# **BCSE:0255 Full Stack-I**

**Objective: The objective of this Course is that students Will Design Web-Pages, portfolio, ecommerce website Page using HTML CSS and JS and Animations using Key frame**

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| **Module No.** | **Content** | **Hours** |
| **I** | **Introduction to Client Server Architecture**: Components of Client-Server Application, Client-Server Models and their Benefits, Characteristics of Web Projects, Static V/s Dynamic Websites and Web Portal.  **Web Servers:** Introduction to prominent Web Servers, Installation of WAMP/XAMPP and Eclipse IDE  **Client-Side Implementation**:  **HTML:** First brush with HTML, understanding HTML and the role of HTML in creating a web page, writing our first HTML code, Understanding HTML Boilerplate, HTML-5 syntax, and HTML Tree, looking for documentation on MDN and W3School, learning heading, paragraph, and other useful HTML tags, Understanding Blocks vs Inline elements, Learning about HTML Semantic Elements (nav, article, section, header, main, footer, aside, figure  and figcaption)  **CSS & CSS Frameworks:** Introducing CSS and understanding the role of CSS, Adding CSS to our HTML Page, learning all about selectors (Basic + Advanced Selector), Learning about CSS Colors and various Color formats (hexadecimal, RGB, RGBA, and HSL format),  Learning about box models in CSS and various box-model properties.  Understanding CSS Units, working with layout and changing the normal flow and default layout using display, positions, and flexboxes, using Media Queries to create a responsive layout, learning about fun stuff in CSS, adding transitions, transforming and Animations, Exploring various CSS frameworks - Bulma, Material UI, Semantic UI, Tailwind CSS, and Bootstrap | 15 |
| **II** | **JS:** Introducing JS, Various features - Compile-Interpreted-JIT languages, Dynamically vs Statically Typed,  JS Engine, learning all about Math objects and generating random numbers in a given range, Understanding if-else if-else if-else, Ternary operator, Binary operator, Logical and Bitwise Operators  Short-Circuiting using Logical AND and OR operators, Learning the first data structure - Array, and Various Array methods, Learning all about JS Objects, Understanding while, for, for of, and for loops in JS, Learning all about functions and types of function - function expression, arrow function, first-class function, Understanding Object inheritance in JS and how prototypes help to achieve it, Understanding Construction  function and class Syntax in JS(getter, setter, static methods), Asynchronous Programming - Event Loop, Callback Queue, and Web APIs Environment, Understanding Callback hell and using Promises  **DOM:** Understanding what DOM is and how to manipulate DOM using JS, Selecting elements in a DOM tree using various selectors, Exploring the event life cycle, and understanding event bubbling, Capturing, and Event Delegation  **jQuery**: Introduction to JS framework-jQuery, Learning and exploring easy-to-use APIs provided by jQuery, Exploring various APIs in jQuery - .css(), HTML(), attr(), first(), last(), etc, Creating effects using jQuery- sliding, toggle | **25** |
| **III** | **AJAX & APIs:** introduction to AJAX, learning what AJAX is and how it is useful in Web Development and SPAs, Comparing traditional Client-Server Model with AJAX Model, Demystifying the APIs and Endpoints calling the APIs using Postman, understanding Status Code, etc., Learning how to make HTTP request using JS, Learning the native of making AJAX request using XMLHttp request object, Introducing modern way of making a request using fetch web API, Making request using third party libraries such as Axios and jQuery | **10** |

**Reference Books/ Textbooks / Cases:**

Eloquent JavaScript : A Modern Introduction to Programming 3rd Edition

Book by Marijn Haverbeke

you Don't Know JS 2nd Edition

Book by Kyle Simpson

MASTERING HTML, CSS & Java Script Web Publishing

by Laura Lemay

**Intended Outcomes:**

**Outcome:**

After successful completion of this course, the students will be able to:

* Understand the concepts HTML and there uses.
* Understand the concepts CSS and there uses.
* Understand the core concepts of programming Languages like JavaScript both on server side and client side.
* Understand the Front-end part of MERN Stack Applications
* Create a Responsive Web Site