## San José State University <u>Department of Computer Science</u> Spring 2022 CS 160– Software Engineering

### **Course and Contact Information**

Instructor: Class Hours: Office Hours:	Ramin Moazeni TTh: 6:00PM - 7:15PM TTh: 12:00PM – 12:30PM, over Zoom <u>https://sjsu.zoom.us/meeting/register/tZMvfu-gpzkqGtbLECnLzOmmpAN-PKuu0KFv</u>
Email: Classroom:	Ramin.Moazeni@sjsu.edu DH 135
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

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**

Sommerville, Ian. Engineering Software Products: An Introduction to Modern Software Engineering. 1<sup>st</sup> Edition. Pearson Education, 2020. ISBN-13: 978-0135210642 ISBN-10: 013521064X

## **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.

"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."

### Assignments

Assignments will be given to assess your ability to apply the material covered in class. 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 ONE week past its due date.

#### **Project:**

You will have a team project 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 throughout the semester.

#### Quizzes

Unannounced brief quizzes to assess your understanding of the material covered in that session. Generally, once I finish a particular topic, you can expect to have a quiz.

#### 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 exams. 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 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/Project	50%
Quizzes	5%
Midterm	20%
Final	25%
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' <u>Syllabus Information web page</u> at http://www.sjsu.edu/gup/syllabusinfo/

# CS 160, Software Engineering, Course Schedule

Week	Date	Lecture Topic	Readings	Comments
1	01/27	Course introduction		
2	02/01	Course Introduction (Contd)		
	02/03	Software Product	Chapter 1	
3	02/08	Agile Software Engineering	Chapter 2	
	02/10	Agile Software Engineering (Contd)		
4	02/15	Team Formation, Project Requirements Elicitation		
	02/17	Requirements, Features, scenarios and stories	Chapter 3	HW1 - Proposal
5	02/22	Assignment Review, Q&A, Team-Work Session		
	02/24	Software Architecture	Chapter 4	HW1- Requirements
6	03/01	Software Architecture		
	03/03	Object Oriented Design using UML		
7	03/08	Server and Microservices Architecture	Chapter 6	HW2 – Design
	03/10	Security and Privacy	Chapter 7	
8	03/15	Code Reviews		
	03/17	Midterm Exam		
9	03/22	Cloud based Software	Chapter 5	
	03/24	Cloud based Software		
10	03/29	Spring Recess (No Class)		
	03/31	Spring Recess (No Class)		
11	04/05	Software Testing	Chapter 9	
	04/07	Software Testing		HW3 - Implementation
12	04/12	Issue Tracking		
	04/14	Assignment Review, Q&A, Team-Work Session		
13	04/19	Logging		
	04/21	Documentation		HW4 - Sprint 1
14	04/26	DevOps and Code Management	Chapter 10	
	04/28	DevOps and Code Management		
15	05/03	Deployment		
	05/05	Project Demos		HW5 - Sprint 2
16	05/10	Project Demos		
	05/12	Project Demos - Final Exam Overview		
17	05/19	Final Exam		

## **Course Schedule (Tentative)**