Science &
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Faculty of Science & IT

جامعــة الزيتونــة الأردنيــة
Al-Zaytoonah University of Jordan
كلية العلوم وتكنولوجيا المعلومات
Faculty of Science and IT

سرات- وجودة
"Tradition and Quality"

QF01/0408-4.0E	**Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Department**

Study plan No.	**2021/2022**		**University Specialization**		**Software Engineering**	
Course No.	**0114354**		**Course name**		**Software Architecture**	
Credit Hours	**3**		**Prerequisite Co-requisite**		**Software Specifications and Design**	
Course type	☐ MANDATORY UNIVERSITY REQUIREMENT	☐ UNIVERSITY ELECTIVE REQUIREMENTS	☐ FACULTY MANDATORY REQUIREMENT	☐ Support course family requirements	☒ Mandatory requirements	☐ Elective requirements
Teaching style	☐ Full online learning		☒ Blended learning		☐ Traditional learning	
Teaching model	☐ 2Synchronous: 1asynchronous		☒ 2 face to face : 1synchronous		☐ 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	
Division number	**Time**	**Place**	**Number of students**	**Teaching style**	**Approved model**

Brief description

This course defines the software architecture discussing the Architecture components in terms of identifications, coupling, cohesion, partitioning and granularity. In this course different software architecture are defined and discussed such as: layered Architecture, pipeline architecture …etc. Where each one of them is defined in terms of topology, terms used, and its best practices.

Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	Fundamentals of Software Architecture: An Engineering Approach. By: Mark Richards and Neal Ford. O'Reilly Media; 1st edition (February 18, 2020)
Supportive learning resources (Books, databases, periodicals, software, applications, others)	1. Pethuru Raj, Anupama Raman, Harihara Subramanian, Architecture Patterns: Uncover essential patterns in the most indispensable realm of enterprise architecture, 1st edition, Packt Publishing, 2017 2. The Software Architect Elevator: Redefining the Architect's Role in the Digital Enterprise 1st Edition. By Gregor Hohpe. 2020. 3. Solutions Architect's Handbook: Kick-start your solutions architect career by learning architecture design principles and strategies. By: Saurabh Shrivastava and Neelanjali Srivastav. 2020.
Supporting websites	https://www.tutorialspoint.com/software_architecture_design/index.htm

The physical environment for teaching	☒ Class room	☐ labs	☒ Virtual educational platform	☐ Others
Necessary equipment and software	-			
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	Understanding what architecture design involves, and where it fits in the full software development life cycle.	BK2
K2	Mastering core design concepts, principles, and processes.	BK3
Skills		
S1	Ability to explain the general software design architectures.	BS2
S2	Ability to describe different Architecture activities.	BS2
S3	A student will be able to connect the analysis process with detailed design.	BS3
Competences		
C1	Understand the effect of new technologies in software Architecture.	BC2
C2	Reuse an existing architecture design to build a new software architecture using new techniques.	BC3

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: 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.

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

Week	Subject	learning style*	Reference **
1	Design Overview	**Lecture**	**Chapter 1**
2	Software Architecture Foundation	**Lecture**	**Chapter 1**
3	Modularity	**Lecture**	**Chapter 1**
4	Architecture Characteristics Defined	**Lecture**	**Chapter 1**

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5	Component Thinking	**Problem Solving**	**Chapter 1**
6	Architecture Styles Foundations	**Lecture**	**Chapter 2**
7	Layered Architecture Style	**Problem Solving**	**Chapter 3**
8	Pipeline Architecture Style	**Lecture**	**Chapter 4**
9	Microkernel Architecture Style	**Problem Solving**	**Chapter 5**
10	Service-Based Architecture Style	**Lecture**	**Chapter 6**
11	Event-Driven Architecture Style	**Problem Solving**	**Chapter 7**
12	Space-Based Architecture Style	**Lecture**	**Chapter 8**
13	Orchestration-Driven Service-Oriented Architecture	**Lecture**	**Chapter 9**
14	Microservices Architecture	**Lecture**	**Chapter 10**
15	Choosing the Appropriate Architecture Style	**Problem Solving**	**Chapter 11**
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	Chapter One Questions	Text Book	Chapter Questions Solution
2	Chapter One Questions	Text Book	Chapter Questions Solution
3	Chapter One Questions	Text Book	Chapter Questions Solution
4	Chapter One Questions	Text Book	Chapter Questions Solution
5	Chapter One Questions	Text Book	Chapter Questions Solution
6	Chapter two Questions	Text Book	Chapter Questions Solution
7	Chapter three Questions	Text Book	Chapter Questions Solution
8	Chapter four Questions	Text Book	Chapter Questions Solution
9	Chapter five Questions	Text Book	Chapter Questions Solution
10	Chapter six Questions	Text Book	Chapter Questions Solution
11	Chapter seven Questions	Text Book	Chapter Questions Solution
12	Chapter eight Questions	Text Book	Chapter Questions Solution
13	Chapter Nine Questions	Text Book	Chapter Questions Solution
14	Chapter Ten Questions	Text Book	Chapter Questions Solution
15	Chapter Eleven Questions	Text Book	Chapter Questions Solution
16	Revision	Text Book	Revision