MASTERY
— CODING —

Web Development Foundations

Course Syllabus

Web Development Foundations Syllabus

General Overview

The WDF explores the fundamentals of web design and development. Throughout the course it teaches core concepts such as user interface design, creating responsive layouts, and accessibility.

When students have an understanding of how to apply design to a project it transitions to coding instructions covering the foundation of HTML and CSS to bring those designs to the browser and create visually appealing web pages. Finally, it progresses to JavaScript where students learn how to write scripts that will add interactivity to their web pages.

Course Objectives

Upon completion of this course, student will be able to:

- Illustrate the life cycle of a web project from idea to development
- Define industry standard design terms and principles
- Illustrate design techniques and apply them to their own project ideas
- Utilize HTML to create the structure and define the content of their web pages
- Utilize CSS to create visually appealing and flexible web pages
- Utilize JavaScript to add interactivity to otherwise static web pages
- Articulate the importance of designing and developing for accessibility and collaboration
- Create responsive layouts for desktop and mobile screens

Mission and Goals

In accordance with the Mission of Mastery Coding, the faculty, staff, and students understand and declare our purpose to be the encouragement of life-long learning, academic excellence, the education of the whole person, and future readiness in a world changed by technology.

Value and respect for all individuals

We believe in the worth of each individual. We affirm the inherent dignity and value of each person. Therefore, we believe that all individuals have the potential to be successful learners with unique characteristics and experiences that bring positive value and meaning to the learning experience.

All students will be:

- Offered a challenging learning experience that will help to maximize their individual achievement and provide meaningful opportunities for students to excel
- Offered diverse instructional suggestions and strategies that address the specific needs of the United State's diverse population
- Provided a clear instructional goal
- Afforded an instructional program that preserves the balance of conceptual understanding and problem solving of the subject area.
- Provided the learning in each instructional year that lays the necessary groundwork for success in subsequent years of study
- Provided a learning environment that fosters a genuine understanding and confidence in all students that through hard work and sustained effort, they can achieve or exceed the learning objectives
- Provided a cogent balance theory, research, and practice.

Develop moral, intellectual, responsible, and caring citizens

We are committed to the preparation of students who will be exemplars in the field, and who reflect high standards of ethics and values. We seek to be, and to encourage others to be, people who have the intellectual skills to critically evaluate important issues, have the moral conviction to respond as agents of change, and exhibit an ethic of care in the service of others.

Grading Scale

93.0%-100%	A
90.5%-92.9%	A-
88.0%-90.4%	B+
85.0%-87.9%	B
80.0%-84.9%	B-
78.0%-79.4%	C+
71.0%-77.9%	C
69.5%-70.9%	C-
68.0%-69.4%	D+
61.0%-67.9%	D
59.5%-60.9%	D-
0 - 59.4%	F

**The instructor retains the right to make changes, additions or deletions to the syllabus during the course of the learning period.*

Course Breakdown

Unit 1: Designing for the Internet

Students will learn the fundamentals of visual design, how to create layouts for the web using design software, and the best practices to make designs that a variety of people can enjoy.

Learning Objectives

By the end of this unit, students will be able to:

- Define industry terms and careers associated with web design
- Compare and contrast user interface and user experience design
- Utilize an interface design software to produce a project

Chapters

- Chapter 1: Welcome to Web Foundations (Duration: 1 hr 15 min)
    - Course overview and explanation of the course toolkit
    - Overview of web design terminology, workflows, and associated careers
- Chapter 2: Introduction to UX & UI (Duration: 2 hrs 45 min)
    - Define related and differentiated concepts for user interface and experience design
    - Recognize common user interface software tools and shortcuts
- Chapter 3: Design Workflow & Principles (Duration: 2 hrs)
    - Define scope and how to conduct research for a new project idea
    - Illustrate the importance of understanding the project's target audience
- Chapter 4: Designing for Responsive Layouts (Duration: 2 hrs 15 min)
    - Identify the grid types used to optimally display different types of content
    - Recognize terms related to a responsive, mobile-first design approach
- Chapter 5: Unit Project | Mood Board to Mockup (Duration: 2 hrs 30 min)
    - Students will create a layout plan, wireframe, and high fidelity design mockup

Course Breakdown

Unit 2: Web Development Basics

Students will begin the transition from web designer to web developer as we discuss the workings of the internet, the web browser and the foundational skills that will allow us to turn our designs to websites.

Learning Objectives

By the end of this unit, students will be able to:

- Create the structure and content of a web page using HTML
- Apply a variety of visual styling to a web page using CSS

Chapters

- Chapter 1: The Internet & HTML (Duration: 2 hrs 45 min)
    - Overview of the internet, the history of its development, and its regulations
    - Introduction to HTML and its history, syntax, and the basics of formatting text
- Chapter 2: Styling with CSS (Duration: 2 hrs 30 min)
    - Define CSS, its use in regards to web development, and its syntax
    - Draw similarities between user interface design concepts and CSS properties
    - Define character sets and identify the generic font families
- Chapter 3: Designing as a Developer (Duration: 2 hrs 30 min)
    - Explain the usage of the color wheel and defining characteristics of color
    - Apply color in code using keywords, hex, RGB, and HSL values
    - Show how to utilize generic fonts and those hosted by the Google Font Library
- Chapter 4: Arranging Content (Duration: 2 hrs 30 min)
    - Illustrate how to properly structure content in HTML using semantic markup
    - Use various CSS properties to position elements on the web page

Course Breakdown

Unit 2: Web Development Basics

Continued…

- Chapter 5: Links, Lists & Tables (Duration: 1 hr 30 min)
    - Overview of links and their ability to connect external and internal content
    - Define new methods to structure HTML content using lists and tables
- Chapter 6: Media Elements (Duration: 1 hr 30 min)
    - Define the unique media types that can be incorporated into web pages, such as images, video, and iframes
    - Identify the importance of offering multiple sources when adding media
    - Illustrate how to incorporate media content from third party sources like YouTube
- Chapter 7: Unit Project | Green Team Website (Duration: 3 hrs)
    - Utilizing a mockup students will create a static web page using HTML and CSS

Course Breakdown

Unit 3: JavaScript Basics & HTML Forms

Students will develop an understanding of the programming language used for this course, JavaScript, which is used in almost every modern website. So in this unit we start with the basics such as using data types for different purposes, writing expressions, and programming behavior with functions.

Learning Objectives

By the end of this unit, students will be able to:

- Write scripts using programming fundamentals
- Apply conditional logic and randomness as needed
- Create JavaScript functions to interact with HTML and CSS

Chapters

- Chapter 1: Getting Started with Programming (Duration: 2 hrs)
    - Overview of the basics and the history of the JavaScript programming language
    - Define commands in the web browser console
    - Define engineering and recognize different engineering disciplines
- Chapter 2: Data Types & Expressions (Duration: 2 hrs)
    - Recall different data types and arithmetic expressions
    - Illustrate the order of operations and variable declarations
    - Differentiate and utilize properties, methods, and comments
- Chapter 3: Comparison Operators & Control Flow (Duration: 2 hrs 15 min)
    - Compare and utilize different types of comparison operators
    - Construct conditional statements using logical operators
    - Illustrate randomness using the built-in Math object

Course Breakdown

Unit 3: JavaScript Basics & HTML Forms

Continued…

- Chapter 4: Arrays & Loops (Duration: 1 hr 30 min)
  - Define arrays and utilize zero-based numbering to access array elements
  - Utilize properties and methods to interact with arrays
  - Construct loops utilizing various assignment operators
- Chapter 5: Functions & Event-Driven Development (Duration: 2 hrs 30 min)
  - Recognize the difference between variables and functions
  - Define functions using parameters, arguments, and return values
  - Use the Document Object Model (DOM) to interact with HTML
- Chapter 6: Designing & Developing Forms (Duration: 2 hrs)
  - Define the construction of HTML forms and form elements
  - Illustrate the basics of web servers and hosting
  - Recall the fundamentals of form submission and styling
- Chapter 7: Unit Project | Color Picker Application (Duration: 2 hrs 30 min)
  - Utilizing a mockup students will break down a design into components
  - Using HTML. CSS, and JavaScript students will then build a color picker application

Course Breakdown

Unit 4: Designing & Developing Responsive Websites

Students will conclude by utilizing more advanced concepts to take their CSS and JavaScript knowledge to the next level as we build a variety of interactive projects.

Learning Objectives

By the end of this unit, students will be able to:

- Understand fundamental design principles and the components of a website
- Define the importance of accessibility in design and development
- Apply a variety of responsive styling and development techniques

Chapters

- Chapter 1: Designing for the Web (Duration: 2 hrs 45 min)
  - Recall basic design principles and their application to web design
  - Define digital citizenship and how it impacts online behavior
- Chapter 2: Designing For Consistency & Collaboration (Duration: 2 hrs 30 min)
  - Identify design themes and illustrate visually using a mood board
  - Define the different potential accessibility barriers for users
- Chapter 3: Responsive Development Layouts (Duration: 2 hrs 30 min)
  - Utilize CSS based layout techniques to create responsive designs
- Chapter 4: Unit Project | Business Design & Website (Duration: 2 hrs 30 min)
  - Utilize the web design workflow to create a design brief for a mock company
  - Design a desktop and mobile mockup
  - Develop the mockup into a responsive website using HTML, CSS and JavaScript