

SDSC4066: PROFESSIONAL ENGINEERING PRACTICE

Effective Term

Semester B 2022/23

Part I Course Overview

Course Title

Professional Engineering Practice

Subject Code

SDSC - School of Data Science

Course Number

4066

Academic Unit

School of Data Science (DS)

College/School

School of Data Science (DS)

Course Duration

One Semester

Credit Units

3

Level

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

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

For normative 4-year student: must complete a minimum of 60 CUs to be eligible;
For Advanced Standing I student: must complete a minimum of 30 CUs to be eligible;
For Advanced Standing II student: must complete a minimum of 15 CUs to be eligible

Precursors

Nil

Equivalent Courses

MEEM4066/MBE4066/JC4066 Professional Engineering Practice

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 manufacturing and industry in Hong Kong and the Pearl River Delta.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Explain the impact of technology and engineering on the daily life, economy, and politics of today's society.	10	x		
2	Discuss the role of an engineering in environmental protection and health and safety in the workplace	30	x	x	
3	Clarify the legal responsibilities and ethical obligations of a professional engineer	30	x	x	
4	Describe the role of engineering in the development of manufacturing and industry in Hong Kong and China	20	x	x	
5	Communicate effectively the outcome of groupwork and individual assignment	10	x	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	The TLAs are made up of a mixture of lectures and a series of groupwork 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 groupwork or individual assignments.	1, 2, 3, 4	2 hours/week
2	Tutorial(Group Work Individual Work)	Tutorials provide the forum for case analyses, topical discussions and interactions among students and tutor.	1, 2, 3, 4, 5	1 hour/week

Assessment Tasks / Activities (ATs)

ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)	
1	Groupwork(Case analyses and discussions)	3, 4, 5	40	
2	Individual assignment(Mini essays and Term Paper)	1, 2, 3	60	

Continuous Assessment (%)

100

Examination (%)

0

Assessment Rubrics (AR)**Assessment Task**

Coursework

Criterion

Groupwork:Case analyses, presentation and discussions.

Failure (F)

Not even reaching marginal levels

Assessment Task

Coursework

Criterion

Individual assignment: Mini essay and Term Paper.

Failure (F)

Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

Industrial and manufacturing 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	Lecture notes

Additional Readings

Title	
1	Charles E. Harris, Michael S. Pritchard & Michael J. Rabins, Engineering ethics: concepts and cases, 5th Edition, Cengage Learning, 2013
2	John Dustin Kemper and Billy R. Sanders, Engineers and their profession 5th ed., Oxford University Press, 2000.