

<b>Year</b>	: 2020/21	<b>Semester</b>	: Second
<b>Credit Hours</b>	: 3	<b>Room</b>	: 2nd Office, Comp. Sci. Dept, RIPS Building UG
<b>Lecturer</b>	: Mark Atta Mensah	<b>Office Hours</b>	: Wednesdays, <u>1:30pm – 3:00pm</u>
<b>Emails</b>	: <a href="mailto:mamensah@ug.edu.gh">mamensah@ug.edu.gh</a>	<b>LT Schedule</b>	: <b>ONLINE</b>

## COURSE INFORMATION

**Course Description:** This course studies the software development cycle from initial requirements analysis to final system operation and maintenance. The course covers software development project management, system verification and validation, security and privacy, and software development law, including software protection and software liability.

**Course Objectives:** After completing this course, students should be able to:

1. Produce software solutions by applying computer science principles and software engineering fundamentals.
2. Analyse a complex software problem and use process improvement principles to find a solution.
3. Create, implement, and test a software solution to meet a set of functional, non-functional, and domain requirements.
4. Know the basics of agile software development.
5. Function effectively and be a valuable member of a scrum team.
6. Apply modern software engineering techniques.
7. Convey technical information both orally and in writing.
8. Comprehend the ethical and social responsibilities of software engineers.
9. Use enterprise-grade continuous development, testing, integration, and delivery practices;

**Course Resources/Texts:**

- Software Engineering by Ian Sommerville, 10th edition. Pearson, 2015, ISBN 0133943038
- Textbook supplements are available at <http://iansommerville.com/software-engineering-book/>

**Course Web Site:** [Sakai : DCIT 208 1 S2-2021 : Overview \(ug.edu.gh\)](#)

## STUDENT EVALUATION

Students will be graded using the University of Ghana System. The Lecturer may use raw scores to calculate final grades. Final grades may include the following:

- Assignments (*Individual*) 5%
- Course Project (*Team*) 45%
- Mid-Semester Assessment 15%
- Final Exam (*Individual*) 30%
- Surveys (*Individual*) 5%
- \*\*\* *Virtual Mentorship Sessions (10% bonus marks)*

## COURSE REQUIREMENTS

**ASSIGNMENTS:** Assignments will be assigned to ensure that students read the recommended key text. Your syllabus contains a list of assignments. **DO THE ASSIGNED READINGS AT ALL TIMES.** Following each week's lesson, we will usually complete an assignment. We'll go over about 12 chapters of the key textbook, with one assignment per week. An essay and short-answer questions from the assigned readings will be included in an assignment. If you want to do well on an assignment, you must have read the most recent chapters. Exams will consist of questions similar to those on the assignments. Assignments are given to help you keep up with your reading and give you an idea of your exams. You will do well on the exam if you do well on the assignments. The inverse is also true. Assignments **CANNOT BE REPLACED.** There are always a couple of people who don't read all the way through the syllabus and ask me if assignments can be completed later. I recommend avoiding asking this question because it demonstrates that you haven't even read the syllabus.

**COURSE PROJECT:** This class's projects will be some of the most rewarding experiences you will have in this class. These projects will provide you with hands-on experience with software engineering. You will apply the knowledge and skills you have gained while working on the course project, covering many of the course topics. You will design, implement, and document a software system in teams to meet clients' needs. The Sakai course site contains a detailed description of the course project. The course schedule includes due dates.

***PEOPLE WILL ONLY BE INTERESTED IN WHAT YOU CAN DO AFTER YOU GRADUATE (I.E. ADD VALUE TO THE ORGANISATION). NO ONE WILL CARE ABOUT YOUR RESULTS. LEARNING THEORY ALONE IS WORTHLESS. TRY TO CASH A THEORETICAL PAYCHECK.***

Budget your time wisely to avoid falling behind. The projects may be challenging, but the emphasis here is on **LEARNING**. Your future employer will not give a hoot about how well you did on any of your university exams. They will only be concerned with your job performance and your ability to add value to the company. Your degree may get you a job, but it will not keep you there.

**NB:** The Course Project will count toward the overall grade. Tasks are expected to be completed and submitted by the deadlines. Any submission received after the due date/time will be graded with a 25% penalty of the available credit. The Sakai course website will reject any excessive or late submissions.

**MID-SEMESTER EXAM:** The mid-semester assessment is part of your course project and will be graded and rewarded accordingly.

**FINAL EXAM:** The final examination will be held during the University's scheduled exam session. It will be based on the topics covered throughout the course. The Department of Computer Science will keep final exams and will not return them to students. Exams will be conducted following the general university rules and regulations.

**SURVEY:** Each team project submission includes an individual survey that must be completed. Each survey must be conducted and submitted on time by everyone. Surveys will track project progress, understand each team member's contributions, and gather feedback on the course. Please strictly adhere to the submission instructions. Please e-mail me if you have any problems completing the surveys or finding errors in the survey forms.

**VIRTUAL MENTORSHIP SESSIONS:** These sessions will be held once a week for six weeks during the semester. This is a virtual platform where practising software engineers will share their knowledge and experience with students. There will be 15 minutes devoted to questioning time for the audience. Currently confirmed guests include:

- Google Software Engineer (San Francisco)
- Full-Stack Developer with Atos on MTN MADAPI Project happening across Africa.
- Software Engineer with Goldman Sachs and Senior Consultant with Andela.
- Backend Engineer with mPharma.

SESSION	CONTENT	Reading assignment*	DELIVERABLES
Session 1	-What is Software Engineering -Software Processes	CH 1 CH 2	- <i>Assignment 1 (individual)</i> - <i>Project team info sheet due</i> - <i>Survey 1 (individual)</i>
session 2	-Agile Software Development -Requirement Engineering	CH 3 CH 4	- <i>Assignment 2 (individual)</i> - <i>Project proposal due</i> - <i>Survey 2 (individual)</i>
Session 3	-System Modelling -Architectural Design	CH 5 CH 6	- <i>Assignment (individual)</i> - <i>System requirements due</i> - <i>Survey 3 (individual)</i>
Session 4	-Design and Implementation -Software Testing	CH 7 CH 8	- <i>Assignment 4 (individual)</i> - <i>Product Backlog due</i> - <i>Survey 4 (individual)</i>
Session 5	-Software Evolution -Dependable Systems	CH 9 CH 10	- <i>Assignment 5 (individual)</i> - <i>Mid-Sem Presentation due</i> - <i>Survey 5 (individual)</i>
Session 6	-Reliability Engineering -Safety Engineering	CH 11 CH 12	- <i>Assignment 6 (individual)</i> - <i>Sprint Report 1 due</i> - <i>Survey 6 (individual)</i>
<b>REVISION WEEK</b>			- <i>Sprint Report 2 due</i> - <i>Survey 7 (individual)</i>
<b>END OF SEMESTER EXAMINATIONS</b>			- <i>Sprint Report 3 due</i> - <i>Survey 8 (individual)</i>
			- <i>Sprint Report 4 due</i> - <i>Survey 9 (individual)</i>
			- <i>Project Demo due</i> - <i>Survey 10 (individual)</i>
			- <i>User Manual due</i>

*Before each session, complete your reading assignments.*