

1.	Course title	Introduction to Software Engineering
2.	Course number	1902371
3.	Credit hours (theory, practical)	Three Credit Hours (Theory)
	Contact hours (theory, practical)	Three Credit Hours (Theory)
4.	Prerequisites/corequisites	Introduction to Database Systems (1902331)
5.	Program title	Computer Information Systems
6.	Year of study and semester (s)	Spring- 2019/2020
7.	Final Qualification	B.Sc.
8.	Other department (s) involved in teaching the course	None
9.	Language of Instruction	English
10.	Date of production/revision	26 <sup>th</sup> January 2020
11.	Required/ Elective	Required

## 12. Course Coordinator:

Dr. Rana Yousef  
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Email: [Rana.Yousef@ju.edu.jo](mailto:Rana.Yousef@ju.edu.jo)  
Office hours: (Sunday, Tuesday) 11:30- 12:30 am / Monday 11-12 / or by appointment

## 13. Other instructors:

Dr. Hamad Alsawalqah  
Office: KASIT 2<sup>nd</sup> Floor  
Phone Ex.: 22643  
Email: [h.sawalqah@ju.edu.jo](mailto:h.sawalqah@ju.edu.jo)  
Office hours: (Sunday ~ Thursday) 1- 2 pm

## 14. Course Description:

This course provides a general introduction to software engineering. It introduces concepts such as software processes and agile methods, and essential software development activities, from initial specification through to system maintenance. The course also includes practice in lab to express the role of UML for visualizing, specifying, constructing, and documenting software system. Project management and professional software engineering practice will also be covered. Case studies provide practical examples for many of these concepts.

## 15. Course aims and outcomes:

A- Aims:  
The Goal:

The main goal of this course is to equip students with knowledge about software engineering concepts and software development process models, as well as the skills required to collect system requirements and design system models.

Aims:  
The main objectives of the course are:

1- To understand how to produce high-quality software with cost-effective development of software systems, 2- To provide students with software management, software requirements and design techniques that result in the development of maintainable and reliable software that meets the customer's needs.

**B- Intended Learning Outcomes (ILOs):** Upon successful completion of this course students will be able to ...

A. Knowledge and Under-Standing:

- 1- Students should be able to understand how the phases of the lifecycle can be managed using different models of the lifecycle.
- 2- Students will be expected to appreciate the reasons for a highly structured approach to the software lifecycle and understand the properties of good software and how these relate to different types of software.
- 3- Students should be able to understand the goals and deliverables of each phase of the software lifecycle, be able to select and apply appropriate techniques to achieving some of these goals and be able to accurately document the results.

B. Intellectual Analytical and Cognitive Skills:

- 1- Students should be able to understand and evaluate techniques can be used to formally assess the risks that can have an impact on project success.
- 2- Identify the basic concepts and principles to the analysis of software requirements.
- 3- Identify the basic concepts and principles to the design of software activity.
- 4- Students will be expected to identify important issues in the management of software (i.e., generates reliable estimates of effort, cost, and project duration).
- 5- Students should be able to understand and evaluate the categorize application domains for computer software.

C. Subject- Specific Skills:

- 1- Describe how process models can be applied to software development.
- 2- Select the proper method(s) and techniques(s) to the software project at hand

D. Transferable Key Skills:

- 1- Demonstrate how a software project manager selects the set of software engineering work tasks.
- 2- Evaluate the role of project schedule, quality control and assurance in the development of computer software.
- 3- Students should be able to identify how change is managed during the development of computer software and after delivery to the customer

## 16. Topic Outline and Schedule:

Topic	Week	ILOs	Program SOs	ABET SOs	TLA (teaching, learning and Assessment)
1. Introduction to Software Engineering: professional software development, software cost, software products, attributes of good software, ethics, and case studies.	1-2	A.2, B.5	1, 2, 11	4	<b>T:</b> Lecture <b>L:</b> Reading lecture notes and book chapter 1, IEEE/ACM code of ethics, Insulin Pump Case study <b>A:</b> In class questions and discussion
2. Software Processes: Software process models, V-model, process activities, coping with change, the rational unified process	3-5	A.1, A.3, C.1	1, 3, 8,9, 10	6	<b>T:</b> Present examples <b>L:</b> Reading lecture notes and book chapter 2 <b>A:</b> Group project's tasks 1 and 2
3. Agile software development	6	A.1, A.3, C.1	1, 3, 8,9, 10	6	<b>T:</b> Present examples <b>L:</b> Reading lecture notes and book chapter 3 <b>A:</b> Oral Quiz (Chapters 1, 2, 3)
4. Requirements Engineering: Functional and non-Functional requirements, the software requirements document, requirements specification, requirements engineering process, elicitation and analysis, validation, and management.	7-9	B.2, D3	6	1	<b>T:</b> Lecture <b>L:</b> Reading lecture notes and book chapter 4, SRS for Mentcare System <b>A:</b> Oral Quiz 1 (Chapter 4), group project's task 3
5. Midterm Exam	10				<b>A:</b> Written exam on materials in Chapters: 1, 2, 3, 4
6. System Modeling: context models, interaction models, structural models, behavioral models, model-driven engineering.	11-12	B3	6	2	<b>T:</b> Lectures and lab training sessions <b>L:</b> Reading lecture notes and book chapter 5, practice in the lab. <b>A:</b> Group project's task 4
7. Project Management: Success Criteria, software management distinctions, management activities, Risk management.	13	B.1, B.4, D.1, D.3	6, 12	6	<b>T:</b> Lecture <b>L:</b> Reading lecture notes and book chapter 22 <b>A:</b> In class questions
8. Project Planning: software pricing, plan-driven development, project scheduling.	14	B.4, D.2	12	6	<b>T:</b> Lecture <b>L:</b> Reading lecture notes and book chapter 23 <b>A:</b> in class questions
9. Group projects discussion	15		6, 8, 13	1, 2, 5, 6	<b>A:</b> project discussion
10. Final Exam	16				

## 17. Evaluation Methods and Course Requirements (Optional):

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Assessment (A) Methods:

There will be several assessment methods of evaluation the performance of the students such as attending and class participation, assignments, quizzes and project, conducting the Midterm and the Final Exams. Every student is expected to completely adhere to the project strict deadlines, absolutely no exceptions will be given.

## 18. Course Policies:

### A- Attendance policies:

Class attendance is mandatory. University regulations will be applied. Regular attendance is essential for satisfactory completion of this course.

### B- Absences from exams and handing in assignments on time:

Absences from exams and handing in assignments on time: Any student who misses any exam will receive a failing grade. Permission for makeup will be granted only if the student notifies the instructor in due time and

presents evidence of an officially excused absence

### C- Health and safety procedures:

### D- Honesty policy regarding cheating, plagiarism, misbehavior:

Honesty policy regarding cheating, plagiarism, misbehavior: The honor code applies to all work turned in for this course including exams and assignments. It is important that you understand the solutions to all problems, and the best way to gain an understanding is to work them out and write them up by yourself. Hence the policy is that you must submit your own work. You may not share your work with other students, unless it is allowed as group. Violating the policy will be taken as a no submission state for the assignment. University regulations will be preserved at all times.

### E- Grading policy + Weighting (i.e. weight assigned to exams as well as other student work)

Intended Grading Scale:

0-44	F	45-49	D-	50-53	D	54-59	D+	60-65	C-
66-69	C	70-75	C+	76-79	B-	80-83	B	84-87	B+
88-90	A-	91-100	A						

However, this grading policy is subject to change based on the actual students' performance during the semester and the feedback from the department council. Moreover, the grading scale also might be decided automatically by the university electronic grading management system.

Assessment Weights:

Midterm Exam	30%
Project	15%
Home works	5%
Final Exam	50%

**F- Available university services that support achievement in the course:**

Course website: available at: <https://elearning.ju.edu.jo/>

Author website: available at: <http://iansommerville.com/software-engineering-book/>

Computer lab for Rational Rose (Lab 203).

Library and e-Library.

**G- Statement on Students with disabilities**

**Students with Disabilities** who need special accommodations for this class are encouraged to meet with the instructor and/or their academic advisor as soon as possible. In order to receive accommodations for academic work in this course, students must inform the course instructor and/or their academic advisor, preferably in a written format, about their needs no later than the 4<sup>th</sup> week of classes.

**19. Required equipment:**

Design tool such as Rational Rose

MS Project

**20. References:**

**A- Required book (s), assigned reading and audio-visuals:**

- Ian Sommerville. Software Engineering (10<sup>th</sup> Edition). Addison Wesley, 2015.
- <http://iansommerville.com/software-engineering-book/>

**B- Recommended books, materials, and media:**

1. Roger S. Pressman. Software Engineering A practitioner’s Approach, 7<sup>th</sup> Edition. McGraw-Hill, 2010.
2. Shari Lawrence Pfleeger, Software Engineering: Theory and Practice, 2nd Ed., Prentice-Hall, 2001.
3. J. Rumbaugh, I. Jacobson, and G. Booch. The Unified Modeling Language Reference Manual. Addison-Wesley, Longman, Mass, USA, 1999.
4. University of Jordan E-library: <http://e-library/>
5. <http://www.software-engin.com>
6. IEEE Transactions on software engineering
7. ACM Transactions on software engineering

**21. Additional information:**

Please visit the course website available at: <https://elearning.ju.edu.jo>

Date: 26<sup>th</sup> January 2020

Name of Course Coordinator: --Dr. Rana Yousef-----Signature: -----

Head of curriculum committee/Department: --- ----- Signature: -----

Head of Department: Dr. Hamad Alsawalqah ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- Signature: -----

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Head of Department  
Assistant Dean for Quality Assurance  
Course File