

" حيث تصبح الرؤية واقعاً"
"When Vision Becomes
Reality"

" عراقة وجودة"
Tradition and Quality

Detailed Course Description - Course Plan Development and Updating Procedures/ Department of Software Engineering	QF01/0408-3.0E
--	-----------------------

Faculty	Faculty of Science & Information Technology	Department	Software-Engineering
Course number	0114453	Course title	Software Testing
Number of credit hours	3	Pre-requisite/co-requisite	0114343

Brief course description

This emphasis course 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 process that includes planning, reporting, testing, auditing, reviewing, inspection techniques, and related testing tools.

Course goals and learning outcomes	
Goal 1	Understand testing strategies and techniques
Learning outcomes	1.1 The student will be able to understand the role and importance of software quality assurance in software testing 1.2 The student will be able to understand the role and importance of software inspection and review in software testing 1.3 The student will be able to understand the concepts and theory related to software testing. 1.4 The student will be able to understand different testing techniques used in designing test plans, developing test suites, and evaluating test suite coverage 1.5 Be able to perform peer reviews and inspections for defect prevention.
Goal 2	Understand different testing techniques used in designing test plans, developing test suites, and evaluating test suite coverage
Learning outcomes	2.1 The student will be able to understand the relationship between black-box and white-box testing and know how to apply as appropriate 2.2 The student will be able to select the best strategy for choosing test cases 2.3 The student will be able to create test cases depending on guideline based testing 2.4 The student will be able to create test cases depending on partition testing 2.5. The student will be able to create test cases depending on boundary testing
Goal 3	Learn to design test cases based on control flow and data flow
Learning outcomes	3.1 The student will be able to draw the control flow diagram for a program 3.2 The student will be able to design test cased depending on control flow 3.3 The student will be able to design test cased depending on data flow
Goal 4	Learn to use automated testing
Learning outcomes	4.1 The student will be able to use JUnit to design automated testing
Goal 5	
Textbook	1.- Aditya P. Mathur, Foundations of Software Testing, 2/e , Publisher: Pearson Education India (September 4, 2013)
Supplementary	1. Markus Gärtner, Markus G _ä rtner , ATDD by Example: A Practical Guide to

"حيث تصبح الرؤية واقعاً"
"When Vision Becomes
Reality"

"عراقة وجودة"
Tradition and Quality

Detailed Course Description - Course Plan Development and Updating Procedures/ Department of Software Engineering	QF01/0408-3.0E
--	-----------------------

references	<p>Acceptance Test-Driven Development (Addison-Wesley Signature Series (Beck)) 2012</p> <p>2. Paul C. Jorgensen, Software Testing: A Craftsman's Approach, Fourth Edition, Published: October 18, 2013 by Auerbach Publications</p> <p>3. Bernard Homès, Fundamentals of Software Testing, Wiley-ISTE, December 2011</p> <p>4. Glenford J. Myers, Corey Sandler, Tom Badgett, The Art of Software Testing, 3rd Edition, December 2011, Wiley</p>
-------------------	--

Course timeline				
Week	Number of hours	Course topics	Pages (textbook)	Notes
01	1 1 1	Basics of Software Testing 1.1 Humans, errors and testing 1.2 Software Quality 1.3 Requirements, behavior, and correctness	3-17	
02	1 1 1	1.4 Correctness versus reliability 1.5 Testing and debugging 1.10. Test generation strategies 1.13 Types of software testing	18-26 54-43	
03	1 1 1	Preliminaries: Mathematical 2.1 Predicates and Boolean expressions 2.2 Program representation: Control flow graphs	71-91	
04	1 1 1	Domain Partitioning 3.1. Introduction 3.2 The test selection problem 3.3 Equivalence partitioning	105-131	

" حيث تصبح الرؤية واقعاً "
"When Vision Becomes
Reality"

" عراقة وجودة "
Tradition and Quality

Detailed Course Description - Course Plan Development and Updating Procedures/ Department of Software Engineering	QF01/0408-3.0E
--	----------------

		3.4 Boundary value analysis		
05	1 1 1	Tests using predicate syntax 4.1: A fault model 4.2: Predicate constraints 4.3: Predicate testing criteria 4.4: BOR, BRO, and BRE adequate tests	176-200	
06	1 1 1	EXERCISES - Project discussion Review of previous chapters First Exam (20 %)		
07	1 1 1	Test Adequacy Measurement and Enhancement: Control and Data flow 7.1 Test adequacy: basics 7.1.3 Test enhancement 7.1.5 Error detection and test enhancement	350-360	
08	1 1 1	7.2.1 Statement and block coverage 7.2.2 Conditions and decisions 7.2.3 Decision coverage 7.2.4 Condition coverage	364-371	
09	1 1 1	7.3 Concepts from data flow 7.3.1 Definitions and uses 7.3.2 C-use and p-use 7.3.4 Data flow graph 7.3.5 Def-clear paths 7.3.6 def-use pairs 7.4 Adequacy criteria based on data flow 7.4.1, c-use coverage 7.4.2 p-use coverage	402-423	

" حيث تصبح الرؤية واقعاً "
"When Vision Becomes
Reality"

" عراقة وجودة "
Tradition and Quality

Detailed Course Description - Course Plan Development and Updating Procedures/ Department of Software Engineering	QF01/0408-3.0E
--	-----------------------

		7.4.3, all-uses coverage		
10	1 1 1	8 Test Adequacy Measurement and Enhancement Using Mutation	443-450	
11	1 1 1	Automated software testing JUnit testing tool, http://junit.sourceforge.net	601-609	
12	1 1 1	EXERSICES Review of previous chapters Second Exam (20 %)		
13	1 1 1	HttpUnit testing tool, http://httpunit.sourceforge.net DBUnit testing tool, http://dbunit.sourceforge.net	601-609	
14	1 1 1	Project discussion and Presentation.		
15	1 1 1	Project Discussion and Presentation.		
16	1 1 1	Final Exam 50%		

Theoretical course evaluation methods and weight	Participation = 10% First exam 20% Second exam 20% Final exam 50%	Practical (clinical) course evaluation methods	Semester students' work = 50% (Reports, research, quizzes, etc.) Final exam = 50%
---	--	---	---

Approved by head of department		Date of approval	
---------------------------------------	--	-------------------------	--

" حيث تصبح الرؤية واقعاً "
"When Vision Becomes
Reality"

" عراقة وجودة "
Tradition and Quality

Detailed Course Description - Course Plan Development and Updating Procedures/ Department of Software Engineering	QF01/0408-3.0E
--	-----------------------

Extra information (to be updated every semester by corresponding faculty member)

Name of teacher		Office Number	
Phone number (extension)		Email	_____@zug.edu.jo
Office hours			