CS 5560 : SOFTWARE TESTING AND QUALITY ASSURANCE

Semester Hours: 3.0
Contact Hours: 3
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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)
  o Unit/Component testing
  o Popular unit testing frameworks
  o Integration testing

• Software Quality Assurance (Week 11-13)
  o Measuring software quality
  o Test/code coverage
  o Defect tracking

• Integration Testing in the Development Process (Week 14-16)
  o Continuous Integration/automatic test execution
  o Enabling testing in build system
  o Testing in development vs production environments
  o Test First/Test Driven Development