City University of Hong Kong
Course Syllabus

offered by Department of Systems Engineering and Engineering Management
with effect from Semester B 2019/20

Part I Course Overview

Course Title:	**Professional Engineering Practice**
Course Code:	**SEEM4066**
Course Duration:	**One Semester**
Credit Units:	**3**
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)*	**For normative 4-year student: must complete a minimum of 60 CUs to be eligible;** **For Advanced Standing I student: must complete a minimum of 30 CUs to be eligible;** **For Advanced Standing II student: must complete a minimum of 15 CUs to be eligible**
Precursors: *(Course Code and Title)*	**Nil**
Equivalent Courses: *(Course Code and Title)*	**MEEM4066/MBE4066/MNE4066/BME4066/JC4066 Professional Engineering Practice**
Exclusive Courses: *(Course Code and Title)*	**Nil**

Part II Course Details

1. Abstract

(A 150-word description about the course)

This course provides an over-arching coverage of the role of engineers with essential knowledge to be professional engineer in society. It strengthens students' assimilation of fundamental engineering and technical subject matters of a BEng programme and their appreciation of modern engineering's technology, political, environmental and socio-economic factors (economic, ethics, etc.) implications.

With the increasing integration of the industrial fabrics of Hong Kong and Southern China, Guangdong-Hong Kong-Macao Greater Bay Area and One Belt One Road initiatives, the course will also examine on the role of engineering in advance manufacturing, entrepreneurship, startup management, testing and certification, as well as, innovation and technology disciplines..

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.	Recognise and appreciate the socio-economic, policy and advance technological issues relating to the industry – Guangdong-Hong Kong-Macao Greater Bay Area (GBA)	15%			
2.	Discuss the role of an engineering in sustainable development, QHES management, innovation and technology management in the industry	20%			
3.	Clarify the legal responsibilities and ethical obligations of a professional engineer such as in testing and certification industry and IP issues	20%			
4.	Describe the role of engineering in the development of advanced manufacturing, innovation and technology in Hong Kong and GBA	25%	√		
5.	Communicate effectively the outcome of group project discussion and individual proposal	20%	√		
		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.)

TLA	Brief Description	CILO No.					Hours/week (if applicable)
		1	2	3	4	5	
Lecture	The TLAs are made up of a mixture of lectures and a series of groupwork and individual assignments in tutorials. Professional engineers, eminent industrialists and ICAC officers will be invited as guest lecturers to enrich students' learning of the CILO 1-4. Students' learning on each lecture topic is complemented by selected case studies and follow-up groupwork or individual assignments.	√	√	√	√		2 hours/week
Tutorial (Group Work Individual Work)	Tutorials provide the forum for case analyses, topical discussions and interactions among students and tutor.	√	√	√	√	√	1 hour/week
Consultation hour	1 hour per week will be scheduled for clearing doubts of students who can meet the teaching staff on an individual or small group basis in his/her office.						13 hrs/ semester

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	5		
Continuous Assessment: 100%							
Group projects in Workshops (Case analyses, discussions and presentation) Students will be working in groups where they will be given selected topics related to engineering practice such as professional accreditation, ethics, case studies, etc. The group topic should be confirmed by Week 2 and approved by the instructor. Students are required to conduct analysis and discuss selected cases, and present their findings to the class toward the end of the semester.	√	√	√	√	√	40%	
Individual assignment (Mini essays and presentation slide) In addition to the group report, each member of the group has to summarise their own contributions in 1-2 pages towards the completion of the group paper. Individuals should explain what their study within 5-6 slide of ppt.	√	√	√	√	√	60%	
Examination: 0%							
**The weightings should add up to 100%.*						100%	

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)
Coursework	Group projects in Workshops: Case analyses, discussions and presentation	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Individual assignment: Mini essay and presentation slide.	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.)

- Industrial and advanced manufacturing environment of Hong Kong, China and the world
- Engineers in private practices and public sectors - sustainability development, quality, safety and health, professional ethics and legal responsibilities
- Innovative and creative thinking – innovation management, patents and copyrights
- Engineers in society – Entrepreneurship, Startup Ecosystem environment protection and social responsibilities

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.)

2.2. Additional Readings

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

1.	Margaret A. White & Garry D. Bruton (2007) "The Management of Technology Innovation: A Strategic Approach", Thomson South-Western
2.	C. Touzard (2008) "Going Green in Hong Kong 2nd ed", ECOSOL
3.	Nancy R. Tague (2005) "The Quality Toolbox 2nd ed", ASQ
4.	Donald C. Singer, Editor (2001) "A Laboratory Quality Handbook of Best Practices and Relevant Regulations", ASQ
5.	Karen Gadd (2011) "TRIZ for Engineers: Enabling Inventive Problem Solving", Wiley
6.	C.Y. Yang & W. Cai (2013) "Extenics : Theory, Methods and Applications", Science Press Beijing
7.	Peter Thiel (2014) "Zero to One: Notes on Startups, or How to Build the Future"
8.	Peter F. Drucker (1985) "Management: Tasks, Responsibilities, Practices", Harper Perennial
9.	Kai-Fu Lee (2018) "AI Super-Powers: China, Silicon Valley and the New World Order", Houghton Mifflin Harcourt
10.	Herbert P.K. Chia (2017) "The Nature of Big Data", Beijing United Publishing (In Chinese)
11	Alexander Osterwalder & Yves Pigneur (2010) "Business Model Generation : A Handbook for Visionaries, Game Changers, and Challengers", Wiley
12.	ICAC (2011) "Corruption Prevention Guide for Testing and Certification Industry"

Relevant Standards:

1	ISO 9001:2015 – Quality management systems - Requirement, International Organization for Standardization, Geneva.
2	ISO 14001:2015 – Environmental Management System – Requirement
3	ISO 45001:2018 – Occupational Health and Safety Management System – Requirement with Guidance for Use
4	ISO 26000:2010 - Guidance on social responsibility
5	ISO 50001:2018 - Energy Management Systems – Requirement
6	Hong Kong Good Manufacturing Practices (GMP) Guidelines for Pharmaceutical Products (1995), Pharmacy and Poisons Board of Hong Kong
7	ISO/IEC 17025:2017 – General requirements for competence of testing and calibration laboratories
8	CEN/TS 16555-1 – Innovation management – Part 1: Innovation management system
9	ISO 56002:2019 – Innovation management – Innovation management system - Guidance
10	AS/NZS 4360:1999 – Risk Management. Standards Australia
11	ISO 31000:2018 – Risk management -- Principles and guidelines

12	ISO/IEC 27001:2013 – Information Technology – Security Techniques – Information Security Management System – requirements
13	ISO 37001:2016 – Anti-bribery management systems – requirements with guidance for use