ Overview of Web Development with JavaScript
- ☐ Integrating JavaScript into HTML
- ☐ Variables, Data Types, and Operators
- ☐ Control Structures: if-else, switch, loops
- ☐ Functions and Scope
- ☐ DOM Manipulation: Selecting and changing website elements
- ☐ Event Handling: Responding to user input
- ☐ Unit 1 Assignment - Create simple interactive web elements using JS

Unit 2: Advanced JavaScript

Dive deeper into advanced JavaScript features and best practices.
- ☐ Object-Oriented JavaScript: Objects, Prototypes, and Classes

- ☐ Asynchronous JavaScript: Callbacks, Promises, Async/Await
- ☐ Error Handling and Debugging
- ☐ JavaScript ES6 Features: Arrow functions, Template literals, Destructuring, Modules
- ☐ Form Validation and Manipulation
- ☐ Introduction to Web APIs and Ajax for dynamic data loading
- ☐ Unit 2 Assignment - To-do list application incorporating ES6 & Ajax

Unit 3: JQuery

Introduce JQuery and its utilities to simplify JavaScript coding. Apply JavaScript and JQuery knowledge to build a fully functional dynamic website.

- ☐ Why JQuery? Comparing pure JavaScript and JQuery
- ☐ JQuery Syntax and Selectors
- ☐ JQuery Effects: Hide/Show, Fade, Slide, Animate
- ☐ DOM Manipulation with JQuery: Adding, removing, and changing content
- ☐ Event Handling with JQuery
- ☐ AJAX with JQuery: Simplifying data fetching and page updates
- ☐ Integrating JavaScript and JQuery in Real-World Projects
- ☐ Responsive Design Principles and Techniques
- ☐ Using JavaScript and JQuery plugins (sliders, modals, tabs)
- ☐ Performance Optimization: Minification, Caching, and Load Times
- ☐ Debugging and Testing JavaScript/JQuery Code
- ☐ Unit 3 Assignment - Develop a dynamic website
    - ○ (e.g., a portfolio, a small e-commerce site, or a custom blog) showcasing interactive elements, data fetching, and responsive design.