

San José State University
Department of Computer Science
Fall 2017
CS 160– Software Engineering

Course and Contact Information

Instructor: Ramin Moazeni
Class Hours: TTh: 7:30PM - 8:45PM
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Classroom: MH 233

Prerequisites: CS146, CS151 (with a grade of "C-" or better) or instructor consent.
CS100W (with a grade of "C" or better) or instructor consent.
Computer Science and Software Engineering Majors only.

Catalog Description

Software engineering principles, software process and process models, requirements elicitation and analysis, design, configuration management, quality control, project planning, social and ethical issues. Required team-based software development, including written requirements specification and design documentation, oral presentation, and tool use.

Course Overview

Introduction to the software engineering process and software lifecycle. Covers project management, requirements, architecture, design, implementation, testing, and maintenance phase activities in team based projects.

This class will cover the key concepts and best practices of the software engineering discipline. Students will learn about the different phases of the classic software engineering lifecycle and the activities that software engineers perform during each of these phases. This will include project management, software requirements specification, architecture, design, implementation best practices, software testing, and maintenance activities.

Students will also participate in a team-based software engineering project that will span the entire software lifecycle.

Learning Outcomes

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

- Software process: Reason about and apply the entire software development process. Create a software project schedule and use project scheduling like Microsoft Project. Use version control tools like Git
- Requirements engineering: Solicit, elaborate, and validate software product specifications and generate meaningful use cases.
- Software design: Understand what software design architectures are suitable for various software projects. Apply appropriate software designs to a team project. Explain and defend design decisions. Use appropriate software design tools.
- Software verification and validation (V&V): Understand the software validation process and use issue-tracking tools. Create and execute test plans.

Required Texts

Ian Sommerville
Software Engineering (10th Edition)
Pearson, 2015.
ISBN-10: 0133943038
ISBN-13: 978-0133943030

Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in University Policy S12-3 at <http://www.sjsu.edu/senate/docs/S12-3.pdf>. Note that University policy F15-12 at

<http://www.sjsu.edu/senate/docs/F15-12.pdf> states that “Attendance shall not be used as a criterion for grading.”...

“Students are expected to attend all meetings for the courses in which they are enrolled as they are responsible for material discussed therein, and active participation is frequently essential to ensure maximum benefit to all class members. In some cases, attendance is fundamental to course objectives; for example, students may be required to interact with others in the class. Attendance is the responsibility of the student.”... “Participation may be used as a criterion for grading when the parameters and their evaluation are clearly defined in the course syllabus and the percentage of the overall grade is stated.”

Assignments

Assignments will be given to assess your ability to apply the material covered in class. The last two exercises will be “sprints” intended to build on the solutions you produced based on the prior exercises. Assignments can be team or individual assignments

The submissions are due at midnight on the due date. The assignments are to be submitted on time. A penalty of 10% per day is applied to late submissions. No assignments will be accepted after a week past its due date..

Quizzes

Unannounced brief quizzes toward the end of the lecture to assess your understanding of the material covered in that session.

Exams

- Absolutely NO items may be shared during the exams, including books, notes, and calculators.
- Absolutely NO usage of cell phones during exams. Cell Phones must in off or silent mode and not within your reach.

Makeup exams will only be granted in case of documented medical emergency with an advanced notice to the instructor.

No students are allowed to miss either exam. Failure to take an exam during its scheduled time will result in a grade of zero on that exam.

Supplemental Readings:

Additional readings will be provided several times during the semester for selected topics that are not adequately covered in the textbook.

Grading Policy

Your individual class grade will be weighted as follows:

Assignments	60%
Quizzes	10%
Exams (Midterm and Final)	30%
Total	100%

A -- 90-100, B -- 80-89, C -- 70-79, D -- 60-69, F -- Below 60

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs’ [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

CS 160, Software Engineering, Course Schedule

Course Schedule (Tentative)

Week	Date	Lecture Topic	Readings
1	08/24	Course introduction	
2	08/29	Software Engineering in a Nutshell	Chapter 1
	08/31	Software Lifecycle and Processes	Chapter 2, 3
3	09/05	Software Requirements and Models	Chapter 4, 5
	09/07	Team Formation, Project Requirements Elicitation	
4	09/12	Software Architecture	Chapter 6
	09/14	Architectural Design and Modeling	Chapter 17
5	09/19	Assignment Review, Q&A, Team-Work Session	
	09/21	Domain-specific Architectures and Product Lines	
6	09/26	Object-Oriented Design	Chapter 7
	09/28	Software Implementation - Reuse	Chapter 15
7	10/03	Software Implementation - Components and Services	Chapter 16, 18
	10/05	Midterm Overview, Q&A, Team-Work Session	
8	10/10	Midterm Exam	
	10/12	Software Tools and Environments	Android Architecture Tutorial
9	10/17	Mid Semester Demos	
	10/19	Mid Semester Demos	
10	10/24	Software Verification and Validation	Chapter 8, 24
	10/26	Software Testing Techniques	Android Testing Tutorial
11	10/31	Software Evolution and Maintenance	Chapter 9
	11/02	Software Qualities I	Chapter 10, 11
12	11/07	Software Qualities II	Chapter 12, 13
	11/09	Assignment Review, Q&A, Team-Work Session	
13	11/14	Project Management and Planning	Chapter 22, 23
	11/16	Project Management and Planning (cont.)	Chapter 22, 23
14	11/21	Cost Estimation	Supplement
	11/23	Thanksgiving (no class)	
15	11/28	Configuration Management	
	11/30	Technical Debt	
16	12/05	Project Demos	
	12/07	Project Demos - Final Exam Overview	
17	12/14	Final Exam	