

23CS22SC - FULL STACK DEVELOPMENT – 1

(Skill Enhancement Course)
(Common to CSE, CSE (AI&ML), and AI&DS)

Course Category:	Skill Enhancement Course	Credits:	2
Course Type:	Practical	Lecture-Tutorial-Practical:	1-0-2
Prerequisite:	Web Design Frameworks and Version Control systems	Sessional Evaluation: Univ. Exam Evaluation: Total Marks:	30 70 100
Objectives:	Students undergoing this course are expected: - Make use of HTML elements and their attributes for designing static web pages - Build a web page by applying appropriate CSS styles to HTML elements - Experiment with JavaScript to develop dynamic web pages and validate forms		

Course Outcomes	Upon successful completion of the course, the students will be able to:	
	CO1	Design Websites. (L1)
	CO2	Apply Styling to web pages. (L4)
	CO3	Make Web pages interactive. (L3)
	CO4	Design Forms for applications. (L2)
	CO5	Choose Control Structure based on the logic to be implemented. (L3)
Course Content	<u>Sample Experiments</u> 1. Lists, Links and Images a. Write a HTML program, to explain the working of lists. Note: It should have an ordered list, unordered list, nested lists and ordered list in an unordered list and definition lists. b. Write a HTML program, to explain the working of hyperlinks using <a> tag and href, target Attributes. c. Create a HTML document that has your image and your friend's image with a specific height and width. Also when clicked on the images it should navigate to their respective profiles. d. Write a HTML program, in such a way that, rather than placing large images on a page, the preferred technique is to use thumbnails by setting the height and width parameters to something like to 100*100 pixels. Each thumbnail image is also a link to a full sized version of the image. Create an image gallery using this technique 2. HTML Tables, Forms and Frames a. Write a HTML program, to explain the working of tables. (use tags: <table>, <tr>, <th>, <td> and attributes: border, rowspan, colspan)	

- b. Write a HTML program, to explain the working of tables by preparing a timetable. (Note: Use <caption> tag to set the caption to the table & also use cell spacing, cell padding, border, rowspan, colspan etc.).
- c. Write a HTML program, to explain the working of forms by designing Registration form. (Note: Include text field, password field, number field, date of birth field, checkboxes, radio buttons, list boxes using <select>&<option> tags, <text area> and two buttons ie: submit and reset. Use tables to provide a better view).
- d. Write a HTML program, to explain the working of frames, such that page is to be divided into 3 parts on either direction. (Note: first frame image, second frame paragraph, third frame hyperlink. And also make sure of using “no frame” attribute such that frames to be fixed)

3. **HTML 5 and Cascading Style Sheets, Types of CSS**

- a. Write a HTML program, that makes use of <article>, <aside>, <figure>, <figcaption>, <footer>, <header>, <main>, <nav>, <section>, <div>, tags.
- b. Write a HTML program, to embed audio and video into HTML web page
- c. Write a program to apply different types (or levels of styles or style specification formats) - inline, internal, external styles to HTML elements. (identify selector, property and value).

4. **Selector forms**

- a. Write a program to apply different types of selector forms
 - i. Simple selector (element, id, class, group, universal)
 - ii. Combinator selector (descendant, child, adjacent sibling, general sibling)
 - iii. Pseudo-class selector
 - iv. Pseudo-element selector
 - v. Attribute selector

5. **CSS with Color, Background, Font, Text and CSS Box Model**

- a. Write a program to demonstrate the various ways you can reference a color in CSS.
- b. Write a CSS rule that places a background image halfway down the page, tilting it horizontally. The image should remain in place when the user scrolls up or down.
- c. Write a program using the following terms related to CSS font and text:
 - i. font-size ii. font-weight iii. font-style
 - iv. text-decoration v. text-transformation vi. text-alignment
- d. Write a program, to explain the importance of CSS Box model using
 - i. Content ii. Border iii. Margin iv. Padding

6. Applying JavaScript - internal and external, I/O, Type Conversion

- a. Write a program to embed internal and external JavaScript in a web page.
- b. Write a program to explain the different ways for displaying output.
- c. Write a program to explain the different ways for taking input.
- d. Create a webpage which uses prompt dialogue box to ask a voter for his name and age. Display the information in table format along with either the voter can vote or not

7. JavaScript Pre-defined and User-defined Objects

- a. Write a program using document object properties and methods.
- b. Write a program using window object properties and methods.
- c. Write a program using array object properties and methods. Write a program using math object properties and methods.
- d. Write a program using string object properties and methods.
- e. Write a program using regex object properties and methods
- f. Write a program using date object properties and methods.
- g. Write a program to explain user-defined object by using properties, methods, accessors, constructors and display.

8. JavaScript Conditional Statements and Loops

- a. Write a program which asks the user to enter three integers, obtains the numbers from the user and outputs HTML text that displays the larger number followed by the words “LARGER NUMBER” in an information message dialog. If the numbers are equal, output HTML text as “EQUAL NUMBERS”.
- b. Write a program to display week days using switch case.
- c. Write a program to print 1 to 10 numbers using for, while and do-while loops.
- d. Write a program to print data in object using for-in, for-each and for-of loops
- e. Develop a program to determine whether a given number is an ‘ARMSTRONG NUMBER’ or not. [Eg: 153 is an Armstrong number, since sum of the cube of the digits is equal to the number i.e., $13 + 53 + 33 = 153$]
- f. Write a program to display the denomination of the amount deposited in the bank in terms of 100’s, 50’s, 20’s, 10’s, 5’s, 2’s & 1’s. (Eg: If deposited amount is Rs.163, the output should be 1-100’s, 1-50’s, 1-10’s, 1-2’s & 1-1’s)

9. JavaScript Functions and Events

- a. Design an appropriate function should be called to display
 - i. Factorial of that number

	ii. Fibonacci series up to that number iii. Prime numbers up to that number iv. Is it palindrome or not b. Design a HTML having a text box and four buttons named Factorial, Fibonacci, Prime, and Palindrome. When a button is pressed an appropriate function should be called to display i. Factorial of that number ii. Fibonacci series up to that number iii. Prime numbers up to that number iv. Is it palindrome or not c. Write a program to validate the following fields in a registration page i. Name (start with alphabet and followed by alphanumeric and the length should not be less than 6 characters) ii. Mobile (only numbers and length 10 digits) iii. E-mail (should contain format like <u>xxxxxxx@xxxxxx.xxx</u>)
Text Books & References Books	TEXTBOOKS: 1. Programming the World Wide Web, 7th Edition, Robert W Sebesta, Pearson, 2013. 2. Web Programming with HTML5, CSS and JavaScript, John Dean, Jones & Bartlett Learning, 2019 (Chapters 1-11). 3. Pro MERN Stack: Full Stack Web App Development with Mongo, Express, React, and Node, Vasan Subramanian, 2nd edition, APress, O'Reilly.
E-Resources	1. https://www.w3schools.com/html 2. https://www.w3schools.com/css 3. https://www.w3schools.com/js/ 4. https://www.w3schools.com/nodejs 5. https://www.w3schools.com/typescript