

QF01/0408-4.0E	Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Department
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Study plan No.	2021-2022	University Specialization	Software Engineering
Course No.	0114151	Course name	Software Engineering Principles
Credit Hours	3	Prerequisite Co-requisite	0120117
Course type	<input type="checkbox"/> MANDATORY UNIVERSITY REQUIREMENT <input type="checkbox"/> UNIVERSITY ELECTIVE REQUIREMENTS	<input type="checkbox"/> FACULTY MANDATORY REQUIREMENT <input type="checkbox"/> Support course family requirements	<input checked="" type="checkbox"/> Mandatory requirements <input type="checkbox"/> Elective requirements
Teaching style	<input type="checkbox"/> Full online learning	<input checked="" type="checkbox"/> Blended learning	<input type="checkbox"/> Traditional learning
Teaching model	<input type="checkbox"/> 2Synchronous: 1asynchronous	<input checked="" type="checkbox"/> 2 face to face : 1synchronous	<input type="checkbox"/> 3 Traditional

Faculty member and study divisions information (to be filled in each semester by the subject instructor)

Name	Academic rank	Office No.	Phone No.	E-mail	
Dr.Ahmad Thunibat	Associate. Prof	-----	-----	a.thunibat@zuj.edu.jo	
Division number	Time	Place	Number of students	Teaching style	Approved model
1	9:30-10:30	344	50	blended	

Brief description

<p>This course provides an overview of the software engineering discipline, introducing the student to fundamental principles and methods of software engineering. The course highlights the need for an engineering approach to software products by presenting the software development processes.</p>
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Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	Introduction to Software Engineering, Second Edition. Ronald J. Leach. February 5, 2016 by Chapman and Hall/CRC. Textbook - 402 Pages - 98 B/W Illustrations. ISBN 9781498705271 - CAT# K24760			
Supportive learning resources (Books, databases, periodicals, software, applications, others)	1. Sommerville, Ian, "Software Engineering", 9th ed., Addison Wesley, 2013. 2. Vaclav Rajlich, "Software Engineering: The Current Practice", Chapman and Hall/CRC, 2011. 3. Frank Tsui, Orlando Karam, Barbara Bernal, "Essentials of Software Engineering", Jones & Bartlett Learning; 4 edition (December 19, 2016). 4. Pressman, Roger S., "Software Engineering: A Practitioner's Approach", McGraw-Hill Education; 8 edition (January 23, 2014).			
Supporting websites				
The physical environment for teaching	<input checked="" type="checkbox"/> Class room	<input type="checkbox"/> labs	<input type="checkbox"/> Virtual educational platform	<input type="checkbox"/> Others
Necessary equipment and software				

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Supporting people with special needs	
For technical support	

Course learning outcomes (S= Skills, C= Competences K= Knowledge.)

No.	Course learning outcomes	The associated program learning output code
Knowledge		
K1	A student will be able to understand and discuss the need, goals and tasks for software engineering	MK1, MK2
K2	A student will understand different views of software engineering activities	MK1, MK2
K3	A student will understand basic software engineering approaches for requirements, design, coding, testing, maintenance, and quality assurance.	MK1, MK2
Skills		
S1	A student will be able to elicit and documents problem requirements.	MS1, MS2
S2	A student will be able to create an architecture to solve a problem.	MS1, MS2
S3	A student will be able to follow a code of ethics.	MS1
S4	A student will be able to apply the object-oriented methodology in software	MS1
Competences		
C1	A student will plan and track of software development effort.	MC1

Mechanisms for direct evaluation of learning outcomes

Type of assessment / learning style	Fully electronic learning	Blended learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
Midterm exam	30%	30%	40%	30%
Participation / practical applications	0	0	10%	30%
Asynchronous interactive activities	30%	30%	0	0
Final exam	40%	40%	50%	40%

Note: Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

Schedule of simultaneous / face-to-face encounters and their topics

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Week	Subject	learning style*	Reference **
1	Introduction 1.1 Professional software development	Lecture	Pages (textbook) 5
2	1.2 Software engineering ethics	Lecture	Pages (textbook) 14
3	1.3 Case studies	Lecture	Pages (textbook) 17
4	Software process 2.1 Software process models	Lecture	Pages (textbook) 29
5	2.2 Process activities	Lecture	Pages (textbook) 36
6	2.3 Coping with change	Lecture	Pages (textbook) 43
7	2.4 The rational unified process	Lecture	Pages (textbook) 50
8	Agile software development 3.1 Agile methods	learning through projects	Pages (textbook) 58
9	3.2 Plan-driven and agile development	learning through projects	Pages (textbook) 62
10	3.3 Extreme programming	learning through projects	Pages (textbook) 64
11	3.4 Agile project management 3.5 Scaling agile methods	Lecture	Pages (textbook) 72
12	Review of previous chapters Midterm Exam (30 %)		
13	4Requirements engineering 82 4.1 Functional and non-functional requirements 84	Lecture	Pages (textbook) 82
14	4.2 The software requirements document 4.3 Requirements specification	learning through projects	Pages (textbook) 91
15	4.4 Requirements engineering processes 4.5 Requirements elicitation and analysis 4.6 Requirements validation 4.7 Requirements management	Lecture	Pages (textbook) 99
16	Final Exam		

* Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.

** Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.

Schedule of asynchronous interactive activities (in the case of e-learning and blended learning)

Week	Task / activity	Reference	Expected results
1	What is software engineering?	Chapter 1	200 words essay
2	Explain why professional software is not just the programs that developed for a	Chapter 1	400 words essay

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	customer.		
3	. For each of the clauses in the ACM/IEEE Code of Ethics shown in Figure 1.3, suggest an appropriate example that illustrates that clause.	Chapter 1	Examples
4	Software process models	Chapter 2	Comparisons
5	Describe the main activities in the software design process and the outputs of these activities. Using a diagram, show possible relationships between the outputs of these activities.	Chapter 2	Diagrams
6	Consider the reuse-based process model shown in Figure 2.3. Explain why it is essential to have two separate requirements engineering activities in the process.	Chapter 2	Explanation using student own words
7	Explain why the rapid delivery and deployment of new systems is often more important to businesses than the detailed functionality of these systems.	Chapter 3	Explanation using student own words
8	Explain how the principles underlying agile methods lead to the accelerated development and deployment of software.	Chapter 3	Explanation using student own words
9	Extreme programming expresses user requirements as stories, with each story written on a card. Discuss the advantages and disadvantages of this approach to requirements description.	Chapter 3	advantages and disadvantages of Extreme programming
10	Identify and briefly describe four types of requirement that defined for a computer-based system.	Chapter 4	Writing Four types of requirement for a computer based system.
11	Using your knowledge of how an ATM is used, develop a set of use cases that could serve as a basis for understanding the requirements for an ATM system.	Chapter 4	Use case diagram
12	Final project task 1	Chapters 1,2,3,4	Task 1
13	Final project task2	Chapters 1,2,3,4	Task 2
14	Final project task3	Chapters 1,2,3,4	Task 3
15	Project Presentation		Presentation
16			