



Course Specification

— (Bachelor)

Course Title: **Advanced Software Engineering**

Course Code: **501446-3**

Program: **Bachelor of Computer Science**

Department: **Department of Computer Science**

College: **College of Computers and Information Technology**

Institution: **Taif University**

Version: **1**

Last Revision Date: **01-02-2024**



Table of Contents

A. General information about the course:	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content	6
D. Students Assessment Activities	6
E. Learning Resources and Facilities	6
F. Assessment of Course Quality	7
G. Specification Approval	8



A. General information about the course:

1. Course Identification

1. Credit hours: (3)

2. Course type

A. University College Department Track Others
 B. Required Elective

3. Level/year at which this course is offered: (7/4th Year)

4. Course general Description:

This course aims to equip students with appropriate software tools and environments for successful software implementation, testing and verification, maintenance and evolution, quality assurance, software metrics, and requirements engineering.

5. Pre-requirements for this course (if any):

Software Engineering 501343-3

6. Pre-requirements for this course (if any):

7. Course Main Objective(s):

The main objective is to provide students with advanced knowledge in software engineering and improve their skills in software engineering practices using appropriate tools

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 		
4	Distance learning		





3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Specify key techniques and tools in software testing.	K1	Lecture Discussion	Direct Assessment Tool Written Exams Assignments Quizzes Project Indirect Assessment Tool Course Exit Survey
1.2	Understand various quality assurance techniques, including unit testing, functional testing, and automated analysis tool	K1	Lecture Discussion	Direct Assessment Tool Written Exams Assignments Quizzes Project Indirect Assessment Tool Course Exit Survey
1.3	Understand the reuse-driven software engineering	K1	Lecture Discussion	Direct Assessment Tool Written Exams Assignments Quizzes Project Indirect Assessment Tool Course Exit Survey
1.4	Define software maintenance and re-engineering process	K1	Lecture Discussion	Direct Assessment Tool Written Exams Assignments Quizzes





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
				Project Indirect Assessment Tool Course Exit Survey
1.5	Understand the use of metrics in software engineering	K1	Lecture Discussion	Direct Assessment Tool Written Exams Assignments Quizzes Project Indirect Assessment Tool Course Exit Survey
2.0	Skills			
2.1	Apply an appropriate and effective software process for a given project.	S1	Lecture Discussion	Direct Assessment Tool Written Exams Assignments Quizzes Project Indirect Assessment Tool Course Exit Survey
2.2	Evaluate software quality.	S2	Lecture Discussion	Direct Assessment Tool Written Exams Assignments Quizzes Project Indirect Assessment Tool Course Exit Survey
3.0	Values, autonomy, and responsibility			
3.1	Work as a team leader/member of a software testing team.	V3	Lecture Discussion	Direct Assessment Tool Written Exams Assignments Quizzes Project Indirect Assessment Tool Course Exit Survey



C. Course Content

No	List of Topics	Contact Hours
1.	Software tools and environment	6
2.	Software implementation (from design to implementation)	3
3.	Software testing and verification	9
4.	Software metrics	6
5.	Software quality assurance	9
6.	Software evolution	3
7.	Software Maintenance and re-engineering.	6
8.	Emerging Trends in software Engineering.	3
Total		45

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignment	Week 5	20%
2.	Quizzes	Week 4, 11	10%
3.	Midterm exam	Week 7	20%
4.	Final exam	Week 16	40%
5.	Project	Week 13	10%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Sommerville, I., Software Engineering, latest Edition.
Supportive References	Pressman, & Roger S. & Ice, Darrel, Software Engineering a Practitioner's Approach: European Adaptation latest Edition
Electronic Materials	Presentations and recorded lectures
Other Learning Materials	-



2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	A Lecture room appropriate for maximum 25 students with a personal computer, a data show, and a smart board.
Technology equipment (projector, smart board, software)	data show, UML editor software, Prototyping software tool and Project management software.
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	<ul style="list-style-type: none"> •Students •Faculty members •Coordinator •Council •Curriculum •Committee 	<ul style="list-style-type: none"> •Course exit survey •Feedback from Faculty members •Feedback from Course Coordinator •Feedback from council •Feedback from Curriculum Committee
Effectiveness of Students assessment	<ul style="list-style-type: none"> •Students •Faculty members •Coordinator •Council •Curriculum •Committee 	<ul style="list-style-type: none"> •Course exit survey •Feedback from Faculty members •Feedback from Course Coordinator •Feedback from council •Feedback from Curriculum Committee
Quality of learning resources	<ul style="list-style-type: none"> •Students •Faculty members •Coordinator •Council •Curriculum •Committee 	<ul style="list-style-type: none"> •Course exit survey •Feedback from Faculty members •Feedback from Course Coordinator •Feedback from council •Feedback from Curriculum Committee
The extent to which CLOs have been achieved	<ul style="list-style-type: none"> •Students •Faculty members •Coordinator •Council •Curriculum 	<ul style="list-style-type: none"> •Course exit survey •Feedback from Faculty members •Feedback from Course Coordinator



Assessment Areas/Issues	Assessor	Assessment Methods
	<ul style="list-style-type: none"> •Committee 	<ul style="list-style-type: none"> •Feedback from council •Feedback from Curriculum Committee
Other	<ul style="list-style-type: none"> •Students •Faculty members •Coordinator •Council •Curriculum •Committee 	<ul style="list-style-type: none"> •Course exit survey •Feedback from Faculty members •Feedback from Course Coordinator •Feedback from council •Feedback from Curriculum Committee

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	CS council
REFERENCE NO.	Meeting #11
DATE	07/03/2024

