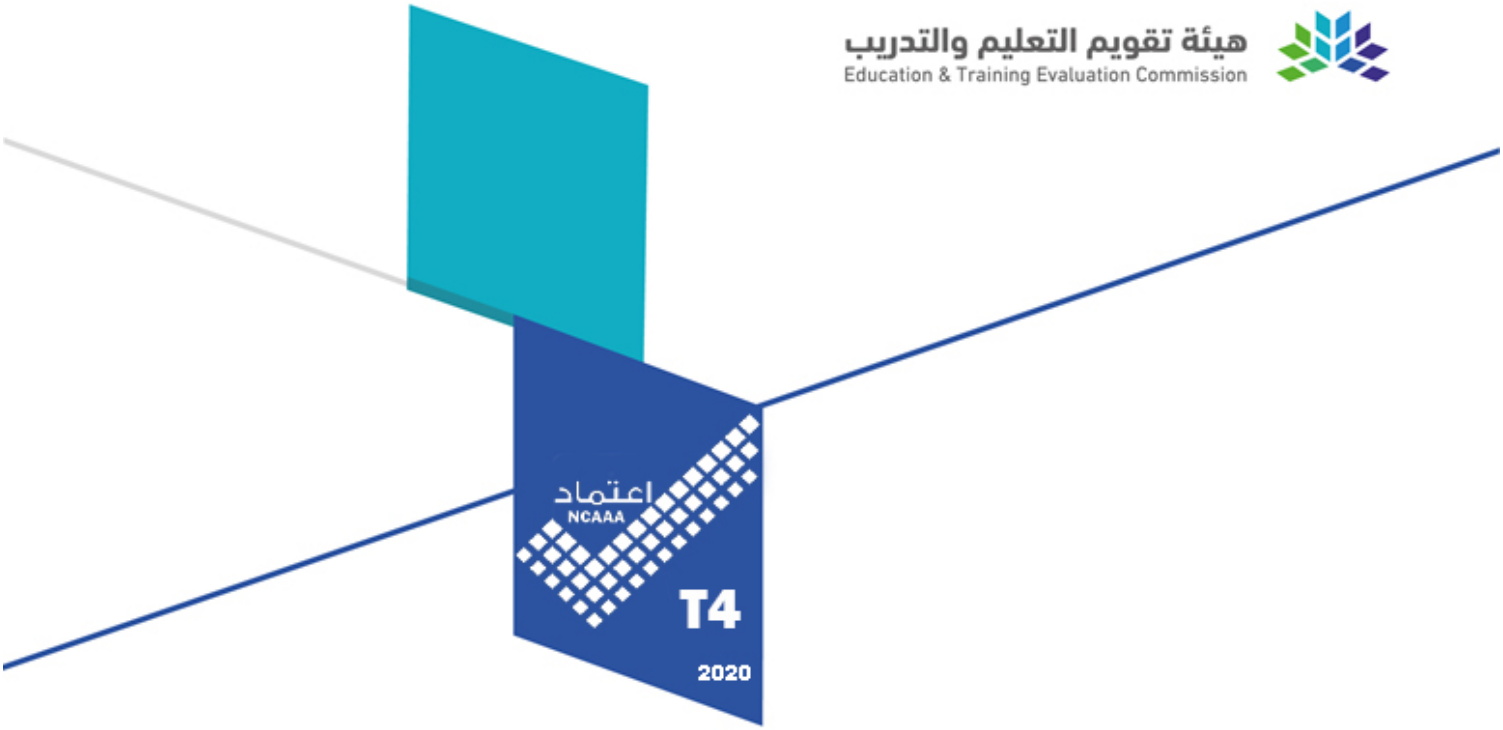
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

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

Table of Contents

A. Course Identification

1. Credit hours: (3) (2 Lec + 2 lab)
2. Course type **a.** University ☐ College ☐ Department ■ Others ☐ **b.** Required ■ Elective ☐
3. Level/year at which this course is offered: 6th Level – 3rd year
4. Pre-requisites for this course (if any)**:** **CSI 325: Software Engineering1**
5. Co-requisites for this course (if any)**:** NIL

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	✕	0
2	**Blended**	✕	0
3	**E-learning**	✔	100
4	**Distance learning**	✕	0
5	**Other**	✕	0

7. Contact Hours (based on academic semester)

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

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	**Knowledge and Understanding**	
1.1	Understand best practices and standards and their application.	k3
2	**Skills :**	
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	**Values:**	
3.1	Function effectively on teams to accomplish a common goal.	c4

C. Course Content

No	List of Topics	Contact Hours
1	**Introduction to Object-Oriented Software Engineering:** Object-Oriented Software Engineering principles – Professional software development - Software engineering ethics – Case Studies.	3
2	**Object-oriented Software Processes:** 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	**System Models & Requirements Using UML:** 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	**Object Oriented Concepts:** 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	**Rapid application development:** Rapid application development and CASE tools for object- oriented	9

	systems, writing SDS (Software Design Specification) document for Object -oriented systems using CASE tools (e. g. power designer).	
6	**System Testing and Maintenance:** 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	**Project Management:** Software project management, project scheduling, project staffing, software configuration management, quality assurance, and project monitoring.	6
Total		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
1.0	**Knowledge and Understanding**		
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
2.0	**Skills**		
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.		
3.0	**Values**		
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 online 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	14	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: Mon : 10 – 12.
Email: k.sattar@mu.edu.sa

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Ian Sommerville, Software Engineering, 10th Ed, Addison-Wesley, 2011. ISBN-10: 0133943038 , ISBN-13: 978-0133943030
Essential References Materials	1.Roger Pressman, Software Engineering: A Practitioner's Approach 8th 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
Electronic Materials	1.http://highered.mheducation.com/sites/0077097610/student_view0/powerpoint_slides.html 2.http://highered.mheducation.com/sites/0072853182/student_view0/index.html 3.http://www.csis.pace.edu/~scharff/cs389/ref/cs389indexref.html 4. https://www.smartdraw.com/uml-diagram/#UMLTutorial
Other Learning Materials	**Course material includes handouts, ppt, questionnaires as distributed among the students**

2. Facilities Required:

Item	Resources
Accommodation (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. Classroom with smart board interface, display screen and a computer to aid the sessions
Technology Resources (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.
Other Resources (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

Council / Committee	
Reference No.	
Date