



# Northeastern University

## College of Engineering

## INFO 6255 Software Quality Control and Management

### Course Information

Course Title: Software Quality Control and Management

Course Number: INFO 6255

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 C- or Graduate level CSYE 6200 Minimum Grade of C-

### Course Description

Examines techniques for the management and evolution of software systems. Topics include managing software as an asset; life cycle development and rapid development technologies; maintainability; quality assurance of software systems including testing strategies and problem analysis; software risk analysis; analysis of software project failures; process models, such as CMM and ISO 9001; configuration management; and the impact of new development technologies on software management.

### 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

- Understanding Programming languages
- Web Technology Architecture
- JavaScripting/VB Scripting

- Data Bases (SQL Server and Oracle)
- Familiarity with different Operating Systems
- Fluency in Word/Excel/PowerPoint/Vison

**Assessment:**

The final grading is done per the weights listed below.

- Class Participation (10%)
- Weekly Quizzes (20%)
  - Timely Submission
  - Completeness & Correctness
- UFT and Selenium Automation Assignments and Quizzes (25%)
  - Group Presentation of the scripts in the class
- Research Assignments (15%)
  - Group Presentation in the class
- Final Exam - Project (30%)
  - Test Condition Matrix/Test Scenarios/Traceability Matrix
  - Group Presentation
  - Test Plan

**Class Rules:**

- Show up to the class on time. Be punctual.
- Don't miss any classes.
- Don't miss any quizzes. There will be a total of 7 to 8 quizzes for the semester.
- All students will be in groups of 4. They will have to work together to complete 5 Projects/Assignments (25%) and complete the final project (35%).
- Participate fully in the class. Class attendance is mandatory; class participation is worth 10% of your grade

**Course Schedule**

Week	Topics	Tools
<b>Week 1</b>	Introductions and the House Keeping rules.	
<b>Week 2</b>	Quality Management; SDLC phases and the QA Life Cycle.	
<b>Week 3</b>	Anatomy of a Test Plan/Strategy document.	Word/Excel
<b>Week 4</b>	Analysis of Functional Requirements/Designing a Test Condition Matrix/Test Cases & Traceability matrix.	Word/Excel
<b>Week 5</b>	Waterfall & Agile Methodologies overview. DevOps introduction.	
<b>Week 6</b>	Change and Release Management processes & Tools.	MF QC/ALM
<b>Week 7</b>	<b>Automation Tool Assignment 1: Micro Focus UFT Project - Group Presentations.</b>  <b>Quiz on UFT.</b>	MF QTP/ UFT/ Selenium
<b>Week 8</b>	Optimize Quality for Business Outcome Assignment – Group Presentation.	

<b>Week 9</b>	Intro to Back End/Database and API Testing.	
<b>Week 10</b>	Test Management tools Introductions: Micro Focus ALM; Jira & TestRail overview.	Jira, TestRail, Micro Focus ALM
<b>Week 11</b>	Cross Browser and Mobile testing; Monolithic vs. Microservices App Architecture Testing. Cloud Computing Testing.	
<b>Week 12</b>	<b>Automation Tool Assignment 2: Selenium Project - Group Presentation.</b> <b>Quiz on Selenium.</b>	Selenium, IDE, POM, XML
<b>Week 13</b>	Performance & Load Testing introduction using Micro Focus Performance Center; Testing Metrics & Testing Artifacts.	MF Performance Center
<b>Week 14</b>	Application Security testing and Cybersecurity.	
<b>Week 15</b>	Career Management; IT Leadership, QA Job Positions & Job Interviewing Questions/Answers.	
<b>Week 16</b>	Final Project Presentation	Excel/PowerPoint

### 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***

