

Course Syllabus

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Course Information

SE 4367: Software Testing, Verification, Validation, and Quality Assurance
Fall 2013
Tue/Thur 1:00-2:15
ECSS 2.112

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Professor Contact Information

Dr. Mark C. Paulk
Office: ECSS 3.610
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Office hours: Mon/Wed 1:00-12:00, Tue/Thur 2:30-3:30, or by appointment

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Course Pre-requisites, Co-requisites, and/or Other Restrictions

SE 3306 (Mathematical Foundations of Software Engineering)
CE/CS/SE 3354 (Software Engineering)

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Course Description

Methods for evaluating software for correctness and reliability, including code inspections, program proofs and testing methodologies.
Formal and informal proofs of correctness.
Code inspections and their role in software verification.
Unit and system testing techniques, testing tools and limitations of testing.
Statistical testing, reliability models.

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Student Learning Objectives/Outcomes

- 1) Ability to understand the goals and different types of software testing
- 2) Ability to understand and apply functional testing
- 3) Ability to understand and apply structural testing
- 4) Ability to understand and apply GUI testing
- 5) Ability to understand and apply software testing tools

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Required Textbooks and Materials

A.P. Mathur, Foundations of Software Testing, 2008.

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Suggested Course Materials

- C. Kaner, J. Falk, and H.Q. Nguyen, Testing Computer Software, Second Edition, 1999.
- R.A. Radice, High Quality Low Cost Software Inspections, 2002.

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Assignments & Academic Calendar

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Week 1:χ	Basics of software testing.χMathurχchapter 1.χ
Week 2:χ	Debugging and test measurement.χ
Week 3:χ	Control flow graphs,χdominators,χandχpostdominators.χ
Week 4:χ	Test generation:χequivalenceχclassesχandχboundaryχvalueχanalysis.χMathurχchapter 2.χ
Week 5:χ	Category-partitionχmethodχandχcause-effectχgraphs.χ
Week 6:χ	Predicates.χ
Week 7:χ	Non-singularχpredicates.χAutomatedχtestingχtools:χSUDS.χ
Week 8:χ	Finite-stateχmodels.χGUIχtesting.χMathurχchapter 3.χ
Week 9:χ	Combinatorialχdesigns.χMathurχchapter 4.χ
Week 10:χ	Regressionχtesting.χMathurχchapter 5.χ
Week 11:χ	Softwareχqualityχtopics:χpeerχreviewsχandχinspections.χAssignedχreadings.χ
Week 12:χ	Testχadequacyχwithχcontrolχflow.χMathurχchapter 6.χ
Week 13:χ	Testχadequacyχwithχdataχflow.χ
Week 14:χ	Mutation.χMathurχchapter 7.χ
Week 15:χ	Formalχmethods.χ

Grading Policyχ

Homework:χ40%χ

Exam 1:χ20%χ

Exam 2:χ20%χ

Exam 3:χ20%χ

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Exam 3 will be scheduled during the final exam period but will not be cumulative.χ

Course & Instructor Policiesχ

1. Make-up exams will be granted only for exceptional conditions, as approved by the instructor.χ
2. There will be no extra credit work.χ
3. All assignments are due by the beginning of class on the day due.χ
4. Late work will be assessed a penalty of 10% per (partial) day. It may be turned in no more than two days late unless there are extraordinary circumstances.χ
5. Assignments should include the class, your (team) name, and the title of the assignment.χ5% for each that is missing.χ
6. File names of soft copy assignments should include the class, the assignment, and your (team) name,χe.g., se4367hw01jdoe.doc.χ5% for each that is missing.χ
7. Drop the lowest homework grade.χ
8. If a member of a project team is not contributing to the team's work, the team may notify me in writingχas to the circumstances.χThe student will be given a chance to participate; at the end of that period ifχthere is no improvement, the student will be removed from the team and given a zero (0) for theχproject.χ
9. Assignments should be submitted through Learning.χ
10. You are expected to attend class.χ
11. Cell phones shall not be used in the classroom during sessions.χIf you are expecting an emergency youχmay place them on silent.χIf you receive a call, leave the room.χ
12. Taping is not allowed.χ
13. Exams are closed book; no laptops; a one-page (front and back) set of notes may be used.χ

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UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.

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