City University of Hong Kong
Course Syllabus

offered by Department of Computer Science
with effect from Semester B 2020/21

Part I Course Overview

Course Title:	Software Quality Management
Course Code:	CS4348
Course Duration:	1 semester
Credit Units:	3 credits
Level:	B4
Proposed Area: *(for GE courses only)*	☐ Arts and Humanities ☐ Study of Societies, Social and Business Organisations ☐ Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	CS3342 Software Design or CS3343 Software Engineering Practice or equivalent
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

(A 150-word description about the course)

This course aims to equip students with the knowledge and techniques of professional practices in software processes and activities. It prepares students to manage the development of quality software using professional practices and established standards in software quality assurance and management.

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.	Explain the relations among software product, process and project in quality assurance and management.		✓		
2.	Design process and quality models for developing and assessing software products and processes.			✓	
3.	Describe and apply professional practices in the development of quality software.			✓	
4.	Describe, compare and critique quality systems and established standards for software products and processes.		✓		
	** If weighting is assigned to CILOs, they should add up to 100%.*	100%			

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

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/laboratory mix: 2 hours lecture; 1 hour tutorial.

TLA	Brief Description	CILO No.				Hours/week (if applicable)
		1	2	3	4	
Lecture	Explain key concepts, models and fundamental issues. Describe and compare professional practices and standards.	✓	✓	✓	✓	
Tutorial	Discuss key concepts, models and issues via short questions. Discuss and evaluate techniques and processes via practice with simple exercises.	✓	✓	✓	✓	
Practice of software quality assurance activities	Require students to perform software quality assurance activities, such as review, inspection, or development of a quality plan that conforms to an established standard. Also require students to report, evaluate and critically reflect on the practices they perform in the activities.			✓		

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.				Weighting*	Remarks
	1	2	3	4		
Continuous Assessment: 40%						
Assignments			✓		25%	
Project or quiz	✓	✓	✓		15%	
Examination^: 60% (duration: 2 hours)	✓	✓	✓	✓	60%	
* *The weightings should add up to 100%.*					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. Assignments	1.1 ABILITY to DESCRIBE and APPLY professional practices in the development of quality software	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Project or quiz	2.1 ABILITY to ACHIEVE the respective CILOs	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. Quality factors and subfactors. Quality control, assurance and management. Quality assurance activities and practices. Software reviews and inspection. Software management. Software product, process and project. Software life cycle processes, activities and tasks. Project and risk management. Process models. Software quality systems and standards. IEEE standards. ISO standards and certification. Capability Maturity Models Integration (CMMI).

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.	D. Galin (2018). *Software Quality: Concepts and Practice*. 1st Ed. IEEE Computer Society Press.
2.	Selected documents from international software standards: accessible online via CityU library.
3.	Selected 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.	I. Sommerville (2016). *Software Engineering*. Addison-Wesley, 10th edition.
2.	R. Pressman and B.R. Maxim (2015). *Software Engineering: A Practitioner's Approach*. McGraw-Hill, 8th edition.