



Course description:

The goal of this module is to provide a broad systematic study of quality assurance aspects of the software development process with an emphasis software quality, software testing, and software quality certification and standards. This module will expose students to the principles of software quality assurance and identify the tasks that are essential for successful quality projects and discuss how tasks interact with each other. It will also present current methods, techniques and certification standards involved in software quality assurance from a practical industry implementation perspective. The specific objectives of the module are: - Understand and define the scope of the software development process from a quality perspective - Understand, design and implement procedures for developing software quality - Understand the issues and approaches involved in software quality assurance at the company practice level - Understand the main approaches to software testing - Understand and be able to implement testing solutions at code level. - Benchmark organizations against industry standards for software quality

Aims of the course:

The course introduces

The main objective of this course is introduce a software testing and quality assurance as an important part to the successful development of software system

Intended Learning Outcomes: (ILOs)

A. Knowledge and Understanding A1.

Concepts and Theories:

1. Identify important historical and current literature addressing software quality assurance
 2. Explain and construct quality-oriented software development processes
 3. Describe the concepts behind software testing and appraise the most appropriate testing approaches for a given situation
- Identify and contrast the basic principles behind software process, process improvement and process standards

B. Subject-specific skills

B1. Problem solving skills:

Evaluate the concepts embodied in the most prevalent software quality assurance techniques and methods, including knowledge of their advantages and disadvantages, and when it may be appropriate to use each approach

B3. Application of Methods and Tools:

Discuss and appraise the factors that are important in implementation of software quality in an industrial context

C. Critical-Thinking Skills C1.

Analytic skills: Assess

Distinguish between what might be useful for the user and what might not.

C2. Strategic Thinking:

Understand heuristics and tools to maximum quality assurance and evaluate interfaces.

C3. Creative thinking and innovation:

Plan how to design high quality interface.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Communication:

D2. Teamwork and Leadership:

Course structures:

Week	Credit Hours	ILOs	Topics	Teaching Procedure	Assessment methods
1 st – 2 nd	6	A1,A3	Introduction to SQA 1. What is Software Quality 2. Software Quality Factor	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation according to class Participation
3 rd – 5 th	9	A1	Components of SQA Systems	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation according to class Participation
6 th – 7 th	6	A1,A2	Software Reviews	Presentation methods and techniques, Sources of	Diagnostic tests to identify the students level and areas of weakness

			Software Testing Strategies <ul style="list-style-type: none"> • Black Box Testing • Software Testing • Software Testing Implementation 	information and Instructional Aids	Formal (stage) evaluation according to class Participation First Exam
8 th – 9 th	6	B1,B2,B3	<ul style="list-style-type: none"> • Software Quality Metrics 	Presentation methods and techniques, Sources of information and Instructional Aids	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation according to class Participation
10 th – 11 th	6	B1,B2,B3	Lab Practical modeling Use case diagrams Sequence diagrams Class diagrams Activity diagrams	Lab Practical using case tools	Diagnostic tests to identify the students level and areas of weakness Formal (stage) evaluation according to class Participation
15 th					Final Exam

References:

A. Main Textbook:

Software Quality Engineering: testing quality assurance and quantifiable improvement

Summerville, I. *Software Engineering*, Addison Wesley Longman Publishing Co., Inc.(5), March 2011.

B. Supplementary Textbook(s):

Software Engineering A PRACTITIONER'S APPROACH FIFTH EDITION Roger S. Pressman, Ph.D.

Assessment Methods:

Methods	Grade	Date
First Exam	20%	
Second Exam	20%	
Assignments (Reports /Quizzes/ Seminar / Tutorials)	10%	
Final Examination	50%	

