CSC 131: Computer Software Engineering

California State University, Sacramento (CSUS), Fall 2021 Semester, 3 Credits

Class Times & Locations:

ONLINE M/W 4:00PM - 5:15PM and 5:30PM-6:45PM

AUG 30 is first day of class, an introduction to the course.

MONDAYS ARE LABS AND ACTIVITIES – LED BY TEACHING ASSISTANTS

DO NOT MISS MONDAY LAB & ACTIVITY CLASSES UNLESS YOU ARE CONFIDENCT

Your instructor

Dr. Jagan Chidella

Dr Chidella currently works as an Information Technology Specialist at the Department of Motor Vehicles. In the last 30 years, he has extensive experience developing software systems for ETS, US Army, Oracle, Hewlett Packard, and three State of California Agencies. He has done AI research and developed AI frameworks for Center for AI and Robotics (Bangalore), Carnegie-Group Inc/CenturyLink Telecom, US Army, Xerox Corporation, Spencer-Trask and was a founding member at three start-up companies. He has trained numerous software engineers on behalf of IBM at eBay and State Farm Insurance Company. Dr Chidella has experience writing documents in all areas of the Software Engineering SDLC process from Requirements to Test phases.

Office Hours: By Appointment on Zoom

One day notice is required, unless it is urgent. Feel free to text me if urgent.

Email: jagannadha.chidella@csus.edu

Phone: (916)316-8506

Email Policy

DO YOUR BEST TO: Please email me using Canvas internal email messaging system for course related email. This will keep all course related email in one place. Please check your Sac State and Canvas internal email at least once a day, in case I reach out to you through email, via Canvas announcements.

Course Content

This course is about how to develop high-quality software systems that are delivered on time and within budget using modern development tools. There are two aspects to this task: managing the effort and applying effective tools and techniques. We will survey both aspects and apply them by building a system in teams of 6-8 members during the semester.

Prerequisites

CSC 130 (may be taken concurrently)

Goals of the Course

The overall objective of this course is surveying the field of software engineering. More specifically, by the end of this course you will be able to:

1. Define software engineering, name several factors affecting software quality and productivity, and explain common software development processes.
2. Explain phases of a software development effort, including the activities and products of each phase.
3. Understand the differences between traditional and agile software development processes and be able to use an agile development process (Scrum).
4. Explain and discuss fundamental software project management issues.
5. Explain and use with others in a development project common tools and techniques for planning a project, analyzing risks, estimating effort, and scheduling project work.
6. Explain and use standard techniques and tools for analyzing product requirements, formulating product design, coding, and testing a software product.
7. Recognize and read several common analyses and design notations (such as UML) and write and use these notations properly in specifying software.
8. Explain, recognize, and apply a few common software design patterns.

9. Use basic software development tools, including a modern Interactive Development Environment (IDE), a unit testing tool, a code coverage analysis tool, a version control system, and a debugger.
10. Last but not the least, we will set foot on some very hot off the pan modern technologies and you will learn them from slides of the second textbook below in the process of answering special bonus quizzes.
11. Participate effectively with others in carrying a small software development project from conception through deployment.

Required Texts (optional)

1. Slides and PDF material for the course are available on Canvas.
2. The primary textbook for this course is Software Engineering: A Practitioner's Approach, R. Pressman, 8th edition, 2014, McGraw Hill. Other reference books will all be available on either Safari books (which you can access for free through the library), or freely available on the web (in "Text" section in "Modules" in Canvas).
3. Engineering Software Products by Ian Sommerville, Pearson (MOST QUIZZES ARE FROM THIS BOOK – THE SLIDES FOR THIS BOOK ARE ON CANVAS)
   The two textbooks are only for your own reference. They are not required to be purchased. However, I highly encourage you to purchase them.

Attendance and Participation

Attendance is required for in-class activities and to get started in-class on labs. Attendance is expected in the sense that material missed because of unexcused absences will not be provided by the instructor on other occasions. In other words, there will be no private lectures during office hours for student who do not come to class. All students are expected to participate in their groups during in-class activities and during class discussions. There are no participation grades, however.

Methods of Evaluation

TASK	Weight
Quizzes Foundational	5%
Labs & Activities	10%
Homework Assignments	15%
Midterm	20%
Final Exam	20%
Project	30%
Bonus Quizzes Modern	2%
Bonus Points Modern Labs	2%

At the end of the semester, a final percentage will be calculated according to the above criteria. It will then be rounded to the nearest integer value. Then, a letter grade according to the following scale will be assigned. Curving will also be performed. The better of the two grades is what you get. However, extraordinary performance in any work assigned will be used to reward a student in border cases.

Range	Letter Grade
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+

Range	Letter Grade
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
59 or Less	F

Labs

Attendance is required. Please check Canvas "Modules" for lab dates. There are extensive labs and activities.

Homework Assignments

There will be several homework assignments. These will be written and graded individually, usually not as part of a team. Late homework submissions are usually accepted within two days after deadline, with 25% off penalty per day, unless otherwise noted.

Team Project

The team project will be done throughout the semester by a team of 5-6 people. You will be assigned to a team. You will use an agile method called Scrum, which we will discuss in class. In Scrum, a self-directed team creates working versions of a product about every two or three weeks in efforts called sprints. Your team will do at least 5 sprints, each lasting 1-2 weeks. Your product deliverables will include various Scrum artifacts as well as the software product and its documentation. You will also be asked to evaluate the contributions of all team members at the end of every sprint; these evaluations will be used to weight project grades. We will discuss details about this when we discuss the project in more detail.

Important Note: Quality documentation is critical for the success of the project and counts toward your project grade. All work submitted must be typed.

Exams

The midterm examinations will cover the material since the beginning of the semester, but the final examination will cover the entire semester.

Missed and Late Assignment Policy

- you are unable to take an exam at the scheduled time because of illness or other problems, you must contact me beforehand to arrange to take the exam at a different time. Failure to make prior arrangements for a missed exam will result in a grade of 0 for the exam.
- class work missed because of absence will only be accepted if arrangements are made beforehand. Late project and homework assignments will be accepted within 2 days after due dates, with 20% penalty for each day. Alternate due dates can be arranged in special circumstances provided these arrangements are made before the due date.

Tentative Schedule

The following schedule is a plan, not a contract. Modifications will be posted on Canvas as the semester progresses.

TENTATIVE WEEKLY SCHEDULE **WEEK STARTING ON:** **YOU WILL NOT BE REQUIRED TO COME ON WEB CAM**	**Tentative Topic**
1. 08/30	Introduction

2. 09/06 **(09/06 is Labor Day holiday)**	Activity Diagrams
3. 09/13	Processes
4. 09/20	Scrum; Software Quality; Requirements
5. 09/27	User Interface/Interaction Design; Engineering Design Principles;
6. 10/04	Architecture Styles; Design Patterns
7. 10/11	Design Patterns(cont.); Java Swing
8. 10/18	Java Swing(cont.); Version Control
9. 10/25	Verification & Debugging; Midterm Exam
10.11/1	Static Analysis & Refactoring; Scrum Tools
11.11/8	Deploy & Maintenance; Project Management; Sprint 1 Planning
12. 11/15	Sprint 1 Review; Risk Management; Measurements; Sprint 2 Planning
13.11/22	Sprint 2 Review; Risk Management; Measurements; Sprint 3 Planning
14.11/29	Sprint 3 Review; Scheduling; Sprint 4 Planning
15.12/6	PROJECT PRESENTATIONS
FINALS WEEK **12/13-12/17**	Finals Week

University Policies

Academic Honesty

If you violate the University's Honor Code (https://www.csus.edu/umanual/student/stu-0100.htm), you will receive a reduced or failing grade in the course, other penalties may be imposed, and the violation will be reported to the Student Conduct Officer. Automated tools may be used on any assignment, at any time, to detect inappropriate collaboration and to determine the originality of submissions.

Adding/Dropping

You are responsible for enrolling in courses and verifying your schedule on MySacState. Please refer to the Fall 2021 Calendar in http://catalog.csus.edu/academic-calendar/#fall2021text . I do not give "Incomplete" grades to students requesting a drop after the deadline except in extraordinary circumstances.

Disability Services

If you have a documented disability and need accommodations in this course, please register with the Office of Services to Students with Disabilities (https://www.csus.edu/sswd/). They will verify your need for services and make recommendations for the course. I will be happy to discuss any accommodations I can provide to assist your learning with you.

Religious Observation Accommodations

If you cannot satisfy a requirement of the course for religious reasons you must let me know at least two weeks in advance. In some cases, you will be required to make up the requirement; in other cases, the requirement may be waived with suitable adjustment in grading criteria.

Excused Absences

Students who are unable to attend class due to Sac State sponsored activities (such as sports, band, academic competition, field trips, etc.) or personal religious observances may request reasonable accommodations. Please notify me during the first week of class regarding potential absences so that we can determine alternative methods for you to complete the required work.

Housing & Food Security

If you experience difficulties with financial, housing or food security, please contact Basic Needs Division of Student Affairs (https://www.csus.edu/basicneeds/) for assistance.

Parents & Families

If you are students with children, please feel free to let me know your needs. Also, please reach out to Parents & Families Division of Student Affairs (https://www.csus.edu/student/parents/student-parents/) for all resources available on campus.

Changes to this Document

I reserve the right to change any information on this document or course materials at any time.