Course Syllabus

Course Information

SE 4367: Software Testing, Verification, Validation, and Quality Assurance
Spring 2013
Tue/Thur 11:30-12:45
ECSS 2.201

Professor Contact Information

Dr. Mark C. Paulk
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Office hours: Fridays 1:30-2:30 or by appointment

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

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

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.

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

Required Textbooks and Materials

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

Suggested Course Materials

- G.J. Myers, T. Badgett, T.M. Thomas, and C. Sandler, The Art of Software Testing, Second Edition, 2004.
- C. Kaner, J. Falk, and H.Q. Nguyen, Testing Computer Software, Second Edition, 1999.
- C. Kaner, J. Bach, and B. Pettichord, Lessons Learned in Software Testing, 2001.
- W. Perry, Effective Methods for Software Testing, 1995.
- K.E. Wiegers, Peer Reviews in Software, 2002.

- G.M. Weinberg, The Psychology of Computer Programming: Silver Anniversary Edition, 1998.
- R.A. Radice, High Quality Low Cost Software Inspections, 2002.

Assignments & Academic Calendar

Week 1:	1/15	Introduction to testing. Mathur chapter 1.
Week 2:	1/22	Debugging and test measurement.
Week 3:	1/29	Static testing to the saturation effect.
Week 4:	2/5	Equivalence classes and boundary value analysis. Mathur chapter 2.
Week 5:	2/12	Category-partition method and cause-effect graphs.
Week 6:	2/19	Predicates.
Week 7:	2/26	Test adequacy. Mathur chapter 6.
Week 8:	**3/5**	**Midterm.**
3/12,14		**Spring Break.**
Week 9:	3/12	Mutation. Mathur chapter 7.
Week 10:	3/19	Peer reviews. Assigned readings.
Week 11:	3/26	Inspections. Assigned readings.
Week 12:	4/2	Formal methods. Assigned readings
Week 13:	4/9	Test-driven development. Assigned readings.
Week 14:	4/26	SUDS.
Week 15:	5/2	Review for finals.
5/7		**Final Exam in ECSN 2.112 at 1100-1345.**

Grading Policy

Homework (including projects): 40%
Midterm Exam: 30%
Final Exam: 30%

The final exam will not be cumulative.

Course & Instructor Policies

1. Make-up exams will be granted only for exceptional conditions, as approved by the instructor.
2. There will be no extra credit work.
3. All assignments are due by the beginning of class on the day due.
4. Late work will be assessed a penalty of 10% per (partial) day.
5. Assignments should include your (team) name, the title of the assignment, and a version number (or date). 5% for each that is missing.
6. File names of softcopy assignments should include the class, your (team) name, and the artifact in the file, e.g., SE3354DoeHW01.doc.
7. If a member of a project team is not contributing to the team's work, the team may notify me in writing as to the circumstances. The student will be given a chance to participate; at the end of that period if there is no improvement, the student will be removed from the team and given a zero (0) for the project.
8. Assignments should be submitted through eLearning.
9. You are expected to attend class.

10. Cell phones shall not be used in the classroom during sessions. If you are expecting an emergency you may place them on silent. If you receive a call, leave the room.
11. Taping is not allowed.
12. Exams are closed book; no laptops; no calculators; a one-page (front and back) set of notes may be used.

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.