

# CodeGPT Front-End Web Development Syllabus

Prompted by: **Sasha Astiadi**

Welcome to the **CodeGPT Front-End Web Development Syllabus**! This comprehensive learning path is designed to equip you with the essential skills and knowledge required to excel in the world of front-end web development. Whether you're a beginner looking to start your journey or an intermediate developer aiming to enhance your skills, this syllabus, supported by the assistance of ChatGPT, will guide you through various topics and technologies.

*Estimated Total Learning Time: Approximately 200-250 hours*

## **Module 1: Introduction to Web Development and HTML**

*Estimated Learning Time: 8-10 hours*

- Understanding the basics of the web and how websites work.
- Introduction to HTML: structure, tags, elements, and attributes.
- Creating a simple webpage using HTML.
- Working with headings, paragraphs, lists, links, and images.

## **Module 2: Cascading Style Sheets (CSS) Fundamentals**

*Estimated Learning Time: 10-12 hours*

- Introduction to CSS: styling, selectors, properties, and values.
- Applying inline, internal, and external styles.
- Working with colors, fonts, margins, padding, and borders.
- Building a basic webpage with styled content.

## **Module 3: Responsive Web Design**

*Estimated Learning Time: 10-12 hours*

- Understanding the importance of responsive design.
- Media queries and breakpoints for different screen sizes.
- Creating flexible layouts using CSS Grid and Flexbox.
- Testing and optimizing for various devices.

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## **Module 4: Introduction to JavaScript**

*Estimated Learning Time: 12-15 hours*

- Basics of programming concepts: variables, data types, and operators.
- Introduction to JavaScript: syntax, variables, data structures.
- Writing scripts to manipulate the DOM (Document Object Model).
- Adding interactivity to web pages with event listeners.

## **Module 5: Document Object Model (DOM) Manipulation**

*Estimated Learning Time: 12-15 hours*

- Understanding the DOM and its structure.
- Selecting and manipulating elements using JavaScript.
- Modifying content, styles, and attributes dynamically.
- Building interactive features like image sliders and form validation.

## **Module 6: Advanced CSS Techniques**

*Estimated Learning Time: 12-15 hours*

- CSS specificity and the cascade.
- Advanced layout techniques with Flexbox and CSS Grid.
- Working with CSS pre-processors like SASS or LESS.
- Animation and transitions using CSS.

## **Module 7: Introduction to Bootstrap**

*Estimated Learning Time: 8-10 hours*

- Understanding the Bootstrap framework and its components.
- Building responsive layouts and UI components using Bootstrap.
- Customizing and extending Bootstrap styles and components.

## **Module 8: Introduction to Vue.js**

*Estimated Learning Time: 15-18 hours*

- Overview of the Vue.js framework.
- Setting up a basic Vue project.
- Building components, handling state, and routing in Vue.

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## **Module 9: Introduction to React**

*Estimated Learning Time: 15-18 hours*

- Overview of the React framework.
- Setting up a basic React project.
- Building components, handling state, and routing in React.

## **Module 10: Connecting Databases to Front-End (APIs)**

*Estimated Learning Time: 10-12 hours*

- Introduction to APIs (Application Programming Interfaces) and RESTful architecture.
- Sending HTTP requests using JavaScript (fetch API).
- Fetching and displaying data from external APIs.
- Introduction to back-end and front-end communication.

## **Module 11: Web Performance Optimization**

*Estimated Learning Time: 8-10 hours*

- Strategies for improving website performance.
- Minification and compression of assets.
- Browser developer tools for profiling and debugging.

## **Module 12: Accessibility and Best Practices**

*Estimated Learning Time: 10-12 hours*

- Understanding web accessibility principles.
- Implementing semantic HTML for better accessibility.
- Testing websites for accessibility compliance.

## **Module 13: Web Hosting and Deployment (Heroku)**

*Estimated Learning Time: 8-10 hours*

- Choosing a web hosting provider.
- Uploading files using FTP or other methods.
- Introduction to Heroku for deploying web applications.
- Domain management and DNS settings.

## **Module 14: Introduction to Ruby on Rails**

*Estimated Learning Time: 15-18 hours*

- Overview of the Ruby on Rails framework.

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- Setting up a basic Rails project.
- Building models, views, controllers, and routing in Rails.

## Module 15: Final Project

*Estimated Learning Time: 15-20 hours*

- Applying all the skills learned throughout the course.
- Designing and developing a complete front-end project using Vue.js, React, or Ruby on Rails.
- Showcasing the project in a portfolio.

## What to Expect Upon Completion

*By the end of this comprehensive learning journey, you can expect to:*

- **Master Fundamental Concepts:** Gain a strong grasp of core web development concepts, including HTML, CSS, JavaScript, and DOM manipulation.
- **Build Responsive and Interactive Websites:** Create websites that adapt to various screen sizes and devices, and incorporate interactive features to engage users.
- **Utilize Popular Front-End Frameworks:** Become proficient in using front-end frameworks like Vue.js and React to build dynamic and efficient user interfaces.
- **Work with APIs and Databases:** Learn how to connect to APIs, fetch data, and integrate databases into your front-end applications for real-world functionality.
- **Optimize Performance and Accessibility:** Implement strategies to optimize website performance and ensure accessibility, making your projects efficient and inclusive.
- **Deploy Web Applications:** Understand the deployment process and host your projects on platforms like Heroku, making your work accessible to the world.
- **Craft a Portfolio-worthy Project:** Develop a complete front-end project that demonstrates your skills and creativity, which you can proudly showcase in your portfolio.

Completing this syllabus will equip you with a strong foundation in front-end web development and provide you with the confidence to tackle a variety of projects and challenges in the field.

**Happy Coding!**

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