City University of Hong Kong
Course Syllabus

offered by Department of Computer Science
with effect from Semester A 2015/16

Part I Course Overview

Course Title:	Software Engineering Practice
Course Code:	CS3343
Course Duration:	1 semester
Credit Units:	3 credits
Level:	B3
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)*	CS2310 Computer Programming or CS2311 Computer Programming or CS2312 Problem Solving and Programming or CS2360 Java Programming or equivalent
Precursors: *(Course Code and Title)*	(CS3342 Software Design or equivalent) AND (CS3402 Database Systems or equivalent)
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 provide an opportunity for students, in small groups with real role-playing, to practise software engineering principles and techniques, through the development of a larger and really useful software system that meets stated requirements and quality standards, using those common practices used in the software industry.

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.	Properly apply the principles and techniques of requirements specification and analysis, software design, implementation, testing, delivery, and maintenance to create a software application.		✓	✓	✓
2.	Present projects effectively.		✓	✓	
3.	Write technical documentation in a clear and concise manner.		✓	✓	
4.	Work effectively in a team environment.		✓	✓	
		100%			

** If weighting is assigned to CILOs, they should add up to 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/tutorial/laboratory mix: 1 hr. lecture; 1 hr. tutorial; 1 hr. consultation.

TLA	Brief Description	CILO No.				Hours/week (if applicable)
		1	2	3	4	
Lecture	Lecture presentations deliver the course materials (best practices of software engineering) to the students. Students are required to attend the lecture classes.	✓	✓	✓	✓	
Tutorial and consultation	The tutorial and consultation sessions are used to review some major points of the course materials and hold group meetings for reviewing all possible artifacts generated by the project groups. Students can also raise and discuss issues related to the project.	✓	✓	✓	✓	
Group project	Students will have to work in small groups to work on a realistic software development project to create a software application with technical documentation, in order to gain experience in applying the principles and techniques of software engineering, and to practise project management skills in a team environment. Each group is expected to define clearly the roles of individual members. Every member will do an oral presentation on the work accomplished, and, in particular, on the individual contribution to the group project. The group report records their project progress, the problems they encountered, and how they solved them, and their personal experience of playing the role in the project.	✓	✓	✓	✓	

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^: 70%						
Hands-on practical tests	✓		✓		40%	
Group project	✓	✓	✓	✓	30%	
Examination^: 30% (duration: 2 hours)						
** The weightings should add up to 100%.*					100%	

^ For a student to pass the course, at least 40% of the maximum mark for the continuous assessment and 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-)	Adequate (C+, C, C-)	Marginal (D)	Failure (F)
1. Hands-on practical tests	1.1 CAPACITY for SELF-DIRECTED LEARNING to understand the tools and practices of software development. 1.2 ABILITY to EXPLAIN AND APPLY software testing techniques.	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Group project	2.1 CAPACITY for SELF-DIRECTED LEARNING to apply the learnt practices to real problems, produce an application and write technical documents. 2.2 ABILITY to EXPLAIN AND DEMONSTRATE IN DETAIL about project management in a team environment. 2.3 ABILITY to APPLY the software development and testing procedures to produce a quality software system within a team.	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Examination	3.1 CAPACITY for SELF-DIRECTED LEARNING to understand the tools and practices of software development. 3.2 ABILITY to EXPLAIN AND APPLY software development and testing procedures to produce high quality software systems.	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 project management. Requirements elicitation and specification. Design. Implementation. Testing. Documentation. Presentation.

Syllabus

1. Software project management
   Project planning and scheduling. Team organisations and role playing. Version control and configuration management. Documentation.

2. Requirement elicitation and specification
   User requirements specification. Prototyping.

3. Design
   Input design. Output design. User interface design. Designing for Change. CASE tools.

4. System implementation and testing
   Integrated software engineering environments (IDE). Programming standards. Software testing strategies. Software Debugging. Refactoring. CASE tools.

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.)

Nil.

2.2 Additional Readings

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

1.	Sommerville I. (2012) *Software Engineering.* Addison Wesley, 10th edition.
2.	Larman C. (2005) *Applying UML and Patterns: Introduction to OOA/D and Iterative Development.* Pearson Education, Prentice Hall, 3rd edition.
3.	Martin R C, and Martin M. (2006) *Agile Principles, Patterns, and Practices in C#.* Prentice Hall.
4.	Hughes B. and Cotterell M. (2005) *Software Project Management.* McGraw-Hill, 4th edition.
5	Christensen M. and Thayer R.H. (2002) *A Manager's Guide to Software Engineering's Best Practice.* Wiley–IEEE Computer Society.