" حيث تصبح الرؤية واقعاً"
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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	Science and IT	Department	Software Engineering
Course number	0114354	Course title	Software Architecture
Number of credit hours	3	Pre-requisite/co-requisite	0114252

Brief course description

This course will introduce the software design in general. Then it will discuss in depth the software Architecture Design. The course will include: Architecture Design Process, Design Patterns, and Design Documenting.

	Course goals and learning outcomes
Goal 1	Understanding what architecture design involves, and where it fits in the full software development life cycle.
Learning outcomes	1.1 Ability to explain the general software design architectures. 1.2 Ability to describe different Architecture activities.
Goal 2	Mastering core design concepts, principles, and processes.
Learning outcomes	2.1 Ability to describe different Architecture Patterns. 2.2 Define the different Architecture processes and their usage.
Goal 3	Utilizing proven, reusable design primitives and adapting them to specific problems and contexts.
Learning outcomes	3.1 Connect the analysis process with detailed design. 3.2 Choose the best software design architecture to any software system.
Goal 4	Solving design problems in new domains, such as cloud, mobile, or big data.
Learning outcomes	4.1 Understand the effect of new technologies in software Architecture. 4.2 Reuse an existing architecture design to build a new software architecture using new techniques.
Textbook	Humberto Cervantes, Rick Kazman, *Designing Software Architectures: A Practical Approach*, 1st edition, Addison-Wesley Professional, 2016
Supplementary references	1. Hassan Gomaa, *Software Modeling and Design: UML, Use Cases, Patterns, and Software Architectures,* 1st edition, Cambridge University Press, 2011. 2. Paul Clements, Felix Bachmann: Documenting Software Architectures: Views and Beyond, 1st edition, Addison Wesley, 2003. 3. Len Bass, Paul Clements, and Rick Kazman: Software Architecture in Practice, 2nd Edition, And Publisher: Addison Wesley Professional, 2003. 4. Ian sommerville: Software engineering, 8th edition, Pearson Education Limited, Addison -Wesley Publishers Limited, 2007. 5. David Budgen, Software Design, 2nd edition, Addison-Wesley, 2003.

Science & IT	جامعة الزيتونة الأردنية	
Faculty of Science & IT	**Al-Zaytoonah University of Jordan**	
	كلية العلوم وتكنولوجيا المعلومات	
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Course timeline				
Week	**Number of hours**	**Course topics**	**Pages (textbook)**	**Notes**
01	1 1 1	**Introduction** o Software Architecture o The Importance of Software Architecture o Life-Cycle Activities o The Role of the Architect o A Brief History of ADD	3-8	
02	1 1 1	**Design in Software Architecture** o Architectural Design o Element Interaction Design o Element Internals Design o Why Is Architectural Design So Important? o Architectural Drivers o Design Purpose o Quality Attributes o Primary Functionality o Architectural Concerns o Constraints	13-20	
03	1 1 1	**Design Concepts: The Building Blocks for Creating Structures** o Reference Architectures o Architectural Design Patterns	20-29	
04	1 1 1	o Client Server Pattern o SOA Pattern o Component Pattern	29- 40	
05	1 1 1	o Deployment Patterns o Architecture Design Decisions	29- 40	
06	1 1 1	**EXERSICES** **Review of previous chapters** **First Exam (20 %)**		
07	1 1 1	**The Architecture Design Process** o The Need for a Principled Method o Attribute-Driven Design steps	43-50	

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08	1 1 1	o (Continue)Attribute-Driven Design steps	50-76	
09	1 1 1	**Case Study**		
10	1 1 1	**Other Design Methods** o Architecture-Centric Design Method. o Architecture Activities in the Rational Unified Process. o The Process of Software Architecting.	161-165	
11	1 1 1	o A Technique for Architecture and Design. o Viewpoints and Perspectives Method.	165-175	
12	1 1 1	**EXERSICES** **Review of previous chapters** **Second Exam (20 %)**		
13	1 1 1	**Analysis in the Design Process** o Analysis and Design o Why Analyze? o Analysis Techniques o Tactics-Based Analysis o Reflective Questions o Scenario-Based Design Reviews o Architecture Description Languages	175-190	
14	1 1 1	**The Architecture Design Process in the Organization** o Architecture Design and the Development Life Cycle o Organizational Aspects	191-203	
15	1 1 1	**Case Study**	145-159	
16	1 1 1	**Final Exam 50%**		

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

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	Final exam 50%		quizzes, etc.) Final exam = 50%

Approved by head of department		Date of approval	

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

Name of teacher	Dr. Mohammad Abdallah	Office Number	**9115**
Phone number (extension)	329	Email	m.abdallah@zuj.edu.jo
Office hours			