



OXFORD SUMMER COURSES

FrontEnd Web Development(Computer Science) Syllabus for 13-15 year olds

Course Information

Introduction:

This course is designed to provide a comprehensive introduction to front-end web development. By the end of the two-week session, students will be proficient in HTML, CSS, and JavaScript, enabling them to create responsive and interactive web pages.

Overview of topics

- Week 1: Introduction to HTML and CSS
 - HTML Basics: Structure, tags, and attributes
 - CSS Basics: Syntax, selectors, and properties
 - Responsive Design: Media queries and layout techniques
 - Introduction to CSS Frameworks (e.g., Bootstrap)
- Week 2: Advanced CSS and Introduction to JavaScript
 - Advanced CSS Techniques: Flexbox, Grid, and animations
 - JavaScript Basics: Syntax, DOM manipulation, and interactivity
 - Project Work: Developing a portfolio website
 - Presentations and Feedback: Showcasing projects and receiving feedback

Teaching

The teaching approach will be interactive and hands-on, with students actively participating throughout. As a tutor, I will explain concepts, work through coding examples, address misconceptions, and facilitate discussions. Students will apply their knowledge through practical coding exercises, group projects, and individual assignments.

Expectations

Students are expected to participate actively, complete assignments on time, collaborate with peers and ask questions when in doubt. A successful student in this course will show curiosity, a willingness to experiment, and dedication to improving their coding skills.

Pre-Course Reading:

Compulsory:

- HTML & CSS:
 - W3Schools HTML Tutorial (<https://www.w3schools.com/html/>)
 - W3Schools CSS Tutorial (<https://www.w3schools.com/css/>)
- JavaScript:
 - JavaScript Basics - freeCodeCamp (<https://www.freecodecamp.org/learn/javascript-algorithms-and-data-structures/basic-javascript/>)

Optional:

- Codecademy HTML & CSS Course: Complete the free HTML and CSS courses on Codecademy.
- W3Schools JavaScript Tutorial: Go through the basic JavaScript tutorial on W3Schools.
- Mozilla Developer Network (MDN) JavaScript Guide (<https://developer.mozilla.org/en-US/docs/Web/JavaScript/Guide>)



Pre-Course Work:

Compulsory:

- Watch the video "[Introduction to HTML](https://www.youtube.com/watch?v=UB1O30fR-EE)" by freeCodeCamp. Based on this, be prepared to discuss what you learned in the first class.

Optional:

- Familiarize yourself with basic HTML and CSS concepts using online resources like W3Schools or Codecademy.

Week One - Monday

Topic(s)

Introduction to HTML

Detailed teaching methods and timings

- Interactive lecture on the basics of HTML, including the structure of an HTML document, common tags, and attributes. Use a whiteboard or online equivalent to illustrate examples. (30 mins)
- Hands-on coding session where students create a simple web page that includes a title, headings, paragraphs, and images. Students will use an online code editor to practice. (1 hr)
- Group activity where students review each other's web pages and provide constructive feedback. (20 mins)
- Q&A session to address any questions or issues encountered during the coding session. (10 mins)

Homework

Create a personal webpage using HTML that introduces themselves, includes at least one image, and a list of their hobbies or interests. This webpage will serve as the foundation for further styling and interactivity in subsequent lessons.

Week One - Tuesday

Topics:

Styling with CSS

Detailed teaching methods and timings

- Lecture on CSS syntax, selectors, and properties. Demonstrate how CSS can be used to style HTML elements. (30 mins)
- Hands-on coding session to apply CSS to style the HTML webpage created on Monday. Students will experiment with different styles, colors, fonts, and layouts. (1 hr)
- Introduction to responsive design and media queries. Explain the importance of making web pages responsive for different devices. (30 mins)
- Group activity to implement responsive design on their personal web pages. (20 mins)
- Q&A session to address any questions. (10 mins)

Homework

Style the webpage created in the previous session using CSS to enhance its visual appeal and make it responsive.



Week One - Thursday

Topics

Responsive Web Design

Detailed teaching methods and timings

- Lecture on responsive design principles and the mobile-first approach. Discuss the significance of designing for mobile devices first. (30 mins)
- Hands-on coding session to implement media queries for responsive layouts. (1 hr)
- Introduction to a simple CSS framework (e.g., Bootstrap) and its basic usage. (30 mins)
- Group activity to integrate a CSS framework into their personal web pages. (20 mins)
- Q&A session to address any questions. (10 mins)

Homework

Design and code a responsive portfolio webpage showcasing their interests and hobbies using a basic CSS framework.

Week One - Friday

Topics

Adding Interactivity with JavaScript

Detailed teaching methods and timings

- Lecture on JavaScript basics, including syntax, data types, and control structures. (30 mins)
- Hands-on coding exercises to practice JavaScript and DOM manipulation. (1 hr)
- Implementing interactive features like form validation and dynamic content updates on their personal web pages. (30 mins)
- Group activity to review and improve interactivity features. (20 mins)
- Q&A session to address any questions. (10 mins)

Homework

Implement interactive features on their portfolio webpage using JavaScript.

Week Two - Monday

Topics

Advanced CSS Basics

Detailed teaching methods and timings

- Lecture on advanced CSS positioning (flexbox, grid) and layout techniques. (30 mins)
- Hands-on coding session to practice CSS layout techniques. (1 hr)
- Introduction to CSS transitions and basic animations. (30 mins)
- Group activity to create simple animations on their personal web pages. (20 mins)
- Q&A session to address any questions. (10 mins)

Homework

Enhance their portfolio webpage with basic CSS layout techniques and animations.



Week Two - Tuesday

Topics

Introduction to Version Control with Git

Detailed teaching methods and timings

- Lecture on version control and Git fundamentals. Explain the importance of version control in web development. (30 mins)
- Hands-on practice with Git commands and basic workflows. (1 hr)
- Collaborative activity to set up Git repositories and manage versions. (30 mins)
- Group activity to collaborate on a small project using GitHub. (20 mins)
- Q&A session to address any questions. (10 mins)

Homework

Set up a Git repository for their portfolio webpage and commit changes using Git.

Week Two - Thursday

Topics

Project Work and Troubleshooting

Detailed teaching methods and timings

- Project work session with guidance and troubleshooting support from the instructor. (1hr)
- Hands-on debugging and troubleshooting session. Students will learn how to identify and fix common coding errors. (1hr)
- Group activity to review each other's projects and provide feedback. (30 mins)
- Q&A session for final project preparations. (30 mins)

Homework

Complete the final touches on their portfolio webpage project and prepare for presentation.

Week Two - Friday

Topics

Project Presentation and Review

Detailed teaching methods and timings

- Project presentation session where each student showcases their work. Students will present their portfolio web pages to the class. (1hr)
- Peer review and instructor feedback session. Students will provide and receive constructive feedback. (1hr)
- Reflection and discussion on the learning experience. Students will discuss what they learned and how they can improve. (30 mins)
- Closing remarks and course completion certificates. Students will receive certificates and celebrate their achievements. (30 mins)

Homework

Reflect on the feedback received and make any necessary revisions to their portfolio webpage project.