Web Engineering Course Outline

FAST-NU, Lahore

Course Code	CS3003
Course Title	Web Engineering
Credit Hours	4
Prerequisite	N/A
Grading Criteria	Quizzes (15%), Assignments + Project + Class Activities (15%), Mid Terms (30%), Final Exam (40%)
Semester	Spring 2025
Class and Exam Schedule	Class: Sec A (10:00-11:20 Mon, Wed), Sec B (11:30-12:50 Mon, Wed) Sec C (11:30-12:50 Tue, Thurs) Exam: See date sheet
Course Instructor	Syed Ayaz Gillani ayaz.gillani@nu.edu.pk
Instructor Office Hours	Mon, Wed (2:00 – 4:00). **Office Location:** 1st Floor, NB Building
Course TA	Ahmed Mujtaba Sohail Butt l211895@lhr.nu.edu.pk
TA Office Hours	See Slate/Piazza/Google Classroom **Location:** See Slate/Piazza/Google Classroom
Plagiarism Policy	All the parties involved will be awarded negative or Zero in first instance. Repeat of the same offense will result in (F) grade.
Reference Material	Will be provided as per requirement of the lecture
Course Goals	• Introduce fundamental concepts of web architecture and both client-side (HTML, CSS, JavaScript) and server-side programming using modern frameworks. • Apply contemporary web development practices, including RESTful Web Services, and asynchronous programming.

	● Address Web Engineering issues such as performance, scalability, security, and ethical considerations in web development. ● Foster teamwork and continuous learning through project-based development of responsive, dynamic web applications.
Programming Assignments Done in the Course	Yes

Tentative Topics and Course Plan (might be slightly changed)

Week #	Lecture #	Topics Covered
1	1	**Principles of Web Architecture**
	2	**HTTP protocol and HTML**
2	3	**HTML & CSS**
	4	**CSS Flexbox and position Complete**
3	5	**Intro to Javascript (Variables, Data Types, Conditions, operators, arrays, strings, and loops)**
	6	**Functions, callback functions (Functional and Declarative Programming), and Objects.**
4	7	**JavaScript – ES6 and latest ECMAScript versions Arrays+methods (Spread & Rest operator & Destructuring Operator).**
	8	**DOM Manipulation**
5	9	**JQuery**
	10	**AJAX & cookies**
6	**Midterm 1**	
7	11	**Web Architecture MERN**

	12	**System Design**
8	13	**Client Side Architecture (Intro to React) Components + JSX**
	14	**Props & Conditional Rendering**
9	15	**Event Listener & State**
	16	**Passing methods as props + Two way Binding**
10	17	**Hooks & Optimization**
	18	**Redux**
11	19	**Redux + RTK Query**
	20	**Request & Response cycle**
12	**Midterm 2**	
13	21	**Types of Databases and Server Side Programming (NodeJS – Setup and CRUD)**
	22	**Server Side Programming (NodeJS – File System)**
14	23	**Server Side Programming (NodeJS – Routers)**
	24	**Server Side Programming (NodeJS – Cookies and Session)**
15	25	**MERN Full Stack - CRUD**
	26	**MERN Full Stack - CRUD Continue**
16	27	**MERN Full Stack – Authentication/Authorization**
	28	**Deployment – Nginx, Apache, Heroku and Dockerization**
	Final	

Course Policies:

Plagiarism in any form (Quiz, Assignment, Midterm, and Final Exam) from any source, including the internet or other students, will result in strict penalties, which may include receiving an F grade or significant mark deductions.

Attendance Requirement: A minimum of 80% attendance is mandatory to be eligible to appear in the Final Exam.

Passing Criteria: To pass the course, students must achieve at least 50% overall, in accordance with the CS departments grading policies.

Grading Scheme: An absolute grading system will be implemented for this course.