

**San José State University**  
**College of Science/Computer Science Department**  
**CS 160, Software Engineering, Section 01, Spring, 2020**

**Course and Contact Information**

Instructor(s):	Tejaswini (Teja) Karra
Office Location:	DH 282
Email:	Tejaswini.karra@sjsu.edu
Office Hours:	MW 7:30 – 9:00 PM (by appointment)
Class Days/Time:	MW 6:00 – 7:15 PM
Classroom:	MQH 223
Prerequisites:	CS 146, CS 151 (with a grade of “C-“ or better in each); CS 100W (with a grade of “C” or better)

**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 Format**

**Technology Intensive, Hybrid, and Online Courses**

This class is technology intensive and you are required to use a computer to access, submit, and work on your course material. You must bring your laptops to every class meeting.

**Faculty Web Page and MYSJSU Messaging**

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on [Canvas Learning Management System course login website](http://sjsu.instructure.com) at <http://sjsu.instructure.com>. You are responsible for regularly checking the messaging system through MySJSU and Canvas (or other communication system as indicated by the instructor) to learn of any updates.

**Course Goals**

**Course Learning Outcomes (CLO)**

Upon successful completion of this course, students will be able to:

1. CLO 1 – Design and build a project from end to end
2. CLO 2 – Write a Requirement Document

3. CLO 3 – Write High-level and low-level designs
4. CLO 4 – Iterative Implementation
5. CLO 5 – Understanding Different Stages of Quality Assurance
6. CLO 6 – Install, Packaging, Configuration, and Support
7. CLO 7 – Work in a team project which follows the steps of Agile SW Engineering Methodology
8. CLO 8 – Produce the necessary documents for different steps of the development process
9. CLO 9 – Perform design, development, and QA for a sizable team project

## Required Texts/Readings

### Textbook

Sommerville, Ian. Engineering Software Products: An Introduction to Modern Software Engineering. 1st Edition. Pearson Education, 2020.

ISBN-13: 978-0135210642

ISBN-10: 013521064X

### Other Readings

Other readings may be assigned from articles and journals. The links for these materials will be provided on Canvas.

## Course Requirements and Assignments

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

There will be three exams (2 midterm and 1 final), one semester long group project, several homework and quizzes. All the exams will be closed book but open notes unless noted. There will be no laptops, or any personal digital devices allowed. I strongly suggest that you attend each class and take good notes during the semester. There will be **NO** make-up exams and quizzes.

All programming portions of the project/homework assignments and its related documentations must be handed in electronically. Additional information about the project and how to submit assignments will be given in a separate handout. Your project code must be able to compile and execute before you turn it in.

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

NOTE that [University policy F69-24](http://www.sjsu.edu/senate/docs/F69-24.pdf) at <http://www.sjsu.edu/senate/docs/F69-24.pdf> states that “Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading.”

## Project

Majority of the grade for this class will be based on the class project and it will consist of six sprints. Each sprint will focus on different aspects of the software engineering process.

## Homework assignments

In addition to the project work, you are required to do independent assignments. Details on what to submit and how to submit these assignments will be provided in class and on Canvas.

## Quizzes

Unannounced brief quizzes will be used to assess your understanding of the material covered throughout the semester.

## Midterms

The midterms will cover material covered in lectures, homework assignments, and project work. It will consist of multiple choice, true or false, fill in the blank, and/or short answer questions.

## Final Exam

The final exam will be a cumulative of all the material covered in the class including lectures, homework assignments, and project work. It will consist of multiple choice, true or false, fill in the blank, and/or short answer questions.

## Grading Information

Your individual grades will be weighted as follows:

HW and Quizzes	100 points	10%
Midterm Exams (2)	200 points	20%
Final Exam	200 points	20%
Group Project	500 points	50%
Total	1000 points	100%

The final "letter" grade will be determined from the table below.

Grade	Points	Percentage
A plus	960 to 1000	96 to 100%
A	930 to 959	93 to 95%
A minus	900 to 929	90 to 92%
B plus	860 to 899	86 to 89 %
B	830 to 859	83 to 85%
B minus	800 to 829	80 to 82%
C plus	760 to 799	76 to 79%
C	730 to 759	73 to 75%
C minus	700 to 729	70 to 72%
D plus	660 to 699	66 to 69%
D	630 to 659	63 to 65%
D minus	600 to 629	60 to 62%

## **Classroom Protocol**

All students are expected to attend every class on time. Bring your laptops to every class meeting. I will ask you to work on parts of your project in class throughout the semester. Your participation in these activities is crucial to the grade you receive in the project. I will be keeping track of who is participating throughout the semester. Use of cell phone during the lecture is not allowed. If you need to answer an emergency call, please leave the class quietly and answer your call outside the class. Cheating or plagiarism of any kind will not be tolerated. Any violation will result in 0 points for the assignment and violators will be reported to the Office of Student Conduct and Ethical Development.

## **University Policies**

Per [University Policy S16-9](http://www.sjsu.edu/senate/docs/S16-9.pdf) (<http://www.sjsu.edu/senate/docs/S16-9.pdf>), relevant information to all courses, such as academic integrity, accommodations, dropping and adding, consent for recording of class, etc. is 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/>". Make sure to visit this page, review and be familiar with these university policies and resources.

# CS 160 Software Engineering, Spring 2020, Course Schedule

The schedule below is subject to change. Make sure to check canvas for the latest version.

## Course Schedule

Week	Date	Topics, Readings, Assignments, Deadlines	Sprint Schedule
1	Mon Jan 27	Introduction to Software Engineering	
1	Wed Jan 29	Software products (Ch 1)	
2	Mon Feb 3	Project overview and team assignments, human aspect of software engineering	Sprint 1 (requirements) starts
2	Wed Feb 5	Personas and scenarios (Ch 3), Project: vision	
3	Mon Feb 10	User stories and features (Ch 3), <b>Assignment #1 continuous learning due,</b> <b>Assignment #2 personality traits due,</b> Project: personas and scenarios	
3	Wed Feb 12	Software architecture (Ch 4), Project: user stories	
4	Mon Feb 17	Software architecture (Ch 4)	Sprint 1 ends; sprint 2 (high level design) starts
4	Wed Feb 19	Cloud-based software (Ch 5), Project: high-level design	
5	Mon Feb 24	Cloud-based software (Ch 5), User experience design, Project: prototypes	
5	Wed Feb 26	<b>Midterm 1</b>	
6	Mon Mar 2	Microservices architecture (Ch 6), Project: frontend mockups	Sprint 2 ends; sprint 3 (low level design) start
6	Wed Mar 4	Microservices architecture (Ch 6)	
7	Mon Mar 9	Security and privacy (Ch 7), Project: backend APIs	
7	Wed Mar 11	Process models, Project: database ER diagram	
8	Mon Mar 16	Agile methods and XP (Ch 2), Project: sprint backlog	Sprint 3 ends; sprint 4 (implementation) starts
8	Wed Mar 18	Scrum and Kanban (Ch 2)	
9	Mon Mar 23	Git management	
9	Wed Mar 25	<b>Midterm 2</b>	

<b>Week</b>	<b>Date</b>	<b>Topics, Readings, Assignments, Deadlines</b>	<b>Sprint Schedule</b>
10	Mon Mar 30	Spring Recess; no class	
10	Wed Apr 1	Spring Recess; no class	
11	Mon Apr 6	Testing (Ch 9) Project: pair programming, code review, and release demo	Sprint 4 ends; sprint 5 (testing) starts
11	Wed Apr 8	Testing (Ch 9), component level and integration testing, Project: test plan	
12	Mon Apr 13	Test automation: Selenium and Cypress	
12	Wed Apr 15	Devops (Ch 10)	
13	Mon Apr 20	Build automation: Jenkins and Travis CI, Project: test report	Sprint 5 ends; sprint 6 (devops) starts
13	Wed Apr 22	Risk management, Project: test automation and docker	
14	Mon Apr 27	Risk management, Project: build automation	
14	Wed Apr 29	Project: retrospective	
15	Mon May 4	<b>Final Presentations</b>	
15	Wed May 6	<b>Final Presentations</b>	
16	Mon May 11	Review	Sprint 6 ends
<b>Final Exam</b>	<b>Tue May 19</b>	<b>MQH 223 at 2:45 PM to 5:00 PM</b>	