City University of Hong Kong
Course Syllabus

offered by Department of Electrical Engineering
with effect from Semester A in 2021/2022

Part I Course Overview

Course Title:	Engineers in Society
Course Code:	EE3012
Course Duration:	One Semester (13 weeks)
Credit Units:	3
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)*	Nil
Precursors: *(Course Code and Title)*	Nil
Equivalent Courses: *(Course Code and Title)*	EE2066 Engineers in Society
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

The course aims to provide students with knowledge in the obligations, roles and professional conduct of an engineer in a modern society. It stimulates students to have a basic awareness of the legal, environmental and socio-economic factors (economic, ethics, etc.) which have a significant impact on engineering design. Eminent professionals are invited to deliver some of the lectures, aiming to provide students with an element of social analysis adequate to the society in which they will work in.

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 and basic technological issues relating to the local industry – Hong Kong, Pearl River Delta and Greater China. Recognise on the world-wide technology trend and innovation.		✓	✓	
2.	Recognise the impact of technology on the society, and economy of the world. Appreciate the responsibilities of environmental protection, health and safety.		✓	✓	
3.	Describe the basic principles in engineering design, presentation in engineering and entrepreneurship.		✓	✓	
4.	Characterize and analyze the important kinds of ethical issues and rules of conduct for the profession associated with contemporary science and technology.		✓	✓	
		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			
Lecture	Key concepts are described and illustrated	✓	✓	✓	✓			2 hrs/week (9 weeks)
Tutorials	Key concepts are worked out and presented	✓	✓	✓	✓			2 hrs/week (4 weeks)

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: 50%								
Tests (min.: 2)	✓	✓	✓	✓			30%	
#Assignments (min.: 3)	✓	✓	✓	✓			20%	
Examination: 50% (duration: 2hrs , if applicable)								
Examination	✓	✓	✓	✓			50%	
** The weightings should add up to 100%.*							100%	

Remark:

To pass the course, students are required to achieve at least 30% in course work and 30% in the examination.

may include homework, tutorial exercise, project/mini-project, presentation

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. Coursework	Achievements in CILOs	High	Significant	Moderate	Basic	Not even reaching marginal levels

6. Constructive Alignment with Major Outcomes

MILO No.	How the course contribute to the specific MILO(s)
6	Awareness of professional and ethical responsibilities.
8	Knowledge in contemporary issues and an awareness of the impact of engineering technology in a broad, global and societal context.

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

1. Keyword Syllabus

1.1 Introduction to Local Industry

Overview of electronics, materials and IT industries in Hong Kong, and mainland China. The interaction and link of local industry with the Pearl River Delta, and Greater China, Asia Pacific Region, Europe, North America and other newly industrialized countries. Current socio-economic issues in local industry, and its impact on engineering and manufacturing technology.

1.2 Society and Engineering

Overview and analysis of the economic, political and social structure of Hong Kong in relation to engineering activities. The role and obligation of an engineer towards society.

1.3 Introduction to Product Engineering

Current quality assurance practices in Hong Kong. Overview of local product engineering skills: integration of design, research, development, production, marketing and sales. Technology transfer. Market competition: price, quality, delivery and product.

1.4 Business Fundamentals for Engineers

Product Life Cycle, Introduction to fundamental elements of business in the engineering sector. Overview of Sales / Marketing management for technical products. Selected case examples.

1.5 Ethics in Practice

Professional ethics are important to engineers, Offering and acceptance of illegal advantages, Preservation of confidential information, Avoid conflicts of interest.

1.6 Health and safety

Engineer's duties for securing the health, safety and welfare of persons at work, for protecting others against risks to health or safety in connection with the activities of persons at work, for controlling the keeping and use and preventing the unlawful acquisition, possession and use of dangerous substances, and for controlling certain emissions into the atmosphere.

1.7 Environmental Control

Overview of methods, products, and technologies to reduce, reuse, and recycle industrial wastes at the point of generation. Strategies may include, but are not limited to: process changes, separations, feedstock substitutions, product modifications and reformulations, and recovering and treating process wastes for reuse on-site or by another company.

1.8 Topics of current interest

A selection of about 6 topics of current interest is delivered by guest lecturers who are eminent practitioners in industry and commerce. These may vary from year to year as the guest lecturers may change. For example, the topics may include the art of technical sales, knowledge based economy, public speaking for engineers, TRIZ as means of systematic product innovations, how to build up a charming relationship in professions.

1.9 Professional Career Advising

Professionals are invited from the industry to give talks on career development, SWOTs, manpower demand in the field etc. Data collected from graduate employment surveys are provided to students for reference.

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.	N/A

2.2 Additional Readings

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

1.	L. S. Hjorth, B. A. Eichler, A. S. Khan, J. A. Morello: Technology and Society – issues for the 21st century and beyond. (Pearson, 3rd edition, 2008)
2.	Chengi Kuo: Business Fundamentals for Engineers, (McGraw-Hill, 1992)
3.	J. D. Kemper: Engineers and Their Profession, (5th Ed. 2001)
4.	Website of HKIE http://www.hkie.org.hk/~Eng/html/home/index.asp