**SYLLABUS**

**Unit 1: Introduction To HTML And CSS**

**OBJECTIVES**

**HTML**

* Decide between a variety of text editors for writing code
* Identify the parts that make up an HTML
* Determine when to use specific HTML tags
* Correctly structure nested HTML content
* Form creation

**CSS**

* Identify the benefit of separating style from content
* Use CSS to style a website
* Test styles by manipulating CSS properties
* Use CSS references to lookup standard CSS properties and values

**Responsive Design Concepts With Bootstrap**

* Create your own responsive web page that works well on any device: phone, tablet, desktop or anything in between.
* Explore what makes a site responsive and how some common responsive design patterns work across different devices.
* Create your own responsive layout using the `viewport` tag and CSS media queries.
* Experiment with major and minor breakpoints
* Optimize text for reading.
* Build HTML elements for any screen size.
* Use the browser viewport to create consistent user experiences.
* Use media queries and breakpoints to create responsive web page designs
* Bootstrap classes
* Using Bootstrap’s Grid System (Containers, Rows, & Columns)
* Creating Columns & Adding Content
* Adjusting Column Sizes Across Screen Sizes
* Using Some of Bootstrap’s Components & Pre-Made Styles
* Nesting Grids
* Adding a Navbar & Other Components
* Showing & Hiding Elements at Specific Sizes
* Changing the Layout Across Screen Sizes

**UNIT 2: JAVASCRIPT BASIC**

In this part, you’ll understand the basic principles of the most used programming language on the web – JavaScript. At the end of this, you’ll be comfortable writing pure JavaScript codes.

* Storing and Tracking Information with Variables

**Conditional Statements & Functions**

* Introducing Conditional Statements
* Comparison Operators
* Boolean Values
* Combining Multiple Tests Into a Single Condition
* Introducing Functions
* Getting Information From a Function
* Giving Information to Functions
* Variable Scope

**Loops and Arrays**

* Simplify Repetitive Tasks with Loops
* Types of Loops
* What is an Array?
* Accessing, adding, removing Items in an Array
* Using For Loops with Arrays
* Useful Array Methods

**Unit 3: Object-Oriented JavaScript**

Objects in JavaScript encapsulate both data and functionality. You'll create, access, and modify objects to build a solid foundation for object-oriented programming.

**Objects in Depth**

* Access an object's properties
* Create objects using object literal notation
* Add properties to objects
* Write methods to access an object with the this keyword
* Compare an object with another object
* Identify global variables as properties of the window object
* Identify the risks of using global variables
* Extract properties and values from an object

**Classes and Objects**

* Model real-world "things" using object-oriented programming
* Write a constructor function to instantiate objects
* Identify various ways a function can be invoked, including each approach's effect on the value of this
* Leverage call , apply , and bind to manually set the value of this
* Access and add properties to an object's prototype
* Implement prototypal inheritance to base an object on another object

**ES6 Functions**

* With ES6, functions are getting some much-needed improvements. Learn a number of new things including arrow functions and classes.
* The JavaScript environment provides you with a number of features by default. You'll learn about Sets, Maps, Proxies, Generators, how iteration works, and more!

**UNIT 4: The DOM**

* What is the DOM?
* Select a Page Element By Its ID
* Select All Elements of a Particular Type
* Selecting Elements with the Same Class Name
* Using CSS Queries to Select Page Elements

**DOM and DOM Transversal**

* Getting and Setting Text with textContent and innerHTML
* Styling Elements
* Creating New DOM Elements
* Appending and removing Nodes

**Responding to User Interaction**

* What is an Event?
* Functions as Parameters
* Delaying Execution with setTimeout()
* Listening for Events with addEventListener()
* The Event Object

**Unit 5: The REACT Library**

**Why React?**

* Why React was built?
* Use react components to build complex functions from simple ones
* Recognize that React is just JavaScript

**Rendering UI with React**

* Use create-react-app to create a new React application
* Create reusable, focused Class components with composition
* Leverage JSX to describe UI

**State Management**

* Create reusable, focused Class components with composition
* Leverage JSX to describe UI
* Manage state in applications
* Use props to pass data into a component
* Create functional components focused on UI rather than behavior
* Add state to components to represent mutable internal data
* Use the “**this**” keyword to access component data and properties
* Update state with setState()
* Use PropTypes to typecheck and debug components
* Use controlled components to manage input form elements
* Conceptualize the lifecycle of a component
* Use React's componentDidMount lifecycle hook for HTTP requests

**Manage App Location with React Router**

* Use React Router to add different routes to applications
* Use state to dynamically render a different "page"
* Use React Router's Route component
* Use React Router's Link component

**Unit 6: Version Control and Deployment**

**Version Control, Git & GitHub**

* You'll learn about the benefits of version control and install the version control tool Git!
* Create a new repository from scratch
* Cloning an existing repository.
* Review an existing Git repository's history of commits.
* View files that have been modified.
* View changes that have been made.
* Make commits that are saved to the repository.
* Write descriptive commit messages.
* Verify the changes you're about to save to the repository.
* Add special markers called tags to commits.
* Work on isolated development tracks by making use of Git's branches.
* Combine branches together.
* Modify or undo changes that have been saved to a repository.
* Create remote repositories on GitHub.
* Get and send changes to a remote repository.
* Create copies of a project by forking another developer’s repository.
* Collaborate with other developers by contributing to a public project.
* Leverage pull requests to send suggested changes to another developer.
* Move or combine commits with `git rebase`.

**UNIT 7: NodeJs**

NodeJs is a backend or server-side frame-work that uses JavaScript code outside a web browser. Server-side JavaScript is becoming more prevalent in the industry, with web frameworks such as Node.js and Express making it simple to create and deploy complex, data-driven web applications. This course will prepare you to use such frameworks and show you how to integrate them with NoSQL databases such as MongoDB.

* Client-Side Frameworks for Developing Modular Web Page Components
* Building Scalable Web Apps with Server-Side JavaScript
* Collecting form data from the front-end
* Add, delete, modify data in your database

**UNIT 8: Deployment**

Deploying to a production environment

* Deploying with github
* Deploying the netlify
* Deploying to Heroku

**WEEK ONE**

• **Introduction To HTML:**

* + Brief history of the Web
  + Elements
  + Tags
  + Attributes
  + Class activity – <https://codepen.io/w3devcampus/pen/pPaPXZ>
  + Class activity – <https://codepen.io/w3devcampus/pen/OmvMba>

• Images

• Hyperlinks

**• Introduction to CSS:**

• Introduction To CSS

• The style and link tags

• Selectors and Declarators

• ID and Classes

• Properties and values

• Common CSS properties –

* font-size
* line-height
* text-align
* text-decoration
* font-weight
* font-style and
* font-family.
* Colors
* Units
* Class Activity - https://codepen.io/w3devcampus/pen/YVeQZN
* Combining selectors
* Descendant selectors
* Precedence
* Class Activity
* The CSS box model
* Margins, Paddings and Borders
* Debugging
* Tables (HTML and Styling)
* Background images and stylings
* Decorative borders and shadows
* Class Activity
* Pseudo classes
* The Position properties

• Forms (HTML and Styling)

**WEEK TWO**

• Introduction to Bootstrap

• Downloading files and using CDN

• Containers

• Jumbotron

• Understanding the bootstrap grid system

• Bootstrap classes

• Activities

• Project

**WEEK THREE**

**• Version Control, Git & GitHub**

* Git (the version control software GitHub is built on)
* Github:
  + Create remote repositories on GitHub.
* Repositories:
  + Creating new Repo
  + Cloning Repo
* Branches:
  + Work on isolated development tracks by making use of Git's branches.
  + Combine branches together.
* Commits:
  + Write descriptive commit messages.
  + Make commits that are saved to the repository.
* Pull Requests:
  + Collaborate with other developers by contributing to a public project.
  + Leverage pull requests to send suggested changes to another developer.

**• Deployment**

* Deploying to a production environment

• **PROJECTS:**

* Creating a frontend project and deploying to netlify

**WEEK FOUR**

**• Introduction to JavaScript**

• **Variables**:

* Creating and naming variables

**• Data-types:**

* Strings
* Numbers
* Booleans
* Null
* Undefined
* Arrays
* Objects

**• String properties and Methods:**

* Length property
* toUpperCase
* toLowerCase
* indexOf
* slice

**• Number data-types:**

* Learn about number operators:

**• Math operators:**

* Addition,
* Subtraction,
* Multiplication,
* Division
* Incremental
* Decremental

• **Comparison Operators**: Determining equality and differences between variables

* Greater than >
* Less than <
* Equal to == ===

**• Logical Operators:** Determining the logic between variables and values

* Logical And &&
* Logical Or ||
* Logical Not !

**• Concatenation:**

* Combining strings and Variables
* Template Literals

**• Conditional Statements:**

* Introducing Conditional Statements
* If else Statement
* Ternary Operators
* Switch Statements

**• LOOPs:**

* Simplify Repetitive Tasks with Loops
* For Loops
* `do ... while` Loops
* While Loop
* Exiting Loops

**WEEK FIVE**

**• Introduction to Functions:**

* Introducing Functions
* Variable Scope
* Types of Functions:
  + Function Declarations
  + Function Expression
  + ES6 Arrow Function
* Getting Information From a Function
* Giving Information to Functions

• **Class Activities**

• **Arrays**:

* What is an Array?
* Accessing, adding, removing Items in an Array
* Using For Loops with Arrays
* Useful Array Methods:
  + Pop and Push
  + Shift and Unshift
  + IndexOf
  + Concat
  + ForEach
  + Map
  + Filter
  + Includes
  + Find
  + Reduce

• **Objects:**

* Access an object's properties
* Create objects using object literal notation
* Add properties to objects
* Remove properties from objects using the delete operator
* Write methods to access an object with the **this** keyword
* Compare an object with another object
* Identify global variables as properties of the window object
* Identify the risks of using global variables
* Extract properties and values from an object

**• JavaScript Classes**

* Model real-world "things" using object-oriented programming
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* Identify various ways a function can be invoked, including each approach's effect on the value of this
* Leverage call , apply , and bind to manually set the value of this
* Access and add properties to an object's prototype
* Implement prototypal inheritance to base an object on another object

**• ES6 Functions:**

* Learn new ES6 syntax including arrow functions and classes.

**WEEK SIX**

• **Welcome to the DOM:**

* What is the DOM?
* Select a Page Element By Its ID
* Select All Elements of a Particular Type
* Selecting Elements with the Same Class Name
* Using CSS Queries to Select Page Elements

• **DOM and DOM Transversal:**

* Getting and Setting Text with textContent and innerHTML
* Styling Elements
* Creating New DOM Elements
* Appending and removing Nodes
* Using parentNode to Traverse Up the DOM
* Using previousElementSibling, nextElementSibling and insertBefore
* Getting All Children of a Node with children
* Getting the First and Last Child

• **Responding to User Interaction:**

* What is an Event?
* Functions as Parameters
* Delaying Execution with setTimeout()
* Listening for Events with addEventListener()
* Event Bubbling and Delegation
* The Event Object

**WEEK SEVEN**

• **PROJECTS:**

* Creating a frontend JavaScript project with all the knowledge that have been gained so far
* Deploy to Github and Netlify

**WEEK EIGHT**

**• Welcome to the DOM**

**• Rendering UI with React:**

* Create reusable, focused Class components with composition
* Leverage JSX to describe UI

**• State Management:**

* Create reusable, focused Class components with composition
* Leverage JSX to describe UI
* Manage state in applications
* Use props to pass data into a component
* Create functional components focused on UI rather than behavior
* Add state to components to represent mutable internal data
* Use the “**this**” keyword to access component data and properties

**WEEK NINE**

* Update state with setState()
* Use PropTypes to typecheck and debug components
* Use controlled components to manage input form elements
* Use create-react-app to create a new React application
* Conceptualize the lifecycle of a component
* Use React's componentDidMount lifecycle hook for HTTP requests

**• Manage App Location with React Router:**

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* Use React Router's Route component
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**WEEK TEN**

**• Project**