

Software Engineering Fall, 2026

Lecture:	WED 8:15-11:00am (8:15-9:00 am, 9:10-9:55 am, 10:15-11:00 am) THU 1:50-4:25 pm (1:50-2:35 pm, 2:45-3:30 pm, 3:40-4:25 pm)	Instructor:	Steven Guan
Classroom:	S506 (Jiang'an South Campus)	Office:	N516 (Jiang'an South Campus)
Office Hours:	Tuesday, 9:30 – 15:30. Please send an email to schedule a meeting	Email:	<u>steven.guan@scai-ji.cn</u>

Teaching Assistant: 娄思琪 <2023141520194@stu.scu.edu.cn>

Textbook: Ian Sommerville, “Software Engineering”, Pearson Publishing

Prerequisite

Should have good knowledge on Java programming language, data structure, computer architecture, and database.

Descriptions

Successful software development depends on an in-depth understanding how the phases and supporting activities of the software development life cycle work together. Each phase of the life cycle contributes to a reliable, maintainable product that satisfies user requirements. The application of good engineering practices throughout the cycle dramatically improves the likelihood of delivering a quality software project on time, in scope and within budget. While there are many rigorous methodologies, in fact most approaches and tools have a mixture of strengths and weaknesses. Many modeling approaches focus on describing software designs, rather than solving business problems.

This course covers basic software engineering methodologies, techniques, and tools for planning, capturing requirements, designing, implementing, testing, and maintaining **large- or small-scale** software systems.

Course Objectives

- Describe and compare various software development methods and understand the context in which each approach might be applicable;
- Elicit requirements from a client and specify them;
- Design in the large, including principled choice of software architecture, the use of modules and interfaces to enable separate development, and design patterns;
- Understand good coding practices, including documentation, version control, and daily builds;
- Develop students' critical skills to distinguish sound development practices from ad hoc practices;
- Judge which technique would be most appropriate for solving large- or small-scale software problems;
- Expand familiarity with mainstream schemes used to model and analyze object design.

Learning Outcomes

- 1) Understand basic knowledge on the scope of software engineering.
- 2) Build skills on working with version control, configuration management, unit/integration testing, issue tracking, and debugging tools; creating a project plan; creating and analyzing design models;.
- 3) Familiar with modern approaches to cope with large- or small-scale software system development in teamwork.

Assessments & Grading Policy

Assessment Type	Percentage	Classification
Assignments	40%	Group project
Final Exam	40%	Individual Test
Midterm Exam	20%	Individual Test
Total	100%	

Grade Composition:

Class letter grade is given within the following score ranges:

90.00 – 100.00 A 85.00 – 89.99 A- 80.00 – 84.99 B+ 76.00 – 79.99 B 73.00 – 75.99 B-
70.00 – 72.99 C+ 66.00 – 69.99 C 63.00 – 65.99 C- 60.00 – 62.99 D 0.00 – 59.99 F

GPA grades will be further determined based on the given letter grades to show on your transcripts.

Attendance Policy

Attendance is expected in all lectures. Valid excuses for absence will be accepted before class. In extenuating circumstances, valid excuses with proof will be accepted after class. **Missing attendance in pre-scheduled reports/presentations will cause you losing the marks for that particular event.**

Group Project Assignment (40%):

Assessments will be carried out in **4 pre-scheduled stages to be attended by ALL team members**, each with different weightage

1. **Group presentation on requirement report** (5%)
2. **Group presentation on design report** (5%)
3. **Group presentation on testing report** (5%)
4. **Project final rebuttal, presentation** (25%)
5. All reports & presentation ppts, codes/solutions should be submitted electronically through the Blackboard platform **2 days** before the scheduled date of presentation. **Late submission will NOT be accepted.** Please make sure your TA can clearly see your submitted files. Generally, Word and PDF files & source code files are preferred. Please include your names in your group and student IDs when submitting your solutions.

If you have any problems with your grades, please discuss the issues with your TA within ONE week of the grades being given. Any arguments about your assignments grading at the end of the semester will not be allowed.

Please showcase all your work to receive full credit. You may lose points if you lose key processes in solving the project assignment. However, you may also receive partial credit even if your solution was incomplete.

Policies on Exam Make-up

There will be one midterm exam in the middle of this semester and one final exam at the end of this semester. If you have to miss an exam, you **MUST** obtain formal permission with reasonable excuses such as a medical emergency and valid proofs **before** the exam is given. If you miss an exam without prior notification, you will receive a score of “**ZERO**” for that exam except under extenuating circumstances. More details about the exam schedule and requirements will be covered in class. Early preparation for your exams is strongly recommended. For failing students, a make-up exam may be given if you fail this course.

Academic Integrity

At Sichuan University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect. As a student, you are required to demonstrate these values in all of the work you do. Everyone at SCUPI/SCAI is expected to treat others with dignity and respect. The Code of Student Conduct allows Sichuan University to take disciplinary action if students don't follow this community expectation.

MATERIAL COVERED: The sequence of the sections covered in this class is as follows, there may be slight adjustment to maintain flexibility for the delivery according to overall status of students:

Week	Contents	Remarks
1	Introduction to software engineering	
2	Software process models & activities.	Group project assignment release
3	Agile methods, Scrum framework	Grouping assignment
4	Requirement engineering: elicitation, analysis, specification, and validation & case study	
5	AI driven software engineering evolution (Not covered by any assessments)	National Day holiday
6	System modeling 1: context models, interaction models, structural models, behavior models; use case diagrams, activity diagrams, sequence diagrams, class diagrams, aggregation diagrams; UML	
7	System modeling 2: class based models, state machine diagrams; case study	
8	Midterm exam	
9	The software crisis & project management; No silver bullets;	
10	Software design 1: OO concepts, OOP, OOD, case study	Group presentation/submission on requirement report
11	Software design 2: architecture design	
12	Software design 3: component design, UI design	Group presentation/submission on design report

13	Software testing 1: development testing, release testing, user testing	
14	Software testing 2: unit testing (JUnit), component testing, system testing, acceptance testing; Black-box vs white-box testing; structural testing, path testing, cyclomatic complexity	Group presentation/submission on testing report
15	Maintenance, safety and verification	
16	Project final rebuttal, presentation, report submission	Group presentation/submission on final report
17	Revision & final exam info. AI driven software engineering evolution	
18	Final Exam Week	