2309 SE352 Course Outline

Subject Code	:	**SE352**
Subject Title	:	Software Quality Assurance
Course Type	:	Compulsory
Level	:	4
Credits	:	3
Teaching Activity	:	Lecture
Prior Knowledge*	:	SE250 Software Engineering, SE110 Computer Programming
Class Schedule	:	

Class	Week	Time	Classroom	Date
D1	Fri	09:00-11:50	C308	2023/09/04 - 2023/12/17

Instructor	:	FANG Xiaonan
Contact Number	:	
E-mail Address	:	xnfang@must.edu.mo
Office	:	A307b
Office Hour	:	Monday (10:00-12:00) Tuesday (09:00-12:00) Wednesday (14:30-17:30) Thursday (10:00-12:00)

COURSE DESCRIPTION

This course presents the main issues of software quality assurance. It introduces software quality challenges and factors and the main quality considerations for software. The following issues will be covered: quality assurance, quality factors, components of a software quality assurance system, software testing, program analysis, fuzz testing, symbolic execution, and software reliability. Students will discover various concepts and techniques developed in recent research about software quality engineering and learn to apply them through lectures, readings, and assignments. Several materials from different sources will be used, particularly scientific papers.

TEXTBOOK

Required Text Book:

No recommended textbook, but the learning materials will be provided to students during the classes.

Reference Books:

Book name: Software Testing and Quality Assurance: Theory and Practice
Author/Editor: Kshirasagar Naik and Priyadarshi Tripathy
ISBN: 978-0-471-78911-6
Publisher: Elsevier Inc.

Book name: A Friendly Introduction to Software Testing
Author/Editor: Bill Laboon

INTENDED LEARNING OUTCOMES

Upon successful completion of this subject, students will be able to:

1. Understand the concepts and principles of software quality assurance
2. Analyze bugs and learn the approach for bug resolution in software testing and quality assurance
3. Ability to conduct a literature survey in software testing
4. Ability to define the quality of software products
5. Ability to generate solutions to evaluate software quality
6. Design and implement a chosen solution to improve software quality

Weekly Schedule

Week	Topic	Hours	Teaching Method
1	Introduction to software quality assurance	3	lecture
2	Software defects	3	lecture
3	Quality factors and criteria	3	lecture
4-5	Testing theory and terminology	6	lecture
6	Control flow testing	3	lecture
7	Data flow testing	3	lecture
8	System test categories	3	lecture
9-10	Program analysis	6	lecture
11	Fuzz testing	3	lecture
12	Symbolic execution	3	lecture
13	Security testing	3	lecture
14	Software reliability	3	lecture
15	Maturity models	3	lecture

ASSESSMENT APPROACH

Assessment method	% weight
1. Attendance and assignment	**20%**
2. Midterm exam	**20%**
3. Final exam	**60%**
4. Total	**100%**

Guideline for Letter Grade:

Marks	Grade
93-100	A+
88-92	A
83-87	A-
78-82	B+
72-77	B
68-71	B-
63-67	C+
58-62	C
53-57	C-
50-52	D
0-49	F
Marks	Grade

Notes:

Students will be assessed on several assessment items (i.e. attendance, assignments, and examinations.).

The attendance evaluates the student's participation in discussion in the classes.

The examinations evaluate the student's understanding of the concepts of software quality assurance.