



University/Academy: Arab Academy for Science and Technology & Maritime Transport

Faculty/Institute: College of Computing and Information Technology

Program: Software Engineering / Computer Science / Information Systems

**Form No. (12)
Course Specification**

1- Course Data

Course Code: SE392	Course Title: Software Requirements and Specifications	Academic Year/Level: Year 3 / Semester 5
Specialization: Software Engineering	No. of Instructional Units: 2 hrs lecture 2 hrs section	Lecture:

2- Course Aim	This course covers the Design and conduct interviews, questionnaires, observations and documents investigation, develop a software requirement document, understand the concepts of user requirements and system requirements, understand the differences between functional and non-functional requirements, develop a UML class diagram., develop a UML use case diagram, develop a UML sequence diagram, understand the requirements engineering processes and requirements validation, and manage requirement changes.
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3- Intended Learning Outcome:

a- Knowledge and Understanding	Students will be able to demonstrate knowledge of: K12. Understanding essential facts, concepts, principles and theories relevant to software engineering. K15. Demonstrate strong knowledge of software systems analysis & design, data and Information Management, software project management, and software development models. K19. Perform specification, analysis, design, implementation and testing of software solutions. K21. Types and alternatives of software systems architectures, and their differences in terms of performance, cost consequences, and their implications for the software quality attributes needed.
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b- Intellectual Skills	By the end of the course, the student acquires high skills and an ability to understand: I11. Perform comparisons between (methods, techniques, strategies ...etc). I12. Identify attributes, components, relationships, patterns, main ideas, and errors.
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	<p>I18. Perform problem analysis from written descriptions; derive requirements specifications from an understanding of problems (analysis, synthesis).</p> <p>I19. Create and/or justify designs to satisfy given requirements (synthesis, evaluation, application);</p>																						
c- Professional Skills	<p><u>By the end of the course the student will have the ability to:</u></p> <p>P10. Use quantitative analysis techniques appropriately and effectively</p> <p>P13. Communicate effectively by oral, written and visual means, produce acceptable reports and technical and user system documentation.</p> <p>P20. Deploy effectively the tools used for the construction and documentation of software, with particular emphasis on understanding the whole process involved in using computers to solve practical problems.</p> <p>P21. Prepare technical reports, and a dissertation, to a professional standard.</p>																						
d- General Skills	<p>Students will be able to:</p> <p>G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.</p> <p>G7. Show the use of general computing facilities.</p>																						
4- Course Content	<table border="1"> <thead> <tr> <th>#</th> <th>CLO</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Revise software development cycle</td> </tr> <tr> <td>2</td> <td>Analyzing the problem</td> </tr> <tr> <td>3</td> <td>Understanding user and stakeholder needs</td> </tr> <tr> <td>4</td> <td>Defining the system</td> </tr> <tr> <td>5</td> <td>Constructing structural modal (Class diagram)</td> </tr> <tr> <td>6</td> <td>Constructing dynamic model (Use-cases and sequence diagram)</td> </tr> <tr> <td>7</td> <td>Requirement validation and checking</td> </tr> <tr> <td>8</td> <td>From Use Cases to implementation</td> </tr> <tr> <td>9</td> <td>Tracing requirements</td> </tr> <tr> <td>10</td> <td>Agile requirements methods</td> </tr> </tbody> </table>	#	CLO	1	Revise software development cycle	2	Analyzing the problem	3	Understanding user and stakeholder needs	4	Defining the system	5	Constructing structural modal (Class diagram)	6	Constructing dynamic model (Use-cases and sequence diagram)	7	Requirement validation and checking	8	From Use Cases to implementation	9	Tracing requirements	10	Agile requirements methods
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5- Teaching and Learning Methods	Lectures, Labs, Projects, Individual study																						
6- Teaching and Learning Methods for Students with Special Needs	<ul style="list-style-type: none"> • Students with special needs are requested to contact the college representative for special needs (currently Dr Hoda Mamdouh in room C504) • Consulting with lecturer during office hours. • Consulting with teaching assistant during office hours. • Private Sessions for redelivering the lecture contents. <p>For handicapped accessibility, please refer to program specification.</p>																						
7- Student Assessment:																							
a- Procedures used:	Exams and Team Projects																						

b- Schedule:	Week 7 exam 1 Project through the semester Week 16 Final exam
c- Weighing of Assessment:	7 th week exam 30% Project 20% Lab work 10% Final exam 40%
8- List of References:	
a- Course Notes	From the Moodle on www.aast.edu
b- Required Books (Textbooks)	Dean Leffingwell and Don widrig, <i>Managing Software Requirements: A use case Approach</i> , 2 nd Edition, Addison–Wesley, 2003.
c- Recommended Books	James C. Robertson and Suzanne Robertson, <i>Mastering the Requirements Process</i> , 2 nd Edition, Addison–Wesley professional, 2006.
d- Periodicals, Web Sites, ..., etc.	

Course Instructor:

Head of Department:

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