

**NATIONAL UNIVERSITY**

**Of Computer & Emerging Sciences, Lahore**

Department of Computer Science

**CS4032 – Web Programming**

**Spring 2024**

**Instructor Name:**  Muhammad Saifullah

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**Office Location:** F-71 (New CS Building)

**Office Hours:**  Monday, Wednesday 1:00 PM - 02:00 PM (email me to schedule a meeting)

**Course Information:**

**Program:** BS (CS) **Credit Hours:** 3 **Course Type:** Elective

**Course Description/Objectives/Goals:**

* To introduce the fundamental concepts of web architecture and programming.
* To learn basics of client and server-side programming along with prevalent technologies and frameworks
* To introduce modern practices such as AJAX and Web services
* To discuss Web Engineering issues such as Performance and Security

**Course Learning Outcomes (CLOs):**

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| --- | --- | --- |
| At the end of the course students will be able to: | **Domain** | **BT\* Level** |
| **Understand** concepts of web architecture and programming | C | 2 |
| **Learn** basics of client and server side programming | C | 3 |
| **Learn** modern practices such as AJAX and Web services, along with prevalent technologies and frameworks | C | 3 |
| **Learn** Web Engineering issues such as Performance and Security | C | 3 |
| \* BT= Bloom’s Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain  **Bloom's taxonomy Levels:** 1. Knowledge, 2. Comprehension, 3. Application, 4. Analysis, 5. Synthesis, 6. Evaluation | | |

**(Tentative) Weekly Schedule**

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| --- | --- | --- |
| **Week 1** | **Lecture 1**  Principles of Web Architecture | **Lecture 2**  HTTP Protocol and HTML |
| **Week 2** | **Lecture 1**  CSS + HTML | **Lecture 2**  CSS + HTML + JavaScript |
| **Week 3** | **Lecture 1**  Bootstrap and JavaScript | **Lecture 2**  JavaScript ES6 and JavaScript Engine |
| **Week 4** | **Lecture 1**  Application of JavaScript in DOM manipulation | **Lecture 2**  Application of JavaScript in DOM manipulation |
| **Week 5** | **Lecture 1** jQuery and Ajax | **Lecture 2** jQuery |
|  | **MID 1** |  |
| **Week 6** | **Lecture 1**  Web Architecture (MERN) | **Lecture 2**  System Design |
| **Week 7** | **Lecture 1**  Client-side programming (React) | **Lecture 2**  Client-side programming (React) |
| **Week 8** | **Lecture 1**  Client-side programming (React) | **Lecture 2**  Client-side programming (React) |
| **Week 9** | **Lecture 1**  State management techniques and issues (Hooks) | **Lecture 2**  State management techniques and issues (Redux) |
| **Week 10** | **Lecture 1**  Request / Response cycle (Client-Side) | **Lecture 2**  Request / Response cycle (Client-Side) |
|  | **MID 2** |  |
| **Week 11** | **Lecture 1**  Server Side Programming (Node) | **Lecture 2**  Server Side Programming (Node) |
| **Week 12** | **Lecture 1**  MVC Architecture (Node) | **Lecture 2**  Server Side Programming (Node) |
| **Week 13** | **Lecture 1**  Request / Response cycle (Server-Side) | **Lecture 2**  Request / Response cycle (Server-Side) |
| **Week 14** | **Lecture 1**  Cookies and Sessions | **Lecture 2** Templates |

**(Tentative) Grading Criteria:**

Assignments/Project (**25%)**

Quiz (**10 %)**

Midterms **(25 %)**

Final Exam **(40 %)**

**Course Policies:**

* **Plagiarism** in any work (Quiz, Assignment, Midterms, and Final Exam) from any source, Internet or a Student may result in **F** grade or deduction of absolute marks.
* 80% attendance is required for appearing in the Final exams.
* Minimum requirement to pass this course is to obtain at least 50% marks under application of CS department's grading policies.
* **Absolute grading** scheme will be used.