SE/CS 6387.001: Advanced Software Engineering Project

Course Syllabus

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Instructor

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Schedule and Location

T/R: 1:00-2:15pm
FO 2.702

Prerequisites

- *SE/CS 6361: Advanced Requirements Engineering*
- *SE/CS 6362: Advanced Architecture and Design*
- ***Required – SE/CS 6359: Object-Oriented Analysis and Design* or *SE/CS 6329: Object-Oriented Software Engineering***
- Co-requisite: SE/*CS 6367: Advanced Software Testing*
- **Knowledge of Java**

Course Description (Graduate Catalog)

This course is intended to provide experience in a group project that requires advanced technical solutions, such as distributed multi-tier architectures, component-based technologies, automated software engineering, etc. for developing applications, such as web-based systems, real-time systems, biomedical systems, legal systems, mobile adaptation, etc. Four to five students form a group to develop and maintain requirements, architecture and detailed design, implementation, and testing and their traceability relationships. Best practices in software engineering will be applied.

Course Description

This course is intended to provide an extensive hands-on experience in dealing with various issues of software development. It involves a semester-long group project spanning problem definition, feasibility analysis, project planning and management, requirements specification and analysis, software design, implementation, and testing. UML is used in the context of an iterative, use case-driven, architecture-centric process. Deliverables are produced through a CASE tool that promotes an agile workflow by synchronizing changes in the various models and the code.

Course Learning Outcomes

❑ To provide experience in a group-oriented software development project
❑ To apply and practice advanced software project planning and management techniques and disciplines
❑ To apply and practice advanced software development processes and methodologies
❑ To apply and practice advanced requirements engineering techniques
❑ To apply and practice advanced software architecture and design techniques
❑ To apply and practice advanced software testing technique

Course Objectives

Planning and Management	Develop a project plan
	Execute the project plan and monitor the project activities
	Follow an iterative and agile process (UP)
Case Tools	*Microsoft Project*
	Subversion (version control) http://offers.assembla.com/free-subversion-hosting/ Github https://github.com/

Requirements	Gather and document requirements
	Create a domain model
	Analyze requirements with use cases
	Ensure traceability between use cases and requirements
	Validate requirements through model execution
	Define black-box test cases
Case Tools	*IBM Rational DOORS*

Design	Write high-frequency UML
	Design with architectural layers
	High-Level Design: represent system architecture design with Composite Structures, Component Diagrams and Subsystem Diagrams
	Detailed Design: design object solutions: assign responsibilities to objects, design collaborations, design with patterns
	Verify design: relate analysis and design artifacts
Case Tools	*IBM Rhapsody*

Implementation	Implement design solutions
Prog. Language	*Java*

Testing & Quality Assurance	Define white-box test cases
	Test your solution
	Assess the quality of the implementation
Case Tools	*JUnit* *https://github.com/KentBeck/junit/wiki*

	Maverix *http://www.maveryx.com/*

Presentations and Demos	Presentations throughout the semester
	Final project demo and product video

Academic Calendar

First Day of Class	Tuesday January 10
Last Day to Add/Swap	Tuesday January 17
Census Day	Wednesday January 25
Last Day to Drop Without a "W"	Wednesday January 25
Last day of Withdrawal	Thursday March 30
Spring Break	Monday March 13 - Saturday March 18
Last day of Class	Thursday April 27
Final Grades Viewable Online	Tuesday May 9

Final Project Presentation and Demo	**Saturday April 29**
Final Project Deliverables	**Saturday April 29**

Course & Instructor Policies

1. You are expected to attend class. Two unexcused absences lead to a 25% deduction from your final grade. Four absences lead to an "F".
2. Teams are formed the first day of class. Once teams are formed, they cannot be changed.
3. Project deliverables are due by the beginning of class on the day assigned (unless otherwise stated).
4. Late work (for projects) will be penalized 10% per day and given a zero after 5 days.
5. If a member of the team is not contributing during the semester, the team should notify me <u>as soon as possible</u> about the circumstances. The student will be given a chance to participate (two week grace period), 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 class project. Complaints received at the end of the semester will not be taken into account.
6. There will be NO extra credit work.
7. Cell phones are to be placed in backpacks during sessions.
8. Computers should NOT be used in the classroom during sessions.
9. **You are not allowed to tape lectures. Taping (voice or video) will result in being dropped from this course and reported to UTD.**

Student Conduct & Discipline
http://www.utdallas.edu/deanofstudents/conduct/

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

Student Grievance Procedures

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's *Handbook of Operating Procedures*.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the deal will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.

Disability Services

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m. The contact information for the Office of Disability Services is:

> The University of Texas at Dallas, SU 22
> PO Box 830688, Richardson, Texas 75083-0688
> (972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs

accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

Religious Holidays

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

These descriptions are subject to change at the discretion of the Professor.