



CSCI 4316 Software Engineering I, Fall 2026
The Department of Computational, Engineering, and Mathematical Sciences
College of Arts and Sciences

Course Syllabus

Class Meeting Time and Place: M 4:00pm - 6:45pm
Instructor: Dr. Young Lee
Office: STEM 211E, Tel: 210-784-2376
E-Mail: Young.Lee@tamusa.edu
Student emails will receive a reply within two business days
Course Website: <https://tamusa.blackboard.com/>
Office Hours: MW 2:00pm - 4:00pm or by appointment

Catalog Course Description: Introduction to formal software design principles. An engineering approach to software development. Software project management. Software requirements analysis, specification, design, development, and validation.

Course Objectives: The objective of the course is to cover the basic concepts of software development life cycle process. Various process models, including agile models will be covered. The stages of the process such as: requirements analysis, specification, and design are covered in this course. Design principles and patterns are covered. Prototype implementations are done to validate the process steps. Software testing and metrics are studied.

Prerequisites: CSCI 2436 or CSCI 2336 and CSCI 2136, senior standing. Students who do not meet the pre-requisites must contact the instructor immediately and will be dropped from the course.

Student Learning Outcomes: After successful completion of this course, students will be able to:

- Describe the need for a process model and list the various process models
- Analyze the problem, and determine software requirements specifications
- Use several techniques of converting the requirements specifications to a proper software design
- Describe the design principles.
- Develop prototype systems to evaluate requirements, design, implementation techniques

ABET Assessment: The ABET has been accredited for its BS in computer science program for which this course is a core course. Students will be assessed on program level outcomes based on course outcomes from this course, and hence students must follow the necessary rigor to ensure mastery of the above course outcomes. For this course the following Program outcomes will be assessed:

Outcome 3. Communicate effectively in a variety of professional contexts.

Outcome 5. Function effectively as a member or leader of a team engaged in activities appropriate to the

program's discipline.

- **Recommended Textbooks:**

- Software Engineering: A Modern Approach by Marco Tulio Valente <https://softengbook.org/>
- Head First Design Patterns: Building Extensible and Maintainable Object-Oriented Software 2nd Edition by Eric Freeman, O'Reilly Media, 2021, ISBN-13: 978-1492078005

Required Materials:

- **Blackboard:** Connect to <http://tamusa.blackboard.com>. You will have lecture notes and other supplementary materials in Blackboard. All class communications will be through Blackboard and students should monitor this several times a day.
- **Computer Hardware:** In order to participate in the tutoring sessions you will need a computer with an internet connection, a microphone and speakers/headphones.
- **Time Expectation for coursework:** You are expected to spend 4-8 hours per week for the course. Based on the background, some student may require more time. Time spent may be longer when assignment/exams are due.

Other Recommended / Reading Materials: Additional reading materials are available on the course website as recommended by the instructor.

Course Requirements every student must fulfill in order to succeed in course:

1. Students should check the Course Calendar, Announcements, and Messages (e-mail) systems in Blackboard on a regular basis.
2. Students should keep current with all course assignments, quizzes, and examinations.
3. If the course uses remote proctoring for exams, students must schedule their exam early in the semester.
4. Students should ask questions and communicate with the instructor either in class, online, off-line or during office hours.
5. For all classwork, exams, quizzes etc., if a student is completing it off-campus, then they are responsible for availability of internet connectivity. Extensions will **not** be granted for lack of availability of internet connections.

Grading Policy: The final course grade will be based on your performance on the exams, assignments and class participation using the following weights:

Assignments	20%
Projects	30%
Mid Exam	20%
Final Exam (as per University Schedule)	30%
Total	100%

The final letter grades will be assigned as follows: Above 90% A; 80 – 89% B; 70 – 79% C; 60 – 69% D; Below 60% F.

This course has a requirement of a grade of C as a minimal grade for satisfactory completion of the course.

Examinations: There will be mandatory a mid-term exam and a final exam (as per university schedule). Being absent for an exam will result in a grade of zero for that exam and may result in a fail grade in the course. The exams will consist of conceptual problem-solving questions, and short essay questions. The exam materials will come from lecture notes, the text, and class discussions. Questions will emphasize understanding and applications of concepts and topics covered in class.

AI Policy: Broader Use of Generative AI Permitted Within Guidelines

Use of artificial intelligence (AI) tools, including ChatGPT, is permitted in this course for students who wish to use them. To adhere to our scholarly values, students must cite any AI-generated material that informed their work (this includes in-text citations and/or use of quotations, and in your reference list). Using an AI tool to generate content without proper attribution qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

Assignments: There will be several assignments during the course. For all assignments, ALL intermediate work of the problem solution steps MUST be shown. This includes the use of the formula, the values substituted in the formulas for problem solution, as well as the intermediate steps of the arithmetic computation. The units of measurement are extremely important and MUST be shown at each stage of the computation. Considerable points will be taken off for not following these requirements. All assignments will have a clearly indicated due date.

Make up and Late Assignment/Exam policy:

All assignments will have a clearly indicated due date. Late assignments will be penalized 10% per day. As a general rule, no make-ups will be accepted for any missed assignments/exams. Make-ups may be accepted/administered only in extra-ordinary circumstances such as an excused official university activity, a severe illness, or a dire emergency. However, you must provide comprehensive documentation either before or within a few days of the missed assignments/exams.

Class conduct and civility code: Everyone in class is expected to follow all rules in the student handbook, as well as common courtesy during classroom lectures and discussions in class and online, including the following:

1. Attendance may be taken by an appropriate method by the instructor.
2. It is the students' responsibility to obtain and be able to use the required materials and software for this class.
3. Student must retain copies of all assignments and graded work for verification purposes and provide it to the instructor, if necessary. Keep own copies of all computer files and e-mails till final grade is received.
4. Talking while the instructor is lecturing is extremely disruptive and discourteous to the instructor and other students.
5. Using computers or phones (except for a valid urgent need) during class for a purpose not related to class is disruptive. All cell phones and gadgets should be turned OFF.
6. For any questions about the exams and assignments, a student should contact the instructor, well in advance of the day they are due, so the instructor may have enough time to provide feedback.
7. All communications will be via e-mail communications to the Texas A&M University e-mail account, and students are expected to use their school provided email account. The instructor will reply to a student e-mail messages within 2 business days (Monday-Friday).

8. All assignment submissions must be uploaded as instructed by the due date and time. Submission window may close or marked late, even if late by one second.

Anyone violating these policies may be subject to disciplinary actions.

Class attendance and Participation: A vital part of every student's education is regular attendance of class meetings (for face-to-face/hybrid classes/online synchronous classes) or regular review of class materials posted by the instructor for asynchronous classes. Any absences tend to lower the quality of a student's work, and frequent or persistent absences may result in a failing grade. Students are responsible for the materials covered in class. The course covers a lot of material and most students find at least some parts of it difficult. Class participation is highly encouraged as it makes the class more interesting and enhances the learning experience. Students are strongly encouraged to ask questions, participate in class discussions and problem solving, and visit/contact the instructor during office hours in case of questions or concerns. Good attendance and participation will be rewarded when final grades are assigned.

The course is intensive and challenging and you are expected to master the materials presented in class. The structure of the class makes your individual study and preparation outside of class extremely important, and may vary considerably based on student background. However, a **minimum** of two hours of work outside the class is expected for every one hour of class period per week. Reading the assigned chapter(s) and having some familiarity with them before class will be very useful for understanding lectures.

Fall 2026 CSCI 4316 Class Schedule

The provisions and information set forth in the schedule below are intended to be informational and not contractual in nature. The instructor reserves the right to amend, alter, change, delete or modify the provisions of the schedule.

	Chapters
Week 1	Syllabus, Introduction, Engineering of Software, Process Models
Week 2	No Class, Labor Day Holiday
Week 3	Agile Process, XP, Test Driven Development
Week 4	Requirement Engineering, Use Cases, Risk Analysis
Week 5	Design: Architecture and Methodology
Week 6	UML, Static Design, Dynamic Design
Week 7	Midterm Exam
Week 8	Design Characteristics and Metrics
Week 9	Project Presentations: Design, Prototype
Week 10	SOLID Design Principles
Week 11	Design Patterns
Week 12	Design Patterns
Week 13	Implementation, Testing and Quality Assurance
Week 14	Final Project Presentations

Week 15	Last Class, Final Project Submission, Review
Week 16	Final Exam