



# 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: Spring 2022

Credit Hour: 4

Course Format: On-Ground

#### Instructor Information

Full Name: Vishal Chawla

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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 Assessment 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: Final**

- 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 Dayley ISBN-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 Garrett 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.

<b>Week 1</b>		<b>Web Design using HTML5, CSS3</b> (HTML Elements, Validation, Web Design Basics, Mobile Web Design, Principles and best practices, CSS Basics, BOX Model and Page Layout Basics)  Class Lab
<b>Week 2</b>		<b>Web Design using HTML5, CSS3</b> (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
<b>Week 3</b>		<b>Bootstrap framework for responsive websites</b> (Mobile First approach, Grid model, Carousal, Wells, Pills, Forms and difference between version 3 and 4)  Class Lab
<b>Week 4</b>		<b>Learn Javascript, DOM and Ajax</b> (Working with DOM Model , Node, Document Object, Element Node Object, Modifying a DOM Element and Properties, XMLHttpRequest object, Debugging Ajax applications, Using built-in functions on JQuery for Ajax and creating an Ajax library)  Class Lab
<b>Week 5</b>		<b>Advanced concepts of Javascript and JQuery</b> (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
<b>Week 6</b>		<b>Mid Term Exam</b>
<b>Week 7</b>		<b>Introduction to Node JS, Express JS and Mongo DB and Angular</b> (create http server using node, routing using Express JS and Mongo DB concepts, Angular 2 Intro)  Class Lab
<b>Week 8</b>		<b>Learning Typescript,</b> (Syntax, Decision Making, Types, Classes, Objects,

		Namespaces, Modules, Ambients)  Class lab
<b>Week 9</b>		<b>React JS</b>  Components, Props and Virtual-DOM
<b>Week 10</b>		<b>React JS</b>  Routing, State, Redux
<b>Week 11</b>		<b>Angular</b> (Introduction to Components, Templates, Dependency Injection, Angular setup and first Angular app)  Class Lab
<b>Week 12</b>		<b>Angular</b> Metadata, Directives, Forms, Bindings  Class Lab
<b>Week 13</b>		<b>Final Exam</b>
<b>Week 14</b>		<b>Final Project Presentations</b>

### 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.

### **Student Accommodations**

Northeastern University and the Disability Resource Center (DRC) are committed to providing disability services that enable students who qualify under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act Amendments Act (ADAAA) to participate fully in the activities of the university. To receive accommodations through the DRC, students must provide appropriate documentation that demonstrates a current substantially limiting disability.

For more information, visit <http://www.northeastern.edu/drc/getting-started-with-the-drc/>.

### **Library Services**

The Northeastern University Library is at the hub of campus intellectual life. Resources include over 900,000 print volumes, 206,500 e-books, and 70,225 electronic journals.

For more information and for Education specific resources, visit <http://subjectguides.lib.neu.edu/edresearch>.

### **24/7 Blackboard Technical Help**

For immediate technical support for Blackboard, call 617-373-4357 or email [help@northeastern.edu](mailto:help@northeastern.edu)

Within Blackboard, open a support case via the red support button on the right side of the screen, click Create Case

myNortheastern, e-mail, and basic technical support

Visit the [Information Technology Services \(ITS\) Support Portal](#)

Email: [help@northeastern.edu](mailto:help@northeastern.edu)

ITS Customer Service Desk: 617-373-4357

### **Diversity and Inclusion**

Northeastern University is committed to equal opportunity, affirmative action, diversity and social justice while building a climate of inclusion on and beyond campus. In the classroom, member of the University community work to cultivate an inclusive environment that denounces discrimination through innovation, collaboration and an awareness of global perspectives on social justice.

Please visit <http://www.northeastern.edu/oidi/> for complete information on Diversity and Inclusion

### **TITLE IX**

*Title IX of the Education Amendments of 1972 protects individuals from sex or gender-based discrimination, including discrimination based on gender-identity, in educational programs and activities that receive federal financial assistance.*

Northeastern's Title IX Policy prohibits Prohibited Offenses, which are defined as sexual harassment, sexual assault, relationship or domestic violence, and stalking. The Title IX Policy applies to the entire community, including male, female, transgender students, faculty and staff.

In case of an emergency, please call 911.

***Please visit [www.northeastern.edu/titleix](http://www.northeastern.edu/titleix) for a complete list of reporting options and resources both on- and off-campus.***