San José State University
College of Science/Computer Science Department
CS160, Software Engineering, Section 1, Spring 2021

Course and Contact Information

Instructor(s):	Aikaterini Potika
Office Location:	MacQuarrie Hall 215
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Office Hours:	Tuesdays 1-3pm
Class Days/Time:	Tuesdays-Thursdays 9-10:15 am
Classroom:	zoom
Prerequisites:	CS 146, CS 151 (with a grade of "C-" or better in each); CS100W (with a grade of C or better) or instructor consent.

Course Description

Software engineering principles, 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

The course will be an online hybrid course. For the CS Department it is online synchronous zoom meetings plus recording lectures, thus allowing students to listen to recorded lecturers asynchronously.

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on my faculty on Canvas Learning Management System course login website at http://sjsu.instructure.com. You are responsible for regularly checking with the messaging system through MySJSU on Spartan App Portal http://one.sjsu.edu (or other communication system as indicated by the instructor) to learn of any updates. For help with using Canvas see Canvas Student Resources page (http://www.sjsu.edu/ecampus/teaching-tools/canvas/student_resources)

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

SLO 1 Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

SLO 2 Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

SLO 3 Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
(The above learning outcomes are provided by ABET for CS program under the URL https://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-computing-programs-2019-2020/#GC3. Learning outcomes related to CS160 are listed above.)

Course Learning Outcomes (CLO)

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

- CLO 1 challenges of software engineering and the roles of process and methodologies;
- CLO 2 functional specifications and use cases;
- CLO 3 software design development and documentation;
- CLO 4 UML, class, sequence diagrams;
- CLO 5 software project test plan;
- CLO 6 code walk through;
- CLO 7 software project management;
- CLO 8 tracking issues and progress;
- CLO 9 software version control;
- CLO 10 software revision control.

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

- Clean Code: A Handbook of Agile Software Craftsmanship. by Robert C. Martin. Released August 2008. Publisher(s): Pearson. ISBN: 9780136083238.
- The Pragmatic Programmer: your journey to mastery, 20th Anniversary Edition, 2nd Edition

by David Thomas, Andrew Hunt. Publisher: Addison-Wesley Professional. ISBN: 9780135956977.

Other technology requirements / equipment / material

You will be required to have a wireless-network ready laptop computer to participate in the class. You will also need to use your own laptop with wireless access to submit your assignment inside the SJSU campus. Your laptop needs to have wireless capability and you need to register a free wireless account at https://one.sjsu.edu/.The instructor is not responsible for providing either laptops or alternatives.

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."

Homework assignments: individual, regularly assigned, not graded, include written problem assignments, and perhaps some online exercises. Solutions are not posted. The homework is a tool for you to learn the material and prepare for the exams.

Reading and Video assignments: Reading assignments and posted videos are regular and for the next class (see schedule).

Quizzes: Weekly quizzes are online or offline. Cover topics from the reading and video assignment and/or the homework. Various in class activities, like case studies.

Participation: Contribution during zoom meetings, other social platforms, and in the discussion forum.

Project: A team project will be provided for you to practice software engineering principles.This team project will be a collaborated group project. You are free to choose your own partners but you cannot change your partners in the middle of the project. Progressive design and implementation of the term project will be done through assignments as part of the learning objectives. The project is split in four sprints (roughly every 2 weeks). Additionally, each group must submit bi-weekly reports including presence/absence/late appearance and each team member's major activities and contributions.

Midterm exam: One Midterm exam during the semester.

Final Examination or Evaluation: One final, written, and cumulative exam, split in two parts. The exams contain multiple-choice questions, short answer questions and questions that require pseudocode and/or computations.

Grading Information

No extra point options (only the final exam offers extra points option). Final exam is comprehensive.

Grading Information

Determination of Grades

No make-ups exams except in case of verifiable emergency circumstances. Penalty for late submission, 5% for every 3 days up to 9 days, after that no submission is accepted (without counting weekends). Never email your assignments, always upload to Canvas. Rubrics and examples will be given.

Final Grade:

35% Project

10% Quizzes & Activities

5% Participation

20% Midterm

30% Final

Grade	*Percentage*
A plus	96 to 100%
A	93 to 95%
A minus	90 to 92%
B plus	86 to 89 %
B	82 to 85%
B minus	78 to 82%
C plus	74 to 77%
C	70 to 73%
C minus	65 to 69%
D plus	62 to 64%
D	58 to 61%
D minus	55 to 57%
F	<54%

Classroom Protocol

During zoom meetings: camera on, mute yourself (unless you have a question or want to contribute), and dress appropriately. Private interactions with other students are prohibited unless you are in a breakroom. Please avoid disturbing the class: turn-off cell phones (or put them on vibrate mode), no text messaging in the class or the exams, no taking pictures and video, avoid coming late, no talking or whispering with other students during the instructor's presentation. You may not publicly share or upload material of this course such as exam questions, lecture notes, or solutions without my consent.

University Policies

Per University Policy S16-9 *(http://www.sjsu.edu/senate/docs/S16-9.pdf)*, relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on Syllabus Information web page

(https://www.sjsu.edu/curriculum/courses/syllabus-info.php). Make sure to visit this page to review and be aware of these university policies and resources.

The instructor reserves the right to drop students that do not show up during the first two lectures.

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Course Schedule

The schedule is subject to change with fair notice and announced on Canvas.

Course Schedule

Lesson	Date	Topic	Reading/Projects
1	1/28	Introduction	
2	2/2	Software Products	Ch 1
3	2/4	Software Products	Ch 1
4	2/9	Features, scenarios and stories	Ch 3
5	2/11	Features, scenarios and stories	Ch 3
6	2/16	Term Project Presentation	
7	2/18	Case Studies	other resources/ teams formation
8	2/23	Software Architecture	Ch 4
9	2/25	Software Architecture	Ch 4
10	3/2	Agile Software Engineering	Ch 2
11	3/4	Agile Software Engineering	Ch 2 *Sprint 1*

12	3/9	Scrum	other resources
13	3/11	UML and Object Design	other resources
14	3/16	Microservices architecture	Ch 6
15	3/18	Clean Code and the Pragmatic Programmer	other resources *Sprint 2*
16	3/23	Security and Privacy	Ch 7
	3/25	**Midterm**	
17	4/6	Cloud-based software	Ch 5
18	4/8	Cloud-based software	Ch 5
19	4/13	Reliable Programming	Ch 8
20	4/15	Reliable Programming	Ch 8 *Sprint 3*
21	4/20	Testing	Ch 9
22	4/22	Testing	Ch 9
23	4/27	DevOps and Code Management	Ch 10
24	4/29	DevOps and Code Management	Ch 10 *Sprint 4*
25	5/4	Quality Assurance	other resources
26	5/6	Project Presentations	

27	5/11	Project Presentations	
28	5/13	Project Presentations	
		Final exam Thursday, May 20 07:15-09:30	