COMSATS University Islamabad
Department of Computer Science
Course Syllabus

Course Information	
Course Code: **CSC336**	Course Title: **Web Technologies**
Credit Hours: **3 (2, 1)**	Lecture Hours/Week: **2**
Lab Hours/Week: **3**	Pre-Requisites: **CSC241–Object Oriented Programming**

Catalogue Description:

This course introduces the modern web technologies used for the web development. Topics include: Overview of Web Platforms; Web Architectures; Markup Languages; Styling; Client-Side Scripting Languages; Server-Side Technologies; Use of Databases in Web-based Applications; Web APIs; Programming under Platform Constraints; Security Issues; and Web Hosting.

Text and Reference Books

Text Books:

1. Web Design Playground: HTML & CSS the Interactive Way, Paul McFedries, Manning, 2019.
2. Beginning PHP and MySQL: From Novice to Professional, Frank M. Kromann, Apress, 2018.
3. Laravel Up and Running, A Framework for Building Modern PHP Apps, Matt. Stauffer, Oreilly, 2019.

Reference Books:

1. Web Engineering, Sahil Rai, Kuk University Notes, 2020.
2. Web Programming with HTML5, CSS, and JavaScript, John Dean, Jones & Bartlett Learning 2018.

Week wise Plan:

Lecture #	CDF Unit #	Topics Covered	Reading Material
1.	1	Overview of Web Platforms: Web Terminologies, Web Communication Protocol (HTTP), Web Generations, and Standards & Constraints.	McFedries : Ch1
2.	2	Categories of Web Applications: Document Centric, Social Web, Semantic Web; Web Architectures: Layered Architecture, One, Two & Three-Tiered Architecture, and N Layered Architecture.	McFedries : Ch1
3.	3	Introduction to HTML, History, HTML & XHTML, Elements, Block Level vs. Inline Elements, and Validator.	McFedries : Ch 2
4.	3	Tables, Div, Span, and Layout Design.	McFedries : Ch 3
5.	3	Introduction to HTML5, Semantic Elements, and HTML5 Elements.	McFedries : Ch 3
6.	3	HTML Forms: Elements, Attributes, and Input Elements.	McFedries : Ch 3
7.	4	Introduction to CSS, Rules, Selectors & Properties, and Selector Precedence.	McFedries : Ch 4
8.	4	CSS Selectors: Pseudo-Class, Pseudo-Elements, Attribute, and Combinator Selectors.	McFedries : Ch 4
9.	4	CSS Properties: Display, Float, Opacity, and	McFedries : Ch 4

		Positioning.	
10.	4	CSS3: Layout Design, Box Model, Layouts with Floats & Flexbox, CSS3 Responsive & Adaptive Layouts, Media, Queries, and Mobile First Approach.	McFedries : Ch 5
11.	4	Syntactically Awesome Style Sheets (SaSS), Installation, Variables, Nesting, and SaSS Functions.	McFedries : Ch 7
12.	4	Bootstrap Framework: Introduction, Grid System, and Responsive Web Design.	Ref. Material
13.	4	Bootstrap Utility Classes.	Ref. Material
14.	5	Introduction to JavaScript: Variable Declaration, Data Types, Operators, and Adding JavaScript to HTML.	Dean : Ch 8
15.	5	JavaScript: Conditional Statements, Loops, Functions & ES6 Features, and Sample Codes.	Dean : Ch 8
16.	5	Introduction to BOM-DOM: Introduction, Window Object (Properties, Methods, Events), and Document Object (Properties, Methods, Events).	Dean : Ch 9
17. 18.		**Mid Term Exam**	
19.	5	Form Validation using JavaScript: Regular Expressions, and Client-Side Validation Approaches.	Dean : Ch 9
20.	5	jQuery Basics: jQuery Syntax, jQuery Selectors, and jQuery Events.	Dean : Ch 5
21.	5	jQuery Applications: DOM Manipulation, jQuery Effects, and Method Chaining.	Dean : Ch 5
22.	5	XML: Overview, Elements, Parser, DOM, and Schema.	Stauffer : Ch 14.
23.	5	AJAX: Introduction, Synchronous vs Asynchronous Communication, Request, Response, and File.	Stauffer : Ch 14.
24.	5	JSON: Overview, Syntax, Datatypes, Parse, Comparison with XML, and Objects.	Stauffer : Ch. 7
25.	6	Introduction to PHP, Conditional Constructs, Loops, Functions, Arrays, and Object-Oriented PHP.	Kromann : Ch 1, 2, 3, 4.
26.	6	Introduction to Laravel: Basics, History, and Installing Laravel.	Stauffer : Ch 1, 2.
27.	6	Routing & Controllers: Routes Definition, Views, Passing Data to Views, and Controllers.	Stauffer : Ch 3.
28.	6	Blade Templating: Basics, Conditionals, Loops, and Template Inheritance.	Stauffer : Ch 4.
29.	6	Working with Databases: Configuration, and CRUD Operations.	Stauffer : Ch 5.
30.	6	Sessions & Cookies: Setting Up a Session, Storing & Accessing Session Data, Removing Session, Creating, Accessing, and Deleting Cookies.	Stauffer : Ch 5.
31.	6	Web APIs Applications; and Programming Via Platform-Specific APIs.	Stauffer : Ch 6.
32.	6	Web Security Vulnerabilities: SQL Injections, and Cross	Rai : Ch 7

| | | Site Scripting. | | |

Final Term Exam

Student Outcomes (SOs)

S.#	Description
1	Apply knowledge of computing fundamentals, knowledge of a computing specialization, and mathematics, science, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements
2	Identify, formulate, research literature, and solve *complex* computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines
3	Design and evaluate solutions for *complex* computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations
4	Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to *complex* computing activities, with an understanding of the limitations
5	Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.

Course Learning Outcomes (CLO)

Sr.#	Unit #	Course Learning Outcomes	Blooms Taxonomy Learning Level	SO
CLO's for Theory				
CLO-1	1-2	Classify web architectures and related applications.	*Understanding*	1
CLO-2	3-5	Demonstrate the capabilities for developing professional front-end using client-side technologies.	*Applying*	2-4
CLO-3	6	Illustrate the concepts of server-side technologies for secure database interactions.	*Applying*	2-4
CLO's for Lab				
CLO-4	3-6	Apply the concepts of markup & scripting languages and client-side technologies.	*Applying*	2-4
CLO-5	2-6	Develop dynamic applications using current industrial practices.	*Creating*	2-5

CLO Assessment Mechanism

Assessment Tools	CLO-1	CLO-2	CLO-3	CLO-4	CLO-5
Quizzes	Quiz 1	Quiz 2	Quiz 3&4	-	-
Assignments	-	Assignment 1&2	Assignment 3&4	Lab Assignments	-
Midterm Exam	Mid Term Exam	Mid Term Exam	-	-	-
Final Term Exam	Final Term Exam			-	-

Project	-	-	-	-	Lab Project

Policy & Procedures

- **Attendance Policy:** Every student must attend 80% of the lectures as well as laboratory in this course. The students falling short of required percentage of attendance of lectures/laboratory work, is not allowed to appear in the terminal examination.

- **Course Assessment:**

	Quizzes	Assignments	Mid Term Exam	Terminal Exam	Total
Theory (T)	15	10	25	50	100
Lab (L)	-	25	25	50	100
Final Marks (T+L)			**(T/100) *67 + (L/100) *33**		

- **Grading Policy:** The minimum passing marks for each course is 50% (In case of LAB; in addition to theory, student is also required to obtain 50% marks in the lab to pass the course). The correspondence between letter grades, credit points, and percentage marks at CUI is as follows:

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Marks	>= 85	80 - 84	75 - 79	71 - 74	68 - 70	64 – 67	61 - 63	58 - 60	54 - 57	50-53	< 50
Cr. Point	3.67- 4.00	3.34- 3.66	3.01- 3.33	2.67- 3.00	2.34- 2.66	2.01- 2.33	1.67- 2.00	1.31- 1.66	1.01- 1.30	0.10- 1.00	0.00

- **Missing Exam:** No makeup exam will be given for final exam under any circumstance. When a student misses the mid-term exam for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on the Department policy. Further, the student must provide an official excuse within one week of the missed exam.

- **Academic Integrity:** All CUI policies regarding ethics apply to this course. The students are advised to discuss their grievances/problems with their counsellors or course instructor in a respectful manner.

- **Plagiarism Policy:** Plagiarism, copying and any other dishonest behaviour is prohibited by the rules and regulations of CUI. Violators will face serious consequences.