Advanced Software Engineering

Course Description

This course is a study of software engineering principles and their application to: analysis, design, development, testing, and maintenance of large software systems. Students learn how to develop and maintain high-quality software systems. Topics include software process, system engineering, requirements engineering, architectural design, testing strategies, and UML.

Learning Objectives

The course is designed to achieve the following objectives:

- Understand the concepts of software engineering
- Practice good analysis and design techniques
- Utilize Unified Modeling Language (UML) models
- Understand and utilize new approaches in software engineering
- Apply software quality assurance techniques
- Discuss current research in software engineering
- Understand effective project management techniques
- Practice teamwork activities

Major Course Requirements

- 2 Exams → 40%, schedule is posted on course webpage
- Project → 25%, schedule is posted on course webpage
- Term Research Paper → 15%, schedule is posted on course webpage
- Assignments, Quizzes, and Class Participation → 20%

Recommended Readings

- Software Engineering, I. Sommerville, Pearson Education, 8th Ed.
Course Website

http://sci.tamucc.edu/_amahdy/Teaching/Fall11/cosc5370/cosc5370.html

Course Policies

Submitted Work

- Assignments are due at the beginning of the class on the due date. Late submissions will be graded at 50% of the maximum score. Under no circumstances, submissions will be accepted after 24 hours of the due date.
- Assignments must be submitted in a neat computer-generated format. Handwritten submissions will not be accepted.
- Assignments can only be submitted in class; email submissions will be discarded unless instructed otherwise. In case of late submissions, please stop by my office. If I am not available, ask the secretary to date and time your submission and put it in my mailbox.
- Graded work can only be discussed after 48 hours and no later than one week of releasing the scores.
- In case of programming assignments, submissions that do not compile will receive no credit.
- Start working on your assignments early; last day questions that show carelessness will not be responded to.
- It is always recommended to keep your graded work.

Exams and Quizzes

- Exams and quizzes are NOT open-book unless instructed otherwise.
- Not all quizzes times will be announced; pop-up quizzes are likely.
- NO makeup exams or quizzes will be allowed unless I have agreed prior to the exam or quiz time and been provided with official supporting documents.

Class Participation

Class discussions and information provided in class are considered regular course material; it is your responsibility to take appropriate notes. You are expected to attend lectures and actively participate in class discussions. I will be frequently taking attendance. You are also required to turn off your cell phone and/or pager in class and pay attention to class discussions. Use of laptops and other electronic devices is restricted to taking notes. Unethical behavior will result in final grade deduction or an automatic F.

Academic Honesty

You are required to abide by the university academic honesty code. All submissions must reflect the student’s own work; no collaboration will be allowed unless instructed otherwise. You must properly acknowledge all materials that you may use. Plagiarism will result in no credit and/or an automatic F. It is your responsibility to protect your own work; all parties participating in copying, cheating and/or academic dishonesty will be treated indifferently. Academic dishonesty cases will be reported to the appropriate university authorities.
Classroom Environment
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

Grade Appeals
As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

Disabilities Accommodations
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101. If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

Announcements
Announcements will be made available in class, on course web page, and/or through email. It is your responsibility to regularly check for announcements.

Syllabus
This syllabus provides a framework for the course format and policies. Changes and/or additions to this syllabus may be made at the instructor’s discretion. Students will be notified with changes.
### Tentative Course Outline

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<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
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<td>1</td>
<td>Overview of Software Engineering</td>
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<td>2-3</td>
<td>Software Life Cycles</td>
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<td>4-5</td>
<td>Software Process</td>
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<td>6-8</td>
<td>Requirements, Analysis and Specifications</td>
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<td>9-10</td>
<td>Software Design</td>
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<td>11-12</td>
<td>Software Implementation</td>
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<td>13</td>
<td>Integration Techniques</td>
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<td>Software Testing</td>
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<td>16</td>
<td>Software Reuse</td>
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