

Branch Name:	MCA
Program Code:	CS201
Course Name:	Web Technologies Practical
Course Code:	4CS2010202P
Pre-requisite Course:	Basic knowledge of HTML, CSS, JavaScript, and fundamental programming concepts

Course Objectives:

1. To enable students to design responsive, user-friendly web interfaces using advanced CSS and Bootstrap framework.
2. To provide in-depth knowledge of JavaScript for implementing dynamic functionality and client-side scripting.
3. To introduce students to jQuery for simplifying DOM manipulation, event handling, animations, and AJAX operations.
4. To familiarize students with JSON for effective data exchange between client-side and server-side applications.
5. To integrate styling, scripting, and data communication concepts in developing interactive, real-world web applications.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
-	-	4	2	-	-	25	25	50

LAB/ Practical:

Note: The practical list provided is a part for reference only. The course t teacher may Change/formulate it as per his/her methodology and requirement.

Sr.No	List of Practicals
1	Advance CSS 1. Create an Animated Banner using @keyframes and transition 2. Design a Responsive Navigation Bar using Flexbox and Media Queries 3. Create an Image Gallery Layout using CSS Grid 4. Implement a Button Hover Effect using transform and transition Bootstrap 5. Create a Responsive Navigation Bar using Bootstrap Navbar Component 6. Design a Multi-Column Layout using Bootstrap Grid System 7. Build a Registration Form using Bootstrap Forms 8. Create a Carousel Slider for Image Gallery 9. Design a Card-Based Layout for Product Listings 10. Create a Responsive Table with Hover and Striped Rows
2	Introduction to JavaScript 11. Display a welcome alert message when a webpage loads. 12. Print "Hello World" using console.log, alert, and writing directly to the HTML using document.write 13. Create a webpage using inline JavaScript to change the background color on a button click.

	JavaScript Syntax and Basics - Demonstrate scope difference between var, let, and const using a simple block example. - Create a calculator for arithmetic operations (add, subtract, multiply, divide). - Use a for loop to display numbers from 1 to 10. Functions in JavaScript - Create a function that accepts two parameters and returns their sum. - Demonstrate local, global, and block-level variables. - Write a function that returns another function (closure) that maintains a counter Arrays and Objects - Create an array of student names and display them using a loop - Create an object for a student with properties (name, roll, marks) and access them DOM Manipulation - Use getElementById and querySelector to change text content of a div. - Create and delete HTML elements dynamically using JavaScript. Event Handling - Create a button with onclick that changes the color of a paragraph - Use onmouseover to show a tooltip or message when hovering over an image Form Validation using JavaScript - Access form inputs and display their values on form submission - Validate email and number fields using JavaScript before submitting the form.
3	Introduction to jQuery - Create a webpage that prints a message using jQuery after the page loads. - Create a script that changes multiple elements' styles using chained jQuery methods. jQuery Selectors and Filters - Use advanced selectors like :first, :last, :eq(), :odd, and :even to manipulate list items. jQuery Events - Create buttons with click, dblclick, and mouseover event handlers jQuery Effects and Animations - Create toggle functionality for a div using .show(), .hide(), and .toggle(). - Implement fading and sliding effects using .fadeIn(), .fadeOut(), .slideUp(), .slideDown() DOM Manipulation with jQuery - Use .html(), .text(), and .val() to get and set content of HTML elements and input fields - Add and remove elements dynamically using .append(), .prepend(), and .remove() Form Handling with jQuery - Access form input values (text, radio, checkbox) and display them on submit using jQuery - Perform basic form validation using jQuery (e.g., check if fields are empty, validate email format)
4	Create and Display JSON Data - Define a JSON object with student details (name, roll, marks). - Access and display the data using JavaScript in a webpage. Convert JavaScript Object to JSON and Vice Versa - Create a JavaScript object and convert it to a JSON string using JSON.stringify(). - Convert it back to a JavaScript object using JSON.parse() and log the result. Use JSON with Arrays and Nested Objects - Create a JSON object that contains an array of employees with nested address objects.

	43. Loop through the data and print employee names with their city. API Integration: Display Data from a Public JSON API 44. Use fetch() to retrieve data from a public API (e.g., https://jsonplaceholder.typicode.com/users). 45. Display the names and emails of users dynamically in an HTML table.
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Text Books:

1. "HTML, CSS, JavaScript, Web Publishing in One Hour a Day" by Laura Lemay & Rafe Colburn
Publisher: Sams Publishing **Latest Edition:** 7th Edition (2021) **Authors:** Laura Lemay and Rafe Colburn
Pages: Approx. 800 **ISBN:** 978-0-13-648682-7
2. Web Development and Design Foundations with HTML5" by Terry Felke-Morris **Publisher:** Pearson
Edition: 9th Edition (2020) **Author:** Terry Felke-Morris **ISBN:** 978-0-13-480114-1 **Pages:** Approx. 720
3. Learning Web Design" by Jennifer Robbins **Publisher:** O'Reilly Media **Edition:** 5th Edition (2020)
Author: Jennifer Robbins **ISBN:** 978-1-491-96020-2 **Pages:** Approx. 808
4. JavaScript and JQuery: Interactive Front-End Web Development" by Jon Duckett **Publisher:** Wiley
Edition: 1st Edition (2014) **Author:** Jon Duckett **ISBN:** 978-1-118-53164-8 **Pages:** Approx. 640
5. Modern Full-Stack Development" by Frank Zammetti **Publisher:** Apress **Edition:** 1st Edition (2019)
Author: Frank Zammetti **ISBN:** 978-1-4842-5189-0 **Pages:** Approx. 377

Reference Books:

1. Learning jQuery" by Jonathan Chaffer & Karl Swedberg **Publisher:** Packt Publishing **Edition:** 3rd Edition (2014) **Authors:** Jonathan Chaffer & Karl Swedberg **ISBN:** 978-1-78216-314-5 **Pages:** Approx. 432
2. CSS Secrets: Better Solutions to Everyday Web Design Problems" by Lea Verou **Publisher:** O'Reilly
Edition: 1st Edition (2015) **Author:** Lea Verou **ISBN:** 978-1-4493-7038-8 **Pages:** Approx. 392
3. JavaScript: The Definitive Guide" by David Flanagan **Publisher:** O'Reilly **Edition:** 7th Edition (2020)
Author: David Flanagan **ISBN:** 978-1-491-99427-6 **Pages:** Approx. 706
4. Responsive Web Design with HTML5 and CSS3" by Ben Frain **Publisher:** Packt Publishing **Edition:** 3rd Edition (2020) **Author:** Ben Frain **ISBN:** 978-1-78862-175-5 **Pages:** Approx. 508
5. Modern JavaScript for the Impatient" by Cay S. Horstmann **Publisher:** Addison-Wesley **Edition:** 1st Edition (2019) **Author:** Cay S. Horstmann **ISBN:** 978-0-13-487541-4 **Pages:** Approx. 424

List of Open Source Software/learning website:

<https://www.geeksforgeeks.org>
<https://www.w3schools.com>
<https://jquery.com/>
<https://www.tutorialspoint.com>
<https://getbootstrap.com/>

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	To understand and apply advanced CSS properties such as Flexbox, Grid, animations, and media queries.	2 Understanding, 3 Applying
CLO2	To design responsive layouts and UI components using Bootstrap 5 framework.	3 Applying, 6 Creating
CLO3	To understand JavaScript basics including syntax, data types, control structures, and functions.	2 Understanding, 3 Applying
CLO4	To manipulate the DOM dynamically and validate forms using JavaScript.	3 Applying, 6 Creating
CLO5	To implement interactive web components and effects using jQuery.	3 Applying, 6 Creating
CLO6	To understand and use JSON for data exchange and integration with APIs in web applications.	2 Understanding, 3 Applying

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CLO1	H	M	H	-	H	-	M	-	M	-	L	L	H	M
CLO2	H	M	H	-	H	-	M	-	M	-	M	M	H	-
CLO3	H	H	M	-	M	-	M	-		-	L	-	H	-
CLO4	H	H	H	M	H	-	M	-	M	-	L	M	H	M
CLO5	H	M	H	M	H	-	M	-	M	-	M	M	H	M
CLO6	H	H	M	M	H	-	M	-	M	L	L	H	M	H

H:High, M:Medium, L:Low