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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	0114251	Course title	**Software Engineering Principles**
Number of credit hours	3	Pre-requisite/co-requisite	0120117

Brief course description

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.

	Course goals and learning outcomes
Goal 1	To develop an understanding of software engineering knowledge, skills, views, and professional issues necessary to practice software engineering.
Learning outcomes	1.1 A student will be able to understand and discuss the need, goals and tasks for software engineering 1.2 A student will understand basic software engineering approaches for requirements, design, coding, testing, maintenance, and quality assurance. 1.3 A student will understand different views of software engineering activities
Goal 2	To develop software following a disciplined development process.
Learning outcomes	2.1. A student will be able to elicit and documents problem requirements. 2.2. A student will be able to create an architecture to solve a problem. 2.3. A student will be able to follow a code of ethics. 2.4. A student will be able to apply the object-oriented methodology in software engineering
Goal 3	To work effectively on a software development team.
Learning outcomes	3.1 A student will plan and track a software development effort. 3.2. A student will be able to conduct a software inspection. 3.3 A student will able to apply project estimation and management activities.
Textbook	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
Supplementary references	1. 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).

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Course timeline				
Week	**Number of hours**	**Course topics**	**Pages (textbook)**	**Notes**
01	1 1 1	**Introduction** - The Need For Software Engineering - Are Software Teams Really Necessary? - Goals Of Software Engineering - Typical Software Engineering Tasks - Software Life Cycles	1 7 10 11 13	
02	1 1 1	- Different Views Of Software Engineering Activities - Software Engineering As An Engineering Discipline - Some Techniques of Software Engineering	29 30 35	
03	1 1 1	- Standards Commonly Used For Software Development Processes - Professional Software Development - Software Engineering Ethics	47 49 50	
04	1 1 1	**Project Management** - Sub-teams Needed In Software Engineering Projects - Nature of Project Teams - Project Management - Software Project Estimation **Project ideas discussed and assigned to the students**	57 61 63 65	
05	1 1 1	- Case Study in Project Management For Agile Processes	82	
06	1 1 1	**Project follow up** **Review of previous chapters** **First Exam (20 %)**		
07	1 1 1	- Project Scheduling - Project Measurement - Project Management Tools - Role Of Networks In Project Management - Groupware - Case Study In Project - Management For Agile Processes **Project Follow up**	74 77 78 79 81 82	
08	1 1 1	**Requirements** - Some Problems With Requirements Determination	89	

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		- Requirements Elicitation	92	
		- Use Cases In Requirements Engineering	105	
		- Software Design Patterns	159	
		- Introduction To Software Design Representations	163	
		Project Follow up		
09	1 1 1	**Coding** - Coding, Design, Requirements, And Change **Testing and Integration** - Types Of Software Testing - Quality Assurance - Software Reliability **Project Follow up**	227 269 301 302	
10	1 1 1	**Delivery, Installation, and Documentation** - Delivery - Installation - Documentation - How To Read Requirements, Designs, and Source Code **Project Follow up**	315 321 323 327	
11	1 1 1	**Maintenance and Software Evolution** - Introduction - Corrective Software Maintenance - Adaptive Software Maintenance	335 338 343	
12	1 1 1	**Project follow up** **Review of previous chapters** **Second Exam (20 %)**		
13	1 1 1	**Research Issues in Software Engineering** - Some Important Research Problems In Software Engineering	354	
14	1 1 1	**Course Revision** **Project follow up**		
15	1 1 1	**Project discussion**		
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%

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Approved by head of department		Date of approval	

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			