



# Course Specifications

<b>Course Title:</b>	<b>Software Engineering2</b>
<b>Course Code:</b>	<b>CSI 422</b>
<b>Program:</b>	<b>Computer Science and Information</b>
<b>Department:</b>	<b>Computer Science and Information</b>
<b>College:</b>	<b>College of Science at Az Zulfi</b>
<b>Institution:</b>	<b>Al- Majmaah University</b>

## Table of Contents

<b>A. Course Identification</b> .....	<b>3</b>
6. Mode of Instruction (mark all that apply) .....	3
<b>B. Course Objectives and Learning Outcomes</b> .....	<b>4</b>
1. Course Description .....	4
2. Course Main Objective.....	4
3. Course Learning Outcomes .....	4
<b>C. Course Content</b> .....	<b>4</b>
<b>D. Teaching and Assessment</b> .....	<b>5</b>
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods .....	5
2. Assessment Tasks for Students .....	6
<b>E. Student Academic Counseling and Support</b> .....	<b>6</b>
<b>F. Learning Resources and Facilities</b> .....	<b>6</b>
1. Learning Resources .....	6
2. Facilities Required.....	7
<b>G. Course Quality Evaluation</b> .....	<b>7</b>
<b>H. Specification Approval Data</b> .....	<b>7</b>

## A. Course Identification

<b>1. Credit hours:</b>	2
<b>2. Course type</b>	
a.	University <input checked="" type="checkbox"/> College <input type="checkbox"/> Department <input type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b>	6 <sup>th</sup> Level – 3 <sup>rd</sup> year
<b>4. Pre-requisites for this course (if any):</b>	CSI 325: Software Engineering1
<b>5. Co-requisites for this course (if any):</b>	NIL

### 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	✓	80
2	Blended	✓	5
3	E-learning	✓	5
4	Correspondence	✓	5
5	Other	✓	5

### 7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
<b>Contact Hours</b>		
1	Lecture	30
2	Laboratory/Studio	30
3	Tutorial	--
4	Others (specify)	--
	<b>Total</b>	60
<b>Other Learning Hours*</b>		
1	Study	45
2	Assignments	10
3	Library	05
4	Projects/Research Essays/Theses	15
5	Others (specify)	00
	<b>Total</b>	(60+75 = 135)

\* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

## B. Course Objectives and Learning Outcomes

### 1. Course Description

Object-oriented software processes, requirements engineering, system models, Unified Modeling Language (UML) concepts (class diagram, object diagram, use case diagram, collaboration diagram, sequence diagram, component diagram, and deployment diagram), rapid application development and CASE tools for object-oriented systems, object-oriented system testing, operation, maintenance and management.

### 2. Course Main Objective

This course introduces students a complex view of object-oriented software development process, aiming in the ability to solve real problems in the given domain. The students will learn and apply a unified methodology to the analysis, design, implementation, testing and demonstration of a software system of a significant size and complexity.

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge:</b>	
1.1	Understand best practices and standards and their application.	k3
2	<b>Skills :</b>	
2.1	Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.	s4
2.2	Integrate IT-based solutions into the user environment effectively.	s5
3	<b>Competence:</b>	
3.1	Function effectively on teams to accomplish a common goal.	c4

## C. Course Content

No	List of Topics	Contact Hours
1	<b>Introduction to Object-Oriented Software Engineering:</b> Object-Oriented Software Engineering principles – Professional software development - Software engineering ethics – Case Studies.	3
2	<b>Object-oriented Software Processes:</b> Agile process models, process activities, the Rational Unified Process (RUP), Computer-Aided Software Engineering, and object-oriented task management using suitable CASE tools.	6
3	<b>System Models &amp; Requirements Using UML:</b> Context models, behavioral models, data models, object models, CASE workbenches, UML modeling, and using UML diagrams to specify the requirements of a moderately sized software product.	6
4	<b>Object Oriented Concepts:</b> Unified Modeling Language (UML): Class diagram, object diagram, use case diagram, collaboration diagram, sequence diagram, component diagram, and deployment diagram, and writing a software requirements specification document for object-oriented systems using appropriate CASE tools (e. g.: power designer)	9

5	<b>Rapid application development:</b> Rapid application development and CASE tools for object-oriented systems, writing SDS (Software Design Specification) document for Object-oriented systems using CASE tools (e. g. power designer).	9
6	<b>System Testing and Maintenance:</b> Object-oriented systems testing, operation and maintenance, using CASE tools in the auto-generation of object-oriented code, and object oriented development using reuse approaches.	6
7	<b>Project Management:</b> Software project management, project scheduling, project staffing, software configuration management, quality assurance, and project monitoring.	6
<b>Total</b>		45

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Understand best practices and standards and their application.	Lectures Lab demonstrations Case studies Individual presentations	Written Exam Homework assignments Class & lab Activities Quizzes
<b>2.0</b>	<b>Skills</b>		
2.1	Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.	Group discussions, Brainstorming Presentations	HomeWorks and assignments
2.2	Integrate IT-based solutions into the user environment effectively.		
<b>3.0</b>	<b>Competence</b>		
3.1	Function effectively on teams to accomplish a common goal.	Group discussions Case Studies Brainstorming Presentations	Written Exam Homework assignments Class & lab Activities Quizzes

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First written mid-term exam	6	20%
2	Second written mid-term exam	12	20%
3	Class activities, group discussions, Presentation	Every week	10%
4	Homework + Assignments	After every chapter	10%
5	Final written exam	16	40%

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :  
**Office hours: Sun: 10 - 12, Tue : 8 – 10.**  
**Email: k.sattar@mu.edu.sa**

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	<b>Ian Sommerville, Software Engineering, 10<sup>th</sup> Ed, Addison-Wesley, 2011. ISBN-10: 0133943038 , ISBN-13: 978-0133943030</b>
<b>Essential References Materials</b>	1. Roger Pressman, Software Engineering: A Practitioner's Approach 8 <sup>th</sup> Ed, McGraw-Hill Education, 2014. ISBN-10: 9780078022128, ISBN-13: 978-0078022128 2. Stephen R. Schach, Object-Oriented and Classical Software Engineering, 8th Edition, 2010. ISBN-10: 0073376183, ISBN-13: 978-0073376189
<b>Electronic Materials</b>	1. <a href="http://highered.mheducation.com/sites/0077097610/student_view0/powerpoint_slides.html">http://highered.mheducation.com/sites/0077097610/student_view0/powerpoint_slides.html</a> 2. <a href="http://highered.mheducation.com/sites/0072853182/student_view0/index.html">http://highered.mheducation.com/sites/0072853182/student_view0/index.html</a> 3. <a href="http://www.csis.pace.edu/~scharff/cs389/ref/cs389indexref.html">http://www.csis.pace.edu/~scharff/cs389/ref/cs389indexref.html</a> 4. <a href="https://www.smartdraw.com/uml-diagram/#UMLTutorial">https://www.smartdraw.com/uml-diagram/#UMLTutorial</a>
<b>Other Learning Materials</b>	<b>Course material includes handouts, ppt, questionnaires as distributed among the students</b>

## 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	1. Classrooms with required digital aids and to support traditional method of teaching using blackboard. 2. Classrooms with proper lighting and air conditioning system integrated with the sound System /audio system. 3. Classroom with smart board interface, display screen and a computer to aid the sessions
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Smart Board with supporting software / computers with updated versions of software as required to understand the subject concepts with quality headphones.
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	NIL

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students Classroom Observation Committee Professional Development Unit External Reviewers – accreditation committee	Formal Classroom Observation - Direct Student Surveys - Indirect
Effectiveness of Assessment	Curriculum and Test Development Unit Curriculum Committee Assessment Committee External Reviewers	Faculty Feedback - indirect Student Feedback – indirect Course Reports
Extent of Achievement of Course Learning Outcomes	Quality Assurance Unit Curriculum and Test Development Unit	Course Reports Annual Program Review

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

<b>Council / Committee</b>	
<b>Reference No.</b>	
<b>Date</b>	