Advanced Software Engineering

Course Description
In this course the student will learn about some of the most advanced topics on Software Engineering. The objective of this course is to teach students the methodology to design and write secure code applying the Secure Software Engineering life Cycle.

Learning Objectives
After completing this course, the student should be able to: Have a higher-level understanding of how to write secure code by using the Secure Software Engineering Life Cycle.
1. Comprehend, apply, and implement Secure Software Requirements
2. Comprehend, apply, and implement Secure Software Design
3. Comprehend and apply Secure Software Implementation
4. Comprehend, apply, and implement Secure Software Testing
5. Comprehend Network Vulnerabilities
6. Comprehend Database Vulnerabilities
7. Comprehend Operating System Vulnerabilities

Major Course Requirements
Exam 1  20%
Midterm Exam  20%
Exam 3  20%
Final Exam  20%
Class Project  20%

Course Format: This course has a very strong component of Hands-on Activities. Each week there will be a lab that will take from 8 to 10 hrs to complete. Class lecture will be once a week on Mondays. Dr. Garcia Will be supervising students work in teams Wednesday and Fridays.

Course Policies
Incompletes: An incomplete will only be granted in the case of serious illness. Written proof of the illness and a recommendation for an incomplete will be required from both the Dean of Students office as well as from a doctor. A grade of incomplete is never issued to give a student more time to complete assignments or improve a grade. The final determination as to whether or not an incomplete should be issued rests solely with the professor.

Courtesy Expectations
1. Please be in class on time. Late students disrupt class. If you arrive late to class please enter from the rear of the classroom.

2. Talking or passing notes to other students in the classroom distracts both the instructor and your fellow students.

3. Finally, *if you prefer to sleep or read newspapers, do not come to class.*

**Quiz and Exam Policies**

1. Quizzes may be either take-home or in-class. Take home quizzes will only be available in class. If you don't get a take home quiz, your grade is 0. In-Class quizzes are usually short and given during the first 3 to 5 minutes of class. If you're late to class, your grade is 0.

2. There are no make-up quizzes under any circumstances for any reason.

**Homework Policies and Quality Expectations**

1. All assignments or take home quizzes are due by Blackboard at the beginning of the class period.

2. Late assignments will be penalized as follows: 2 points per hour late.

**Re-Grading Policies**

1. Any student wishing to appeal a score should return his/her assignment or exam with a written statement explaining his/her appeal. An appeal must be submitted no later than one week after the student received the original score (scores posted).

2. Any work submitted for grade appeal may be totally re-graded, not merely those portions which the student wishes to be re-graded.

3. Discussion of corrected exams or quizzes may be done during any office hour or by appointment.

**Cell Phone/Electronic Device Usage – Must turn them off**

**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.)

1. Students are encouraged to discuss their assignments with others. However, the assignment which is turned in must have been produced by the student him/herself and cannot be a collaborative effort unless specifically assigned as such by the instructor. Any deviation from the preceding may result in a grade of F for the course and possibly additional severe disciplinary actions. (See your student handbook for more information)

2. Possession of cheat sheets or crib notes of any type in examinations shall constitute academic dishonesty and will be dealt with in a similar manner

3. During examinations, all personal possessions other than pencils and erasers are to be left at the front of the room.
**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.

**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 Rule13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, 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.

*Required by SACS

**Syllabus**

**Class Introduction**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>09/04 – 09-08</td>
<td>Secure Software Engineering</td>
</tr>
<tr>
<td>09/09 – 09 – 15</td>
<td>What Makes Software Secure?</td>
</tr>
<tr>
<td>09/16 – 22</td>
<td>Requirements Engineering for Secure Software</td>
</tr>
<tr>
<td>09/23</td>
<td>Exam 1</td>
</tr>
<tr>
<td>09/25–29</td>
<td>Secure Software Architecture and Design</td>
</tr>
<tr>
<td>09/30 – 10/6</td>
<td>Software requirements:</td>
</tr>
<tr>
<td>10/07 - 13</td>
<td>Design for Quality: The big picture</td>
</tr>
<tr>
<td>10/14 – 20</td>
<td>Design for Security</td>
</tr>
<tr>
<td>10/21 –</td>
<td><strong>Midterm Exam</strong></td>
</tr>
<tr>
<td>10/23 – 27</td>
<td>Secure Software Development</td>
</tr>
<tr>
<td>10/28 11/3</td>
<td>IBM Software Tools</td>
</tr>
<tr>
<td>11/4 - 10</td>
<td>IBM Software Tools</td>
</tr>
<tr>
<td>11/11 – 17</td>
<td>IBM Software Tools</td>
</tr>
<tr>
<td>11/18 –</td>
<td>Exam 3</td>
</tr>
<tr>
<td>11/19 – 24</td>
<td>Project Work</td>
</tr>
<tr>
<td>11/25 – 12/1</td>
<td>Project Work</td>
</tr>
<tr>
<td>12/2 - 8</td>
<td><strong>Final Exam: Final Project Presentation</strong></td>
</tr>
</tbody>
</table>