Northeastern University
College of Engineering

INFO 6150 Web Design and User Experience Engineering

Course Information

Course Title: Web Design and User Experience Engineering
Course Number: INFO 6150
Term and Year: Fall 2022
Credit Hour: 4
Course Format: On-Ground

Instructor Information

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Course Prerequisites

Graduate level INFO 5100 Minimum Grade of B- or Graduate level CSYE 6200 Minimum Grade of B-

Course Description

Exposes students to both conceptual and technical aspects of Web design. User experience design is the discipline of creating a useful and usable website or application that is easily navigated and meets the needs of both the site owner and its users. Covers Web standards and best practices. Studies the fundamental concepts, techniques, practices, work flows, and tools associated with the practice of user-experience design in Web interfaces. Additional areas of focus include typography, color theory and composition, responsive design, CSS3 concepts, basic scripting, and JavaScript libraries to create functional, effective, and visually appealing websites.

Standard Learning Outcomes

Learning outcomes common to all College of Engineering Graduate programs:

1. *An ability to identify, formulate, and solve complex engineering problems.*
2. *An ability to explain and apply engineering design principles, as appropriate to the program's educational objectives.*
3. *An ability to produce solutions that meet specified end-user needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.*

The Information Systems Program accepts students of different engineering backgrounds with minimum programming skills and produces first class Information Systems engineers that operate at the intersection of real-world complexity, software development, and IT management. Graduating students will be able to construct end-to-end advanced software applications that meet business needs.

Specific Learning Outcomes for the Information Systems program:

1. *Create a strong technical foundation through diverse, high-level courses*
2. *Built crucial interpersonal skills needed to succeed in any industry*
3. *Foster a deep level of applied learning through project based case studies*

Course Outcomes and Assesment Standards

Introduces front end web design and principles concepts while working on web design projects. Course offers students opportunity to understand and develop web pages quickly that cater to customer and business needs. Students will have an opportunity to use and learn JavaScript skills including libraries like Bootstrap, JQuery, React, Node JS, Express JS and AngularJS while doing the labs and final project. Security techniques will be discussed that can help avoid code injections in websites. Course will also introduce user experience concepts and its relation to the front-end web design.

Course Objectives:

1. Understand the User Experience concepts and importance of making usable websites or products
2. Introduce front end web design concepts
3. Develop web pages quickly using HTML and JavaScript as per the business needs
4. Learn HTML and JavaScript concepts
5. Learn concepts of Bootstrap, JQuery, Angular JS, React JS, NodeJS, Express JS JavaScript library
6. Work on the Lab to do hands on practice of the concepts
7. Learn best practices and design patterns for the front-end development
8. Apply the knowledge readily to the next assignment or job

This class assumes no prior experience in the Front-end web design and development concepts. Basic web programming experience is helpful but is not required. Comfort with computers, desktop tools and general computing concepts are expected.

Grading(Relative): Final Grading Weightage

- Assignments 20%
- Quiz 20%
- Midterm Exam 20%
- Final Project and Presentation 20%
- Final Exam 20%

Recommended Text: (Some reading materials will be provided via pdf files)

- Front-End Web Development: The Big Nerd Ranch Guide, Aquino & Gandee, ISBN- 10: 0134433947 | ISBN-13: 9780134433943
- Web Development and Design Foundations with HTML5, 8/E ISBN-13: 9780134322759
- Fundamentals of Web Development By Randy Connolly, Ricardo Hoar ISBN-10: 0133407152 • ISBN-13: 9780133407150
- AngularJS, JavaScript, and jQuery All in One Brad Dayley, Brendan DayleyISBN-10 0672337428 • ISBN-13: 9780672337420
- Teach Yourself HTML, CSS and JavaScript All in One, Second Edition, ISBN-13: 978-0-672-33714-7
- Computer Security: Principles and Practice, 3/E, William Stallings and Lawrie Brown ISBN-10: 0133773922 • ISBN-13: 9780133773927
- The Elements of User Experience, By Jesse James Garett ISBN-10: 0321-68368-4
- Basics of Web Design (HTML5 and CSS3), Terry Felke-Morris, ISBN 978-0-13- 397074-6
- Online tutorials on MEAN, Angular6 and Node JS

Attendance policy

The Information Systems Department has a strict class attendance policy. Students who miss two or more Classes will automatically receive one letter grade lower in their final grade. Students who miss three Classes will receive an automatic F for the class. No exceptions are allowed for this rule

Final Team Project:

The final projects will be completed by a team of 4-5 students. The project details will be provided during the second/third week of the course. Students are encouraged to choose their topic of choice either from healthcare, business, and/or technology related fields. Details on project deliverable requirement will be specified at a later time.

Week 1		**Web Design using HTML5, CSS3** (HTML Elements, Validation, Web Design Basics, Mobile Web Design, Principles and best practices, CSS Basics, BOX Model and Page Layout Basics) Class Lab
Week 2		**Web Design using HTML5, CSS3** (Element and Class Selectors, CSS page layout manipulation using float, Style a table, Form and controls, HTML5 text form controls, HTML 5 Audio and Video Source Elements, Media Queries, List and Menu creation) Class Lab
Week 3		**Javascript, DataTypes and BOM** (Introduction, Data types, Working with BOM Model , Node) Class Lab
Week 4		**Javascript DOM and Ajax** (Working with DOM Model , Node, Document Object, Element Node Object, Modifying a DOM Element and Properties, xmlHttpRequest object, Debugging Ajax applications) Class Lab
Week 5		**Bootstrap framework for responsive websites** (Mobile First approach, Grid model, Carousal, Wells, Pills, Forms and difference between version 3 and 4) Class Lab
Week 6		**CSS Grid, FlexBox and SASS** Class Lab
Week 7		**Mid Term Exam**
Week 8		**Advanced concepts of Javascript and JQuery** (Understanding DOM Objects, Prototype, and Arrow Functions, Using JQuery Selectors, Navigating and Manipulating DOM Objects using JQuery, Chaining JQuery Object operations, Event Handlers using JQuery and Implementing Callbacks) Class Lab

Week 9		**Introduction to Node JS, Express JS and Mongo DB** (create http server using node, routing using Express JS and Mongo DB concepts) Class Lab
Week 10		**Learning Typescript, React JS** (Syntax, Decision Making, Types, Classes, Objects,

		Namespaces, Modules, Ambients, Components, Props and Virtual-DOM) Class lab
Week 11		**React JS** Routing, State, Redux
Week 12		**Angular** (Introduction to Components, Templates, Dependency Injection, Angular setup and first Angular app), Metadata, Directives, Forms, Bindings Class Lab
Week 13		**Final Exam**
Week 14		**Final Project Presentations**

End-of-Course Evaluation Surveys

Your feedback regarding your educational experience in this class is very important to the College of Professional Studies. Your comments will make a difference in the future planning and presentation of our curriculum.

At the end of this course, please take the time to complete the evaluation survey at **https://neu.evaluationkit.com**. Your survey responses are **completely anonymous and confidential**. For courses 6 weeks in length or shorter, surveys will be open one week prior to the end of the courses; for courses greater than 6 weeks in length, surveys will be open for two weeks. An email will be sent to your HuskyMail account notifying you when surveys are available.

Academic Integrity

A commitment to the principles of academic integrity is essential to the mission of Northeastern University. The promotion of independent and original scholarship ensures that students derive the most from their educational experience and their pursuit of knowledge. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University.

As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, examinations of whatever kind, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Students are responsible for learning the conventions of documentation and acknowledgment of sources in their fields. Northeastern University expects students to complete all examinations, tests, papers, creative projects, and assignments of any kind according to the highest ethical standards, as set forth either explicitly or implicitly in this Code or by the direction of instructors.

Go to http://www.northeastern.edu/osccr/academic-integrity-policy/ to access the full academic integrity policy.