Faculty: Information Technology	
Department: Software Engineering	**Program: Master**
Academic Year:	**Semester:**

Course Plan

First: Course Information

Course No.: **1503741**	***Course Title:*** **Software Quality Engineering**	***Credit Hours: 3***	***Theoretical: 3***	***Practical: 0***
Prerequisite No. and Title:----------	***Section No.:***	***Lecture Time: Theoretical:***		
Level in JNQF	***7***			
Type Of Course:	☐ ***Obligatory University Requirement*** ☐ ***Elective University Requirement*** ☐ ***Obligatory Faculty Requirement*** ☐ ***Elective Faculty Requirement*** ■ ***Obligatory Specialization Requirement*** ☐ ***Elective Specialization Requirement*** ☐ ***Ancillary course***			
Type of Learning:	☐ ***Face-to-Face Learning*** ■ ***Blended Learning (2 Face-to-Face + 1 Asynchronous)*** ☐ ***Online Learning (2 Synchronous+ 1 Asynchronous)***			

Second: Instructor's Information

Course Coordinator					
Name:			***Academic Rank:***		
Office Number:	***Extension Number:***		***Email:***		
Course Instructor					
Name:			***Academic Rank:***		
Office Number:	***Extension Number:***		***Email:***		
Office Hours:	***Sunday***	***Monday***	***Tuesday***	***Wednesday***	***Thursday***

Third: Course Description

This course is providing a broad systematic study of advance quality assurance aspects of the software development process with an emphasis software quality, software testing, and software quality certification and standards. This Course will expose students to the advance of software quality assurance and identify the tasks that are essential for successful quality projects and discuss how tasks interact with each other. - Benchmark organizations against industry standards for software quality Also, this course develops methods for measuring quality of software processes and products. It reviews statistical principles and methods, introduces measures for software products and development processes, and considers common standards such as ISO 9000 and the SEI Capability Maturity Model.

Fourth: Course Objectives

1. know the most common root causes of software errors and software development scheduling problems;
2. identify what factors affect software quality and know how to measure those factors
3. Introduce the student to the a scientific research paper direction
4. Introducing the student to the fundamental concepts of software testing, and software quality certification and standards.
5. Expanding the student's skills of research.
6. Providing the student to identify Benchmark organizations against industry standards for software quality

Fifth: Learning Outcomes

Level descriptor according to (JNQF)	*CILOs Code*	*CILOs* If any CLO will not be assessed in the course, mark NA.	*Associated PILOs Code* *Choose one PILO for each CILO**	*Assessment method* *Choose at least two methods*
Knowledge	**K1**	Outline the advance quality assurance method and research.	**PK1**	• Mid-term Exam • Final Exam
	K2	Identify what factors affect software quality and know how to measure those factors;	**PK1**	• Mid-term Exam • Final Exam • Assignment •
	K3	Describe the most common root causes of software errors and software development scheduling problems;	**PK1**	• Quizzes • Mid-term Exam • Final Exam
	K4	be familiar with industry standards related to software quality assurance plans;	**PK4**	• Assignment • Mid-term Exam • Final Exam
Skills	**S1**	Be able to conduct effective review meetings Learn the different models of design.	**PS3**	• Mid-term Exam • Final Exam
	S2	The ability to use write paper presentations	**PS4**	• Mid-term Exam • Final Exam • Assignment
	S3	be able to select appropriate product metrics and process metrics;	**PS4**	• Mid-term Exam • Final Exam • Assignment
	S4	Evaluate the concepts software testing in the most prevalent software systems	**PS3**	• Quizzes • Mid-term Exam • Final Exam
Competencies	**C1**	be able to create a comprehensive quality assurance plan appropriate to the student's professional work environment;	**PC2**	• Practice
	C2	be able to quantitatively assess the cost effectiveness of a SQA plan;		• Practice

*CILOs: Course Intended Learning Outcomes; PILOs: Program Intended Learning Outcomes; For each CILO, the PILO could be the same or different.

Sixth: Learning Resources

Main Reference:	***Software Quality Assurance by Pearson / Addison Wesley Publishing***		
Author: Daniel Galin	***Issue No.: 3rd***	***Print:***	***Publication Year: 2020***
Additional Sources and Websites:	***Software Engineering 11th Edition*** ***Authors: I. Sommerville,*** ***Publication year: 2019***		
Teaching Type:	■ ***Classroom*** ☐ ***Laboratory*** ☐ ***Workshop*** ■ ***MS Teams*** ■ ***Moodle***		

Seventh: Course Structure

Week Number	Course Intended Teaching Outcomes (CILOs)	Topics	Teaching Procedures*	Teaching Methods**	References***
1	K1,S1, C1	Syllabus Overview Introduction Software Quality	Face-to-Face	- Lecture, In-class Questions	- Chapter 1
2	K3, S1, S2, C1	The Uniqueness of Software Quality Assurance	Blended Learning	Lecture, online-MS Team Assignment-Moodle	Chapter 2
3	K1, K2, S1, S2, S4, C2	Software Quality Factors	Face-to-Face	Lecture, In-class Questions	Chapter 3
4	K2, S1, C2	NIST Quality Characteristics and Metrics for Software	Blended Learning	Lecture, online-MS Team Assignment-Moodle	Chapter 3
5	K2, S1, S2, C1	NASA's Software Assurance Technology Center	Face-to-Face	Lecture, In-class Questions	Chapter 3
6	K1, S1, S4,C1	lists of factors with boundaries Parts of an SQA System	Blended Learning	Lecture, online-MS Team Quiz-Moodle	Chapter 3

7	K1, S4, S1, C1, C2	Produce Reliable Software	Face-to-Face	Lecture, In-class Questions	Chapter 5
Midterm Exam					
8	K2, S1, S2, S4, C1	Software Quality Standards (IEEE and ISO)	Blended Learning	Lecture, online-MS Team Assignment-Moodle	Chapter 5
9	K1, S1, S2, S4, C1	MacCall Models	Face-to-Face	Lecture, In-class Questions	Chapter 5
10	K1, K3, S3, C1, C2	Software Quality Management (ISO 9001, ISO 9000)	Blended Learning	Lecture, online-MS Team Assignment-, Quiz, Moodle	Chapter 6
11	K1, K2, K3, S2, S3, C1	Integrating quality activities in the project life cycle	Face-to-Face	Lecture, In-class Questions	Chapter 7
12	K1, K3, S2, S3, C1	CASE Tools and their Effect on Software Quality	Blended Learning	Lecture, online-MS Team Assignment-Moodle	Chapter 7
13	K2, K3, S3, C1	Development Plans Quality Plans	Face-to-Face	Lecture, In-class Questions	Chapter 8
14	K4, S1, S4, C1,C2	Software Matrices	Blended Learning	Lecture, online-MS Team Presentation	Chapter 22
Final Exam					

*Teaching procedures: (Face-to-Face, synchronous, asynchronous). ** Teaching methods: (Lecture, video….).
*** Reference: (Pages of the book, recorded lecture, video….)

Eighth: Assessment Methods

Methods	Online Learning	Blended Learning	Face-To-Face Learning	Specific Course Output to be assessed **If any CILO will not be assessed in the course, mark NA.									
				K1	K2	K3	K4	S1	S2	S3	S4	C1	C2
First Exam													
Second Exam													
Mid-term Exam			30	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Participation													
Asynchronous Activities													
Quizzes		5	5	✓		✓		✓			✓	✓	✓
Assignments		10	10		✓	✓			✓	✓	✓	✓	✓
Group presentation													
Final Exam			50	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Total out of 100			100										

Ninth: Course Policies

- All course policies are applied to all teaching patterns (online, blended, and face-to-face Learning) as follows:
  a. Punctuality.
  b. Participation and interaction.
  c. Attendance and exams.
- Academic integrity: (cheating and plagiarism are prohibited).