



INFO 6250 - Web Development Tools & Methods

Fall 2025

Course Information

Course Title: Web Development Tools & Methods

Course Number: INFO 6250

Term and Year: Fall 2025

Credit Hour: 4

Course Format: On-Ground

Instructor Information

Full Name: Rafiuzzaman Mohammad

Email Address: r.mohammad@northeastern.edu

Office Hours: See Canvas once the class begins

Instructor Biography

Dr. Rafiuzzaman Mohammad is a distinguished academic and researcher currently serving as a faculty member at the British Columbia Institute of Technology (BCIT) and Northeastern University in Vancouver, British Columbia. Dr. Mohammad holds a Ph.D. in Electrical and Computer Engineering from the University of British Columbia (UBC), where his dissertation focused on developing an observation-based runtime configuration framework for next-generation software applications. Dr. Mohammad teaches courses in data analytics, service-based architectures, web applications, JAVA, C#, RDBMS, and IT project management while also supervising industry-sponsored student projects and guiding teams in real-world software development initiatives.

Teaching Assistant Information

Full Name: NA

Course Prerequisites

Info 5100

Course Description

This course explores advanced client-side and server-side technologies essential for designing and developing full-stack, enterprise-grade web applications from the ground up. Students will gain hands-on experience building a fully functional, cloud-deployed application, complete with modern front-end and back-end architecture, database integration, and a fully automated CI/CD pipeline.

By the end of the course, each student will have developed and deployed their own full-stack web application—an impressive addition to any portfolio and a strong asset in today's competitive job market.

Building on skills from the *Application Engineering and Development* course, this class focuses on the full life cycle of a web-based application, with a special emphasis on MVC architecture and Microservices. Students will work with MySQL as the primary relational database, while also exploring connectivity with Oracle and Microsoft SQL Server.

Course Learning Outcomes

Learning outcomes expected for 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 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 who operate at the intersection of real-world complexity, software development, and IT management. Graduating students can 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.

Required Tools and Course Textbooks.

The course will be taught in C# (parallel to JAVA) on Visual Studio. There is no textbook for the class. Students will be provided with online resources to consult for the material.

Course Schedule/Topics Covered

- Explain the Model-View-Controller Architecture.
- Integrate MVC applications with popular client-side libraries.
- Develop responsive Single Page Applications (SPAs).
- Implement Test Driven Development best practices.
- Integrate MVC applications with a variety of data sources.
- Deploy MVC applications into the cloud.
- Leverage the ASP.NET infrastructure.
- Validate user input.
- Produce and consume API services.
- Develop cross-platform web applications.
- Explain what Service Based Architectures are and their impact on modern Enterprise Application Software.
- Apply the concepts and principles of Service Based Architectures to software development projects.
- Compare and contrast Service Based Architecture analysis and design with object-oriented (OO)

- analysis and design.
- Design an interoperable Service Based Architecture application.
- Implement services using REST interfaces.

Assignment Grading

- Labs: 10%
- Project1 and Project2: 60%
- Final Exam: 30%

Grading Scale

95-100% A	87-89.9% B+	77-79.9% C+	69.9% or below F
	84-86.9% B	74-76.9% C	
90-94.9% A-	80-83.9%B-	70-73.9% C-	

Attendance/Late Work Policy

Attendance Policy

Students registered in MGEN courses (INFO, CSYE, and DAMG) are allowed **a maximum of 2 absences per course, with 3 or more absences resulting in an automatic 'F' for that course.** Students are expected to inform their instructors of any absences in advance of the class; if a student is sick long-term or experiences a medical issue that prevents class attendance, it is strongly encouraged that they speak with their Academic Advisor (coe-mgen-gradadvising@northeastern.edu) to learn more about the Medical Leave of Absence. Should a student anticipate being unable to attend 3 or more classes, they should discuss their situation with their Academic Advisor to explore other types of leave in accordance with the University's academic and global entry expectations. International students should review the Office of Global Services webpage to understand their visa compliance requirements.

Teaching Assistants (TAs) or Instructional Assistants (IAs) will be present at each class to collect student attendance.

Late Work Policy

Students must submit assignments by the deadline in the time zone noted in the syllabus. Students must communicate with the faculty prior to the deadline if they anticipate work will be submitted late. Work submitted late without prior communication with faculty will not be graded.

End-of-Course Evaluation Surveys

Your feedback regarding your educational experience in this class is particularly important to the College of Engineering. 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 Northeastern University Mail 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.

MGEN Student Feedback

Students who would like to provide the MGEN unit with anonymous feedback on this particular course, Teaching Assistants, Instructional Assistants, professors, or to provide general feedback regarding their program, may do so using this survey: https://neu.co1.qualtrics.com/jfe/form/SV_cTIAbH7ZRaaW0Ki

University Health and Counseling Services

As a student enrolled in this course, you are fully responsible for assignments, work, and course materials as outlined in this syllabus and in the classroom. Over the course of the semester if you experience any health issues, please contact UHCS.

For more information, visit <https://www.northeastern.edu/uhrs>.

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 <https://drc.sites.northeastern.edu>.

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 <https://library.northeastern.edu>
Network Campus Library Services: [Northeastern University Library Global Campus Portals](#)

24/7 Canvas Technical Help

For immediate technical support for Canvas, call 617-373-4357 or email help@northeastern.edu

Canvas Student Resources: <https://canvas.northeastern.edu/student-resources/>

For assistance with my Northeastern e-mail, and basic technical support:

Visit ITS at <https://its.northeastern.edu>

Email: 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, members 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 <https://www.northeastern.edu/ouec> for a complete list of reporting options and resources both on- and off-campus.