GE2304: FOUNDATIONS OF INNOVATION AND ENTREPRENEURSHIP

Effective Term
Semester A 2024/25

Part I Course Overview

Course Title
Foundations of Innovation and Entrepreneurship

Subject Code
GE - Gateway Education
Course Number
2304

Academic Unit
Systems Engineering (SYE)

College/School
College of Engineering (EG)

Course Duration
One Semester

Credit Units
3

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

GE Area (Primary)
Area 3 - Science and Technology

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

This course aims to help university students to understand the personal characteristics and thinking styles of an innovator and entrepreneur. It also aims to nurture students' innovation attitude, entrepreneurial spirit and team collaboration skills in a multi-disciplinary environment. The course will provide an opportunity for students from engineering and sciences, social sciences, and management fields to learn together in their own mock companies and play the roles of CEO and various other managers to simulate the innovation and entrepreneurship process. Students will learn the basic skills of discover real-life problems, generate new ideas, propose new products and plan new enterprises. They will then learn to analyse the feasibility of the product/service from both technical and managerial aspects and write a simple business plan as a group task, and then do a mock presentation.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	To describe the characteristics and thinking of innovators and entrepreneurs.	5	x		
2	To identify different thinking styles associated with innovation.	5	x	x	
3	To discover problems, generate new ideas and propose new products.	30	x	x	x
4	To conduct basic but comprehensive feasibility study of a new product.	20		x	
5	To incorporate all the above factors into a simple business plan.	40		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.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecturing and Class activities	70% traditional offline lecturing in classroom and 30% online lecturing. Q&A, quiz, participation, and group discussions and the presentation of group projects.	1, 2, 3, 4, 5	39 hrs/semester

2	Additional consultation	Additional one hour consultation per week after class on projects or products production if any (e.g., 3D printing)	1, 2, 3, 4, 5	13 hrs/semester

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Class activities and assignments	1, 2, 3, 4, 5	10	
2	Group project	3, 4, 5	40	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Additional Information for ATs

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

Assessment Rubrics (AR)

Assessment Task

Class activities and assignments

Criterion

Q&A, short quiz, and group discussions. A scorecard will be used to measure how active a group will be in the class.

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

Group project

Criterion

The creativity, technical feasibility, market feasibility, financial viability of the project report and presentation. Individual students' participation and contribution in project work will be assessed by team members.

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
Students' ability to discover daily problems, generate new idea to solve the problem, proposal of a product/service, and development of a simplified business plan and presented it accordingly.

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

Part III Other Information

Keyword Syllabus

CILO 1: Describe innovators and entrepreneurs (week 1-3)

- Introduction to creativity, innovation and entrepreneurship (what are the differences?)
- Personal characteristics of innovators and entrepreneurs (who are they?),
- Strength and weakness of HK/China university students in innovation and entrepreneurship (can HK/china students be innovative/entrepreneurial?).

CILO 2: Thinking style and assessment (week 4-5)

- Assessment of thinking patterns,
- Cultural differences and its impact on thinking (are western people more innovative and entrepreneurial than Chinese?)

CILO 3: Idea generation and sources of innovation (week 6-7)

- Innovation based on new technologies (e.g, Nano materials do not get dirty, will there any new products based on this feature?)
- Innovation based on daily problem (A person does not want to go to the barbershop, will there any new product to help him?)

CILO 4: Feasibility of innovation and entrepreneurship (week 8-10)

- Technological feasibility (Is the technology available or can be made?)
- Market feasibility (who will need it? Where to sell it?)
- Financial resources and feasibility (Can you make money?)
- Social and environmental consideration (is it social and environmental friendly?)

CILO 5: Integration & process of innovation and entrepreneurship (week 11-12)

- From idea generation, feasibility study to implementation (Is innovation and entrepreneurship a lucky bingo or a tedious process?)
- Development of business plan (how to record the details of your idea and justification as well as implementation plan?)

Course review (Week 13)

- Introduction to on-campus entrepreneurial activities and business plan competitions
- The influence of entrepreneurial education on entrepreneurial intention
- Student feedback and course review

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Drucker, F. Peter (1985) Innovation and Entrepreneurship, Harper Business, New York.
2	Zimmerer, Thomas W. and Scarborough, Norman M. (2008) Essentials of entrepreneurship and small business management, Upper Saddle River, NJ.
3	Michalko, Michael (1991) Thinkertoys, Ten Speed Press, Berkeley, California. (chapter 4 and 8)
4	Boyett, Joseph H and Boyett Jimmie (2001) The Guru Guide to Entrepreneurship: a concise guide to the best ideas from the world’ s top entrepreneurs, John Wiley & Sons, Inc. NY.
5	Roberts, Lewis and Weale, Albert (ed.) (1991) Innovation and environmental risk, London : Belhaven Press.
6	Balanko-Dickson, G. Tips and Traps for writing an effective business plan, McGraw-Hill, NY.
7	Sun, Hongyi (2007) “A balanced philosophy for education of creativity, innovation and entrepreneurship” 2007 International Conference on Management Science and Engineering, 20-22 August, Harbin, China.

Annex (for GE courses only)

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:

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

3

PILO 2: Explain the basic methodologies and techniques of inquiry of the arts and humanities, social sciences, business, and science and technology

2, 3, 4

PILO 3: Demonstrate critical thinking skills

1, 2

PILO 4: Interpret information and numerical data

4

PILO 6: Demonstrate effective oral communication skills

3, 4, 5

PILO 7: Demonstrate an ability to work effectively in a team

3, 4, 5

PILO 10: Demonstrate the attitude and/or ability to accomplish discovery and/or innovation

1, 2, 3, 4, 5

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

ATA 1: A scorecard will be used to measure how active a group will be in the class and class activity scores.

ATA 2: Millstone reports reporting problem discovery, idea generation and product concept.

ATA 3: Project report with creative solutions or products (physical products are optional, depending on TED or SYE support and technical feasibility of the products)