

## CMSE514 - Web Technologies and Services

**Department:** Software Engineering

### Instructor Information

**Name:** Dr. Felix Babalola  
**E-mail:** felix.babalola@emu.edu.tr  
**Office:** CMPE 119  
**Office Tel:** 0 392 630 1297

**Program Name:** Software Engineering

**Program Code:** 29

**Course Code**

CMSE514

**Credits**

3

**Year/Semester**

2022-2023 Spring

### Catalog Description

The course discusses: WEB 2.0 technologies. Influence of WEB 2.0 over business and society. Web 3.0 and semantic web concepts and technologies. Web 3.0 applications and management of web data. Web services overview. Service-Oriented Architecture (SOA). Web Services Description Language (WSDL). Simple Object Access Protocol (SOAP). XML technologies. Web services interaction protocol and description with J2EE technologies. Web service discovery and composition. Programming stage of this course, students will use different tools as follows: Client Side (e.g., HTML, CSS, JavaScript, Ajax, jQuery and JSON), Server Side (e.g., Servlets, JSP, Java Beans, JAX-RS for RESTful services), Database (e.g., MySQL) and Knowledgebase (e.g., RDF, OWL, etc.).

Future trend in web technologies and services. The students will be supported with sufficient knowledge on software engineering design and analysis practices by taking this course that provide successfully initialize a project, develop the project, and finalize a software project successfully.

### Course Web Page

<https://staff.emu.edu.tr/felixbabalola/en/teaching/cmse514>

### Textbook(s)

- Fundamentals of Web Development, By: Randy Connolly; Ricardo Hoar, Publisher: Pearson, Edition: 2nd, Copyright year: 2017

### Indicative Basic Reading List:

- Introduction to JavaScript Programming The "Nothing but a Browser" Approach, Eric Roberts, ISBN-10: 0135245850 • ISBN-13: 9780135245859©2020 • Pearson Paper, 480 pp, Published 02/01/2019
- Marty Hall and Larry Brown "Core Servlets and Java Server pages Vol. 1: Core Technologies", Pearson

### Topics to Cover and Schedule

#### LECTURE 1: THE INTERNET AND WORLD WIDE WEB

- Introduction to Web Development
- How the Web Works
- Trends of Web Technologies

#### LECTURE 2: HTML BASICS

- Markup
- HTML history
- Tour of the elements
- Tables and Forms, etc.

#### LECTURE 3: CSS FOR STYLING

- CSS Syntax
- Applying CSS to a Web Page
- Color Properties

- CSS Comments
- HTML Content
- Fonts and Colors
- Text and List Properties, etc.

#### **LECTURE 4: JAVASCRIPT-1**

- JavaScript's role in web development
- How to add JavaScript code to your web pages
- Language Fundamentals
- Functions, Objects, and Arrays in JavaScript

#### **Project I**

#### **LECTURE 5: DATA FORMATS**

- JSON data format
- XML data format

#### **LECTURE 6: JAVASCRIPT-2**

- What is Document Object Model (DOM)
- How to use the DOM to dynamically manipulate the contents of a web page
- How to use the DOM and event handling to validate user input in a form
- What are regular expressions and how to use them in JavaScript.
- Reading Section-Additional Features

#### **MIDTERM**

#### **LECTURE 7: JAVASCRIPT-3**

- Extending JavaScript with jQuery
- Event Handling in jQuery
- DOM Manipulation
- AJAX

#### **LECTURE 9: WORKING WITH A WEB APPLICATION FRAMEWORK**

- Web Frameworks
- React.js

#### **LECTURE 10: WORKING WITH DATABASES**

- Most common commands in SQL
- How to access SQL databases?
- How NoSQL database systems work?
- How to work with NoSQL databases using Node?
- What is GraphQL?

#### **LECTURE 11: SERVER-SIDE (SERVLETS)**

- Servlets
- Java Beans in JSP pages
- Http Request & Responses
- Using Cookies & Sessions
- Connecting to a database using JDBC.

#### **Project II**

#### **FINAL EXAM**

#### **Course Learning Outcomes**

On successful completion of this course, all students will have developed **knowledge** and **understanding** of:

- How to develop dynamic web pages by the use of java script, HTML, and styling.
- How to understand and write a well-formed/valid XML and JSON document.
- How to connect a java program to a DBMS and perform insert, update, and delete operations on DBMS table.
- How to write a server-side java application called Servlet to catch form data sent from client, process and store it on database.
- How to understand Web services dynamics and develop with contemporary Web service technologies.
- How to understand and use most popular JavaScript frameworks.

	<b>Method</b>	<b>No</b>	<b>Percentage</b>
<b>Assessment</b>	Midterm Exam(s)	1	25%
	Final Examination	1	35%
	Individual Project	1	10%
	Group Project	1	30%
<b>Attendance grade:</b> No grade will be given.			
<b>Policy on makeups:</b> For eligibility to take a makeup exam, the student should bring a doctor's report within 3 working days of the missed exam.			
<b>Policy on the NG grade:</b> If you miss two exams with no valid excuse, you will be given the NG grade.			
<b>Prepared by:</b> Dr. Felix Babalola			<b>Date:</b> 02 March 2023