# SEE4001: ENGINEERS IN SOCIETY

**Effective Term**
Semester A 2022/23

## Part I Course Overview

**Course Title**
Engineers in Society

**Subject Code**
SEE - School of Energy and Environment
**Course Number**
4001

**Academic Unit**
School of Energy and Environment (E2)

**College/School**
School of Energy and Environment (E2)

**Course Duration**
One Semester

**Credit Units**
1

**Level**
B1, B2, B3, B4 - Bachelor's Degree

**Medium of Instruction**
English

**Medium of Assessment**
English

**Prerequisites**
Nil

**Precursors**
Nil

**Equivalent Courses**
Nil

**Exclusive Courses**
Nil

## Part II Course Details

**Abstract**
The course is designed to provide students with knowledge in the role of professional engineers in practice and their responsibilities towards the profession, colleagues, employers, clients, the public and the contemporary society. Eminent

professionals are invited to deliver some of the lectures, aiming to provide students with an insight into the roles and responsibilities of practicing professional engineers at work. It aims to enable students to:

a. Appreciate the historical context of modern technology and the nature of the process whereby technology develops and its relationship between technology and environment and the implied social costs and benefits.
b. Explain the social, political, legal, economic and ethical responsibility and accountability of a profession in engineering and the organizational activities of professional engineering institutions.
c. Know about the major safety, health, environment, ecology and sustainability considerations which influence engineering judgements.
d. Have knowledge of the capacity of energy and environmental engineers in the innovative development of green and low carbon economy.

**Course Intended Learning Outcomes (CILOs)**

| | **CILOs** | **Weighting (if app.)** | **DEC-A1** | **DEC-A2** | **DEC-A3** |
|---|---|---|---|---|---|
| 1 | Discover and evaluate the effects on the use of technology relating to social, cultural, economic, legal, health and safety, environment, welfare and daily life of today's society. | 20 | x | x | |
| 2 | Explain the importance of professional training of institutions, professional conduct, ethical obligations and legal responsibilities in various local and overseas engineering activities. | 20 | | | |
| 3 | Discuss and assess the role of engineering in environmental and ecological protection, and health and safety in the workplace. | 20 | | | |
| 4 | Describe the capacity of energy engineers in the innovative development of green, clean, safe and sustainable energy business/industry and low carbon economy. | 40 | | | |

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 real-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.

**Teaching and Learning Activities (TLAs)**

| | TLAs | Brief Description | CILO No. | Hours/week (if applicable) |
|---|---|---|---|---|
| 1 | Lecture | Professional engineers, eminent industrialists and other relevant professionals will be invited as guest lecturers to share their experience. | 1, 2, 3, 4 | 1 |

**Additional Information for TLAs**

The TLAs are made up of a mixture of lectures and a series of group work 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 group work or individual assignments. Tutorials provide the forum for case analyses, topical discussions and interactions among students and tutor.

**Assessment Tasks / Activities (ATs)**

| | ATs | CILO No. | Weighting (%) | Remarks (e.g. Parameter for GenAI use) |
|---|---|---|---|---|
| 1 | Assignments | 1, 2, 3, 4 | 100 | |

**Continuous Assessment (%)**

100

**Examination (%)**

0

**Examination Duration (Hours)**

N/A

**Additional Information for ATs**

Examination duration: N/A
Percentage of coursework, examination, etc.: 100% by coursework

To pass a course, a student must do ALL of the following:
1) obtain at least 30% of the total marks allocated towards coursework (combination of assignments, pop quizzes, term paper, lab reports and/ or quiz, if applicable);
2) obtain at least 30% of the total marks allocated towards final examination (if applicable); and
3) meet the criteria listed in the section on Assessment Rubrics.

**Assessment Rubrics (AR)**

**Assessment Task**

Assignments

**Criterion**

Ability to describe role and responsibilities of professional engineers.

**Excellent (A+, A, A-)**

High

**Good (B+, B, B-)**

Significant

**Fair (C+, C, C-)**
Moderate

**Marginal (D)**
Basic

**Failure (F)**
Not even reaching marginal levels

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# Part III Other Information

**Keyword Syllabus**

- Impact of technology on society: Innovation and creativity, the history and the trend of technology on the social and cultural on society
- Role of professional engineers in practice and their responsibilities towards the profession, colleagues, employers, clients and the public
- Capacity of energy and environmental engineers in the development of clean and sustainable energy industry and low carbon economy

**Reading List**

**Compulsory Readings**

| | Title |
|---|---|
| 1 | Charles E. Harris, Michael S. Pritchard & Michael J. Rabins, Engineering ethics: concepts and cases, Publ. Boston, MA : Wadsworth Cencage Learning, 2014. |
| 2 | John Dustin Kemper, Engineers and their profession 4th ed., Publ. Philadelphia : Saunders College Pub., 1990. |
| 3 | Carl Mitcham, & R. Shannon Duval, Engineering ethics, Publ. Upper Saddle River, N.J. : Prentice Hall, 2000. |
| 4 | Johnson, F. Stephen, Gostelow, J.P. and King, W. Joseph, Engineering and society challenges of professional practice, Upper Saddle River, N.J, Prentice Hall, 2000. |
| 5 | Hjorth, Linda; Eichler, Barbara, Ahmed, Technology and Society Abridge to the 21st Century, Upper Saddle River, N.J. Prentie Hall, 2003. |
| 6 | Munasinghe, M. Sustainable Development in Practice, New York: Cambridge, 2009. |

**Additional Readings**

| | Title |
|---|---|
| 1 | Engineers by The Hong Kong Institution of Engineers |
| 2 | Times |
| 3 | South China Moring Post |
| 4 | China Daily |