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

Faculty	Faculty Of Science & IT	Department	Software Engineering
Course number	0114343	Course title	**System Analysis and Design**
Number of credit hours	3	Pre-requisite/co-requisite	0114354

This course discusses in detail, most of the existing analysis and design models, with an emphasis on Unified Modeling Language (UML) models and diagrams. It also gives several pertinent examples and working exercises associated with the subject. As the course progresses, it will also focus on analysis and design heuristics and guidelines. Well over fifty concepts and ten models are introduced to the participants and discussed in a length, to help students quickly and easily grasp the topics covered in the seminar, by allowing them to actively participate in understanding many guided design examples. Each model discussed is carefully chosen to help cover a broad range of application areas. UML is now currently being used successfully in many different and diverse systems, and has become a part of the mainstream software development protocol. This course should equip teams with the tools needed to coordinate and manage the development of complex software systems.

	Course goals and learning outcomes
Goal 1	Analyzing and Designing Problems Using Object-Oriented Analysis and Design Techniques
Learning outcomes	1.1 To teach the students a solid foundation on object-oriented principles 1.2 To teach the student the essential and fundamental aspects of objectoriented analysis and design, in terms of “how to use” it for the purpose of specifying and developing software. 1.3 Explore and analyze different analysis and design models, such OO Models, Structured Analysis and Design Models, etc. 1.4 Understanding the insight and knowledge into analyzing and designing software using different object-oriented modeling techniques.
Goal 2	Analyzing and Designing Problems Using UML
Learning outcomes	2.1 To know the benefits and the risks of using UML 2.2 Understanding the fundamental principles through advanced concepts of analysis and design using UML 2.3 Providing clear instructions and information on the "How-to" dimension for applying the UML models and to the ways to document their products
Goal 3	Understanding from Experience with UML
Learning outcomes	3.1 Discussing and understanding analysis and design heuristics that are involved in the course. 3.2. Students will learn and understand how to map one style of diagrammatic notations into another.

	3.3. Understanding by studying and developing examples of existing UML models 3.4. Focusing on lessons learned of using UML and its applications
Textbook	John W. Satzinger, Robert B. Jackson, and Stephen D. Burd. 2012. **Systems Analysis and Design in a Changing World** *(*6th edition). Course Technology Press, Boston, MA, United States
Supplementary references	1.John W. Satzinger, Robert B. Jackson, and Stephen D. Burd. 2012. Systems Analysis and Design in a Changing World (6th edition). Course Technology Press, Boston, MA, United States 2.Object Oriented Analysis and Design with UML by Daminni Grover (Jan 28, 2012) 3.Grady Booch, James Rumbaugh, Ivar Jacobson: "The Unified Modeling Language User Guide, V.2.0", Addison Wesley, 2005 The Object-Oriented Thought Process (4th Edition) (Developer's Library) by Matt Weisfeld (Mar 23, 2013) 4.Object-Oriented Systems Analysis And Design Using Uml By Simon Bennett and Ray Farmer (Apr 1, 2010)

Course timeline				
Week	**Number of hours**	**Course topics**	**Pages (textbook)**	**Notes**
01	**3**	Overview of system analysis and design	1-34 35-66	
02	**3**	Investigating System Requirements.	67-90	
03	**3**	Use cases.	91-118	
04	**3**	Domain classes.	119-150	
05	**3**	Extending the requirements models.	153-185	
06	**3**	Essentials of design and the design discipline.		
07	**3**	EXERSICES - Project discussion Review of previous chapters First Exam (20 %)		Mastering UML with Rational Rose 2002
08	**3**	Use cases and actors; object interaction; classes and packages; attributes and operations; relationships; object behavior	187-222	
09	**3**	Designing user and systems interfaces.	225-288	
10	**3**	Approaches to system development.	253-289	
11	**3**	Component view; Deployment view Code generation and reverse engineering		Mastering UML with Rational Rose 2002

12	**3**	**EXERSICES** **Review of previous chapters** **Second Exam (20 %)**		
13	**3**	Object-oriented design use case realizations.	327-369	
14	**3**	Databases, controls and security.	371-408	
15	**3**	Making the system operational.	409-441	
16	**3**	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**	

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			