

**San José State University**  
**Computer Science Department**  
**CS 160, Software Engineering, Section 3, Spring 2022**

**Course and Contact Information**

<b>Instructor:</b>	Jahan Ghofraniha
<b>Office Location:</b>	Online via zoom
<b>Email:</b>	jahan.ghofraniha@sjsu.edu
<b>Office Hours:</b>	T-Th 5:30 – 6:00 pm, through zoom Zoom link: <a href="https://sjsu.zoom.us/j/86376664361?pwd=S2FOY0ZQMm5WNnVnSIVDT0RVb2FGZz09">https://sjsu.zoom.us/j/86376664361?pwd=S2FOY0ZQMm5WNnVnSIVDT0RVb2FGZz09</a>
<b>Class Days/Time:</b>	T-Th 6:00 – 7:15 pm Zoom link: <a href="https://sjsu.zoom.us/j/81725342946?pwd=STFhblpVeVpPRU5pZU8xZjlvUys2Zz09">https://sjsu.zoom.us/j/81725342946?pwd=STFhblpVeVpPRU5pZU8xZjlvUys2Zz09</a>
<b>Classroom:</b>	Online
<b>Prerequisites:</b>	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
<b>Course Format</b>	Online (synchronous lectures)

**Course 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 a team based project.

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.

## Course Learning Outcomes (CLO)

Upon completion of this course, a student will 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
- Requirement's 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/Readings

### Textbooks:

1. Agile Software Development, Principles, Patterns, and Practices by Robert Martin, Prentice Hall, 2002  
ISBN-13: 978-0135974445  
ISBN-10: 0135974445
2. Engineering Software Products: An Introduction to Modern Software Engineering 1st Edition  
by Ian Sommerville (Author), Pearson; 1st edition (May 19, 2019)  
ISBN-13: 978-0135210642  
ISBN-10: 013521064X

## Other Readings

Other readings will be occasionally assigned from articles and journals. The links will be provided on Canvas.

## Course Requirements and Assignments

All students who need to add this class are required to bring the evidence for the pre-requisites in the first week of class.

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

The assignments are to be submitted on time. No late assignments will be accepted after the due date.

## Exams

- The exams are based on lectures, homework/lab assignments, and reading materials covered before the exam's date.
- 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. If a student misses an exam without a legitimate excuse, a grade of zero will be recorded.

## Grading Policy

Your individual grade will be weighted as follows:

- Project proposal 5%
- Project planning and management 15%
- Weekly homework/Discussions 10%
- Midterm exam/evaluation 20%
- Final Project Presentation 20%
- Final project report 15%

• Final Exam	15%
Total	100%

A= 100-93; A- = 90-92.99; B+ = 88-89.99; B= 83-87.99; B- = 80-82.99; C+ = 78-79.99; C= 73-77.99; C- = 70-72.99; D+ = 68-69.99; D = 63-67.99; D- = 60-62.99; F= <60.

Passage of the Writing Skills Test (WST) or ENGL/LLD 100A with a C or better (C- not accepted), and completion of Core General Education are prerequisite to all SJSU Studies courses. Completion of, or co-registration in, 100W is strongly recommended. A minimum aggregate GPA of 2.0 in GE Areas R, S, & V shall be required of all students.

### **Classroom Protocol**

All students are expected to be on time, each team will upload their weekly update in a written format on Canvas. The second lecture is used to teach content related to software engineering topics.

### **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/>"

## CS160-03 Software engineering, Spring 2022, Course Schedule

*List the agenda for the semester including when and where the final exam will be held. Indicate the schedule is subject to change with fair notice and how the notice will be made available.*

Week	Topics, Readings, Assignments, Deadlines
1	Introduction, class policy and syllabus, Software Engineering in a Nutshell, introductions and team building kick off, discussion forum (bio) exercise.
2	Software Lifecycle and Processes Chapter 1, team formation
3	project proposal due (proposal = 5% of total grade) Software Requirements and Models, Team Formation, Project Requirements Elicitation, project proposal announcement
4	Agile Software Engineering hands-on (user stories development, backlog, subtask generation, time and effort estimation) Sprint planning, Sprint 1 starts for all teams
5	Software architecture Full-stack software architecture Team-work session + professor participation in team discussion and evaluation, project update uploaded to Canvas
6	Architectural Design and Modeling Team-work session + professor participation in team discussion and evaluation, project update uploaded to Canvas
7	Cloud-based software (chapter 5) Midterm exam/midterm project evaluation
8	Cloud-based software (chapter 5 continued) Team-work session + professor participation in team discussion and evaluation, project update uploaded to Canvas
9	<b>Midterm exam (3/8/22)</b> Team-work session + professor participation in team discussion and evaluation, project update uploaded to Canvas
10	Cloud-based software (chapter 5 continued) Team-work session + professor participation in team discussion and evaluation, project update uploaded to Canvas

Week	Topics, Readings, Assignments, Deadlines
11	Microservices architecture (chapter 6)
	Team-work session + professor participation in team discussion and evaluation, project update uploaded to Canvas
12	Spring break (3/28 – 4/1)
	Spring break (3/28 – 4/1)
13	Team-work session + professor participation in team discussion and evaluation, project update uploaded to Canvas
	Microservices architecture (chapter 6)
14	Software testing
	Team-work session + professor participation in team discussion and evaluation, project update uploaded to Canvas
15	Team-work session + professor participation in team discussion and evaluation, project update uploaded to Canvas
	DevOps and Code Management Chapter 10
16	Team-work session + professor participation in team discussion and evaluation, project update uploaded to Canvas
	Final project presentations (presentation slides due on Canvas, one submission per group)
17	Final project presentations
	Final project presentations
Final Project Report	Final project report due on Canvas. (5/24/22 by 11:59 pm on Canvas, one submission per group)
Final Exam	Tuesday May 24th, 5:15-7:30 PM