Introduction to Software Engineering

CEN 3031
Class Period: Online
Academic Term: Fall 2021

Instructor: Alexander Webber
Contact: alexwebber@ufl.edu
Please include "CEN3031" in your email's subject line. This will make sure I see the emails and reply in a timely manner.

Office Hours: Monday and Wednesday at 3:00pm and by appointment

All lectures and course materials will be asynchronously delivered through Canvas

Classroom Slack: Slack is a place to build community with your peers. Please keep all communication class related, positive, and non-offensive. The teaching assistants and peer mentors manage slack. All questions, concerns, and official communication intended for and directed to the instructor should be sent via email.

Canvas Announcements: Announcement notifications should be activated in your settings, so you are aware of class announcements in a timely manner.

Course Description

Topics include software planning, specifications, coding, testing and maintenance. Gain experience in the team approach to large system development.

Credits: 3

Course Pre-Requisites

- COP 3530 - Data Structures and Algorithms

Course Objectives

- Understand what software engineering is and why it is important.
- Understand ethical and professional issues that are important for software engineers.
- Have extensive experience using the Agile "Scrum" Software Development Process.
- Have experience working on a team to complete a large-scale software product.
- Have experience with working with an existing code base.

    Course objectives will be addressed and accomplished in the 4 modules:
    Module 1: Product Planning
    Module 2: Product Execution
    Module 3: Code Review
    Module 4: Open Source

Material and Supply Fees:

None

Relation to Program Outcomes (ABET):

Outcome	Coverage*

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	Medium
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	Medium
3. An ability to communicate effectively with a range of audiences	High
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	Medium
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	High
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	Medium
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	Medium

Course Materials
Required:
- **Engineering Software Products** An Introduction to Modern Software Engineering
- Ian Sommerville
- Pearson; 1st edition (May 19, 2019)
- ISBN 9780135211168

Recommended:
- Essential Scrum
- Mike Cohen and Ron Jeffries
- Addison-Wesley Professional; 1st edition (July 26, 2012)
- ISBN: 9780137043293

Course Schedule
The following is a **TENTATIVE** overview of the course schedule (**subject to change**):

Week	Dates	Course Learning Module	Chapter	Weekly Assignments	Due Date	Quiz (Given on Fridays)
Week 1	8/23	**Introduction Module**	Introduction (Ethics) 1 Software Products	Ethics	9/1	Practice Quiz
Week 2	8/30		2: Agile PM	Project Proposal/ Vision Statement/Persona/Scenario	9/8	Quiz 1
Week 3	9/6	**Module 1: Product Planning and Design**	3: Features, Scenario, Stories	User stories/Product Backlog	9/15	Quiz 2
Week 4	9/13		10: DevOps and Code Management	Circle CI	9/22	Quiz 3
Week 5	9/20		9: Software Testing	Software Testing	9/29	Quiz 4
Week 6	9/27		4: Software Architecture	Project Models	10/6	Quiz 5

Week	Date	Module	Topic	Assignment	Due	Quiz
Week 7	10/4	**Module 2: Product Execution**	Project Design Presentation Week			No Quiz
Week 8	10/11		5: Cloud Based Software	Mid Independent Project Due	10/13	Quiz 6
Week 9	10/18		6: Microservices Architecture	Docker	10/20	Quiz 7
Week 10	10/25		Sprint 1 Presentation Week	Sprint Retrospective and Peer Evaluation	11/3	No Quiz
Week 11	11/1	**Module 3: Code Review**	7: Security and Privacy	Authentication	11/10	Quiz 8
Week 12	11/8		8: Reliable Programming	Code Review	11/17	Quiz 9
Week 13	11/15		Sprint 2 Presentation Week	Sprint Retrospective and Peer Evaluation	11/23	No Quiz
Week 14	11/22	**Module 4: Open Source**	Thanksgiving week - Peer Guest Lecture (Mike)	Open Source Due	12/3	No Quiz
Week 15	11/29		Software Evolution and Open Source	Final Independent Project	12/8	Quiz 10
Week 16	12/6		Last Week of Classes			

Attendance Policy, Class Expectations and Make-Up Policy

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Students are strongly recommended to listen to all lectures and attend all classes and lab discussions.

Assignments are due by the time listed on Canvas. Assignments and project work can be turned in late with a cascading deduction: one (1) business day from the canvas date is 10% penalty; two (2) business days from the canvas date is 30% penalty; or three (3) business days from the canvas date is 60% penalty. Assignments will not be accepted after 3 business days.

Grade reviews must be requested within one week of a grade being posted. After one week, no grade will be revisited. In the event of a grade review, the entire assignment will be reviewed.

Quizzes are administered during class and cannot be made up. Quizzes may be reviewed during office hours but will not be distributed. You are allowed 1 drop quiz score. The dropped quiz will be used for a missed quiz for any circumstance. There is no other exception if you missed a quiz and have already used your drop quiz allowance. In class participation assignments cannot be turned in late under any circumstance.

Peer Evaluations. Each team member will score their team members and themselves. They are to provide a rating and justification of the rating. A team member who has an average peer evaluation score of 70-79.9 will receive a 15% penalty for the associated assignments. A team member who has an average peer evaluation score of less than 70 will receive a penalty determined by the professor of the course considering the evaluated contribution and justification provided by their team members.

Students should arrange for project help and grade questions during office hours. Students should make plans to meet with the Peer Mentors and Teacher Assistants during scheduled office hours or try to arrange an

appointment with the TA. <u>Do not send email to</u>, <u>send private messages to</u>, or <u>"@"</u> instructors or TAs about grades.

All correspondence should be engaged via email. For matters directed to the professor, email the professor directly. Please allow 48 business hours for a response.

Mobile Computing Requirement

The College of Engineering requires students to have a mobile computing device (laptop) with 802.11 WiFi capability and webcam. Preferred methods for public and private communication regarding the course and a method for resolving technical issues (e.g. helpdesk.ufl.edu, 352-392-4357).

Grading

Information on current UF grading policies for assigning grade points: catalog.ufl.edu/UGRD/academic-regulations/grades-grading- policies/.

The grade breakdown is as follows:

Grade Category	Percentage	Letter	Range (%)
Participation/Assignments	20%	A	94 – 100
		A-	90 – 93
Quizzes (10 drop 1)	20%	B+	87 – 89
		B	84 – 86
Mid/Final Independent Project (2)	20%	B-	80 – 83
		C+	77 – 79
		C	74 – 76
Project	30%	C-	70 – 73
		D+	67 – 69
Peer Evaluation	10%	D	64 – 66
Total	*100%*	D-	60 – 63

NOTE: A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: an average of C- is equivalent to a GPA of 1.67 and therefore does not satisfy this graduation requirement. For more information on grades and grading policies, please consult the catalog.

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. If you have any questions or concerns, please consult with the instructor or TAs in this class.

**Academic Dishonesty will be dealt with strictly. Sharing / copying, "borrowing" of work that is not your own original work is considered academic dishonesty. code structure, discussing code structure, looking at code from another student or providing such code, and plagiarism, in addition to other dishonest behaviors, are all considered academic dishonesty. Absolutely no information regarding assignment solutions may be shared by students except at a conceptual level. If students implement algorithms from other sources, they must cite those sources.

==**Students may not copy code from the Internet or other sources under any circumstances. Any student found to have violated these rules, whether a provider or receiver or unauthorized help, will be given a zero and referred to the Honor Court. When in doubt, ask.**==

Cheating on quizzes is not tolerable and will be immediately reported to the Dean of Students. Make sure your environment is free from any distractions or elements that are susceptible for cheating such as phones, additional screens, books and notes ect. It is important you leave no room for questioning by the Dean of Students.

Code Submissions

Functionality is key to success in software development and computer science, so it is **extremely important** that the guidelines are followed. Failure to follow these instructions will result in penalties.

1) Code must compile / run in debug and release mode. Debug information should never be released in the final version of a software project. **Projects that do not compile AND run will be marked zero**.

2) Include only those files specified by the documents in your archive. Projects should have no directory structure except as explicitly mentioned in the documentation (i.e., relevant files and folders should be submitted in the root of the zip file.) It should be possible to open the archive, copy your files directly into the project, compile, and then run the project without further steps. **If the project has naming or organization error(s), its grade will be zero.**

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting https://disability.ufl.edu/students/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons),

including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Conduct Code (https://sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:
• Your academic advisor or Graduate Program Coordinator
• Jennifer Nappo, Director of Human Resources, 352-392-0904, jpennacc@ufl.edu
• Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
• Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: https://registrar.ufl.edu/ferpa.html

Campus Resources:

Health and Wellness

U Matter, We Care:
Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing

staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: https://counseling.ufl.edu, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence
If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the Office of Title IX Compliance, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling; https://career.ufl.edu.

Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.

Student Complaints Campus: https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/;https://care.dso.ufl.edu.

On-Line Students Complaints: http://www.distance.ufl.edu/student-complaint-process.