SE301 - Software Engineering Principles

AUIS - Department of Information Technology

1 Course Information

Course ID	SE301
Course Title	Software Engineering Principles
Course Level	Undergraduate
Course Design	Required for all SE major students
	Elective for the rest
Number of Credits	3
Prerequisites	ITE202
Class Location	B-B1-01
Meeting Time	Sundays from 14:15 to 15:15
	Tuesdays from 14:15 to 15:15
	Thursdays from 14:15 to 15:15

2 Instructor Information

Instructor	Yad Tahir, PhD
Email Address	yad.tahir@auis.edu.krd
Office Hours	Thursdays from 14:00 to 17:00
Office Location	Online via Youtube

3 Course Description

This course covers the fundamentals of constructing robust and usable software systems. The principles of requirements engineering and analysis are discussed thoroughly. This course provides an introduction to quality assurance, software testing and project management. Students will learn valuable skills necessary for software engineering practices, including creating project plans, soliciting requirements, creating design models, and practicing software validation and verification activities. In addition, students will gain hands-on experience in designing a software development process to meet desired needs and constraints.

4   Course Objectives

The main objective of this course is to introduce the students to software engineering (as the course title says!) This includes:

- Presenting software engineering as a body of knowledge.

- Discussing various software development methodologies, and explaining the importance of phases in software development life cycle.

- Introducing software design principles and explaining their influence on system maintainability.

- Explaining how to deliver high-quality software that satisfies stakeholder needs and is within scope, specified timeframe, and budget.

- Discussing a range of strategies to capture program defects, including software verification, validation and testing.

5   Learning Outcomes

Upon successful completion of the course, students should be able to:

- Understand the key concepts and principles of software engineering.

- Outline the pros and cons of all major software development methodologies.

- Comprehend, though experience, the practical challenges associated with being a member of a software development team.

- Recognize the role of code refactoring in software development.

- Determine appropriate, methodical approaches for verifying and validating software systems.

6   Materials and Access

Important material from the text and outside sources will be covered during our scheduled class meetings. Regular attendance and in-class note-taking are critical. This course requires a lot of time, effort and energy. Students are strongly encouraged to **do background reading before and after** each class to gain a better grasp of the material. Corresponding chapters for each lecture will be indicated. The primary references are:

Title	Software Engineering, 10th Edition
Author(s)	Ian Sommerville
Publisher	Pearson
ISBN	978-0133943030
URL	`https://amzn.to/3ba0cGC`

Title	Learning Agile: Understanding Scrum, XP, Lean, and Kanban - 1st Edition
Author(s)	Andrew Stellman and Jennifer Greene
Publisher	O'Reilly
ISBN	978-1449331924
URL	`https://amzn.to/32nqi5f`

Most of the material discussed in this course are well-explained in the titles above. These references are optional and can be replaced by any other online sources as long as the required topics are covered.

6.1 Slides

The PPT slides of this course are designed to assist the instructor **only**. They contain very limited information. Thus, relying merely on the slides is **NOT** sufficient to this course.

6.2 Required Software

Students are required to use the following software:

- C Compiler.

- Your favorite text editor, e.g. Sublime, MS Visual Studio Code, Emacs, VIM, etc.

7 Grading Procedures

Assessment Type	Grade %
2 Group Coursework Assignments	45
1 Individual Coursework Assignment	25
Comprehensive Final Exam	30
Total	**100**

8 Grading Scale

A	(4.0)	93 - 100	Superior
A -	(3.7)	90 - 92	
B +	(3.3)	87 - 89	Good
B	(3.0)	83 - 86	
B -	(2.7)	80 - 82	
C +	(2.3)	77 - 79	Satisfactory
C	(2.0)	73 - 76	
C -	(1.7)	70 - 72	
D +	(1.3)	67 - 69	Unsatisfactory
D	(1.0)	60 - 66	
F	(0)	Below 60	Fail

9 Attendance policy

Students are expected to attend all scheduled classes, arrive on time, and remain in class until dismissed. Tardiness and early departure are disruptive for students and the teacher and are unacceptable. Attendance will be taken at the beginning of each class.

As per university policy for classes that meet **three** times a week at the **eight** absence the student will be dismissed from the course with a grade of **F**. This cutoff is **absolute**. Per university policy as stated in the Academic Catalog, there are no excused absences. At the penultimate absence, the professor must notify students via e-mail that they are in danger of failing the course, with a copy to the Dean of Students.

10 Course Policies and Expectations

10.1 Classroom Conduct

In this course, a premium is placed on listening, discussion, and participation. These sorts of activities are only possible in a classroom where the person speaking is accorded respect. In short, we all should listen to the one person who is speaking.

Students are expected to behave in a collegial manner at all times when in class. Rude, disrespectful, aggressive, or threatening language or behavior will not be tolerated, and students displaying this will be removed from class. Attire should be appropriate for university students. Distracting behavior will not be tolerated, and students behaving in this way will be asked to leave the class. Examples of distracting behavior include:

- Speaking languages other than English

- Using a cell phone in any way, shape or form

- Any other behavior which a student is warned against during class

Professionalism and ethical behavior are expected from students. Your instructor is not an encyclopedia, nor this course encourages memorization. Instead, this course aims to develop a deep understanding of the material. Students conduct should be guided by the AUIS Honor Code and the AUIS Academic Catalogue (both available online at www.auis.edu.krd).

10.2 Office Hours

All students are invited to visit the instructor in his office, outside of class time. Apart from office hours, students can **make appointments** to visit at other times. Visits during office hours may be used to ask questions about the course material and content, clarify assignments or graded tests, explore ideas or topics related to or extending from the course material, and other course-related matters.

10.3 Makeup Exams and Extra Credit Policy

There are no makeup exams or extra credit available in this course.

10.4 Expectations of Student Time

AUIS adheres to the United States federal definition of a credit hour, as established by the US Department of Education. As a three credit-hour course, you are expected to attend three hours of direct instruction per week, and spend a minimum of six hours out of class per week in studying, preparing, and otherwise engaging with the material of this course.

10.5 Late or Missed Submissions

Time-management and the meeting of harsh deadlines are part of the soft skills expected of all AUIS graduates. As a result, students should submit all coursework by the published deadline.

A coursework submitted within **48 hours** after the deadline is considered as a **late submission**. Each student can have **two** late submissions. A **penalty of 25 percentage marks** will be applied to each late submission, i.e. the submitted coursework will be graded out of 75%. Any additional late submissions will be awarded a mark of **zero** and there will be no make-ups offered for missed assignments.

10.6 Grade Disputes

Any questions about a grade earned on an assignment or test should be brought to the instructor. All assignments may be discussed in details during office hours, and any disputes concerning grades may be addressed at that

time. If there is a dispute concerning the final grade for the course, students have the right to make a formal grade appeal. Details on this process can be found in the Academic Catalog.

10.7 Moodle

This course has a Moodle site that will be used for announcements and posting extra material. Enrollment is **mandatory**. Please make sure that you have enrolled yourself into right section. The enrollment code will be provided during our first class meeting.

11 Academic Integrity

Academic Integrity is honest behavior in a school setting. Academic integrity is more than the absence of cheating. It is necessary for students to truly learn new skills and develop as human beings. By struggling with her own studies and by making honest mistakes and discoveries, a student learns about the world and herself. Using another's work inappropriately prevents this intellectual and emotional growth.

Academic Dishonesty (i.e, "cheating") is any form of deceit, fraud, or misrepresentation in academic work. Academic dishonesty is the opposite of learning, because it prevents the student-writer from genuinely learning and responding to material. Plagiarism is one of the most serious forms of academic dishonesty.

Plagiarism is using other people's ideas and/or words without clearly acknowledging the source of the information. If a student uses content or grammatical structures from the internet, a professional writer, or another student and does not inform the reader, he plagiarizes. A student who allows another student to use his writing without attribution is also guilty of plagiarism.

Cheating will not be tolerated in this class. All major written assignments completed outside of class time must be submitted via www.turnitin.com. A student found to be cheating for the first time will receive a zero for the assignment and the Dean of Students will be notified. In the event of a second offense confirmed by the Dean of Students, the student will fail the course. A third instance of cheating will result in that student being dismissed from the American University of Iraq, Sulaimani. Students are directed to the AUIS Honor Code and the Academic Integrity policy section of the Academic Catalog (available online at www.auis.edu.krd). These documents provide guidance in cases of academic dishonesty, so we should all be familiar with them.

12   Revisions to the Syllabus

This syllabus is designed around the course description proposed and announced to the students. It is subject to change. It is the duty of the instructor to inform students of changes in a timely fashion. Students are obliged to be cognizant of any change.

13   Course Schedule

Week	Starting Date	Topic
1	February 9, 2020	Introduction
2	February 16, 2020	Software Development Process
3	February 23, 2020	Agile Methodology
4	March 1, 2020	Requirement Engineering
5	March 8, 2020	Software Modeling
		Assignment 1 deadline on March 9th, at 9 A.M.
6	March 15, 2020	Architectural Design
7	March 29, 2020	Design and Implementation
		Exam 1 on March 29th - During Class Time
8	April 5, 2020	Software Evaluation
9	April 12, 2020	Software Testing - Part 1
		Assignment 2 deadline on April 13th, at 9 A.M.
10	April 19, 2020	Software Testing - Part 2
11	April 26, 2020	Dependability and Security - Part 1
		Assignment 3 deadline on April 27th, at 9 A.M.
12	May 3, 2020	Dependability and Security - Part 2
		Exam 2 on May 3th - During Class Time
13	May 10, 2020	Course Closure