

Branch Name:	MCA
Program Code:	CS201
Course Name:	Web Technologies
Course Code:	4CS2010202T
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	
3	-	-	3	60	40	-	-	100

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	Advance CSS - Animation - @keyframes rule - Translate - Box sizing - Flex box - Transform - Transition - Grid - Layout - Table - Navigation bar - Pagination - Pseudo-Elements - User Interface - Media Queries	11	25
	Bootstrap - Introduction to Responsive Web Design and Bootstrap 5 - Mobile-first approach, - advantages of using Bootstrap - Installation: CDN vs. local setup - Bootstrap 5 Grid System - Containers, rows, and columns - Breakpoints and responsive layouts - Core Components - Navbar, buttons, cards, alerts, modal, carousel - Forms and form validation - Spacing (margin & padding), colors, typography		

2	Java Script - Introduction to JavaScript - Client-side vs. server-side scripting - How to include JavaScript in HTML (inline, internal, external) - JavaScript Syntax and Basics - Variables (var, let, const) - Data types and type conversion - Operators (arithmetic, comparison, logical) - Conditional statements (if, else, switch) - Loops (for, while, do-while) - Functions in JavaScript - Function declaration and expressions - Parameters and return values - Scope (local, global, block) and closures - Arrays and Objects - Creating and manipulating arrays - Object creation and property access - DOM Manipulation - Understanding the Document Object Model (DOM) - Selecting and modifying elements using getElementById, querySelector, etc. - Changing content and styles dynamically - Creating and removing HTML elements via JavaScript - Event Handling - onclick, onchange, onmouseover, etc. - Form Validation using JavaScript - Accessing form elements - Validating input fields (text, email, number, etc.)	11	25
3	jQuery - Introduction to jQuery - What is jQuery and why use it? - Features and advantages of jQuery - Downloading and including jQuery (CDN vs. local) - Basic syntax: \$() selector and chaining - jQuery Selectors and Filters - Selecting elements by tag, id, class - Advanced selectors: :first, :last, :eq(), :odd, :even, etc. - jQuery Events - Handling events: click, dblclick, mouseover, keydown, etc. - jQuery Effects and Animations - Showing and hiding elements: .show(), .hide(), .toggle() - Fading and sliding: .fadeIn(), .fadeOut(), .slideUp(), .slideDown()	11	25

	- Custom animations: animate () - DOM Manipulation with jQuery - Get and set content: .html (), .text (), .val() - Adding/removing elements: append (), .prepend(), .remove() - Form Handling with jQuery - Accessing form elements and values - Form validation basics using jQuery		
4	JSON - Introduction to JSON - What is JSON and why it is used - JSON vs. XML - JSON Syntax and Data Types - Keys and values - Strings, numbers, booleans, arrays, objects, null - Working with JSON in JavaScript - Parsing JSON with JSON.parse() - Converting JavaScript objects to JSON with JSON.stringify() - JSON in AJAX and APIs - Fetching JSON from APIs - Handling JSON responses	12	25

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