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

- Mid-Term Exam 15%
- Final Exam 20%
- Team Project 20%
- Team Effort Evaluation 5%
- Research Paper Presentation 10%
- Term Research Paper 15%
- Class Participation 10%
- Class Attendance 5%

Required or Recommended Readings


Recommended or Supplemental Reading:
Course Policies

Attendance/tardiness
The students are expected to come to class on time every day the class meets. Read the chapter to be discussed before coming to class. Ask questions of material you do not understand. If I cannot explain the answers to your satisfaction, make an appointment with me to discuss the question. Demonstrate integrity, maturity, and ethical behavior.

Late work and Make-up Exams
Assignments are accepted until MIDNIGHT on the due date. Every homework assignment will list a due date for full credit. Late assignments will lose 10% of the maximum score per day. Makeup exams will not be given under normal circumstances. If you notify me immediately that serious, unavoidable, documentable (e.g., with a letter from your doctor) circumstances have arisen, I will discuss options for replacing the missing grade. (For example, I may allow the grade earned on the comprehensive final to replace the grade for the missed exam.) Excused absences due to school sponsored activities, religious observations, family rituals, etc. should be discussed in advance.

Academic Integrity/Plagiarism.
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in the fail of the class.

Dropping a Class
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. 11/02/2012 is the last day to drop a class with an automatic grade of “W” this term.

Classroom/professional behavior
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.

**Syllabus**

*(course outline)*

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Scope of Object-Oriented SE</td>
<td>Introduction, Chapter 1</td>
</tr>
<tr>
<td>2</td>
<td>Software Life-Cycle Models</td>
<td>Chapter 2</td>
</tr>
<tr>
<td>3</td>
<td>The Software Process</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>4</td>
<td>Teams</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>5</td>
<td>The Tools of the Trade</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>6</td>
<td>Testing</td>
<td>Chapter 6</td>
</tr>
<tr>
<td>7</td>
<td>From Modules to Objects</td>
<td>Chapter 7</td>
</tr>
<tr>
<td></td>
<td>Exam I: Chapters 1-7</td>
<td></td>
</tr>
<tr>
<td>8-9</td>
<td>Research Paper Presentation</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>The Requirements Workflow</td>
<td>Chapter 11</td>
</tr>
<tr>
<td>11</td>
<td>Object-Oriented Analysis</td>
<td>Chapter 13</td>
</tr>
<tr>
<td>12</td>
<td>Design</td>
<td>Chapter 14</td>
</tr>
<tr>
<td>13</td>
<td>Implementation</td>
<td>Chapter 15</td>
</tr>
<tr>
<td>14</td>
<td>Postdelivery Maintenance</td>
<td>Chapter 16</td>
</tr>
<tr>
<td>15</td>
<td>Term Paper Presentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exam II: Chap.11 Chap.13 Chap.14 Chap. 15 Chap.16</td>
<td></td>
</tr>
</tbody>
</table>