

SE 4560 : SOFTWARE TESTING AND QUALITY ASSURANCE

<i>Semester Hours:</i>	3.0	<i>Contact Hours:</i> 3
<i>Coordinator:</i>	Michael Decker	
<i>Text:</i>	Software Testing: A Craftsman's Approach 4th Edition	
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<i>Year:</i>	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: Grade of C or better in SE 3540. Credit cannot be earned for both SE 4560 and SE 5560. Approved for distance learning.

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.

SOFTWARE ENGINEERING STUDENT OUTCOMES ADDRESSED BY THIS COURSE

- SE 6 An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- SE 7 An ability to acquire and apply new knowledge, as needed, using appropriate learning strategies

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