



COURSE HANDBOOK

1	Course Title	Web Technologies
2	Course Code	CSC336
3	Credit Hours	4 (3,1)
4	Semester	SPRING 2024
5	Resource Person	Muhammad Usman Akram
6	Contact Hours (Theory)	3 hours per week
7	Contact Hours (Lab)	3 hours per week
8	Office Hours	Shall be communicated later depending on class schedule
9	Course Introduction Course Rationale: In start, the web was mainly used to display products and services offered by organizations. The high speed and low cost of internet has gradually made the web an important element of daily life. Today, there are websites that facilitate online selling, auctions, classifieds, learning, blogging, communication, social connections, match making and a lot more. Each passing day, new products are introduced and right ones are consumed by millions of users. And now, it is no more limited to consumer websites only, the enterprise systems that run organizations business processes e.g. human resource management, sales, purchases, manufacturing, health care, insurance, etc. are also being developed as web applications. Web has made the software delivery and maintenance much easier as compared to desktop applications. In addition to all this, mobile applications also use web protocols for data storage and retrieval at central location. So there is huge demand of web application development skill, this course is designed to equip students with necessary knowledge and skills required to develop web applications. Prior Knowledge: Web Technologies is an applied and programming intensive course, so it's assumed the students taking the course have good knowledge and skill of Computer Programming, Data Structures and Algorithms. The course assignments also require data storage, so it's recommended the student has taken relational Database Management course too. The knowledge of networks is not required but would be an added advantage if the student has also taken the Communication Networks course.	
10	Learning Objectives	

The aim of this course is to provide a solid introduction to web development. Core concepts which are important to understand current, and potential future state of web, would be covered in detail. In addition to theoretical knowledge of protocols, students would learn programming web applications using different client and server side programming languages. By end of the course, students should be able to:

- Differentiate between client and server side programming languages
- Understand the HTTP protocol structure and their semantics in web request and response
- Make web pages using HTML and implement styling using CSS
- Use third party HTML/CSS components to make web pages
- Develop client side and server side components
- Process JSON with different parsers e.g. DOM, SAX
- Appreciate the benefits of using Model View Controller (MVC) frameworks
- Create and Consume RESTful web services using JSON
- Understand and implement projects using client side frameworks
- Understanding and securing web app against common security threats

11 List of Lectures

The assessment of this module shall have following breakdown structure

Theory Part

Sessional-I Exam	10%
Sessional-II Exam	15%
Final Exam	50%
Quiz (4 per semester)	15%
Assignments (4 per semester)	10%

The minimum pass marks is 50%. Students obtaining less than 50% marks shall be deemed to have failed in this course. The correspondence between letter grades, credit points, and percentage marks shall be as follows:

Grades	Letter Grade	Credit Points	Percentage Marks
A	(Excellent)	4.0	90and above
A-		3.7	85-89
B+		3.3	80-84
B	(Good)	3.0	75-79
B-		2.7	70-74
C+		2.3	65-69
C	(Average)	2.0	60-64
C-		1.7	55-59
D	(Minimum passing)	1.3	50-54
F	(Failing)	0.0	Less than 50

Assessment Schedule

<u>Week</u>	<u>Assignment and Quiz</u>
Week 2	1 st Assignment and Quiz
Week 4	2 nd Assignment and Quiz
Week 8	3 rd Assignment and Quiz
Week 11	4 th Assignment and Quiz

Format of Assignment

This course indoctrinates the following format for all assignments except code:

1. Paper Size: A4
2. Left Margin: 2 Inches
3. Right Margin: 1 Inch
4. Top Margin: 0.5 Inch
5. Bottom Margin: 0.5 Inch
6. Font: Times New Roman
7. Font Size:
 - a. Main Heading 14
 - b. Sub Heading 12
 - c. Text 12
 - d. Titles 16
8. Font Color: Black
9. Line Spacing: 1.5
10. Diagrams & Charts: Need not be colored
11. Title page must be designed as guided by resource person in class

12. Number of Pages: No Limit 13. Reference Style: APA (If applicable) Code will be submitted in text files that can be compiled with specified programming language compiler.		
15	Text Book	Pro MERN Stack: Full Stack Web App Development with Mongo, Express, React, and Node 1st ed by Vasam Subramanian
16	Reference Books	1. Meloni, J. C. (2013) Teach Yourself HTML and CSS in 24 Hours, 9th Edition, Sams Publishing 2. Puntambekar, A.A. (2009) Web Technologies, Technical Publications

Week Internet and WWW

<i>1</i>	HTML and CSS Basics
<i>Week 2</i>	More Basic HTML and CSS
<i>2</i>	Page Sections and the CSS Box Model
<i>Week 3</i>	Floating and Positioning
<i>3</i>	HTML Forms
<i>Week 4</i>	Bootstrap
<i>4</i>	Form Validations and Regular Expression
<i>Week 5</i>	Basic JavaScript for Client Side Programming
<i>5</i>	More JavaScript and DOM
<i>Week 6</i>	Object-Oriented JavaScript
<i>6</i>	Advanced JavaScript and DOM
<i>Week 7</i>	Jquery
<i>7</i>	Jquery Consume API with fetch
<i>Week 8</i>	Intro to ES6 Js and Node
<i>8</i>	NPM
<i>Week 9</i>	RestFul API Using Express
<i>9</i>	Sync ASync JS
<i>Week 10</i>	CRUD With Mongo and Mongoose
<i>10</i>	Mongoose Relationships
<i>Week 11</i>	Authentication and Authorization in Node
<i>11</i>	Handling Errors on Server Side
<i>Week 12</i>	Intro to REACT
<i>12</i>	Components
<i>Week 13</i>	Pagination Filtering and Sorting in REACT
<i>13</i>	Client Side Routing
<i>Week 14</i>	Forms
<i>14</i>	Calling Backend Services
<i>Week 15</i>	Authentication and Authorizations
<i>15</i>	Deployment