

**Advanced Software Engineering COSC-6370.001**  
**Department of Computing Sciences**  
**Spring 2023**

**A. COURSE INFORMATION**

**Course number/section:** COSC-6370.001  
**Class meeting time:** TR 9:30 AM – 10:45 AM  
**Class location:** CI 122  
**Course Website:** Please check the course website on Blackboard.

**B. INSTRUCTOR INFORMATION**

**Instructor:** Carlos Rubio-Medrano  
**Office location:** CI 339  
**Office hours:** TR 2:00- 4:30 PM  
**Telephone:** (361) 825-3436  
**e-mail:** carlos.rubiomedrano@tamucc.edu  
**Appointments:** Please send an email to the instructor to arrange for an appointment.

**C. COURSE DESCRIPTION**

**Catalog Course Description**

Areas studied include engineering principles and their application to the design, development, testing, and maintenance of large software systems, tools and processes for managing the complexities inherent in creating and maintaining large software systems.

**Extended Course Description**

Students will work on a semester-long capstone project, which will feature novel ideas on one or more emerging technologies. Such a project will be extremely beneficial for their curriculum vitae, resume, and/or portfolio.

**D. PREREQUISITES AND COREQUISITES**

**Prerequisites**

COSC 5321

**Corequisites**

None

**E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES**

*Object-Oriented and Classical Software Engineering*, Eighth Edition, by Stephen R. Schach, ISBN 978-0-07-337618-9, McGraw-Hill, 2010.

**Optional Textbook(s) or Other References**

- Software Engineering: A Practitioner’s Approach, R.S. Pressman, McGraw Hill, 8th Ed.
- Software Engineering, I. Sommerville, Pearson Education, 9th Ed.

### Supplies

None

## F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. Understand the concepts of software engineering;
2. Practice good analysis and design techniques;
3. Utilize Unified Modeling Language (UML) models;
4. Understand and utilize new approaches in software engineering;
5. Apply software quality assurance techniques;
6. Discuss current research in software engineering;
7. Understand effective project management techniques;

## G. INSTRUCTIONAL METHODS AND ACTIVITIES

The class includes lectures, presentations, individual office discussion, term project, and term project report. Students are expected to actively participate in the discussion.

## H. MAJOR COURSE REQUIREMENTS AND GRADING

ACTIVITY	% of FINAL GRADE
Part 1: Term Project Basic Info	5
Part 1: Introduction and Related Works	10
Part 2: Term Project Proposal Report	20
Part 3: Term Project Proposal Presentation	5
Part 4: Term Project Implementation	25
Part 5: Final Term Project Presentation	10
Part 6: Final Term Project Report	25

**I. COURSE CONTENT/SCHEDULE**

WEEK	DATES	READINGS	ASSIGNMENTS	MEETINGS
1	Jan 17, 19	The Scope of OO SE / SW Life-Cycle Models	Out: Part 0	Part 0
2	Jan 24, 26	The SW Process	In: Part 0 Out: Part 1	Part 0
3	Jan 31, Feb 2	Teams	In: Part 0	Part 1
3	Feb 7, 9	The Tools of the Trade		Part 1
4	Feb 14, 16	Testing / From Modules to Objects	In: Part 1 Out: Part 2	Part 1
5	Feb 21, 23	Term Project Proposal Presentations		Part 2
6	Feb 28, Mar 2	The Requirements Workflow	In: Part 2 Out: Part 3	Part 3
7	Mar 7, 9	The Requirements Workflow	In: Part 3	Part 2 Presentations
8	<i>Mar 14, 16</i>	<i>Spring Break</i>	-	
9	Mar 21, 23	OO Analysis	-	Part 4-1
10	Mar 28, 30	Design		Part 4-2
11	Apr 4, 6	Implementation	-	Part 4-3
11	<i>Apr 10</i>	<i>Last Day to Drop Class</i>	-	-
12	Apr 11, 13	Implementation	Out: Part 5 Out: Part 6	Part 4-4
13	Apr 18, 20	Postdelivery Maintenance	-	Part 4-5
14	Apr 25, 27	Working on Course Project	-	Part 4-5
15	May 2	<i>Last Day to Withdraw from University</i>	-	Part 4-5
15	May 2	Final Term Project Demo and Report	In: Part 6 Part 4 Demo	Part 4 Demo
16	Tue May 9 8:00 AM - 10:30 AM	Final Exam	Part 5 Presentations	-

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

## **J. 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.

### **Extra Credit**

Extra Credit will not be considered for this course.

### **Cell Phone Use**

Cell Phone Use while in class or meeting session is prohibited.

### **Laptop Use**

Laptop Use while in class or meeting session is prohibited.

### **Food in Class**

Food/Eating/Cooking/Preparing a Meal is prohibited while in class or meeting session.

### **Missed Exam/Deadline**

Arrangements for a missed deadline must be negotiated in advance with the instructor. Once a deadline has passed no arrangements will be made.

### **Participation**

Students are expected to participate and work in their projects actively throughout the semester. Failure to work on their project will result in students receiving low grades.

### **Student Safety Trainings**

Required safety trainings and/or lab safety seminars must be successfully completed once every academic year, normally in the Fall. Students will be required to take the

course from Blackboard in either the first lecture or first lab to complete their training assignments and show the certificate of completion before the end of the class or lab. Students who are still covered by having taken the safety training earlier should show their certificate of completion. For students unable to attend first day of class/lab (or still registering for the class), a reasonable completion date will be flagged in Starfish. A possible grade penalty can be enforced for non-completion.

## **K. COLLEGE AND UNIVERSITY POLICIES**

### **COVID-19 Campus Safety Measures**

While the University does not require face coverings or vaccinations, we encourage every Islander to consider getting vaccinated, wear a face covering while indoors, and wash your hands frequently to aid in reducing the spread of COVID-19.

Anyone with COVID-19 [symptoms](#) should not report to campus. Students, faculty, and staff who test positive are required to report their test results to the University [Covid-19 Reporting Form](#).

Please use the below links for COVID-19 guidelines:

[\*\*If You Test Positive, Regardless of Vaccination Status\*\*](#)

[\*\*If you are exposed to Someone with COVID-19\*\*](#)

[\*\*If you have Symptoms Regardless of Vaccination Status\*\*](#)

Complete the COVID-19 [Self Reporting Form](#) and notify instructor.

More COVID-19 related information may be found on the university website at <https://www.tamucc.edu/campus-guide/covid-protocol.php>

### **Campus Emergencies\***

At TAMU-CC, your safety is a top concern. We actively prepare for natural disasters or human-caused incidents with the ultimate goal of maintaining a safe and secure campus.

- For any emergency, dial the University Police Department (UPD) at **361-825-4444** or dial 911. It's a good idea to have the UPD emergency number (and non-emergency number 361-825-4242) saved in your cell phone.
- There are nearly 200 classroom telephones throughout campus. If you feel threatened or need help and don't have a cell phone, dial 4444 (emergency) or 4242 (non-emergency) to be connected to UPD.
- If we hear a fire alarm, we will immediately evacuate the building and proceed to \_The

- Plaza next to the CI Building \_\_\_\_\_ (location).
- Proceed to the nearest building exit or evacuation stairway. Do not use the elevator. Persons who need help navigating stairs should proceed to a marked Area of Rescue Assistance, if possible.
  - Persons with disabilities should speak with their faculty about how to best assist them in case of an emergency.
  - Review the evacuation route (see specific Building Emergency Plan).
  - TAMU-CC employs the Code Blue Emergency Notification System, an alert system which connects the campus community during emergency situations.
    - The notifications include emails, text and pre-recorded messages, as appropriate.
    - Code Blue emergencies may include severe weather warnings, threats, school closures, delays, evacuations and other incidents which disrupt regular campus activities.
    - Students can update personal contact information anytime at <https://emergency.tamucc.edu/contactform/>
  - Shelter in Place via Code Blue.
    - "Shelter-in-place" means to take immediate shelter where you are and may be implemented for severe weather, hazardous material spills, active shooters or other dangerous situations.
    - If there is a shelter in place for a **tornado warning**, our preferred location is the bottom floor of this building, away from windows and doors.
  - Active Threat Protocol. There are three things you could do that make a difference if there is an active threat: Run, Hide, and/or Fight. For more information about the Run, Hide, Fight protocol, including what to do when law enforcement arrives, visit <http://safety.tamucc.edu/ems/activethreat.html>

For the *Quick Campus Guide to Campus Emergencies* (including a list of Areas of Rescue Assistance and additional protocols on assisting persons with physical disabilities, hurricanes, bomb threats, animal bites, crime reporting, elevator entrapment, etc.), visit <https://safety.tamucc.edu/uploads/Site/finalbooklet.pdf>

- **Academic Integrity (University)**

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 a failing grade.

- **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.

- **Statement of Civility**

Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**

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 your academic advisor, the Financial Aid Office, and me, before you decide to drop this course.*

Should dropping the course be the best course of action, you must initiate the process to drop the course by going to University Center 324 and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. You may also submit a PowerFormSigner online. November 30, 2022 is the last day to drop a class with an automatic grade of "W" this term.

- **Grade Appeals (College of Science and Engineering)**

As stated in University Procedure 13.02.99.C0.03, Student Grade Appeal Procedures, 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 required 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 Procedure 13.02.99.C0.03, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at

[http://academicaffairs.tamucc.edu/rules\\_procedures/assets/13.02.99.c0.03\\_student\\_grade\\_appeals.pdf](http://academicaffairs.tamucc.edu/rules_procedures/assets/13.02.99.c0.03_student_grade_appeals.pdf)). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**

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 (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

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.

<http://disabilityservices.tamucc.edu/>

- **Civil Rights Complaints**

Texas A&M University-Corpus Christi is committed to fostering a culture of caring and respect that is free from discrimination, relationship violence and sexual misconduct, and ensuring that all affected students have access to services. For information on reporting Civil Rights complaints, options and support resources (including pregnancy support accommodations) or university policies and procedures, please contact the University Title IX Coordinator, Sam Ramirez ([Samuel.ramirez@tamucc.edu](mailto:Samuel.ramirez@tamucc.edu)) or Deputy Title IX Coordinator, Rosie Ruiz ([Rosie.Ruiz@tamucc.edu](mailto:Rosie.Ruiz@tamucc.edu)) x5826, or visit website at [Title IX/Sexual Assault/Pregnancy](#).

- **Limits to Confidentiality.** Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including instructors, are not able to maintain confidentiality when it conflicts with their responsibility to report alleged or suspected civil rights discrimination that is observed by or made known to an employee in the course and scope of their employment. As the instructor, I must report allegations of civil rights discrimination, including sexual assault, relationship violence, stalking, or sexual harassment to the Title IX Coordinator if you share it with me.

These reports will trigger contact with you from the Civil Rights/Title IX Compliance office who will inform you of your options and resources regarding the incident that you have shared. If you would like to talk about these incidents in a **confidential** setting, you are encouraged to make an appointment with counselors in the [University Counseling Center](#).

- **Statement of Academic Continuity**

In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be



operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

#### **L. OTHER INFORMATION**

- **Academic Advising**

The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College's Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

#### **GENERAL DISCLAIMER**

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.