SE 5560 : SOFTWARE TESTING AND QUALITY ASSURANCE

Semester Hours:	3.0	*Contact Hours:* 3
Coordinator:	Michael Decker	
Text:	Software Testing: A Craftsman's Approach 4th Edition	
Author(s):	PAUL JORGENSEN	
Year:	2013	

SPECIFIC COURSE INFORMATION

Catalog Description:

Various aspects of software testing and quality assurance including measurement of software quality, verification and validation of software projects, and unit and integration testing techniques. Prerequisite: Admission to MS in CS, Admission to Graduate Certificate in Software Engineering, or instructor permission. Approved for distance education.

Course type: **ELECTIVE**

SPECIFIC COURSE GOALS

- I can perform code reviews to verify requirements.
- I know how to write unit tests using a unit testing framework.
- I understand the difference between unit and integration testing.
- I can write both functional and structural tests.
- I can measure software quality metrics on a software system.
- I can analyze relevant research and communicate my findings.

LIST OF TOPICS COVERED

- Introduction and Importance of Testing and Quality Assurance (Week 1-2)
- Verification: Static Testing Techniques (Week 2-5)
    - Code reviews
    - Technical document reviews
    - Walkthroughs

    - Inspections
- Functional, Structural, Regression Testing (Week 6-9)
- Validation: Dynamic Testing Techniques (Week 9-11)
    - Unit/Component testing
    - Popular unit testing frameworks
    - Integration testing
- Software Quality Assurance (Week 11-13)
    - Measuring software quality
    - Test/code coverage
    - Defect tracking
- Integration Testing in the Development Process (Week 14-16)
    - Continuous Integration/automatic test execution
    - Enabling testing in build system
    - Testing in development vs production environments
    - Test First/Test Driven Development