

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.	0114453	Course name	Software Testing
Credit Hours	3	Prerequisite Co-requisite	Systems Analysis and Design
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 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	
Mohammed Lafi	Assistant professor	302		lafi@zuj.edu.jo	
Division number	Time	Place	Number of students	Teaching style	Approved model
1				traditional	

Brief description

This course emphasis on software testing techniques to identify and resolve software problems and high-risk issues early in the software lifecycle. Applying software testing to all phases of the software development lifecycle that includes planning, reporting, testing, auditing, reviewing, inspection techniques, and related testing tools.

Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	1. Introduction to Software Testing, Paul Ammann , Jeff Offutt, Cambridge University Press; 2nd edition (December 13, 2016)			
Supportive learning resources (Books, databases, periodicals, software, applications, others)	1. Aditya P. Mathur, Foundations of Software Testing, 2/e , Publisher: Pearson Education India (September 4, 2013) 2. Markus Gärtner, Markus Gärtner , ATDD by Example: A Practical Guide to Acceptance Test-Driven Development (Addison-Wesley Signature Series (Beck)) 2012 3. Paul C. Jorgensen, Software Testing: A Craftsman's Approach, Fourth Edition, Published: October 18, 2013 by Auerbach Publications			
Supporting websites				
The physical environment for teaching	<input checked="" type="checkbox"/> Class room	<input checked="" type="checkbox"/> labs	<input type="checkbox"/> Virtual educational platform	<input type="checkbox"/> Others
Necessary equipment and software	Java NetBeans, JUnit			

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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	understand the role and importance of software quality assurance and software inspection and review in software testing	MK1
K2	understand the concepts and theories related to software testing.	MK1
K3	understand different testing techniques used in designing test plans, developing test suites, and evaluating test suite coverage	MK1
K4	understand the relationship between black-box and white-box testing and know how to apply as appropriate	MK1
Skills		
S1	select the best strategy for choosing test cases and create test cases depending on guideline based testing, partition testing, boundary testing	MS1
S2	perform peer reviews and inspections for defect prevention.	MS1
S3	design test cases depending on control flow and dataflow	MS1
S4	use JUnit to design automated testing	MS1
Competences		
C1	Work in groups to design tests in different domains	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 1: 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.

Note 2: According to the Regulations of granting Master's degree at Al-Zaytoonah University of Jordan, 40% of final evaluation goes for the final exam, and 60% for the semester work (examinations, reports, research or any scientific activity assigned to the student).

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

Week	Subject	learning style*	Reference **
1	Why Do We Test Software?	Lecture	1-17
2	Software Testing Foundations	Lecture	19-20
3	Software Testing Activities	Lecture	21-22
4	Model-Driven Test Design	Lecture	27-33
5	Coverage Criteria; Input Space Partition Testing	Lecture	75-102
6	More Input Space Partition Testing	Lecture	75-102
7	Graph Coverage	Lecture	106-145
8	More Graph Coverage	Lecture	146-173
9	Midterm exam		
10	Logic Testing	Lecture	177-207
11	Applying Logic Criteria	Lecture	208-231
12	Intro to Syntax Based Testing	Lecture	234-237
13	Mutation Testing in Practice;	Lecture	234-237
14	Test Automation: JUnit	Lecture	35-53
15	Test Automation: Junit practice	Lecture	35-53
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	Interactive content: interactive video One or more of the following interactive contents: fill in blanks, drag the words, Drag and drop, dialog cards, flashcards, multiple choice, fill in blanks, True/False questions	Week 1 lectures	Understand the importance of testing.
2	Interactive content: interactive video One or more of the following interactive contents: fill in blanks, drag the words, Drag and drop, dialog cards, flashcards, multiple choice, fill in blanks, True/False questions	Week 2 lectures	Knowledge of testing foundation
3	Interactive content: interactive video	Week 3 lectures	Understand testing activities
4	One or more of the following interactive contents: fill in blanks, drag the words, Drag and drop, dialog cards, flashcards, multiple choice, fill in blanks, True/False questions	Week 4 lectures	Understand model driven testing
5	Interactive content: interactive video	Week 5 lectures	Understand partition testing
6	One or more of the following interactive	Week 6 lectures	Practice partition testing

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	contents: fill in blanks, drag the words, Drag and drop, dialog cards, flashcards, multiple choice, fill in blanks, True/False questions		
7	Interactive content: interactive video	Week 7 lectures	Understand coverage criteria
8	Interactive content: interactive video One or more of the following interactive contents: fill in blanks, drag the words, Drag and drop, dialog cards, flashcards, multiple choice, fill in blanks, True/False questions	Week 8 lectures	Practice coverage criteria
9	Discussion forum	Weeks 1-8 lectures	Review midterm material
10	Interactive content: interactive video	Week 9 lectures	Understand logic testing
11	One or more of the following interactive contents: fill in blanks, drag the words, Drag and drop, dialog cards, flashcards, multiple choice, fill in blanks, True/False questions	Week 10 lectures	Practice logic testing
12	Interactive content: interactive video	Week 11 lectures	Understand syntax based testing
13	One or more of the following interactive contents: fill in blanks, drag the words, Drag and drop, dialog cards, flashcards, multiple choice, fill in blanks, True/False questions	Week 12 lectures	Practice mutation testing
14	Practicing Junit testing	Week 13 lectures	Practice and understand Junit framework
15	Practicing Junit testing	Week 14 lectures	Practice and understand Junit framework
16	Discussion forum	Weeks 1-15 lectures	Review final exam material