

QF01/0408-4.0E	Course Plan for Master program - Study Plan Development and Updating Procedures/ Department
----------------	--

Study plan No.	2021-2022	University Specialization	Software Engineering
Course No.	0104752	Course name	Advanced Software Engineering
Credit Hours	3	Prerequisite Co-requisite	-
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 type="checkbox"/> Mandatory requirements <input checked="" type="checkbox"/> Elective requirements
Teaching style	<input type="checkbox"/> Full online learning	<input type="checkbox"/> Blended learning	<input checked="" type="checkbox"/> Traditional learning
Teaching model	<input type="checkbox"/> 2Synchronous: 1asynchronous	<input type="checkbox"/> 2 face to face : 1synchronous	<input checked="" 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	
Division number	Time	Place	Number of students	Teaching style	Approved model

Brief description

The purpose of this course is to study different agile methods and find out the best one for software development. Each important agile method offers own practices, release planning methodology, sprint planning. They differ in sizes and principles.
--

Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	Ajit Singh (2019). Agile & Scrum Methodologies, (1 <sup>st</sup> edition, 2019). Ajit Singh.				
Supportive learning resources (Books, databases, periodicals, software, applications, others)	1. James A. Crowder, Shelli Friess (2013). Systems Engineering Agile Design Methodologies. (1st edition, 2013), Springer-Verlag. 2. Bruce Powel Douglass (2021). Agile Model-Based Systems Engineering Cookbook: Improve system development by applying proven recipes for effective agile systems engineering. (1 <sup>st</sup> edition, 2021). Packt Publishing. 3. John M. Borky, Thomas H. Bradley (2019). Effective Model-Based Systems Engineering. (1st edition, 2019) Springer.				
Supporting websites					
The physical environment for teaching	<input checked="" type="checkbox"/> Class room	<input type="checkbox"/> labs	<input checked="" type="checkbox"/> Virtual educational platform	<input type="checkbox"/> Others	
Necessary equipment and software					

QF01/0408-4.0E	Course Plan for Master program - Study Plan Development and Updating Procedures/ Department
----------------	--

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
<b>Knowledge</b>		
<b>K1</b>	A student will be able to understand the agile software development environment.	<b>MK1</b>
<b>K2</b>	A student will understand agile methods, analyze and explained them.	<b>MK2</b>
<b>K3</b>	A student will be able to understand the scrum software development environment.	<b>MK2</b>
<b>Skills</b>		
<b>S1</b>	A student will be able to create an agile and scrum model for systems.	<b>MS1</b>
<b>S2</b>	A student will be able to choose the best agile and scrum model for their systems	<b>MS1</b>
<b>S3</b>	A student will be able execute and validate agile and scrum models	<b>MS2</b>
<b>Competences</b>		
<b>C1</b>	A student will have the ability to create, execute and validate Agile models.	<b>MC1</b>
<b>C2</b>	A student will have the ability to create, execute and validate scrum models.	<b>MC2</b>

### 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)
First exam	0	0	%20	0
Second / midterm exam	%30	%30	%20	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

Week	Subject	learning style*	Reference **
1	Introduction	Lecture	Pages (textbook) 6
2	Agile Model	Lecture	Pages (textbook)

QF01/0408-4.0E	Course Plan for Master program - Study Plan Development and Updating Procedures/ Department
----------------	--

			9
3	Agile Model vs other models	Lecture	Pages (textbook) 33
4	Agile Methodology	Lecture	Pages 45(textbook)
5	Agile best practices	Lecture	Pages 57(textbook)
6	Agile Implementation	Lecture	Pages 72(textbook)
7	Agile case study	Discussion	Pages 81(textbook)
8	Scrum Methodology	Lecture	Pages 90(textbook)
9	Scrum best practices	Lecture	Pages 103(textbook)
10	Scrum Implementation	Lecture	Pages 112(textbook)
11	Scrum case study	Discussion	Pages 123(textbook)
12	Review of previous chapters Midterm Exam (30 %)	Exam	
13	Testing in Agile	Lecture	Pages (textbook) 161
14	Testing in Scrum	learning through projects	Pages (textbook) 185
15	Revision	Discussion	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.