Syllabus subject to change

CS 427 Software Engineering

Course Description

This course introduces students to the discipline of software engineering, with focus on principles, processes, and techniques of conducting software engineering tasks related to constructing, maintaining, and testing software. By the end of the course, students will be able to explain what processes or techniques are available for conducting a software engineering task, and choose appropriate processes or techniques for such task in the given application context. Students will be able to apply a technique for a software engineering task in the given application context.

Course Goals and Objectives

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

- Explain what processes or techniques are available for conducting a software engineering task.
- Choose appropriate processes or techniques for such task in the given application context.
- Apply a technique for a software engineering task in the given application context.

Course Outline

This 4-credit hour course is 16 weeks long. You should invest 4-8hours every week in this course.

Week	Duration	Topics
1	8/27/2018 - 9/2/2018	Orientation
2	9/3/2018 - 9/9/2018	History of Software Engineering, Subareas of Software Engineering
3	9/10/2018 - 9/16/2018	Plan-driven methodologies, agile methodologies, process choosing, configuration management

4	9/17/2018 - 9/23/2018	Requirement solicitation, Requirement specification, Use-case requirements, User-story requirements
5	9/24/2018 - 9/30/2018	Class diagrams, Sequence diagrams, Modularity
6	10/1/2018 - 10/7/2018	Software architecture, Design patterns
7	10/8/2018 - 10/14/2018	Software architecture, Design patterns
8	10/15/2018 - 10/21/2018	Black-box testing, white- box testing, unit testing, code review
9	10/22/2018 - 10/28/2018	Black-box testing, white- box testing, unit testing, code review
10	10/29/2018 - 11/4/2018	Work on Term Project
11	11/5/2018 - 11/11/2018	Software metrics, code smells, refactoring, regression testing
12	11/12/2018 - 11/18/2018	Bug reporting, logging, delta debugging
13	11/19/2018 - 11/25/2018	Thanksgiving Break
14	11/26/2018 - 12/2/2018	Work on Term Project

15	12/3/2018 - 12/9/2018	Work on Term Project
16	12/10/2018 - 12/16/2018	Final Exam

Assignment Deadlines

For all assignment deadlines, please refer to the **Course Assignment Deadlines, Late Policy, and Academic Calendar** page.

Elements of This Course

The course is comprised of the following elements:

- **Lecture Videos.** In each week, the concepts you need to know will be presented through a collection of short video lectures. You may stream these videos for playback within the browser by clicking on their titles or download the videos. You may also download the slides that go along with the videos. **The videos usually total 1 to 3 hours each week.** You generally should spend at least the same amount of time digesting content in the video. The actual amount of time needed to digest the content will vary based on your background.
- **Orientation Quiz.** The purpose of the orientation quiz is to ensure that you have gone through the orientation module and acquired the necessary information about the course before you start it. The orientation quiz is a required activity, but it's not part of the course grading. You have unlimited attempts on the orientation quiz. You need to answer all questions correctly in order to pass the orientation quiz.
- **Graded Quizzes**. Each week conclude with a graded quizzes. You will be allowed 2 attempts for each graded quiz with your highest attempt score used toward your final grade. There is no time limit on how long you take to complete each attempt at the quiz. Graded quizzes will be used when calculating your final score in the class.
- **Programming Assignments.** There are 4 total programming assignments in this course. You may invest 3-6 hours on each of the programming assignments. For more information about the programming assignments, please read the instructions on programming assignment in respective weeks.
- **Term Project:** There will be 1 term project for this course. There will be 4 milestones to complete the term project. More information about the term project will be released in Week 4.
- **Final Exam**: There will be 1 Final Exam in this course. The exam will be online, and proctored through ProctorU. Please see the ProctorU page for more information.

Please note, in order to access course materials and assignments, you will need to pay the Coursera fee $158 ($79 per MOOC equivalent) for this course (a degree course equals to approximately two MOOCs) in addition to the University of Illinois tuition.

Grading Distribution and Scale

Grading Distribution

Assignment	Occurrence	Percent of the Final Grade
Quizzes	Weeks 2-9, 11, 12	15%
Programming Assignments	Weeks 7, 9, 11, 12	25%
Term Project	Weeks 4, 6, 9, 11, 14, 15	45%
Final Exam	Week 16	15%

Your final grade will be calculated based on the activities listed in the table below. Your official final course grade will be listed in Enterprise. The course grade you see displayed in Coursera may not match your official final course grade.

Grading Scale

Letter Grade	Percent Needed	Letter Grade	Percent Needed	Letter Grade	Percent Needed
A+	**95%**	**B+**	**80%**	**C**	**60%**

A	**90%**	**B**	**75%**	**D**	**55%**
A-	**85%**	**B-**	**70%**	**F**	**Below 55%**

Student Code and Policies

A student at the University of Illinois at the Urbana-Champaign campus is a member of a University community of which all members have at least the rights and responsibilities common to all citizens, free from institutional censorship; affiliation with the University as a student does not diminish the rights or responsibilities held by a student or any other community member as a citizen of larger communities of the state, the nation, and the world. See the University of Illinois Student Code for more information.

Academic Integrity

All students are expected to abide by the campus regulations on academic integrity found in the Student Code of Conduct. These standards will be enforced and infractions of these rules will not be tolerated in this course. Sharing, copying, or providing any part of a homework solution or code is an infraction of the University's rules on academic integrity. We will be actively looking for violations of this policy in homework and project submissions. Any violation will be punished as severely as possible with sanctions and penalties typically ranging from a failing grade on this assignment up to a failing grade in the course, including a letter of the offending infraction kept in the student's permanent university record.

Again, a good rule of thumb: *Keep every typed word and piece of code your own*. If you think you are operating in a gray area, you probably are. If you would like clarification on specifics, please contact the course staff.

Disability Accommodations

Students with learning, physical, or other disabilities requiring assistance should contact the instructor as soon as possible. If you're unsure if this applies to you or think it may, please contact the instructor and Disability Resources and Educational Services (DRES) as soon as possible. You can contact DRES at 1207 S. Oak Street, Champaign, via phone at (217) 333-1970, or via email at disability@illinois.edu.