## **COSC 484: Web Engineering (2 credits)**

Web Engineering introduces a structured methodology utilized in software engineering to Web development projects. The course addresses the concepts, methods, technologies, and techniques of developing Web sites that collect, organize and expose information resources. Topics covered include requirements engineering for Web applications, design methods and technologies, interface design, usability of web applications, accessibility, testing, metrics, operation and maintenance of Web applications, security, and project management. *(Prerequisite: COSC 312)*

**Course Learning Outcomes:**

By the end of the course, students will be able to:

A1. Demonstrate a critical knowledge and understanding of web engineering principles, standards, protocols, and frameworks.

A2. Create clear and comprehensive documentation for web projects, including specifications, manuals, and project reports.

B1. Identify and solve common challenges, and issues in web application development.

B2. Analyze user requirements and translate them into technical specifications.

C1. Work autonomously and responsibly in both individual and team-based web development projects.

**Course Learning Materials:**

* Silberschatz, A., Gagne, G., & Galvin, P. B. (2018). Operating System Concepts (10th ed.). Wiley.
* Arpaci-Dusseau, R. H., & Arpaci-Dusseau, A. C. (2018). Operating Systems: Three Easy Pieces (1.00 ed.). CreateSpace Independent Publishing Platform.
* Silberschatz, A. & Galvin, Peter: Operating System Concepts with Java, 8th Edition, Addison-Wesley, 2010.

**Course Content:**

1. Introduction to Web Engineering
2. Web development methodologies
3. Web App Development – Frontend: User Interface and Styling and media
4. Web App Development – Frontend: Client-side Scripting
5. Web App Development – Frontend: Templating
6. Web App Development – Frontend: Frontend Framework
7. Web App Development – Backend: API
8. Web App Development – Backend: Database
9. Web App Development – Backend: Server code and Server-side framework
10. Single Page Application
11. Maintenance
12. Deployment