City University of Hong Kong
Course Syllabus

offered by Department of Systems Engineering
with effect from Semester A 2024 / 25

Part I   Course Overview

Course Title:	Technological Innovation and Entrepreneurship
Course Code:	SYE6012
Course Duration:	One Semester
Credit Units:	3
Level:	P6
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	Nil
Precursors: *(Course Code and Title)*	SEEM5010 Engineering Management Principles and Concepts (offered until 2021/22) or ADSE5010 Engineering Management Principles and Concepts or SYE5010 Engineering Management Principles and Concepts or an equivalent management course
Equivalent Courses: *(Course Code and Title)*	SEEM6012 Management of Technological Innovation (offered until 2021/22) ADSE6012 Management of Technological Innovation (offered until 2023/24)
Exclusive Courses: *(Course Code and Title)*	Nil

Part II   Course Details

1.   Abstract

The aim of this course is to develop an understanding of the processes involved in developing innovative technological products, and of the skills and techniques that can be usefully employed to effectively manage development projects. At the conclusion of the course, the student is expected to:

- appreciate the nature of innovative work in order to provide a framework for understanding the skills and techniques needed to manage innovative development projects;
- understand the nature of management in innovative technological projects and the skills and techniques which can be employed in these situations;
- understand the issues and techniques valuable for managing new product design to ensure the development of high-quality, manufacturable and cost-effective products; and
- be aware of the market issues and economic aspects of technological product development projects.

2.   Course Intended Learning Outcomes (CILOs)
(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	To **identify** and **describe** new ideas developed from group discussion and brain storming. Both technology-push and market pull will be used as sources of new ideas.	20%	✓	✓	✓
2.	To **describe** the basic process and principle of product and process innovation. To understand the different thinking pattern and work style along the process of innovation. To understand the difference between creative and critical thinking.	20%	✓		
3.	To **integrate** managerial issues like marketing, finance and team management into new product development. To conduct an innovation project from an entrepreneurial perspective rather than an engineering perspective.	20%	✓	✓	✓
4.	To **Identify** examples and cases of innovation in daily life and work in order to be inspired by the fact that innovation is every where.	10%	✓		
5.	To **combine** all the relevant engineering and managerial theories and methods and **apply** them in formulating a complete innovation and entrepreneurship project plan. The final goal is to integrate your creative ideas, physical design, patent search, marketing plan and financial plan into a complete entrepreneurial package.	30%	✓	✓	✓
		100%			

3. Learning and Teaching Activities (LTAs)
(LTAs designed to facilitate students' achievement of the CILOs.)

LTA	Brief Description	CILO No.					Hours/week (if applicable)
		1	2	3	4	5	
Class activities	Including lecturing, discussion, questioning, answering questions, participating in class assessments.	✓	✓	✓	✓	✓	26 hrs/sem
Group project and tutorial	Including idea generation, product design, market research, financial analysis and project report.	✓	✓	✓	✓	✓	13 hrs/sem

4. Assessment Tasks/Activities (ATs)
(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.					Weighting	Remarks
	1	2	3	4	5		
Continuous Assessment: 100 %							
Class activities	✓	✓	✓	✓	✓	20%	
Group project	✓	✓	✓	✓	✓	40%	
Continuous tests	✓	✓	✓	✓	✓	40%	
Examination: 0 % (duration: , if applicable)							
						100%	

5. **Assessment Rubrics**
   (Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Class activities	Active participation in class activities measured each time.	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Group project	Contribution to group project in terms of problem, idea, product concept and/or business plan preparation, plus peer assessment.	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Continuous tests	Identification of programmes and provide potential solutions.	High	Significant	Moderate	Basic	Not even reaching marginal levels

Class activities: Including Q&A, attendance, and class activities. A scorecard will be used to measure how active a group will be in the class. For all the questions asked in the class, a score will be given and recorded.

Group project: Including a written report, the final presentation, peer assessment and a preliminary patent application form. The distribution of the scores among team members will be adjusted by peer assessment.

Continuous tests: Continuous tests will be conducted in the middle and the end of the semester.

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. Class activities	Active participation in class activities measured each time.	High	Significant	Moderate/Basic	Not even reaching marginal levels
2. Group project	Contribution to group project in terms of problem, idea, product concept and/or business plan preparation, plus peer assessment.	High	Significant	Moderate/Basic	Not even reaching marginal levels
3. Continuous tests	Identification of programmes and provide potential solutions.	High	Significant	Moderate/Basic	Not even reaching marginal levels

Class activities: Including Q&A, attendance, and class activities. A scorecard will be used to measure how active a group will be in the class. For all the questions asked in the class, a score will be given and recorded.

Group project: Including a written report, the final presentation, peer assessment and a preliminary patent application form. The distribution of the scores among team members will be adjusted by peer assessment.

Continuous tests: Continuous tests will be conducted in the middle and the end of the semester.

Part III   Other Information (more details can be provided separately in the teaching plan)

1. **Keyword Syllabus**
   (An indication of the key topics of the course.)

   - Creativity, innovation and entrepreneurship
   - Creative thing and idea generation
   - Sources of innovation
   - Technology forecasting and assessment
   - Innovative team
   - Innovative organization
   - Management fundamentals for innovation project
   - Basic marketing and financial issues for innovation

2. **Reading List**
2.1 **Compulsory Readings**
   (Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	Dorf, R. C. and Byers, T. H. (2005) Technology Ventures: From Idea to Enterprise, McGraw Hill, Singapore.

2.2 **Additional Readings**
   (Additional references for students to learn to expand their knowledge about the subject.)

1.	Carayannis, Elias G. 2001, *Strategic Management of Technological Learning,* USA: CRC Press.
2.	Christiansen, James A. 2000, *Building the Innovative Organization: Management System that Encourage Innovation*, USA: St. Martin's Press, Inc.
3.	Drucker, Peter F. 1993, *Innovation and Entrepreneurship: Practice and Principles*, NY: Harper Business.
4.	Hofstede, Geert H. 1997, *Cultures and Organizations: Software of the Mind*, UK: McGraw-Hill.
5.	Jay, Ros 2000, *The Ultimate book of Business Creativity: 50 Great Thinking Tools for Transforming your Business,* UK: capstone Publishing.
6.	Ricchiuto, J. 1997, *Collaborative Creativity: Unleashing the Power of Shared Thinking*, Akron & New York Oakhill Press.
7.	Sherwood, Daniel 2002, *Creating an Innovative Culture,* UK: Capstone Publishing.
8.	Smith, D (2006) Exploring Innovation, McGraw-Hill.
9.	Tushman, Michael L. and Anderson, P. 1997, *Managing Strategic Innovation and Change: a Collection of Readings*, NY: Oxford University Press.