

**City University of Hong Kong
Course Syllabus**

**offered by
Department of Biomedical Engineering /
Department of Mechanical Engineering
with effect from Semester A 2018 / 19**

Part I Course Overview

Course Title:	Health, Safety and Environment						
Course Code:	GE2321						
Course Duration:	1 semester						
Credit Units:	3 credits						
Level:	B2						
Proposed Area: <i>(for GE courses only)</i>	<table border="1"><tr><td><input type="checkbox"/></td><td>Arts and Humanities</td></tr><tr><td><input type="checkbox"/></td><td>Study of Societies, Social and Business Organisations</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Science and Technology</td></tr></table>	<input type="checkbox"/>	Arts and Humanities	<input type="checkbox"/>	Study of Societies, Social and Business Organisations	<input checked="" type="checkbox"/>	Science and Technology
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<input type="checkbox"/>	Study of Societies, Social and Business Organisations						
<input checked="" type="checkbox"/>	Science and Technology						
Medium of Instruction:	English						
Medium of Assessment:	English						
Prerequisites: <i>(Course Code and Title)</i>	Nil						
Precursors: <i>(Course Code and Title)</i>	Nil						
Equivalent Courses: <i>(Course Code and Title)</i>	Nil						
Exclusive Courses: <i>(Course Code and Title)</i>	Nil						

Part II Course Details

1. Abstract

(A 150-word description about the course)

“Modernisation” has often come at a terrible cost to public health, safety, and the environment. For example, technology has made it possible to cut forests faster and to pollute virtually all corners of the earth. In this interdisciplinary course, students will learn how technology can be used to improve public health, safety and environment while retaining profit as the driving force for further development. Much attention is on the societal perceptions and concerns (including myths) about environmental, health and safety impact of various technologies, including nuclear energy generation and alternative green fuels. Healthy and safe living habits will be discussed as well.

The course aims to raise student awareness about the need to care for the environment and public health and safety. Students will learn elements of environmental management (pollution prevention, air emission/abatement, waste treatment/disposal, waste water), safety management (accident prevention, fire and life safety, radiation, noise) and occupational health (hazards, monitoring, communication). Topics may include how green the green fuels are and how safe nuclear energy is.

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 elements of environmental, safety and occupational-health management together with the need for innovation in these fields.		✓		
2.	Analyse impact upon the environment and public health and safety of various energy sources and technologies more general.			✓	✓
3.	Describe societal perceptions and concerns regarding public policies on technology.		✓		
		N.A.			

* If weighting is assigned to CILOs, they should add up to 100%.

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	
Lecture and Tutorial	<p>Lecture: Elements of the environmental, safety and occupational-health management are introduced with critical assessment of technological limits and suggestions for the need for further innovation.</p> <p>Tutorial: Class is divided into groups of 4 to 5 students. Knowledge acquired in lectures and through learning while working on group mini-projects is applied to solve realistic case studies under the guidance of tutors or teaching staff. Also, reporting on self-study exercises and on the mini project.</p>	✓			10 hours (lectures) 5 hours (tutorial)
Lecture and Tutorial	<p>Lecture: impact upon the environment and public health and safety of various energy sources and technologies more general are introduced and discussed critically.</p> <p>Tutorial: Class is divided into groups of 4 to 5 students. Knowledge acquired in lectures and through problem-based learning related to group mini-projects is applied to evaluate technological impacts in scenario-type events under the guidance of tutors and teaching staff. Also, reporting self-study exercises and reporting on the mini project.</p>		✓		8 hours (lectures) 4 hours (tutorial)
Lecture and Tutorial	<p>Lecture: societal perceptions and concerns are critically assessed regarding public policies on, and societal concerns about, technologies affecting environment, health and safety.</p> <p>Tutorial: Class is divided into groups of 4 to 5 students. Knowledge acquired in lectures and through the group mini-projects is applied to assess societal concerns</p>			✓	8 hours (lectures) 4 hours (tutorial)

	and their plausibility regarding impact of particular technological options on the environment, health and safety. This is done under the guidance of tutors and teaching staff. Also, reporting self-study exercises and reporting on the mini project.				
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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		
Continuous Assessment: 70%					
Reports on Self-study	✓	✓	✓	15%	
Discovery-based Mini Project Reports	✓	✓	✓	40%	
Participation (incl. quality)	✓	✓	✓	15%	
Examination: 30% (duration: 1.5 hours)					
* The weightings should add up to 100%.				100%	

For a student to pass the course, at least 30% of the maximum mark for both coursework and 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)
1. Reports on Self-study	Evidence of planning and conceptualisation for the project.	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Discovery-based Mini Project Reports	The overall success of the project and the extent of the discovery component in it.	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Participation (incl. quality)	The quantity and quality of participation will be assessed based on the number and kind of questions asked or suggestions offered to other student groups, and the quality of confidential assessment of other groups' projects.	High	Significant	Moderate	Basic	Not even reaching marginal levels
4. Examination	Comprehension of important concepts presented in class, including those in student projects.	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.)

Chemical, fire and electric safety, hazardous waste storage and containment, industrial hygiene, occupational health, hazard assessment, personal protective equipment, industrial ventilation, ionizing and nonionizing radiation, noise, ergonomics, pollution prevention, waste and wastewater treatment and disposal, air emission and abatement, environmental statistics, green energy, societal issues and concerns on environment, health and safety.

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.)

During the self-study process, students will determine what reading would be appropriate.

A possible process of selecting the reference material will be explained in class.

Online Resources:

Gayle Woodside and Dianna Kocurek, Environmental, safety, and health engineering, John Wiley & Sons. Inc. (full text [available online](#))

- A. Please specify the Gateway Education Programme Intended Learning Outcomes (PILOs) that the course is aligned to and relate them to the CILOs stated in Part II, Section 2 of this form:

GE PILO	Please indicate which CILO(s) is/are related to this PILO, if any (can be more than one CILOs in each PILO)
PILO 1: Demonstrate the capacity for self-directed learning	The innovation aspect requires a search for a solution, necessitating self-directed learning beyond what had been taught in class.
PILO 2: Explain the basic methodologies and techniques of inquiry of the arts and humanities, social sciences, business, and science and technology	CILO number 1.
PILO 3: Demonstrate critical thinking skills	CILO number 2.
PILO 4: Interpret information and numerical data	(Partially).
PILO 5: Produce structured, well-organised and fluent text	
PILO 6: Demonstrate effective oral communication skills	
PILO 7: Demonstrate an ability to work effectively in a team	Much work will be group-work.
PILO 8: Recognise important characteristics of their own culture(s) and at least one other culture, and their impact on global issues	
PILO 9: Value ethical and socially responsible actions	The very theme(s) of the course is(are) a matter of ethical and social responsibility.
PILO 10: Demonstrate the attitude and/or ability to accomplish discovery and/or innovation	At the attitude- (and partially ability-) building level, discovery is integrated into this course.

GE course leaders should cover the mandatory PILOs for the GE area (Area 1: Arts and Humanities; Area 2: Study of Societies, Social and Business Organisations; Area 3: Science and Technology) for which they have classified their course; for quality assurance purposes, they are advised to carefully consider if it is beneficial to claim any coverage of additional PILOs. General advice would be to restrict PILOs to only the essential ones. (Please refer to the curricular mapping of GE programme: http://www.cityu.edu.hk/edge/ge/faculty/curricular_mapping.htm.)

- B. Please select an assessment task for collecting evidence of student achievement for quality assurance purposes. Please retain at least one sample of student achievement across a period of three years.

Selected Assessment Task
Student presentations as evidenced by their presentation or video files will be kept for quality assurance purposes.