City University of Hong Kong
Course Syllabus

offered by Department of Computer Science
with effect from Semester A 2017/18

Part I   Course Overview

Course Title: Software Quality Engineering

Course Code: CS5348

Course Duration: One semester

Credit Units: 3 credits

Level: P5

Medium of Instruction: English

Medium of Assessment: English

Prerequisites:
(Course Code and Title) CS5351 Software Engineering

Precursors:
(Course Code and Title) Nil

Equivalent Courses:
(Course Code and Title) Nil

Exclusive Courses:
(Course Code and Title) Nil

Part II   Course Details

1.   **Abstract**

This course aims to equip students with professional and engineering practices in software processes, management and quality assurance activities. It prepares students to develop quality software using proven techniques and established standards in software quality management and engineering.

2.   **Course Intended Learning Outcomes (CILOs)**
(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Critically analyze models for assessing software products and processes in quality management and engineering.		✓		
2.	Describe and apply professional and engineering practices and techniques in software quality assurance and management.			✓	
3.	Describe, evaluate and critique quality systems and established standards for software products and processes.		✓		
		100%			

A1:   Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2:   Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3:   *Accomplishments*
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)
(TLAs designed to facilitate students' achievement of the CILOs.)

Teaching pattern:
Suggested lecture/tutorial/laboratory mix: 3 hours lecture/tutorial.

TLA	Brief Description	CILO No. 1	CILO No. 2	CILO No. 3	Hours/week (if applicable)
Lecture and class discussion	Explain key subject knowledge and background. Require students to participate actively in class to discuss and critically reflect on their software development practices and experiences in light of the subject materials presented in class.	✓	✓	✓	
Tutorial	Provide short exercises for students to work on different techniques and consolidate key concepts, models and issues in software quality engineering.	✓	✓	✓	
Assignment or project	Require students to practise software quality management and engineering activities, such as review, inspection, testing or quality planning.		✓		

4. Assessment Tasks/Activities (ATs)
(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No. 1	CILO No. 2	CILO No. 3	Weighting	Remarks
Continuous Assessment: <u>40%</u>					
Group assignment or project		✓		20%	
Individual assignment or quiz		✓		20%	
Examination^: <u>60%</u> (duration: 2 hours)	✓	✓	✓	60%	
				100%	

^ For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Group assignment or project	1.1 ABILITY to DESCRIBE and APPLY professional and engineering practices and techniques in software quality assurance and management	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Individual assignment or quiz	1.1 ABILITY to DESCRIBE and APPLY professional and engineering practices and techniques in software quality assurance and management	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Examination	3.1 ABILITY to ACHIEVE the respective CILOs	High	Significant	Moderate	Basic	Not even reaching marginal levels

Part III Other Information (more details can be provided separately in the teaching plan)

1. **Keyword Syllabus**
    (An indication of the key topics of the course.)

    Software quality concepts and models.   Software quality planning, assurance and management.   Software product, process, activity and task.   Project and risk management.   Management review.   Quality assurance techniques, activities and practices.   Software testing strategies and techniques.   Software reviews and inspection.   Quality systems, standards and certification.

2. **Reading List**
2.1 **Compulsory Readings**
    (Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	*Myers, G.J., Badgett, T. & Sandler, C. (2012) The Art of Software Testing. 3rd Ed. Wiley.*
2.	Selected documents from international standards: accessible online via CityU library
3.	Selected professional and research articles from *IEEE* and *ACM* periodicals: accessible online via CityU library

2.2 **Additional Readings**
    (Additional references for students to learn to expand their knowledge about the subject.)

1.	*Pressman R.S. and Maxim B.R. (2015). Software Engineering: A Practitioner's Approach. 8th Ed. McGraw-Hill*
2.	*Sommerville, I. (2016) Software Engineering. 10th Ed. Addison Wesley*