



## Advanced Diploma in Web Design and Development Curriculum

The Advanced Diploma in Web Design and Development is a comprehensive program aimed at individuals who already have foundational skills in web design and development and wish to deepen their expertise in advanced front-end and back-end technologies, user experience (UX) design, and specialized frameworks and libraries. This program covers a broad range of topics, including advanced HTML/CSS, JavaScript frameworks, back-end languages, and DevOps. The course structure includes lectures, workshops, group projects, and a capstone project.

### Duration

- 9 months (36 weeks)

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### Modules

Week 1-2: Advanced HTML5 and CSS3  
Semantic HTML  
CSS Animations and Transitions  
SVG and Canvas  
Project 1: Build a complex, responsive landing page

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Week 3-4: Advanced JavaScript  
ES6+ Features  
Asynchronous JavaScript  
Functional Programming Concepts  
Project 2: Create a Single-Page App with Vanilla JavaScript

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Week 5-6: JavaScript Frameworks  
React Basics  
Vue.js Basics  
Angular Basics

Project 3: Create a CRUD Application using a JavaScript Framework

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Week 7-8: Front-end Build Tools

Webpack

Babel

npm and package.json

Project 4: Set up a build process for a front-end project

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Week 9-10: UX/UI Principles and Tools

User Research

Information Architecture

Wireframing and Prototyping

Project 5: Design and Validate a User Interface

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Week 11-12: Back-End Development (Node.js)

Node.js Basics

Express.js Framework

Project 6: Build a RESTful API using Node.js and Express

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Week 13-14: Databases

SQL (PostgreSQL, MySQL)

NoSQL (MongoDB)

Project 7: Implement Database Operations in a Web Application

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Week 15-16: Web Application Security

Authentication and Authorization

OAuth and JWT

Security Best Practices

Project 8: Implement Security Features in a Web Application

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Week 17-18: Version Control and Collaboration

Git Advanced Features

GitHub Workflows

Code Reviews

Project 9: Collaborative Software Development with Git

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Week 19-20: DevOps and Deployment  
Continuous Integration and Deployment (CI/CD)  
Docker Basics  
Cloud Hosting (AWS, Heroku)  
Project 10: Set up a CI/CD Pipeline and Deploy a Web Application

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Week 21-22: Testing and Debugging  
Unit Testing (Jest, Mocha)  
End-to-End Testing (Cypress, Selenium)  
Debugging Techniques  
Project 11: Write a Complete Test Suite for a Web Application

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Week 23-24: Progressive Web Apps (PWA)  
Service Workers  
Offline-First Design  
Web Manifest  
Project 12: Convert a Web Application into a PWA

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Week 25-30: Capstone Project  
Planning and Proposal  
Development Phase  
Testing and Debugging  
Deployment and Presentation

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Week 31-36: Internship or Real-World Project  
Work on a real-world project or an internship to apply learned skills

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Grading  
- Weekly Quizzes: 20%  
- Projects: 50%  
- Capstone Project: 20%  
- Internship/Real-World Project Evaluation: 10%

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### Prerequisites

- Basic Certification in Web Design and Development or equivalent experience
- Basic understanding of HTML, CSS, and JavaScript

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### Materials

- Lecture Notes and Slides
- Online Tutorials
- Sample Projects and Code Repositories
- Industry Tools

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### **Certification**

Upon successful completion, students will receive an Advanced Diploma in Web Design and Development.