Name of the Programme: MCA
Course code: CSA-510
Title of course: Web Development Lab
Number of credits: 2 (0L-0T-2P)
Effective from AY: 2022-23

Prerequisites for the course	Hands-on experience working with HTML and basic of CSS; Internet Technologies; object oriented programming	
Objectives	This course will focus on the practical use and aspects of the different website development technologies	
Content	**Web Design Assignments** Suggested Sample (non-exhaustive) Assignments:- ● Create a website on a topic given by the instructor. Evaluating the website with rubrics for good web design. ● Build a website using HTML & CSS by looking at a screenshot/picture of a website component given by the instructor. ● Websites built with tables, forms, images, iframes, etc. ● A website for each of design strategies (fixed, adaptive, responsive, fluid, mobile-first, etc.). ● Assignments using css pseudo-classes & -elements; grid & flex design; understanding the CSS box model & working with the browser developer tools; CSS transformations, transitions & animations ● Assignment to create a website built with Bootstrap based on a topic given by the instructor.	15P
	Client-side Scripting Assignments Suggested Sample (non-exhaustive) Assignments:- ● An assignment for understanding the programming aspects of JavaScript and working with the browser developer tools. The use of the newer features of JavaScript (after ECMA 4) is encouraged. ● An assignment working with regular expressions. A search and filter utility can be built. ● Assignments for form data processing and validation and use of HTML5 form elements. A web page with form and validated data could be put in a table. The code could be written using table DOM methods and/or HTML DOM methods and/or XML DOM methods. ● Assignments using various events (mouse, keyboard, etc. events for the form elements, drag-and-drop, window, browser, etc.). ● A web component built using HTML, CSS & JavaScript based on a existing Bootstrap component (e.g. Accordion) ● Assignment with the use of a JavaScript library (JQuery, AngularJS, ReactJS, etc.)	15P
	Developing a Game with HTML, CSS & JavaScript. The game should have at least 500 lines of (HTML+Javascript) code and make use of various mouse/keyboard events.	4P
	Server-side Programming Assignments Suggested Sample (non-exhaustive) Assignments:- ● Assignments to work with HTTP headers for passing data and meta-data, cookies, localStorage ● Assignments to handle data from web forms; handling the request and response payload ● Assignment to manage web sessions	12P

	• Assignment to develop a CRUD functionality by connecting to a database; AJAX calls	
	Full stack Web Developments Develop a CRUD application with MEAN/MERN stack	2P
	Mini-project Ideally done in a group. It should include design and implementation of a web application. Project implementation should mandatorily be built using a templating engine or programming framework (client-side and/or server-side). Project should also use a design framework (e.g. Bootstrap). Conduct and progress of the project could follow industry practices (e.g. git, scrum etc.).	12P
Pedagogy	Hands-on assignments / tutorials / peer-teaching / projects	
References/ Readings	1. Robert W. Sebesta, "Programming the World Wide Web", Pearson Education 2. https://www.w3schools.com/ 3. Steven Holzner, "HTML 5 Black Book" 4. https://www.tutorialspoint.com/ 5. Frank W. Zammetti, "Modern Full-Stack Development", Apress 6. Nader Dabit, "Full Stack Serverless", O'Reilly	
Course Outcomes	1. Learner will be gain experience and be able to create complete websites 2. Learner will be able to make decision on what web technology to use and for what purpose 3. Learner will appreciate the architecture of web applications and the design decisions	

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