| Identification | Subject | **CMS 220:** Web Programming 1 - 6ECTS |
|---|---|---|
| | **Department** | Computer Science |
| | **Program** | Undergraduate |
| | **Term** | Fall, 2023 |
| | **Instructor** | Hafiz Muhammad Azeem Akram |
| | **E-mail:** | a.akram@khazar.org |
| | **Classroom/hours** | 11 Mehseti Street, AZ1096 Baku, Azerbaijan (Neftchilar campus), Classroom: N402 |
| **Prerequisites** | English proficiency | |
| **Language** | English | |
| **Compulsory/Elective** | Required | |

| **Required textbooks and course materials** | *Core textbooks:* | |
|---|---|---|

1. Randy Connolly, Ricardo Hoar. Fundamental of Web Developmengt, 3rd Edition, Pearson; ISBN: 9780136792857.
2. Terry Ann, Felke-Morris. Web Development and Design Foundations with HTML5, 9th Edition Pearson; ISBN-13: 9780134801148
3. Jennifer Niederst Robbins. Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics,
5th Edition, O'Reilly Media; ISBN-13: 978-1491960202

**Course Description and outline**

This course delves into the theory and practical aspects of web development. Students will gain insight into the architecture and principles of web development, enabling them to construct websites and web applications with proficiency. Practical exercises throughout the course will enable students to apply theoretical knowledge to real-world scenarios, preparing them for the demands of the industry.

We will cover the following key topics:
- Understanding the significance of web development in the digital era.
- Historical perspective and evolution of web technologies.
- Creating the structure and content of web pages using HTML.
- Styling web pages for visual appeal and consistency using CSS.
- Responsive design principles for different devices and screen sizes.
- Building interactivity and dynamic behavior into web pages using JavaScript.
- DOM manipulation and event handling.

**Course objectives**

1. Acquire practical expertise in the core technologies of web development, including HTML, CSS, and JavaScript.
2. Demonstrate the ability to create structured web content using HTML, enhance visual appeal with CSS, and incorporate interactivity through JavaScript.
3. Apply theoretical understanding and practical skills to real-world scenarios through a series of hands-on exercises and projects.

**Learning outcomes**

Upon completing this course, students will have a strong theoretical understanding of web development's, coupled with practical proficiency in HTML, CSS, and JavaScript. They will be capable of creating structured web content, enhancing visual appeal, and adding interactivity to web pages. Furthermore, students will be adept at applying their knowledge to real-world scenarios, making them industry-ready problem solvers in the dynamic field of web development.

| | | | |
|---|---|---|---|
| **Teaching methods** | Lecture | | x |
| | Group discussion | | x |
| | Experiential exercise | | x |
| | Lab | | x |
| | Course paper | | x |
| | Others | | |
| **Evaluation** | **Methods** | **Date/deadlines** | **Percentage (%)** |
| | Project | | 20 |
| | Class Participation | | 10 |
| | Midterm | | 30 |
| | Exam Final Exam | | 40 |
| | Total | | 100 |

| | |
|---|---|
| **Policy** | **Project Description** |

In this project, students will design and develop a personal portfolio website. The website will serve as a showcase of their skills, projects, and achievements, helping them establish an online presence and demonstrate their abilities to potential employers or clients.

**Project Steps:**

- **Define Goals and Objectives:** Define the goals and objectives of your portfolio website. What message do you want to convey? What kind of projects and skills should be highlighted?
- **Front-End Development:** Develop the front end of your portfolio website using HTML, CSS, and JavaScript. You can consider using front-end frameworks like Bootstrap or Tailwind CSS for responsive design.
- **Project Showcase:** Devote a section of the website to showcase your best projects. Include project titles, descriptions, images, and links to live demos or GitHub repositories etc.
- **Skills and Expertise:** Create a section to highlight their skills and expertise. This can be displayed as a list, badges, or infographics.
- **Select a Domain and Hosting:** Choose a domain name (e.g., theirname.com) and hosting provider (e.g., GitHub Pages, Netlify, or a shared hosting service). Explain the importance of domain names in personal branding.
- **Deployment:** Deploy your portfolio website to your chosen hosting platform. You may need to configure DNS settings if you have a custom domain.
- **Presentation:** Finally, students should present their portfolio websites to the class, explaining their design choices, the technologies used, and their future plans for the website.

- **Preparation for class**
  The lecture material will focus on the major points introduced in the text. Reading the assigned chapters and having some familiarity with them before class will greatly assist your understanding of the lecture. After the lecture, you should study your notes and work relevant problems.

- **Withdrawal (pass/fail)**
  This course strictly follows grading policy of the School of Engineering and Applied Science. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year.

- **Cheating/plagiarism**
  Cheating or other plagiarism during the Quizzes, Mid-term and Final Examinations will lead to paper cancellation. In this case, the student will automatically get zero (0), without any considerations.

- **Professional behavior guidelines**

| | The students shall behave in the way to create favorable academic and professional environmentduring the class hours. Unauthorized discussions and unethical behavior are strictly prohibited. |
| --- | --- |
| | • **Ethics**<br>Students should not arrive late to class.<br>All cell phones must be turned off and stowed away before entering class.<br>Use of any electronic devices is not allowed in the classroom and violators will be punishedaccordingly. |

| WK | Date/Day (tentative) | Topics | Recommended Readings |
|---|---|---|---|
| 1 | | • About web development in general<br>• The history of the Internet and World Wide Web<br>• Fundamental concepts that form the foundation of the Internet<br>• About the hardware and software that support the Internet<br>• The range of careers and companies in web development | Lecture Slides<br>Readings:1.1-1.5 |
| 2 | | • The fundamental protocols that make the web possible<br>• How the domain name system works<br>• Why HTTP is more than just a four-letter abbreviation.<br>• How browsers and servers work to exchange and interpret HTML<br>• A very brief history of HTML<br>• The syntax of HTML<br>• Why semantic structure is so important for HTML | Lecture Slides<br>Readings:2.1-2.6<br>Readings:3.1 |
| 3 | | • How HTML documents are structured<br>• A tour of the main elements in HTML<br>• The semantic structure elements in HTML5<br>• A tour of the main elements in HTML (continue) | Lecture Slides<br>Readings: 3.2-3.6 |
| 4 | | • A tour of the main elements in HTML | **#Project Announcement** |
| 5 | | • The rationale for CSS<br>• The syntax of CSS<br>• Where CSS styles can be located<br>• The different types of CSS selectors | Lecture Slides<br>Readings:4.1--4.4 |
| 6 | | • What the CSS cascade is and how it works<br>• The CSS box model<br>• CSS text styling | Lecture Slides<br>Readings:4.5,4.8. |
| 7 | | • The two different ways to digitally represent graphic information.<br>• The different color models.<br>Color depth, image size, and resolution<br>• The different graphic file formats<br>• The different audio and video file formats<br>How HTML5 provides support for audio and video | Lecture Slides<br>Readings:6.1-6.6 |
| 8 | | **Midterm Exam** | |
| 11 | | • About JavaScript's role in contemporary web development<br>• How to add JavaScript code to your web pages<br>• The main programming constructs of the language… | Lecture Slides<br>Readings:8.1-8.6 |
| 12 | | • The main programming constructs of the language<br>• The importance of objects and arrays in JavaScript<br>• How to use functions in JavaScript | Lecture Slides<br>Readings: 8.6-8.9 |
| 13 | | • What is Document Object Model (DOM)<br>• How to use the DOM to dynamically manipulate the contents of a web page | Lecture Slides<br>Readings: 9.1-9.3<br>**#Project Submission** |
| 14 | | • How to use the DOM and event handling to validate user input in a form<br>• What are regular expressions and how to use them in JavaScript. | Lecture Slides<br>Readings:9.3-9.6 |
| 15 | | Project Demonstration<br>Final Exam Review | |
| | | **Final Exam** | |