

Subject Description Form

Subject Code	ENG1003
Subject Title	Freshman Seminar for Engineering
Credit Value	3
Level	1
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	<p>The objectives of this subject are to:</p> <ol style="list-style-type: none"> (1) Introduce students to the engineering broad discipline and enthuse them about their major study (2) Cultivate students' creativity and problem-solving ability, and global outlook (3) Introduce students to the concept of entrepreneurship (4) Engage the students in desirable forms of learning at university that emphasizes self-regulation, autonomous learning and deep understanding
Intended Learning Outcomes	<p>Upon completion of the subject, students will:</p> <ol style="list-style-type: none"> (a) Be able to demonstrate an understanding and an enthusiasm about the engineering broad discipline and their major study (b) Develop their problem-solving ability and global outlook (c) Be able to demonstrate an understanding of entrepreneurship (d) Be able to research for information, formulate a project plan, and manage a project with initiative (e) Be able to demonstrate an understanding of academic integrity.
Subject Synopsis/ Indicative Syllabus	<p>1. Online Tutorial on Academic Integrity (4 hours*) Students will be required to complete successfully an <i>Online Tutorial on Academic Integrity</i> on or before week 5 of the first semester. The students will understand the importance of academic integrity by completing the Online Tutorial.</p> <p>2. Seminars (15 hours*) There will be seminars given by various speakers on various topics to introduce to students the engineering broad discipline, to enthuse them about their major study, to arouse students' interests in engineering and to cultivate their understanding of and sense of belonging to the discipline and the engineering profession, and to cultivate students' global outlook. The formats of the seminars may be, but not limited to, Departmental Seminars, and Renowned Speaker Seminar.</p> <p>3. Freshman Project (45 hours*) There will be practical workshops, presentation and demonstration sessions for the Freshman Project. The freshman project aims at developing students' creativity, problem-solving skills, research for information, and project management abilities through practical and hands-on tasks at a level commensurate with their first-year engineering backgrounds. Students will work in small groups under the guidance of teachers/instructors to design and implement an engineering solution to some given problems.</p>

	<p>4. <i>Entrepreneurship Project (45 hours*)</i> The entrepreneurship project is designed to develop students' appreciation and understanding about entrepreneurship and the commercialization process by attending lectures, workshops and tutorials. In the course of the Entrepreneurship Project, students will identify technology opportunities and learn the skills of preparing a simple business plan.</p> <p>(* Note: hours indicate total student workload)</p>
<p>Teaching/Learning Methodology</p>	<p><i>Online Tutorial on Academic Integrity</i> The <i>Online Tutorial on Academic Integrity (OTAI)</i> is developed by the University to help the students understand the importance of academic integrity. By going through the Online Tutorial, students will be aware of the importance of upholding academic integrity during University study. They will also learn good practices by which to stay clear of dishonest behaviors and academic plagiarism. Completing the OTAI is a completion requirement of Freshman Seminar. For successful completion of the OTAI, the students need to attempt the pre-test in the Tutorial, read all four modules in the Tutorial, obtain at least 75% in the post-test in the Tutorial and sign the Honour Declaration before the completion deadline. Students who fail to complete the OTAI before the completion deadline will fail the Freshman Seminar for Engineering.</p> <p><i>Seminars</i> The seminars (such as renowned speaker seminars and departmental seminars) are designed to arouse students' interest about engineering. The delivery mode will be <i>interactive</i> and <i>engaging</i>. Students will be motivated to search for information and do background reading. They will be encouraged to raise questions and discuss with the presenters. Assessment tasks (quizzes) will be designed to measure students' learning outcomes as well as to encourage participation and interaction.</p> <p><i>Freshman Project</i> For the Freshman Project, students will work collaboratively with their group members to design and implement an engineering solution to a given problem under the guidance of instructors. There will be close staff-students and students-students <i>interaction</i>. Students will be given opportunities to develop creativity, problem-solving skills, research for information and project management abilities. Assessment tasks will consist of demonstration, presentation, reports, and reflective essay writings. These are designed to evaluate individual student's performance and achievement of the relevant intended learning outcomes as well as to encourage active participation. Appropriate pedagogies will also be used to promote the "Learning to Learn" ability of students.</p> <p><i>Entrepreneurship Project</i> There will be lectures, workshops, and tutorials. A general overview of the concepts required to conduct the project will be provided to students through lectures. They will then work in small groups in a workshop to appreciate the essential elements in the development of a business plan and subsequently to produce a simple business plan and to present it to fellow classmates. Assessment will focus towards students' understanding about entrepreneurship, innovation and creativity.</p>

Assessment Methods in Alignment with Intended Learning Outcomes

Students' performance in this subject will be assessed by using a letter-grading system in accordance with the University's convention from grade F (failure) to A+. The relative weights of the different assessment components are as follows:

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)				
		a	b	c	d	e
Online Tutorial on Academic Integrity	0%					✓
Seminars Quizzes	10%	✓	✓			
Freshman Project Project demonstration, presentation, report and reflective essay writing	45%		✓		✓	
Entrepreneurship Project Business plan	45%			✓	✓	
Total	100 %					

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Quizzes (online or paper-based) can measure the students' *understanding* about the engineering discipline. Through reflective essays, students can reflect on their appreciation and understanding about the *engineering* discipline. Through project demonstration, presentation and project reports, students can demonstrate their *creativity and problem-solving skills abilities*. They can also demonstrate their *ability to research for information, formulate a project plan, and manage a project with initiative*. Through business plan, students can demonstrate their understanding about *entrepreneurship*.

Pass Conditions

In order to pass this subject, students must obtain a Grade D or above for total marks comprising the Seminars, Freshman Project and Entrepreneurship Project as described here AND successfully complete the Online Tutorial on Academic Integrity (OTAI) on or before week 5 of semester 1 as described in the previous section.

Student Study Effort Expected

Class contact:	
▪ Introduction and Seminars (such as Departmental Seminars, Renowned Speaker Seminar)	9 hours
▪ Freshman project: 3 hours per week for 5 weeks	15 hours
▪ Entrepreneurship project: 3 hours per week for 5 weeks	15 hours
▪ Other student study effort: <u>4</u> hours for Online Tutorial on Academic Integrity; <u>6</u> hours for seminars quizzes preparation; <u>60</u> hours for Freshman project and Entrepreneurship project: background information search, project work preparation, meeting and	70 Hours

	discussion, presentation and demonstration, and report writing.	
	<ul style="list-style-type: none"> ▪ Total student study effort 	109 Hours
Reading and References List	<p>H. Scott Fogler, Steven E. LeBlanc, Benjamin R. Rizzo, <i>Strategies for creative problem solving</i>, Upper Saddle River, N.J. : Prentice Hall, 2014 (3rd Edition)</p> <p>N.G. Siegel, <i>Engineering project management</i>, Hoboken, New Jersey: Wiley, 2019 (1st Edition)</p> <p>Gene Moriarty, <i>The engineering project: its nature, ethics, and promise</i>, University Park, Pa.: Pennsylvania State University Press, 2008.</p> <p>P. Swamidass, <i>Engineering Entrepreneurship from idea to business plan: a guide for innovative engineers and scientists</i>, New York: Cambridge University Press, 2016.</p> <p>The Hong Kong Institution of Engineers, “Engineering Our City”, Youtube clip ref. no. nYMml6vIVeQ</p> <p>HKIE Corporate Video, Youtube clip ref. no. INMVI8MuNEY</p>	

(revised) June 2021