City University of Hong Kong
Course Syllabus

offered by Department of Advanced Design and Systems Engineering
with effect from Semester B 2021/22

Part I Course Overview

Course Title:	**Professional Engineering Practice**
Course Code:	**ADSE2066**
Course Duration:	**One Semester**
Credit Units:	**3**
Level:	**B2**
Proposed Area: *(for GE courses only)*	☐ Arts and Humanities ☐ Study of Societies, Social and Business Organizations ☐ Science and Technology
Medium of Instruction:	**English**
Medium of Assessment:	**English**
Prerequisites: *(Course Code and Title)*	**Nil**
Precursors: *(Course Code and Title)*	**Nil**
Equivalent Courses: *(Course Code and Title)*	**SEEM4066 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 modern society. It strengthens students' assimilation of fundamental engineering and technical subject matters of BEng in Intelligent Manufacturing Engineering programme and their appreciation of modern engineering's technology, environmental and socio-economic factors (economic, ethics, etc.) implications.

With the increasing integration of the industrial fabrics of Hong Kong, Guangdong-Hong Kong-Macao Greater Bay Area, and Greater China, the course will also examine the role of engineering related to advanced manufacturing, entrepreneurship, start-up management, professional services, as well as, innovation and technology disciplines. Eminent industrialists will be invited to give guest lectures to provide students with the most updates of the industrial community.

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 advanced technological issues relating to modern society.	15%	√		
2.	Describe the role of an engineer in sustainable development, environmental protection, health and safety management, innovation and technology management in the industry	20%	√		
3.	Clarify the legal responsibilities and ethical obligations of a professional engineer in modern society.	20%	√		
4.	Explore the Intelligent Manufacturing Engineering discipline for the development of advanced manufacturing, innovation and technology in Hong Kong, Guangdong Bay Area, and Greater China.	20%	√		
5.	Communicate effectively the outcome of group work and individual assignment	15%	√	√	
6.	Recognize the need for, and to engage in life-long learning	10%	√	√	
		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	6	
Lecture	The TLAs are made up of a mixture of lectures and a series of groupwork and individual assignments in interaction basis. 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.	√	√	√	√	√	√	3 hours/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	6		
Continuous Assessment: 50%								
Continuous Assessment Group work (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 in the early weeks of Semester and approved by the instructor. Students are required to conduct analysis and discuss selected topics, and present their findings to the class by the end of the semester. Individual assignment (In-class quiz/assignment and/or mini essays) In addition to the group report, each student has to undergo individual assignment and/or quiz	√	√	√	√	√	√	50%	
Examination (2-hour, written, closed-book)	√	√	√	√			50%	
**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 should 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)
Coursework	Achieve all MILOs by group work and individual assignments	High (overall score more than 80%)	Significant (overall score more than 60%)	Moderate (overall score more than 40%)	Basic (overall score more than 30%)	Not even reaching marginal levels (overall score less than 30%)
Examination	Achieve all MILOs by reflected by examination results	High (score more than 80%)	Significant (score more than 60%)	Moderate (score more than 40%)	Basic (score more than 30%)	Not even reaching marginal levels (score less than 30%)

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 society, private 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, Start-up ecosystem, Environment protection and social responsibilities
- Current and future development of engineers in Intelligent Manufacturing Engineering discipline, and career prospect

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.	Karen Gadd (2011) "TRIZ for Engineers: Enabling Inventive Problem Solving", Wiley
2.	Peter Thiel (2014) "Zero to One: Notes on Startups, or How to Build the Future"
3.	Kai-Fu Lee (2018) "AI Super-Powers: China, Silicon Valley and the New World Order", Houghton Mifflin Harcourt
4.	Engineering peace and justice : the responsibility of engineers to society by P. Aarne Vesilind. New York ; London : Springer, 2010.
5.	Alexander Osterwalder & Yves Pigneur (2010) "Business Model Generation : A Handbook for Visionaries, Game Changers, and Challengers", Wiley
6.	Ethics in science and engineering by James G. Speight and Russell Foote. Hoboken, N.J. : Wiley ; Salem, Mass. : Scrivener, c2011.

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