

MNE4066: PROFESSIONAL ENGINEERING PRACTICE

Effective Term

Semester A 2022/23

Part I Course Overview

Course Title

Professional Engineering Practice

Subject Code

MNE - Mechanical Engineering

Course Number

4066

Academic Unit

Mechanical Engineering (MNE)

College/School

College of Engineering (EG)

Course Duration

One Semester

Credit Units

3

Level

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

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Normative 4-year degree students must complete a minimum of 72 CUs to be eligible

Advanced Standing I students must complete a minimum of 42 CUs to be eligible

Advanced Standing II students must complete a minimum of 21 CUs to be eligible

Precursors

Nil

Equivalent Courses

MBE4066/BME4066/SEEM4066/JC4066 Professional Engineering Practice or
MNE2066 Engineers in Society

Exclusive Courses

Nil

Part II Course Details

Abstract

This course provides an over-arching coverage of the role of engineers in society. It strengthens students' assimilation of fundamental engineering and technical subject matters of a BEng programme and their appreciation of modern engineering's economic, political, environmental and ethical implications.

With the increasing integration of the industrial fabrics of Hong Kong and Southern China, the course will also examine on the role of engineering in the past and future development of the mechanical, manufacturing, power generation and healthcare industry in Hong Kong but with a global perspective.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 DEC-A2 DEC-A3 app.)			
1	Explain the impact of technology and engineering on the daily life, economy, and politics of today's society.		x	x	
2	Discuss the role of an engineer in environmental protection and health and safety in the workplace.		x	x	
3	Distinguish the legal responsibilities and ethical obligations of a professional engineer.		x	x	
4	Describe the role of engineering in the development of related industries in Hong Kong and China.			x	
5	Communicate effectively the outcome of group work and individual assignment.			x	

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	Made up of a mixture of lectures and group work. Professional engineers, eminent industrialists and ICAC officers will be invited as guest lecturers to enrich students' learning. Students' learning on each lecture topic is complemented by selected case studies, assignments and follow-up group work or individual assignments according to their Majors. Tutorials provide the forum for case analyses, topical discussions and interactions among students and tutor.	1, 2, 3, 4	3 hrs/week

Assessment Tasks / Activities (ATs)

ATs		CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Group Work	1, 2, 3, 4, 5	40	Case Analyses and Discussions + Presentation
2	Individual Assignments	1, 2, 3, 4, 5	30	Mini essays and Term Paper + Presentation

Continuous Assessment (%)

70

Examination (%)

30

Examination Duration (Hours)

1.5

Additional Information for ATs

For a student to pass the course, at least 30% of the maximum mark for both coursework and examination should be obtained.

Assessment Rubrics (AR)**Assessment Task**

Group Work

Criterion

1.1 Ability to Identify and Balance between engineering development with broad spectrum of non-engineering issues including but not limited to cultural, professional, legal, social, economic, safety and health, and environmental aspects.

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

Assessment Task

Individual Assignments

Criterion

2.1 Ability to Identify issues related to environment, safety, ethnics, and impact of technology when developing an engineering product or service.

2.2 Ability to Balance between engineering ethnics and competitiveness.

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

Assessment Task

Examination

Criterion

3.1 Ability to identify broad spectrum of non-engineering issues including but not limited to cultural, professional, legal, social, economic, safety and health, and environmental aspects.

3.2 Ability to apply engineering ethics in engineering related works.

3.3 Ability to balance between engineering ethics and competitiveness.

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

Additional Information for AR

Note: For a student to pass the course, at least 30% of the maximum mark for both coursework and examination should be obtained.

Part III Other Information**Keyword Syllabus**

- Related industrial environment of Hong Kong, China and the world.
- Engineers in private practices and public sectors - safety and health, professional ethics and legal responsibilities.
- Innovative and creative design – patents and copyrights.
- Engineers in society – environment protection and social responsibilities.

Reading List**Compulsory Readings**

Title	
1	Nil

Additional Readings

Title	
1	Charles E. Harris, Michael S. Pritchard & Michael J. Rabins, Engineering Ethics: Concepts and Cases, Belmont, California: Wadsworth, ISBN: 978-0495502791.
2	Charles B. Fleddermann, Engineering Ethics, Upper Saddle River: Prentice Hall, ISBN: 9780132145213.
3	Carl Mitcham & Shannon R. Duval, Engineer's Toolkit: A First Course in Engineering-Engineering Ethics, Upper Saddle River, N.J.: Prentice Hall, ISBN: 978-0805364361.