

COURSE DESCRIPTIONS

Faculty	Science and Information Technology				
Department	Software Engineering	NQF level	7		
Course Title	Software specifications and design	Code	503211	Prerequisite	
Credit Hours	3	Theory	3	Practical	0
Course Leader	Muheeddin Alqaralleh	email	m.qaralleh@jadara.edu.jo		
Lecturers	Muheeddin Alqaralleh	emails	m.qaralleh@jadara.edu.jo		
Lecture time	[10:00_11:30] Mon Sat	Classroom	MS Teams – D308		
Semester	2 nd 2022_2023	Production	2015	Updated	2020
Awards		Attendance	Fulltime		

Short Description

This course will provide invaluable information on how to write and structure requirements, whilst explaining the importance of Systems Engineering and the creation of effective solutions to problems.

Course Objectives

- Get the Basic knowledge of Software Requirements.
- Identify the Software Requirements for any systems.
- Apply analysis techniques such as needs analysis, goal analysis, and use case analysis
- Validate requirements according to criteria such as feasibility, clarity, freedom from ambiguity, etc.

Learning Outcomes

A. Knowledge - Theoretical Understanding

- a1. Define basic concepts and principles within requirements engineering. **(K1)**
- a2. Find several different methods and techniques for requirements engineering. **(K2)**

B. Knowledge - Practical Application

- a3. Compare between the relation between the requirements engineering process and other processes in the product lifecycle. **(K2)**

C. Skills - Generic Problem Solving and Analytical Skills

- b1. analysis techniques such as needs analysis, goal analysis, and use case analysis **(S1)**

D. Skills - Communication, ICT, and Numeracy

E. Competence: Autonomy, Responsibility, and Context

Teaching and Learning Methods

Lecture – online Distance learning

Assessment Methods

Quizzes, Midterm exam, Final exam, Assignment

Course Contents					
Week	Hours	CILOs	Topics	Teaching & Learning Methods	Assessment Methods
1.	3	a1 a2 a3	Basics of requirements engineering <ul style="list-style-type: none"> • definition of requirements engineering • importance of requirements engineering • place of requirements engineering in development process • types of requirements: functional requirements, non-functional requirements, quality attributes • o main requirements engineering activities, documents and processes 	Lecture –Distance learning	Assignment Quiz
2.	3	a1 a2 a3	Basics of requirements engineering (Continue)	Lecture –Distance learning	Assignment Quiz
3.	3	a1 a2 a3	Requirements inception and elicitation <ul style="list-style-type: none"> • product vision and project scope • traditional elicitation approaches (Interviews, stakeholders’ study, workshops, ...) • scenario/use case approaches • prototyping • o requirements negotiation and risk management 	Lecture –Distance learning	Assignment Quiz
4.	3	a1 a2 a3	Requirements inception and elicitation (Continue)	Lecture –Distance learning	Assignment Quiz
5.	3	a1 a2 a3	Requirements analysis and specification – modelling techniques <ul style="list-style-type: none"> • inception vs. specification • techniques for writing high-quality requirements • documentation standards (e.g., IEEE 830-1998) • goal-oriented modelling • Structured analysis and other techniques • UML v2 and URN notations • o external qualities management, contract specification 	Lecture – Distance learning	Assignment Quiz
6.	3	a1 a2 a3	Requirements analysis and specification – modelling techniques (Continue)	Lecture –Distance learning	Assignment Quiz
			Mid Exam		

7.	3	a1 a2 a3	Requirements verification, and validation <ul style="list-style-type: none"> • detection of conflicts and inconsistencies, completeness • techniques for inspection, verification and validation • o feature interaction analysis and resolution 	Lecture –Distance learning	Assignment Quiz
8.	3	a1 a2 a3	Requirements verification, and validation (Continue)	Lecture –Distance learning	Assignment Quiz
9.	3	a1 a2 a3	Requirements verification, and validation (Continue)	Lecture –Distance learning	Assignment Quiz
10.	3	a1 a2 a3	Requirements management <ul style="list-style-type: none"> • o traceability, priorities, changes, baselines • o tool support (e.g., DOORS) 	Lecture –Distance learning	Assignment Quiz
11.	3	a1 a2 a3	Requirements management (Continue)	Lecture –Distance learning	Assignment Quiz
12.	3	a1 a2 a3	Requirements management (Continue)	Lecture –Distance learning	Assignment Quiz
13.	3	a1 a2 a3	Examples of requirements approaches in typical development processes	Lecture –Distance learning	Assignment Quiz
14.		a1 a2 a3	Examples of requirements approaches in typical development processes	Lecture –Distance learning	Assignment Quiz
15.			Final Exam		

Infrastructure	
Textbook	1 -.Requirements Engineering Fundamentals: A Study Guide for the Certified Professional for Requirements Engineering...30 Apr 2015, by Klaus Pohl and Chris Rupp
References	1.- Requirements Engineering, by Jeremy Dick, Elizabeth Hull, Ken Jackson. 2017. Springer. 2.- Requirements Engineering: From System Goals to UML Models to Software Specifications, Axel van Lamsweerde, Wiley; 1 edition 2010. 3.- Visual Models for Software Requirements (Developer Best Practices), Anthony Chen, Joy Beatty. Microsoft Press; 1 edition (July 25, 2012).
Required reading	
Electronic materials	Elearning server Jadara University

Other	
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Course Assessment Plan										
Assessment Method		Grade	CLOs							
			a1	a2	a3	b1				
First (Midterm)		30	5	8	5	12				
Second (if applicable)										
Final Exam		40	6	12	10	12				
Coursework										
Course work assessment methods	Assignments	5	3	1	1					
	Case study	5	3	2						
	Discussion and interaction	5	2	1	2					
	Group work activities									
	Lab tests and assignments	5	2	2	1					
	Presentations									
	Quizzes	10	5	3	2					
Total		30	15	9	6					

Plagiarism	
<p>Plagiarism is claiming that someone else's work is your own. The department has a strict policy regarding plagiarism and, if plagiarism is indeed discovered, this policy will be applied. Note that punishments apply also to anyone assisting another to commit plagiarism (for example by knowingly allowing someone to copy your code).</p> <p>Plagiarism is different from group work in which a number of individuals share ideas on how to carry out the coursework. You are strongly encouraged to work in small groups, and you will certainly not be penalized for doing so. This means that you may work together on the program. What is important is that you have a full understanding of all aspects of the completed program. In order to allow proper assessment that this is indeed the case, you must adhere strictly to the course work requirements as outlined above and detailed in the coursework problem description. These requirements are in place to encourage individual understanding, facilitate individual assessment, and deter plagiarism.</p>	