Software Engineering COMP433

Instructor: Ahmed Tamrawi
Spring 2021, Revision 2

E-mail: atamrawi@birzeit.edu   Web: https://atamrawi.github.io/teaching/comp433_spring21
Private Meetings: Available upon request   Class: Mondays, Wednesdays 11:24am – 12:40pm

This course syllabus should be interpreted as a contract of understanding between students, teaching assistants, and the instructor. By participating in the course you are agreeing to this understanding. Please review this document carefully and inform the instructor of any concerns. Revisions to this document will be made as needed then posted and announced in class.

Course Description

Software engineering is the discipline concerned with the application of theory, knowledge, and practice for effectively and efficiently building software systems that satisfy the requirements of users and customers. Software engineering is applicable to small, medium, and large-scale systems. It encompasses all phases of the life cycle of a software system.

Software engineering employs engineering methods, processes, techniques, and measurement. It benefits from the use of tools for managing software development; analyzing and modeling software artifacts; assessing and controlling quality; and for ensuring a disciplined, controlled approach to software evolution and reuse. Software development, which often involves a team of developers, requires choosing the suitable tools, methods, and approaches that are most applicable for a given development environment.

The elements of software engineering are applicable to the development of software in any computing application domain where professionalism, quality, schedule, and cost are important in producing a software system.

If you do not feel my goals for the course align well with your personal goals, but you need to take this course anyway to satisfy a degree requirement, you should meet with me to figure out a way to make this course useful for satisfying your personal goals.

Required Materials

We will closely follow the textbook from:

- [**B1**] Ian Sommerville's *"Software Engineering,"* 9th Edition.

- [**B2**] Martina Seidl, Marion Scholz, Christian Huemer, Gerti Kappel's *"UML@Classroom,"* 1st Edition.

However, we will have several readings from many other resources including:

- [**B3**] Bruegge and Dutoit 's *"Object-Oriented Software Engineering Using UML, Design Patterns, and Java,"* 3rd Edition.

- [**B4**] Stevens P. with Pooley, R. 's *"Using UML: Software Engineering with Objects and Components,"* 2nd Edition.

- [**B5**] Jeffrey A. Hoffer, Joey F. George, Joseph S. Valacich 's *"Modern System Analysis and Design,"* 4th Edition.

- [**B6**] Roger Pressman 's *"Software Engineering: A Practitioner's Approach,"* 8th Edition.

- [**B7**] L.A. Maciaszek's *"Requirements Analysis and System Design: Developing Information Systems with UML,"* 3rd Edition.

Course Structure

Classroom Meetings

Based on the registrar's schedule, the lecture will last for 75 minutes. We will divide it into multiple parts upon class agreement. Due to COVID-19 restrictions, lectures will be given off-campus via ZOOM scheduled meetings.

Assignments

There will be 5-6 assignments through the course. Assignments will consist of two types of questions: *synthesis* and *conceptual*. Synthesis questions require you to analyze given case studies with respect to the software engineering concepts and practices studied in class. Conceptual questions will reinforce important concepts and may only be practically achievable with a building a software model or a working software implementation.

Exams

There will be a final exam if we are allowed to do on-campus exams. Most of the questions on the exams will be taken directly from questions on the provided course notes, with a few additional synthesis questions.

Grading Policy

I prefer to spend my time focused as much as possible on teaching, and as little as possible on grading. The assessment means in this class are designed to maximize learning, rather than primarily for assessment. That said, I understand that students do need to be assigned grades at the end of the semester, and sometimes grades can be a powerful and effective motivator. Grades will be determined based on your performance on the assignments and exams. The grading breakup will be tentatively as follows:

Term Project 50%
In-class Activities 10%
Final Exam 40%

Course Policies

Attendance Policy

Attendance in lectures is expected, and we welcome active participation (by raising questions and participating in class discussions). Please do not disturb or interrupt other classmates. You are free to leave at any time, do not feel obligated to attend the whole class.

Late Policy

Late assignments will be accepted with 20% penalty for each late day.

Academic Integrity and Honesty

As a student, you are trusted to be honorable. We will take advantage of this trust to provide a better learning environment for everyone. In particular, students are expected to follow these rules:

- **I will not lie, cheat or steal**. If I am unsure whether something would be considered lying, cheating or stealing, I will ask before doing it.

- **I will carefully read and follow the collaboration policy on each assignment**. I will not abuse resources, including any submissions or solutions that would be clearly detrimental to my own learning.

In addition to the honor rules, students are expected to follow these behaviors:

- **I will do what I can to help my fellow classmates learn.** Except when specifically instructed not to, this means when other students ask me for help, I will attempt to provide it. I will look at their answers and discuss what I think is good or bad about their answers. I will help others improve their work, but will not give them my answers directly. I will try to teach them what they need to know to discover solutions themselves.

- **I will ask for help.** I will make a reasonable effort to do things on my own first (or with my partners for group assignment), but will ask my classmates or the course instructor for help before getting overly frustrated.

- **I grant the course instructor permission to reproduce and distribute excerpts from my submissions for teaching purposes.** If may opt-out of this by adding a comment to your code, but without an explicit opt-out comment we assume you agree to it.

- **I will provide useful feedback.** I realize that this is a new and experimental course, and it is important that I let the course staff know what they need to improve the course. I will not wait until the end of the course to make the course staff aware of any problems. I will provide feedback either anonymously or by contacting the course staff directly. I will fill out all requested surveys honestly and thoroughly.