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Course Name: Web Development
Duration: 3-Month

Course Introduction:

Web Development course will help students to gain a comprehensive understanding and hands-on experience in essential web development technologies. From structuring content to enhancing user interactivity, managing databases, and scripting for the server-side, this course is designed to equip students with the skills needed to excel in the dynamic realm of web development.

Week wise division: -

Week 1: Introduction to Web Development Tools and Basic HTML/CSS: -

1. **Installation of Development Tools: -**
    - Install VS Code for code editing.
    - Install Git for Source Code Management / Version Control.
2. **Setting up Environment: -**
    - Configure VS Code settings for smooth development experience.
        - Like auto save, prettier extension etc.
        - Git bash as default VS Code terminal.
3. **Creating our first HTML Web Page: -**
    - Creating index.html at the root of the project directory.
        - Understand the basic HTML file structure. => html, head, body
        - VS Code extension => Live Server
4. **Push code to GitHub: -**
    - Initiate git in the project.
        - Add & Commit
        - Connect with github
        - Push on github
            - Clone the existing repo.
5. **More about HTML: -**
    - Tags: p, h, a, ul, ol, img.
6. **CSS: -**
    - Folder Structure
    - Css properties: color, background, border, margin, padding.

Learning Outcomes: -

By the end of this week, students will be able to

i. Install and configure VS Code & Git.
ii. Make HTML web page
iii. Add CSS to Html

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Week 2: Html form, Bootstrap Integration, Java Script Integration: -

Week Contents:

1. **HTML Forms: -**
    - Understand the form elements, including input, textarea, select.
    - Element attributes.
2. **CSS Hover Effect: -**
    - Understand to apply css properties when mouse cursor hovers upon an html element
3. **CSS Media Queries: -**
    - Understand the importance of CSS media Queries for responsive design
4. **Bootstrap Integration: -**
    - Learn how to integrate bootstrap in HTML.
    - Explore some of the Bootstrap components.
5. **Java Script Integration: -**
    - Learn how to integrate java script file in html.
    - JS alert and console.log statements.

Learning Outcomes: -

By the end of this week, students will be able to

i. Understand the structure and elements of HTML forms.
ii. CSS hover effects and media queries for responsive design
iii. Integrate Bootstrap for responsive and visually appealing web design.
iv. Integrate JavaScript for webpage interactivity, utilizing alert and console.log statements as a Java Script refresher.

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JAVA SCRIPT

Week 3: Java Script Fundamentals

Week Content: -

1. **Variables:**
    - Creating variables
        - Let, var, const & rules for naming variables
        - Best practices (let, const)
        - Datatypes
2. **Strings: -**
    - String indexing
        - String useful methods (e.g. typeof, string to number, number to string)
        - String concatenation
3. **Comparison Operators: -**
    - And, or, not
    - If-else, Nested if else
    - Ternary operators
    - Switch statements
4. **Loops: -**
    - Conditional Loop (While loop)
    - Counter Loop (For loop)
    - Break and Continue statements

Learning Outcomes: -

By the end of this week, students will be able to

i. Create variables in JS, adhering to naming rules.
ii. Manipulate strings in JavaScript, including indexing, using different string methods.
iii. Apply comparison operators, such as &&, ||, & ! for logical conditions, implement if-else statements, nested if-else structures, and if-else if conditions.
iv. Additionally, students will use ternary operators and switch statements for concise conditional expressions.
v. Implement conditional (while) and counter (for) loops.

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Week 4: JavaScript Fundamentals (Cont.)

Week Content: -

1. **Intro to Arrays: -**
   - Useful Array methods
     - Push, pop, shift, unshift
     - Primitive data types, non-primitive (reference) data types
     - Loop through array. (Week 3)
2. **Intro to Objects: -**
   - How to iterate objects
   - Clone array and object
3. **Array of objects & Array in object: -**
   - Array containing object in it.
   - Object containing array as a value

Learning Outcomes: -

By the end of this week, students will be able to

i. Effectively use array methods (push, pop, shift, unshift) for array manipulation.
ii. Difference between primitive and reference data types.
iii. Loop through arrays.
iv. Object and array cloning.
v. Create and manage complex data structures, including arrays of objects and objects containing arrays.

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Week 5: Functions in JS: -

Week Content: -

1. Normal Function Declaration: -
2. Arrow Functions: -
3. Function inside object (Methods): -
4. Function in array: -

Learning Outcomes: -

By the end of this week, students will be able to

i. Normal function declaration syntax and usage.
ii. Implementing arrow functions and its difference with normal functions and best practices (arrow function).
iii. To create and utilize functions as methods within objects.
iv. Understanding the integration of functions within arrays.

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DOM Manipulation in JAVA SCRIPT

Week 6: DOM Manipulation in Java Script: -

Week Content: -

1. getElementById: -
2. getElementByClassName: -
3. querySelector: -
4. querySelectorAll: -
    a. change html content by dom manipulation: -
    b. intro to events
        i. submit html form values

Learning Outcomes: -

By the end of this week, students will be able to

i. Proficiency in selecting and manipulating HTML elements using getElementById, getElementByClassName, querySelector, and querySelectorAll.
ii. Ability to dynamically change HTML content through DOM manipulation methods.
iii. Understanding the basics of events in JavaScript and the concept of event listeners.
iv. Practical application of event handling for capturing and submitting HTML form values, enhancing interactivity in web development.

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ASYNCHRONOUS JAVA SCRIPT

Week 7: Asynchronous JavaScript: -

Week Content: -

1. SetTimeOut: -
2. SetInterval: -
3. Promises: -
4. Async await
5. Fetch: -

Learning Outcomes: -

By the end of this week, students will be able to

i. Do asynchronous functionalities.

ii. Http methods (get, post, put, delete)

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PHP & MySQL

Week 8: PHP & SQL: -

Week Content: -

1. **Software Installation: -**
   - Xampp

2. Php variables & Rules: -

Datatypes,

3. Operators, If else and switch conditions

4. Arrays, Loops (for and while)

5. Functions

Learning Outcomes: -

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

i. Functional programming in PHP

Week 9-10: Integrate PHP with MySQL Database: -

Week Content: -

1. **Creating Database and Tables : -**
2. **Connecting Php to MySQL Db: -**

3. CRUD operations in MySQL

Learning Outcomes: -

By the end of this week, students will be able to

i. CRUD operations in the PHP backend, including creating, reading, updating, and deleting data.

Week 10: Integrate CRUD APIs with Front End: -

Week Content: -

1. **Fetch Api : -**

- Make HTTP get, put and delete request to node js backend server from front end

Learning Outcomes: -

By the end of this week, students will be able to

i. Understand and implement CRUD operations on the front end, effectively interacting with the Node.js backend for data creation, retrieval, update, and deletion.

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Laravel

Week 11: Introduction to Laravel: -

1. Overview of MVC (model, view and controllers) architecture.
2. Separate frontend and backend layer.

By the end of this week, students will have the understanding of

i. MVC Architecture Frameworks.

Tailwind CSS

Week 12: - Introduction to Tailwind CSS: -

1. Styling and animations

Learning Outcomes: -

By the end of this week, students will be able to

i. Implement styles and animation to different elements