

#### **CEN 4020:**

## **Software Engineering**

86598 , 901, 3.0

College of Engineering, Computer Science

## **COURSE SYLLABUS**

Last Updated: 8/28/2023

Semester: Fall 2023

Dates: 08/21/2023 – 12/07/2023 Delivery method: In Person Class Meeting Location: CHE 103

Class Meeting Days: M, W

Class Meeting Time: 8:00 – 9:15 am

Instructor: Dr. Jim Anderson Office Location: ENG 215

Office Hours: One hour after class Phone Number: 813-417-8854 Email: jmanderson@usf.edu

Virtual Office Hours: Technology used (Microsoft Teams)

## I. Welcome!

Welcome to Software Engineering. This course isn't going to be your "standard" programming class. Instead this course is going to teach you what it means to be a software engineer. A software engineer is so much more than simply a programmer, a software engineering is a manager, a planner, a programmer, customer service representative, and most importantly: a team player.

## **II.** University Course Description

This is the dry and somewhat boring description of the course that the University has placed in its catalog:

"An overview of software engineering techniques for producing high-quality software systems. Students will participate in a software development team."

## **III.** Course Prerequisites

COP 4530 with a minimum grade of C ("C-" is insufficient)

## IV. Course Purpose

This is the course for you! When you leave USF, your goal is to find job working as a software engineer. It sure seems like we should spend some time talking about just exactly what that means. Many students think that they will get a programming job and will spend all of their time writing code. They couldn't be more wrong. Although writing code is part of what a software engineer does, it's only a small part. In this course we'll be exploring all of the other things that software engineers do and we'll learn how to do them well.

## V. First Day Attendance Policy

In order to confirm your presence in the course, which will count as first day attendance, you must come to the class on the first day and participate in roll call. Students who don't complete this first day activity run the risk of being dropped from the course.

#### VI. How to Succeed in this Course

The good news is that it's actually pretty easy to be successful in this class. For homeworks you will be a member of a 5-person team that will be given programming assignments that will be due each week. Each person on the team plays a different role and the roles rotate each week — you'll eventually play each role. Your team will also deliver an in-class presentation at the end of the semester. There will be a midterm and a final exam. That's it!

To be successful in this class you simply have to be willing to invest the time to keep up with the lectures and the homework (just like in every other class that you are taking). There won't be a great deal of book reading required, instead you will want to review the professor's notes which he provides at the end of each class. If you can do this, then you will be successful!

## **VII.** Course Topics

So what will we be covering during this course? At a high level, the course objectives will be as follows:

- 1. Python
- 2. Agile software development process
- 3. SAFE 5.0
- 4. Software Design
- 5. Software Construction
- 6. Software Testing
- 7. Software Maintenance
- 8. Software Configuration Management
- 9. Software Engineering Management
- 10. Software Engineering Process

- 11. Software Engineering Models
- 12. Software Quality

## **VIII. Student Learning Outcomes**

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

- a. Elicit and analyze requirements for a software product to write a valid requirement specification.
- b. Use a modeling language to document the requirements and to design the architecture of the entire system given the product requirements.
- c. Implement the software design in a language of their choice.
- d. Apply modern techniques for testing and debugging the resulting software product.
- e. Demonstrate the resulting software product to an audience of peers.
- f. Work effectively as a member of a small software development team.

## IX. Required Texts and/or Readings and Course Materials

• Robert E. Beasley, Software Engineering, 3<sup>rd</sup> Edition, REZINE Publishing, 2020

## X. Supplementary (Optional) Texts and Materials

All supplemental material will be provided on Canvas.

## XI. Grading Scale

Grading Scale (%)		
90-100	Α	
80 - 89	В	
70 - 79	С	
60 - 69	D	
0 - 59	F	

### XII. Grade Categories and Weights

<u>Points</u>	<u>Task</u>
2	Challenge #1
2	Challenge #2
2	Challenge #3
3	Challenge #4
3	Challenge #5
4	Challenge #6
4	Challenge #7
5	Challenge #8
5	Challenge #9
10	Challenge #10
25	Midterm
25	Final
5	Attendance
5	Participation
100	Total

## **XIII. Project Assignments**

**Example: In-Class Team Presentation** 

Due Date: November 25

Working in teams of five, you will evaluate a customer problem and then design a Python solution for them. Each member of the team will play a different role which will rotate each week and the team will have to work together in order to create a final presentation that will be presented to the class at the end of the semester. The project that will be assigned to the team will not contain all of the information that you will need so the team will have to come up with solutions by itself and this will be an important part of the team's presentation.

#### XIV. Grade Dissemination

The instructor will be utilizing the Canvas system to record your grades. You can check on Canvas for all of your current grades. All Assignments will be graded and feedback provided within roughly one week (7 days) of the posted deadline. Exams will be graded and feedback provided within approximately ten (10) days of the posted deadline.

#### XV. Course Schedule

Lesson	Date	
1	08/21/23	Python 1
2	08/23/23	Python 2
3	08/28/23	Agile
4	08/30/23	(Hurricane)
	09/04/23	Labor Day
5	09/06/23	Agile
6	09/11/23	SAFe
7	09/13/23	Software Requirements, Part 1
8	09/18/23	Software Requirements, Part 2
9	09/20/23	Software Design, Part 1
10	09/25/23	Software Design, Part 2
11	09/27/23	Software Construction, Part 1
12	10/02/23	Software Construction, Part 2
13	10/04/23	Review for Midterm
14	10/09/23	Midterm Exam
15	10/11/23	Post Midterm Review
16	10/16/23	Software Engineering Models and Methods
17	10/18/23	Software Engineering Process
18	10/23/23	Software Testing, Part 1
19	10/25/23	Software Testing, Part 2
20	10/30/23	Software Maintenance, Part 1
21	11/01/23	Software Maintenance, Part 2
22	11/06/23	Software Configuration Management
23	11/08/23	Software Engineering Management
24	11/13/23	Software Quality
25	11/15/23	In Class Team Presentations
26	11/20/23	In Class Team Presentations
27	11/22/23	In Class Team Presentations
28	11/27/23	In Class Team Presentations
29	11/29/23	Review for Final Exam
30	12/04/23	Final Exam: 7:30am - 9:30am

<sup>\*</sup> Note: The Schedule is subject to revision

## **XVI. USF Core Syllabus Policies**

USF has a set of central policies related to student recording class sessions, academic integrity and grievances, student accessibility services, academic disruption, religious observances, academic continuity, food insecurity, and sexual harassment that apply to all courses at USF. These may be accessed on the USF Core Syllabus Policy Statements page at <a href="https://www.usf.edu/provost/faculty/core-syllabus-policy-statements.aspx.">https://www.usf.edu/provost/faculty/core-syllabus-policy-statements.aspx.</a>

## XVII. Student Accessibility Services (SAS)

Students in need of academic accommodations for a disability may consult with Student Accessibility Services to arrange appropriate accommodations. Students are required to give reasonable notice prior to requesting an accommodation.

## **XVIII.Standard University Policies**

Policies about disability access, religious observances, academic grievances, academic integrity and misconduct, academic continuity, food insecurity, and sexual harassment are governed by a central set of policies that apply to all classes at USF. These may be

### XIX. Course Policies: Grades

#### **Online Discussions:**

There may be online discussions that are tied to the individual modules. It is expected that each student will participate in the discussion in a professional manner. For each discussion, there will be two due dates: the date that your initial posting is due, and then the date that your response to at least two other student's initial postings are due.

## **Assignments:**

You will have numerous assignments throughout the semester, both in-class and out-of-class assignments will be given. These assignments could include (but are not limited to):

- Class discussions,
- Essay questions,
- Small programming assignments, and
- Software Engineering Document creation.

#### Quizzes:

At the end of each module there may be a quiz to help you gauge your learning of the material. I also reserve the right to administer unannounced in-class quizzes.

#### **Exams:**

There will be two exams in this class, one midterms and a final. See the course schedule for the dates.

### **Late Work Policy**:

Work is due when it is due. The instructor reserves the right to not accept late work. However, in case of hardship, grades may be adjusted. Hardships must be documented to the instructor by the appropriate USF service (e.g., Counseling Center, Heath Services, etc.) or at least a really good story.

## Grades of "Incomplete":

The current university policy concerning incomplete grades will be followed in this course.

<u>For undergraduate courses:</u> An "I" grade may be awarded to a student only when a small portion of the student's work is incomplete and only when the student is otherwise earning a passing grade. The time limit for removing the "I" is to be set by the instructor of the course. For undergraduate students, this time limit may not exceed two academic semesters, whether or not the student is in residence, and/or graduation, whichever comes first. For graduate students, this time limit may not

exceed one academic semester. "I" grades not removed by the end of the time limit will be changed to "IF" or "IU," whichever is appropriate.

#### Make-up Exams Policy:

Example: If a student cannot be present for an examination for a valid reason (validity to be determined by the instructor), a make-up exam will be given only if the student has notified the instructor in advance that s/he cannot be present for the exam. Make-up exams are given at the convenience of the instructor.

## **Exam Retention Policy:**

After exams are graded, the instructor will review the examination with the class and collect all exams. The exams will be retained for one semester following the current one, and then they will be destroyed.

#### **Group Work Policy:**

Example: Everyone must take part in a group project. All members of a group will receive the same score; that is, the project is assessed and everyone receives this score. However, that number is only 90% of your grade for this project. The final 10% is individual, and refers to your teamwork. Every person in the group will provide the instructor with a suggested grade for every other member of the group, and the instructor will assign a grade that is informed by those suggestions.

**Final Examinations Policy**: All final exams are to be scheduled in accordance with the University's final examination policy.

**Extra Credit**: At the instructor's discretion, extra credit may be provided in order to provide students with opportunities to further explore course related topics.

#### XX. Course Policies:

**Attendance:** This course will be in person and you are expected to attend the lectures at the scheduled time.

The University's official attendance policy can be found here: <a href="http://ugs.usf.edu/pdf/courses/0708/General%20Attendance%20Policy.pdf">http://ugs.usf.edu/pdf/courses/0708/General%20Attendance%20Policy.pdf</a>. It allows ONLY the following excusable absences:

- Documented Illness
- Deaths in the immediate family and other documented crises
- Call to active military duty
- Court-imposed legal obligations (e.g., jury duty and subpoenas)
- Religious days

- Special requirements of other courses currently enrolled in by the student (e.g., judging trips, field trips, professional conferences)
- Severe weather conditions.

To be excusable, your professor must be informed in advance of the reason for the absence and be provided with documentation.

#### Email:

The instructor is always reachable via email and plans on responding to emails within 24 hours if not quicker.

#### Canvas:

The instructor plans on using the Canvas tool to distribute homework assignments, post class lecture notes, class videos, and keep track of grades.

The course should use Microsoft teams to present the individual classes. Each student should be provided with access to the class. Once the class is over, the class video and the lecture notes from that class may be made available via the class Teams channel.

The instructor will conduct office hours one hour before each class session via in office time and a separate channel on Teams.

If you need help learning how to perform various tasks related to this course or other courses being offered in Canvas, please view the following videos or consult the Canvas help guides. You may also contact USF's IT department at (813) 974-1222 or help@usf.edu.

### **Online Proctoring:**

Canvas-based tests and/or quizzes within this course require online proctoring. Students are therefore required to have a webcam with a microphone (either USB or mounted into your computer).

### **Recording:**

In this class, software will be used to record live class lectures and discussions. As a student in this class, your participation in live class discussions will be recorded. These recordings will be made available to assist those who cannot attend the live session or to serve as a resource for those who would like to review content that was presented. Students who prefer to participate via audio only will be allowed to disable their video camera so only audio will be captured. Please discuss this option with your instructor.

**Laptop Usage:** The instructor insists that you use your laptop during class – however else would you be able to attend class?

**Classroom Devices/Student Recording:** If you wish to record these classes, you are more than welcome to. However, the instructor may be recording each class and may be making the video available to everyone in the class after the class is over so there really is no reason for you to do this.

**Phone Usage:** You could use your phone during class and the instructor would never know. However, you really should be paying attention so put it away during class and you can get it out once the class is over.

## XXI. Course Policies: Student Expectations

### **Attendance Policy:**

Students are expected to attend classes and attendance will be taken EVERY class. The instructor may accommodate excused absences by making arrangements with student ahead of time (when possible) or by providing a reasonable amount of time to make up missed work.

## **Professionalism Policy:**

Per university policy and classroom etiquette; mobile phones, iPods, etc. **must be silenced** during all classroom lectures. Those not heeding this rule will be asked to leave the online classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, etc., and have been warned may suffer a reduction in their final class grade.

## **End of Semester Student Evaluations:**

All classes at USF make use of an online system for students to provide feedback to the University regarding the course. These surveys will be made available at the end of the semester, and the University will notify you by email when the response window opens. Your participation is highly encouraged and valued.

#### **Food and Drink Policy:**

Eating and drinking during class can take away from your learning experience. Try to only eat or drink either before or after class. If you are drinking during class pay attention to what is going on and make sure that you don't make noise and disturb other students.

#### XXII. Intellectual Freedom and Viewpoint Diversity Act (House Bill 233)

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal, educational use. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach enrolled students about a particular subject. Recording class activities other than class lectures, including but not limited to lab

sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, private conversations between students in the class or between a student and the faculty member is prohibited. Recordings may not be used as a substitute for class participation and class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the USF Student Conduct Code (https://usf.app.box.com/v/usfregulation60021).

## **XXIII. Student Registration & Auditing Students**

Per USF Policy 10-006 ("Student Registration Changes, Initial, Drop/Add, Withdrawal, and Auditing"): Registered students may add to, delete from or otherwise adjust their class schedules. Additionally, students may be deleted from class rolls based on instructor notification of non-attendance at the first class meeting in the learning management system. Registration changes include Drop/Add, Cancellations, Withdrawals, and Auditing. An auditing student "attends the class as a listener." Please identify yourself as an auditor in the course within the first two weeks, and let me know if you wish to discuss your role in the classroom.

## **XXIV.Flexible Component**

I will deliver this class, as scheduled, in-person and will provide a flexible component for students who are asked to isolate or quarantine, or are unable to attend a class in-person for an extended period of time. Please note: All students may be required to attend in-person classes, especially to complete assessments and examinations. For students planning to attend in-person, I will teach in-person classes in the assigned classroom and on the scheduled day and time. For students who are unable to attend a class in-person, I may provide course content in a flexible format to support the student's academic progression and success. Please contact me directly if you have questions. In addition, I may post details on how a student can join the class remotely in Canvas.

# **XXV.** Important Dates to Remember

Drop/Add Deadline: Friday, August 25, 2023 Withdrawal Deadline: Saturday, October 28, 2023

Final Examination: Monday, December 4, 2023, 7:30am - 9:30am