THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF INDUSTRIAL AND SYSTEMS ENGINEERING

BACHELOR OF SCIENCE (HONOURS) SCHEME IN LOGISTICS AND ENTERPRISE ENGINEERING

JUPAS Code: JS3571 / Scheme Code : 45499

Leading to the awards of
BSc (Hons) in Logistics Engineering with Management
Programme Code: 45499-LEM
BSc (Hons) in Enterprise Engineering with Management
Programme Code: 45499-EEM

PROGRAMME REQUIREMENT DOCUMENT

(For 2022/23 cohort)

September 2022

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SECTION 1 - GENERAL INFORMATION

Programme Title	BSc (Hons) Scheme in Logistics and Enterprise Engineering	
Award Title	BSc (Hons) in Logistics Engineering with Management (LEM)	BSc (Hons) in Enterprise Engineering with Management (EEM)
Mode of Study	Full-time	
Normal Duration	Normal Year 1 intake Full-time Mode: 4 Years Senior Year intake Full-time Mode: 2 Years	
Total Credit Requirements for Graduation	Normal Year 1 intake: Normally 121 Academic Credits* + 10 IC Training Credits Senior Year intake: Normally 64 Academic Credits* + 6 IC Training Credits *exact number of credits depends on the academic background of students	
Medium of Instruction	The programme is delivered in English version	
Host Department	Department of Industrial and Systems Engineering (ISE)	
Contributing Departments	AF, AMA, CLC, ELC, FENG, IC, LMS, MM	AF, AMA, CLC, ELC, FENG, IC, MM
Professional Recognition	The programme has been granted full accreditation by the Hong Kong Institution of Engineers (HKIE). Graduates have been granted full exemption (Logistics Stream) from the Professional Qualifying Examination (PQE) leading to the Chartered Membership of the Chartered Institute of Logistics and Transport in Hong Kong (CILTHK).	The programme is dual accredited by the Chartered Management Institute (CMI). Students will automatically receive a second professional qualification upon successful completion of the programme.

This Programme Requirement Document is subject to review and changes which the Department can decide to make from time to time. Students will be informed of the changes as and when appropriate.

SECTION 2 - OVERALL PROGRAMME AIMS AND INTENDED LEARNING OUTCOMES

2.1 UNIVERSITY MISSION

The design of this programme begins with the Mission Statement of the University stated below.

1. To pursue impactful research that benefits the world.
2. To nurture critical thinkers, effective communicators, innovative problem solvers and socially responsible global citizens.
3. To foster a University community in which all members can excel in their aspirations with a strong sense of belonging and pride.

2.2 RATIONALE AND PROGRAMME AIMS

Rationale and Aims of LEM award

Logistics Engineering with Management concerns the design, development, testing, implementation, control, operation, and maintenance of various systems involving the supply and distribution of goods and services and their associated information flow, with particular emphasis on the development of new systems and the reengineering of existing systems. This enables better understanding of the complex problems of logistics engineering and business operations, and draws on specialised knowledge and skills in engineering, management, and social sciences to specify, predict, and evaluate the results to be obtained from such systems.

The overall aim of this programme is to produce professionals who are competent in the design, implementation, control, execution and management of logistics systems, and related technologies used in industry. In this programme, students will study the underpinning knowledge and theory in Logistics Engineering and Management. As a consequence, the graduates of the programme will be the logistics engineers and professionals.

On completion of the programme students should

1. be versed in the activities that persons employed in the logistics engineering and management disciplines that they may be called upon to fulfill in the execution of their duties, recognising the necessity of life-long learning;
2. be capable of formulating problems, recognising areas in logistics organisation where improvements are necessary, devising and implementing strategies aimed at producing solutions by the application of procedures (the application of principles, techniques and methods) recognising their limitations so that they can design and manage logistics systems in the logistics industry;
3. have been exposed to a range of academic activities of such style and content as will enable them to develop effective communication skills (oral, written, graphical and numerical) so that they are able to work both independently and in groups;
4. have an awareness of the responsibilities and ethics of logistics engineering professionals and a realisation of the constraints imposed on the organisation by economic and environmental factors, recognising the global implications of the logistics industry;

5. have satisfied the examination requirements of the Chartered Institute of Logistics and Transport (CILT) if particular subjects are taken, leading to the Chartered Membership of the Chartered Institute of Logistics and Transport (CILT).

Rationale and Aims of EEM award

Enterprises are organisations, industrial and commercial, that shape the economy of the modern world. Many enterprises have struggled in their attempts to identify, capture and manage modern business opportunities. In order to be successful, they must be efficient in their operations and be able to adapt to changes in the environment, in the market and in customer expectations.

Enterprise Engineering is that body of knowledge, principles and practices concerned with the analysis, design, implementation, and operation of the enterprise using scientific methods and tools. Management can be defined as the art of getting things done through people. It is the process of leading and directing an organisation, often a business, through the deployment and use of resources.

Global competition and advancement in information technology has provided opportunities as well as challenges for enterprises. To ensure competitive edge, enterprises are concerned with rationalizing and streamlining their organisational design and operational workflow to add value to their products and services. To be successful, the mastering and integration of the latest knowledge and techniques in enterprise engineering, business management and information technology are needed. They are instrumental for the effective design, change and management of modern enterprises.

This programme aims to provide students with an integrated education at the honours degree level to enable them to understand, integrate and apply in a professional way the principles and practices of enterprise engineering and business management for effective planning and efficient operation of modern business enterprises in contemporary industrial and business environment.

On completion of this programme, students are expected to:

1. have the knowledge and understanding of the principles and practices of enterprise engineering and business management to serve the duties they may be called upon to manage effectively and efficiently modern enterprises in the contemporary industrial and business environment.

2. be capable of critical thinking in formulating problems and in developing and implementing strategies and courses of actions aimed at producing the most appropriate solution for a situation.

3. be able to communicate and work effectively as individuals and as members of teams.

4. have an awareness of the professional ethics, responsibilities and other societal factors in practicing enterprise engineering and management.

5. have been exposed to a range of activities that will enable them to sustain professional and personal growth through life-long learning.

2.3 RELATIONSHIP BETWEEN UNIVERSITY MISSIONS AND THE PROGRAMME AIMS

		UNIVERSITY MISSIONS		
		1	2	3
LEM PROGRAMME AIMS	1		X	X
	2	X	X	
	3	X		X
	4		X	X
	5		X	

		UNIVERSITY MISSIONS		
		1	2	3
EEM PROGRAMME AIMS	1	X	X	X
	2	X	X	
	3		X	X
	4			X
	5		X	X

2.4 INTENDED LEARNING OUTCOMES (ILOs) OF THE PROGRAMME

ILOs of LEM award

These are aligned with the programme aims specified in above.

1. To be versed in the activities of various logistics disciplines and in particular, engineering and management, so that graduates are able to appreciate and interact with other professionals during execution of their duties recognising the necessity of lifelong learning. *Category A*

2. To be able to formulate problems, recognise areas in an organisation where improvements are necessary devising and implementing strategies to produce solutions. *Category A*

3. To be able to apply knowledge, procedures (principles, techniques and methods), and, where appropriate, mathematics and science, to logistics problems, and to have sufficient understanding of their limitations so that they can select the most appropriate for a particular situation. *Category A*

4. To be able to design and manage systems of business, logistics and technology, and so to prepare them for the logistics industry. *Category A and Category B*

5. To be able to effectively communicate (oral, written, graphical and numerate), so as to enable them to function on multidisciplinary teams and as individuals where cooperation from others is necessary. *Category B*

6. To be aware of the responsibilities and ethics of logistics engineers and professionals in the modern world and possess a realisation of the constraints imposed on the enterprises by economic and environmental factors. *Category B*

7. To be able to understand the social, managerial and economic aspects of logistics businesses, between Hong Kong and Mainland China. *Category A and Category B*

8. To possess the ability to engage in lifelong learning for continuous career development and personal growth. *Category A and Category B*

ILOs of EEM award

On completion of the programme, students will:

1. be versed in the activities of typical modern enterprises and comprehend the essence of enterprise engineering with business management for efficient operation of enterprises to sustain competitiveness in attaining organisational goals and objectives in the modern industrial and business environment. *Category A*

2. be capable of formulating problems in enterprise engineering with management and applying the knowledge and procedures to devise and implement strategies and courses of actions aimed at producing solutions in modern enterprises while understanding their limitations, and the effects and constraints of economic and other environmental factors. *Category A*

3. be able to apply entrepreneurial skills in identifying, capturing and managing industrial and business opportunities. *Category A*

4. have gained some experience that will enable them to apply their knowledge to solve problems of the type and, eventually, of the complexity that may be encountered in practice. *Category A, B*

5. be able to work effectively as individuals using their own initiatives, and as members of teams. *Category A, B*

6. be able to effectively communicate (oral, written, graphical and numerate) with people where understanding and cooperation from others is necessary. *Category A, B*

7. be aware of the social responsibilities and the ethics of being a professional in practicing enterprise engineering and management in the modern world. *Category A, B*

8. be capable to engage in lifelong learning for continuous career development and personal growth. *Category A, B*

* ***Category A: Professional/Academic knowledge and skills, and***
Category B: Attributes for all-roundedness.

2.5 RELATIONSHIP BETWEEN AIMS AND INTENDED LEARNING OUTCOMES (ILOs) OF THE PROGRAMME

		ILOs OF THE PROGRAMME							
		1	2	3	4	5	6	7	8
LEM PROGRAMME AIMS	1	X							
	2		X	X	X				
	3					X			
	4						X	X	
	5								X

		ILOs OF THE PROGRAMME							
		1	2	3	4	5	6	7	8
EEM PROGRAMME AIMS	1	X		X					
	2		X		X				
	3					X	X		
	4							X	
	5					X			X

2.6 INSTITUTIONAL LEARNING OUTCOMES

PolyU is committed to nurturing competent professionals who are also critical thinkers, effective communicators, innovative problem solvers, lifelong learners, ethical leaders and socially responsible global citizens. The institutional learning outcomes for these attributes are provided as follows:

1. **Competent professional**: Graduates should be able to integrate and to apply in-depth discipline knowledge and specialised skills that are fundamental to functioning effectively as an entry-level professional (professional competence); understand the global trends and opportunities related to their professions (global outlook); and demonstrate entrepreneurial spirit and skills in their work, including the discovery and use of opportunities, and experimentation and novel ideas (entrepreneurship).

2. **Critical thinker**: Graduates should be able to examine and critique the validity of information, arguments, and different viewpoints, and reach a sound judgment on the basis of credible evidence and logical reasoning.

3. **Effective communicator**: Graduates should be able to comprehend and communicate effectively in English and Chinese, where appropriate, orally and in writing, in professional and day-today contexts.

4. **Innovative problem solver**: Graduates should be able to identify and define problems in professional and daily contexts, and produce innovative solutions to the problems.

5. **Lifelong learner**: Graduates should be able to recognise the need for continual learning and self-improvement, and be able to plan, manage and evaluate their own learning in pursuit of self-determined development goals.

6. **Ethical leader**: Graduates should have an understanding of leadership and be prepared to serve as a leader and a team player (leadership and teamwork); demonstrate self-

leadership and psychosocial competence in pursuing personal and professional development (intrapersonal competence); be capable of building and maintaining relationship and resolving conflicts in group work situations (interpersonal competence); demonstrate ethical reasoning in professional and day-to-day contexts (ethical reasoning).

7. **Socially responsible global citizen**: Graduates should have the capacity for understanding different cultures and social development needs in the local, national and global contexts (interest in culture and social development); and accept their responsibilities as professionals and citizens to society, their own nation and the world (social, national, and global responsibility).

2.7 RELATIONSHIP BETWEEN INTENDED LEARNING OUTCOMES (ILOs) OF THE PROGRAMME AND INSTITUTIONAL LEARNING OUTCOMES

		INSTITUTIONAL LEARNING OUTCOMES						
		1	2	3	4	5	6	7
ILOs OF LEM PROGRAMME	1	X						
	2				X			
	3	X	X					
	4	X			X			
	5			X				
	6						X	
	7					X		X
	8					X		

		INSTITUTIONAL LEARNING OUTCOMES						
		1	2	3	4	5	6	7
ILOs OF EEM PROGRAMME	1	X						
	2				X			
	3	X	X					
	4				X			
	5			X				
	6			X				
	7						X	X
	8					X		

2.8 COMPARISON TABLE BETWEEN THE STATED INTENDED LEARNING OUTCOMES (ILOs) OF THE LEM PROGRAMME AND THE HKIE REQUIRED OUTCOMES

HKIE Criteria	HKIE Required Outcomes	ILOs of the LEM Award
a	An ability to apply knowledge of mathematics, science, and engineering appropriate to the degree discipline	1
b	An ability to design and conduct experiments, as well as to analyse and interpret data	2, 4
c	An ability to design a system, component or process to meet desired needs within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	3, 4
d	An ability to function on multidisciplinary teams	2
e	An ability to identify, formulate, and solve engineering problems	2
f	An ability to understand of professional and ethical responsibility	6
g	An ability to communicate effectively	5
h	An ability to understand the impact of engineering solutions in a global and societal context, especially the importance of health, safety and environmental considerations to both workers and the general public	6, 7
i	An ability to stay abreast of contemporary issues	7, 8
j	An ability to recognize the need for, and to engage in life-long learning	8
k	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice appropriate to the degree discipline	1, 4
l	An ability to use the computer/IT tools relevant to the discipline with an understanding of their processes and limitations	3

2.9 CURRICULUM MAP THAT WE TEACH (T), GIVE STUDENTS PRACTICE (P) AND MEASURE (M) THE INTENDED LEARNING OUTCOMES (ILOs) OF THE PROGRAMME

LEM award

SUBJECT CODES	SUBJECT TITLES	ILOs OF THE PROGRAMME							
		1	2	3	4	5	6	7	8
AF2111	Accounting for Decision Making		TP	TP					
AF3513	Business Law			TP		P			
AF3625	Engineering Economics				TP		TP	TP	
AMA1110	Basic Mathematics I – Calculus and Probability and Statistics		TP	TP					
APSS1L01	Tomorrow's Leader					TP			
CLC1104C/P	University Chinese					TP			
CLC3241P	Professional Communication in Chinese					TP			P
ELC1011	Practical English for University Studies					TP			
ELC1012/3	English for University Studies					TP			
ELC2011	Advanced English Reading and Writing Skills					TP			
ELC2012	Persuasive Communication					TP			
ELC2013	English in Literature and Film					TP			
ELC2014	Advanced English for University Studies					TP			
ELC3531	Professional Communication in English for Engineering Students					TPM			P
ENG2003	Information Technology			TP		P			
ENG3004	Society and the Engineer	T	TP	TP		TP	TPM		
ENG4001	Project Management	T	TP	TP	TP	TP	P		P
ISE1001	Basic Artificial Intelligence and Data Analytics for Efficiency and Effectiveness in Daily Life	T	TP	TP					TP
ISE246	Introduction to Logistics Engineering	TP	TPM	TPM	TP	T		TP	
ISE247	Fundamental of Enterprise Systems	T	TP	TP		P			
ISE2001	Introduction to Enterprise Computing	TP	TP		TP	P			

SUBJECT CODES	SUBJECT TITLES	ILOs OF THE PROGRAMME							
		1	2	3	4	5	6	7	8
ISE2126	ERP Advanced	TP		TP					
ISE2129	Computing Tools in Resources Planning and Analysis	TP	TP						
ISE318	Industrial Engineering Techniques and Methods	T	TPM	TPM	TP	P			
ISE328	Technology and Applications of E-Business Systems			TP					
ISE373	Packaging and Storage Technology	TP	TP	TP	TP			TP	
ISE374	Logistics Facility Design	T	TP	TP	TP		T	P	
ISE3002	Planning of Production and Service Systems	TP	TP	TP	TP	T	TP	T	
ISE3018	Logistics Automation	T	TP	TP	TP		T	T	
ISE3103	Integrated Project	P	PM	P	P	PM	PM	PM	P
ISE448	Production Logistics	T	TP	TP	TP	P			
ISE449	Mobile Technologies for Logistics Systems	T	TP		TP	TP			
ISE450	Simulation of Logistics Systems	T	TP	TP	TP	P		P	
ISE460	Logistics Information Management	T			TP	TP			
ISE461	Green Legislation and Supply Chain Logistics						TP	TP	T
ISE4008	Individual Project	PM	PM	PM	PM	TPM		PM	TPM
LGT2009	Introduction to Shipping and Transport Logistics Operations	T	TP	TP	TP	P			
LGT3102	Management Science	TP	TP	TP	TP	TP			
LGT4106	Supply Chain Management	T	TP	TP	TP		P		
LGT4115	E-Commerce and Logistics	P	T	T	TP	P	TP	TP	T
MM1031	Introduction to Innovation and Entrepreneurship		TP				TP		
MM2021	Management and Organisation		TP		T	TP			
MM2711	Introduction to Marketing	T			TP	P		T	
Work Integrated Education (WIE)						PM			PM

GUR subjects of service-learning, cluster area requirement (CAR), and healthy lifestyle not directly linked with the outcomes are not included.

EEM award

SUBJECT CODES	SUBJECT TITLES	ILOs OF THE PROGRAMME							
		1	2	3	4	5	6	7	8
AF2111	Accounting for Decision Making	TP	TP		P			T	
AF3513	Business Law				TP		P		
AF3625	Engineering Economics		TP						
AMA1110	Basic Mathematics I – Calculus and Probability and Statistics		TP						
APSS1L01	Tomorrow's Leader						TP		
CLC1104C/P	University Chinese						TP		
CLC3241P	Professional Communication in Chinese						TP		
ELC1011	Practical English for University Studies						TP		
ELC1012/3	English for University Studies						TP		
ELC2011	Advanced English Reading and Writing Skills						TP		
ELC2012	Persuasive Communication						TP		
ELC2013	English in Literature and Film						TP		
ELC2014	Advanced English for University Studies						TP		
ELC3531	Professional Communication in English for Engineering Students						TPM		
ENG2003	Information Technology	TP	TP		TP				
ENG3004	Society and the Engineer	TP	TP					TP	
ENG4001	Project Management		TP	TP	TP	T	P		
ISE1001	Basic Artificial Intelligence and Data Analytics for Efficiency and Effectiveness in Daily Life	T	TP	T	TP				TP
ISE246	Introduction to Logistics Engineering	TP			T	TP	TP		
ISE247	Fundamental of Enterprise Systems	T	TP	T	TP	P	P		
ISE2001	Introduction to Enterprise Computing	T	TP		TP	P	P		

SUBJECT CODES	SUBJECT TITLES	ILOs OF THE PROGRAMME							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
ISE2126	ERP Advanced	TP			TP				
ISE2129	Computing Tools in Resources Planning and Analysis				TP				
ISE318	Industrial Engineering Techniques and Methods	T	TPM		TP	P	P		P
ISE328	Technology and Applications of E-Business Systems	T	TP	TP		P	P		
ISE369	Quality Engineering		TP				P		
ISE375	Enterprise Systems Modeling and Design	T	TP		P	P	P		
ISE376	Entrepreneurship and Innovation	T	T	TPM				TP	
ISE3001	Operations Research I	T	TP	TP	TP	P	P		
ISE3002	Planning of Production and Service Systems	TP	TP		TP		P	T	
ISE3005	Knowledge Management Systems and Application	T	TP		TP	P	P	T	TP
ISE3103	Integrated Project		TP		TP	P	TP		P
ISE431	Engineering Costing and Evaluation		TPM					TP	
ISE457	Business Process Management	T	TP		P	P			
ISE4004	Enterprise Resources Planning	T	P	P	TP	P	P		TP
ISE4008	Individual Project	PM	P	P	TPM	PM	PM	P	TPM
ISE4025	Enterprise Analytics	T	PM	P	TP		PM		
LGT2009	Introduction to Shipping and Transport Logistics Operations	T			TP	P	P		
MM1031	Introduction to Innovation and Entrepreneurship			TP	TP			TP	
MM2021	Management and Organisation	TP	TP		TP	TP	TP	TP	
MM2711	Introduction to Marketing	TP	TP		P			TP	
MM4311	Strategic Management	TP	TP	TP	TP	TP	TP	T	T
Work Integrated Education (WIE)						PM			PM

GUR subjects of service-learning, cluster area requirement (CAR), and healthy lifestyle not directly linked with the outcomes are not included.

2.10 FEEDBACK PROCESS

The Departmental Undergraduate Programme Committee and the Programme Leader are the elements of a feedback system in programme management. Their responsibilities include examining the information received from the stakeholders, modifying the plan as appropriate, using appropriate measurement data to evaluate the intended learning outcomes of the programme as the process is implemented, and suggesting changes in the subject content, the extracurricular content or any other revisions needed to improve the programme when its performance falls short of the benchmarks.

SECTION 3 - ADMISSION TO THE PROGRAMME

FREQUENCY OF ADMISSION AND REGISTRATION

3.1 Students are admitted into the programme on an annual basis into Semester 1 of the academic year.

MINIMUM ENTRANCE REQUIREMENTS

3.2 Candidates applying with Hong Kong Diploma Secondary Education (HKDSE) or equivalent.

- Level 3 in HKDSE English Language and Chinese Language; and
- Level 2 in Mathematics, Liberal Studies; and
- Level 3 in 2 Other Elective subjects [can include Extended Modules of Mathematics (M1/M2)]

The following Applied Learning Subjects are recognized for meeting the University entrance requirement and admission score calculation:

- Accounting in Practice;
- Applied Psychology;
- Aviation Studies;
- Business Data Analysis / Data Application for Business;
- Entrepreneurship for SME;
- Environmental Engineering;
- Food and Beverage Operations;
- Fundamental Health Care;
- Hotel Operations;
- Internet of Everything Application;
- Law Enforcement in Hong Kong;
- Marketing in Global Trade;
- Marketing and Online Promotion;
- Mobile and Online Apps Development;
- New Media Communication Strategies;
- Practical Psychology; and
- Purchasing and Merchandising.

CANDIDATES APPLYING WITH AN ASSOCIATE DEGREE OR HIGHER DIPLOMA

3.3 Candidates who hold an Associate Degree or Higher Diploma in Engineering, Business or related disciplines will be eligible to join the programme. The admission of such candidates will be at the discretion of the Programme Leader in conjunction with the Admissions Officer and the regulations regarding subject exemption and credit transfer arrangements stated in Section 6.8 – 6.18 will apply.

CANDIDATES APPLYING UNDER EXCEPTIONAL CIRCUMSTANCES

3.4 Candidates who hold equivalent qualifications to those stated above in 3.2 and 3.3 above are also eligible to join the programme.

PROGRAMME DECLARATION (NOT APPLICABLE TO SENIOR YEAR STUDENTS)

3.5 The BSc (Hons) Scheme in Logistics and Enterprise Engineering is composed of two awards: BSc (Hons) in Logistics Engineering with Management and BSc (Hons) in Enterprise Engineering with Management. Students admitted to the scheme have the freedom to make their programme choice without quota restrictions. However, they should submit a reply form to the Department to declare their target award no later than the end of semester two in their second year of study.

MINOR STUDY (NOT APPLICABLE TO SENIOR YEAR STUDENTS)

3.6 Minor study will be a free choice by students and not mandatory. Normally, this option to study for a Minor will not be applicable to students who are admitted to the advanced stage of a programme, nor to students who are admitted to an articulation degree programme. On the other hand, students admitted on the basis of advanced standing may be allowed to study for a Minor, if so decided by the programme-host Department. This decision will be made at the time of admission, based on the merits of each individual case. (In this respect, students who are approved for transfer of study, deferment of study, or zero credit enrolment will be given the same allowance as for students admitted on the basis of advanced standing.) Each student is allowed to take not more than one Minor. Students who opt for Minor study will be subject to the following regulations:-

(i) A Minor programme is a collection of subjects totalling 18 credits with at least 50% (9 credits) of the subjects at Level 3 or above. The subjects under a Minor should have a coherent theme introducing students to a focused area of study.

(ii) Students interested in a Minor must submit their applications to and obtain approval from the Minor-offering Department, at the start of second year of study. Students should submit their applications to their Major Department, which will indicate its support or otherwise (since the taking of a Minor will increase the student's study load), before the Minor-offering Department makes a final decision on the application;

(iii) Students are expected to complete their approved Minor as part of their graduation requirements. Students who wish to withdraw from a Minor need to apply for approval officially from the Minor offering department, before the end of the add/drop period of the last Semester of study;

(iv) Students with approved Minor will be given a higher priority in taking the Minor subjects over the students who take the subjects as free-electives. 'Free electives' under the 4-year Ug degree programmes refers to any subjects (including CAR subjects) offered by the University, unless otherwise specified;

(v) Subject to approval by the Minor-offering Department, students may count up to 6 credits from their Major/General University Requirement (GUR) [including Language Communication Requirement (LCR) subjects at proficiency level] towards their chosen Minor. Nevertheless, students must take at least 6 credits from their chosen Minor programme in order to satisfy the residential requirement of their chosen Minor. In addition, to be eligible for the Major and Minor awards, the total number of credits taken by the students for their Major-Minor studies must not be lower than the credit requirement of the single discipline Major programme.

(vi) Credit transfer can be given for not more than 9 credits of a Minor programme if the previous credits were earned from approved institutions outside of the university; and

not more than 12 credits of a Minor programme if the previous credits were earned from programmes offered by PolyU;

(vii) Only students with a Grade Point Average (GPA) of 2.5 or above can be considered for Minor study enrolment. The Minor-offering Department may set a quota (normally capped at 10 students or 20% of the Major intake quota) and additional admission requirements for their Minor; and

(viii) Students are required to obtain a GPA of at least 1.70 in order to satisfy the requirement for graduation with a Major plus a Minor.

A Minor-offering Department can admit students enrolled on Major programmes offered by other Departments and on its own Major programme(s). Enrolment of students from Major programmes outside the Department will be subject to the quota approved for the Minor although the Minor-offering Department can admit more students as long as the number does not exceed the approved quota by more than 20%, if there is a strong demand. As for admission of its own students, there is no limit on the number.

Notwithstanding 3.6 (iv) above, there is no guarantee that a clash-free timetable can be provided for all students who pursue Minor study. Minor-offering Departments will be responsible for ensuring that students enrolled on their Minors can take the requisite subjects and graduate within the normative study period.

SECONDARY MAJOR (NOT APPLICABLE TO SENIOR YEAR STUDENTS

3.7 Students enrolling on programmes which have been approved with the 'X + Scheme' option can choose to take a Secondary Major. Only UGC-funded undergraduate degree programmes can be offered as a Block X, where X is a block of subjects selected from an existing programme or specially designed to satisfy particular disciplinary knowledge requirements. The minimum credit requirements of Block X is 66 credits.

3.8 Studying on a Secondary Major is a free choice by students and not mandatory. Normally, this option to study for a Secondary Major will not be applicable to students admitted to the advanced stage of a programme, nor to students admitted to an articulation degree programme. On the other hand, students admitted on the basis of advanced standing may be allowed to study for a Secondary Major, if so decided by the programme offering Department. This decision will be made at the time of admission, based on the merits of each individual case (in this respect, students who are approved for transfer of study, deferment of study, or zero subject enrolment will be given the same allowance as students admitted on the basis of advanced standing). Each student may take not more than one Secondary Major. Students who opt for a Secondary Major will be subject to the following regulations:-

(i) Students are expected to complete the "X + Secondary Major" within the normal duration of the major programme.

(ii) Students may count up to 12 credits of their Major/GUR subjects towards the Secondary Major. Nevertheless, students must take at least 12 credits from their chosen Secondary Major in order to satisfy the residential requirement of the chosen Secondary Major. Students who have completed more than 12 credits of subjects that are eligible for double counting will need to apply for graduation and indicate the subjects intended for double counting. Notwithstanding the above, students must meet the minimum credit requirements of the "X + Secondary Major" concerned, i.e. 132 credits.

(iii) Students must apply to and obtain approval from the programme offering Department, normally no later than the commencement of the second year of study, to be admitted to the Secondary Major.

(iv) Only students with a Cumulative GPA of 2.70 or above may be considered for Secondary Major enrolment. Each Secondary Major may stipulate additional selection criteria for admission.

(v) Students must complete the Secondary Major as part of their graduation requirements. Students who wish to withdraw from the Secondary Major must obtain approval from the programme offering Department normally before the end of the add/drop period of the last semester of study.

(vi) If deemed appropriate by the programme offering Department, students are allowed to take a Major with a Secondary Major and a Minor. Subjects already double-counted for the Major and Secondary Major cannot be used to fulfil the Minor requirement.

DOUBLE MAJOR (NOT APPLICABLE TO SENIOR YEAR STUDENTS)

3.9 Double Major will provide an opportunity for the more capable students, who are interested in expanding their study beyond a single degree, to take a Second Major study. Students who opt for a double Major study will be subject to the following regulations:

(i) Completion of Double Major requires more than the normative study period of 4/5 years and extra credits on self-financed basis (i.e. higher tuition fee). The total credit requirements of a Double Major will depend on the degree of commonality between the 2 Majors. Apart from the 30 credits of GUR subjects, up to 1/3 of the Discipline-Specific Requirements (DSR) of the First Major which are common to the Second Major can be double-counted towards the Second Major.

(ii) Students who wish to take a Second Major must obtain approval from the host Department of the first Major. They can then submit their applications to the second Major-offering department starting from their second year of study. Only students with a GPA of 3.0 above can be considered for admission to a Second Major, while Departments offering the Second Major can stipulate a higher GPA requirement if appropriate.

(iii) Students enrolled in a second Major will be given priority in taking second Major subjects over the students who take the subjects as free electives.

(iv) Students will be put on academic probation if they fail to obtain a GPA of 1.70 or above.

(v) Students are required to obtain an overall GPA of at least 1.70, in order to satisfy the requirement for graduation with Double Major. They will not be allowed to graduate with one of the 2 Majors.

(vi) Students who wish to withdraw from a Second Major must obtain approval from the Department offering the Second Major, normally before the end of the add/drop period of the last Semester of study.

(vii) Students will not be allowed to withdraw from a First Major and continue with the Second Major only.

SELECTION PROCEDURE

3.10 The admission procedures will be coordinated by the Admissions Officer. Candidates applying with HKDSE or equivalent will be selected on the basis of their qualifications and academic achievement. Candidates applying without HKDSE or equivalent will be selected on the basis of academic achievement and by interview and/or admission test. However, preference may be given to industry sponsored candidates and those with relevant experience in industry.

SECTION 4 - CURRICULUM STRUCTURE

4.1 The curriculum structure are illustrated on progression pattern for normal students and senior year students on page 4-4 to 4-7 and page 4-8 to 4-10 respectively.

GENERAL UNIVERSITY REQUIREMENTS (GUR)

4.2 Normal students are required to complete 30 credits of GUR subjects which are language and communications requirements, AIDA requirement, IE requirement, leadership education and development, service-learning, cluster areas requirement and healthy lifestyle. It is further explained in Appendix I. Senior year students are required to complete 9 credits of GUR which are cluster areas requirement, service-learning and essential components of general education (non-credit bearing). It is also further explained in Appendix II.

COMPULSORY AND ELECTIVE SUBJECTS

4.3 The programme has been planned with the primary aim of producing either graduates capable of fulfilling what we visualise as being their duties on employment and in large measure, the curriculum content has been designed deemed to be necessary to discharge this obligation. By virtue of the fact that LEM or EEM is by its nature, a broad discipline, most of the subjects in the curriculum are compulsory and provide a balance of subjects devoted to both areas. This, to some extent restricts the scope for flexibility of students to pursue subject of their own particular interest yet still being retained under the broad spectrum of this programme. However, some choice has been made available by including a number of elective subjects. There are 3 credits free electives which would normally be taken during Year 2 in LEM while there are 6 credits free electives which would normally be taken during Year 2 and 4 in EEM.

INDUSTRIAL CENTRE BASED TRAINING

4.4 Computing Tools in Resources Planning & Analysis (ISE2129) is undertaken in the University's Industrial Centre in the semester 2 of Year 2. This is a 2-week training consisting contents in the areas of computer-aided statistical analysis, fundamental enterprise resource planning and industrial safety with the specific aim of providing the necessary fundamental knowledge and computer skills applicable to their academic studies and in their later professional lives. Using a mix of hands-on, case-based and problem-based approach, the course provides students with the opportunity to learn the safety requirements and explore the basic concepts at the user level and to experience computer-aided statistical analysis and enterprise resource planning software package first hand.

4.5 Computing Tools in Resources Planning & Analysis (ISE2129) will be graded at the time when an assessment is made. Only **ONE** aggregate grade is given for an academic year to sum up the performance of student in this subject for that year.

4.6 ERP Advanced (ISE2126) which is a 1-week training, is taken during the semester 1 of Year 4. It aims to enable students to have hands-on practice on the operation of contemporary enterprise resource planning in the whole business environment. Assessment is made at the end of semester 1 of Year 4.

4.7 Integrated Project (ISE3103) which is a 3-week training, is taken during the semester 1 and semester 2 of Year 2. It aims to enable students to work in teams with other disciplines to formulate, research and solve a problem through which students practice and integrate what they have learned in their study. Assessment is made at the end of summer term between Year 2 and 3.

4.8 The above listed credits are:

(i) not counted towards the Weighted GPA/Award GPA calculation which is used for considering the award classification;

(ii) not counted towards the number of credits needed for meeting the requirement of the award(s) but students must obtain a minimum Grade D to qualify for an award;

(iii) not counted for meeting the credit requirement for full-time status of students;

(iv) taken into account in the GPA calculation, which is computed at the end of every semester on the basis of a student's performance on all subjects taken since the start of their studies.

THE INDIVIDUAL PROJECT

4.9 The *Individual Project (ISE4008)* is carried out in the final year of the programme and is mostly industry-related. The project topic and supervisor will be chosen by the students towards the end of Year 3 so they can spend some time gathering information and undertake preliminary planning prior to the start of the final year of the programme. Students may also propose their project topic subject to approval by the supervisor. During their final year students are allocated one day per week for their project and normally spend at least one full day per week on this activity.

4.10 While the specific objectives to be met by the individual project may differ from one project to another, they should offer students the opportunities as specified below:

(i) to seek for themselves the information from which to make a critical assessment of an understanding of a phenomenon and/or of the procedures available to achieve a desired objective;

(ii) to be able to decide from the wealth of existing knowledge, that which is relevant to his particular undertaking thus to be able to select the knowledge or procedures most appropriate to his specific purpose or to make appropriate amendments to the procedure so as to make it applicable;

(iii) to define one (or more) problem from a given situation, thereafter to decide which (if there are more than one) are to be pursued, to assign them relative priorities and to develop strategies by which the problems may be solved;

(iv) to implement these strategies, to re-define each problem as more is learned of its true nature;

(v) to work with time and financial constraints, to take decisions on the basis of incomplete information, to prepare, submit and defend a coherent, succinct, ordered report.

WORK INTEGRATED EDUCATION (WIE)

4.11 Work Integrated Education (WIE) is defined as a structured and measurable learning experience which takes place in an organisational context relevant to a student's future profession, or to the development of generic skills that will be valuable in that profession. It is included in the programme to enable students to obtain a better understanding of real-life work experience relevant to the discipline of studies they pursue as well as to further enhance their all-round development. Students must complete WIE before graduation.

4.12 WIE must be a cooperative venture between the PolyU Department and the work organization. In order to enhance the feasibility of placement arrangements, and to provide more flexibility to Departments so they can take account of the specific situations of individual industries, WIE is intended to be flexible. Examples of activity types that are regarded as satisfying the WIE requirement are given as follows:

(i) Summer placement (of normally 2-month duration) in a suitable organization participating in the Preferred Graduate Development Programme.

(ii) Any other placement in any suitable external organization for a specified period of time.

(iii) Any collection of community service programmes of an acceptable aggregate duration.

(iv) Any jobs found by the student himself in an external organization and deemed to be suitable by the Department and the Dean in meeting the requirement of WIE. Such jobs must be declared by the student in advance so that the Department can have an opportunity to assess its suitability.

(v) Relevant placement as student helpers in PolyU administrative departments and Industrial Centre.

(vi) Assisting in PolyU activities that have an external collaboration or service component such as, Innovation and Technology Fund projects, Rapid Product Development Syndicate projects, Industrial Guided Applied Research and Development projects, high-level consultancy projects, collaborative research projects that we undertake with external organizations, jobs undertaken by the Industrial Centre as a service for an external organization.

(vii) Placement with the IAESTE (International Association for the Exchange of Students for Technical Experience) Programme in which the student is attached to a workplace abroad during the training.

Please also refer to the WIE Handbook published by Student Affairs Office (SAO) available at https://www.polyu.edu.hk/sao/cps/career-services/about/publications/#booklets-and-leaflets.

PROGRESSION PATTERN OF THE CURRICULUM
COMMON FIRST TWO YEARS

(Total Credits Required for Graduation: 121 academic credits + 6 IC training credits)

Year 1 (33 academic credits)			
Semester 1 (18 credits)		**Semester 2 (15 credits)**	
Healthy Lifestyle#	0	Healthy Lifestyle# – cont'd	0
CAR I#	3	Introduction to Innovation and Entrepreneurship (MM1031)#	1
CAR II#	3	Basic Artificial Intelligence and Data Analytics for Efficiency and Effectiveness in Daily Life (ISE1001)#	2
English I (LCR I)#	3	English II (LCR II)#	3
Tomorrow's Leader (APSS1L01)#	3	Introduction to Enterprise Computing (ISE2001)	3
Information Technology (ENG2003)	3	Introduction to Logistics Engineering (ISE246)	3
Basic Mathematics I – Calculus and Probability and Statistics (AMA1110)	3	Fundamental of Enterprise Systems (ISE247)	3
Year 2 (33 academic credits + 2 IC training credits)			
Semester 1 (18 credits)		**Choose either LEM or EEM award Semester 2 (15 credits + 2 IC)**	
CAR III#	3	CAR IV#	3
Chinese Communication# (LCR III)	3	Accounting for Decision Making (AF2111)	3
Management and Organisation (MM2021)	3	Business Law (AF3513)	3
Introduction to Marketing (MM2711)@	3	Introduction to Shipping and Transport Logistics Operations (LGT2009)	3
Engineering Economics (AF3625)	3	Free Elective 1*	3
Technology and Applications of E-Business Systems (ISE328)	3	Computing Tools in Resources Planning and Analysis (ISE2129)	2 IC

PROGRESSION PATTERN OF LEM CURRICULUM

Year 3 (28 academic credits + 3 IC training credits)			
Semester 1 (15 credits + 1.5 IC)		**Semester 2 (13 credits + 1.5 IC)**	
Industrial Engineering Techniques and Methods (ISE318)	3	Professional Communication in Chinese (CLC3241P)	2
Packaging and Storage Technology (ISE373)	3	Professional Communication in English for Engineering Students (ELC3531)	2
Planning of Production and Service Systems (ISE3002)	3	Mobile Technologies for Logistics Systems (ISE449)	3
Logistics Automation (ISE3018)	3	Management Science (LGT3102)	3
Service-Learning#	3	E-commerce and Logistics (LGT4115)	3
Integrated Project (ISE3103)	1.5 IC	Integrated Project (ISE3103) – cont'd	1.5 IC
Year 4 (27 academic credits + 1 IC training credit)			
Semester 1 (15 credits + 1 IC)		**Semester 2 (12 credits)**	
Production Logistics (ISE448)	3	Society and the Engineer (ENG3004)	3
Simulation of Logistics Systems (ISE450)	3	Project Management (ENG4001)	3
Logistics Information Management (ISE460)	3	Green Legislation and Supply Chain Logistics (ISE461)	3
Supply Chain Management (LGT4106)	3	-	
Individual Project (ISE4008)	3	Individual Project (ISE4008) – cont'd	3
ERP Advanced (ISE2126)	1 IC	-	

PROGRESSION PATTERN OF EEM CURRICULUM

Year 3 (28 academic credits + 3 IC training credits)			
Semester 1 (12 credits + 1.5 IC)		**Semester 2 (16 credits + 1.5 IC)**	
Industrial Engineering Techniques and Methods (ISE318)	3	Professional Communication in Chinese (CLC3241P)	2
Quality Engineering (ISE369)	3	Professional Communication in English for Engineering Students (ELC3531)	2
Planning of Production and Service Systems (ISE3002)	3	Entrepreneurship and Innovation (ISE376)	3
Service-Learning#	3	Operations Research I (ISE3001)	3
-		Knowledge Management Systems and Applications (ISE3005)	3
-		Business Process Management (ISE457)	3
Integrated Project (ISE3103)	1.5 IC	Integrated Project (ISE3103) – cont'd	1.5 IC
Year 4 (27 academic credits + 1 IC training credit)			
Semester 1 (15 credits + 1 IC)		**Semester 2 (12 credits)**	
Enterprise Analytics (ISE4025)	3	Society and the Engineer (ENG3004)	3
Enterprise Systems Modeling and Design (ISE375)	3	Project Management (ENG4001)	3
Enterprise Resources Planning (ISE4004)	3	Engineering Costing and Evaluation (ISE431)	3
Strategic Management (MM4311)	3	-	
Individual Project (ISE4008)	3	Individual Project (ISE4008) – cont'd	3
ERP Advanced (ISE2126)	1 IC	-	

General University Requirements (GUR) The pattern for GUR subjects are indicative only. Students may take these subjects according to their own schedule.

* Students can take free electives offered by ISE or other departments.

@ Double Fulfilment of DSR and CAR

Some DSR subjects are also designated as CAR subjects under the four cluster areas. They are the same subjects designated with different subject codes. Upon passing them, you will fulfill the requirements of both DSR and CAR. However, credits will not be counted twice. For example, if you have taken MM2711, you have fulfilled the CAR BN requirement and earned only 3 credits instead of 6 credits. So you may need to take other subjects to make up the total credit requirement of the award. The list of subjects that fulfill both DSR and CAR of LEM/EEM award are shown below:

DSR Subjects	CAR Subjects	Cluster Area	Subject Title
MM2711	MM2BN05	CAR – BN	Introduction to Marketing

PROGRESSION PATTERN OF THE CURRICULUM – FOR SENIOR YEAR STUDENTS

BSc (Hons) in Logistics Engineering with Management

(Total Credits Required for Graduation: 64 academic credits* + 6 IC training credits)

Year 1 (34 academic credits + 6 IC training credits)			
Semester 1 (18 credits + 2.5 IC)		**Semester 2 (16 credits + 2.5 IC)**	
CAR A - Specially-designed with English Language^	3	Business Law (AF3513)	3
Industrial Engineering Techniques and Methods (ISE318)	3	Professional Communication in Chinese (CLC3241P)	2
Packaging and Storage Technology (ISE373)	3	Professional Communication in English for Engineering Students (ELC3531)	2
Logistics Facility Design (ISE374)	3	Mobile Technologies for Logistics Systems (ISE449)	3
Planning of Production and Service Systems (ISE3002)	3	Management Science (LGT3102)	3
Service-Learning#	3	E-commerce and Logistics (LGT4115)	3
Computing Tools in Resources Planning and Analysis (ISE2129)	1 IC	Computing Tools in Resources Planning and Analysis (ISE2129) – cont'd	1 IC
Integrated Project (ISE3103)	1.5 IC	Integrated Project (ISE3103) – cont'd	1.5 IC
Year 2 (30 academic credits)			
Semester 1 (15 credits + 1 IC)		**Semester 2 (15 credits)**	
Production Logistics (ISE448)	3	CAR M#	3
Simulation of Logistics Systems (ISE450)	3	Society and the Engineer (ENG3004)	3
Logistics Information Management (ISE460)	3	Project Management (ENG4001)	3
Supply Chain Management (LGT4106)	3	Green Legislation and Supply Chain Logistics (ISE461)	3
Individual Project (ISE4008)	3	Individual Project (ISE4008) – cont'd	3
ERP Advanced (ISE2126)	1 IC	-	-

PROGRESSION PATTERN OF THE CURRICULUM – FOR SENIOR YEAR STUDENTS

BSc (Hons) in Enterprise Engineering with Management

(Total Credits Required for Graduation: 64 academic credits* + 6 IC training credits)

Year 1 (37 academic credits + 5 IC training credits)			
Semester 1 (18 credits + 2.5 IC)		**Semester 2 (19 credits + 2.5 IC)**	
CAR A - Specially-designed with English Language^	3	CAR M#	3
Industrial Engineering Techniques and Methods (ISE318)	3	Professional Communication in Chinese (CLC3241P)	2
Technology and Applications of E-Business Systems (ISE328)	3	Professional Communication in English for Engineering Students (ELC3531)	2
Quality Engineering (ISE369)	3	Entrepreneurship and Innovation (ISE376)	3
Planning of Production and Service Systems (ISE3002)	3	Operations Research I (ISE3001)	3
Service-Learning#	3	Knowledge Management Systems and Applications (ISE3005)	3
-	-	Business Process Management (ISE457)	3
Computing Tools in Resources Planning and Analysis (ISE2129)	1 IC	Computing Tools in Resources Planning and Analysis (ISE2129) – cont'd	1 IC
Integrated Project (ISE3103)	1.5 IC	Integrated Project (ISE3103) – cont'd	1.5 IC
Year 2 (27 academic credits + 1 IC training credit)			
Semester 1 (15 credits + 1 IC)		**Semester 2 (12 credits)**	
Free Elective 1~	3	Society and the Engineer (ENG3004)	3
Strategic Management (MM4311)	3	Project Management (ENG4001)	3
Enterprise Resources Planning (ISE4004)	3	Engineering Costing and Evaluation (ISE431)	3
Integrative Studies in Enterprise Systems and Management (ISE4006)	3	-	-
Individual Project (ISE4008)	3	Individual Project (ISE4008) – cont'd	3
ERP Advanced (ISE2126)	1 IC	-	-

* Those students not meeting the equivalent standard of the Undergraduate Degree LCR (based on their previous studies in AD/HD programme and their academic performance) will be required to take degree LCR subjects on top of the normal curriculum requirement. Degree LCR subjects include

TWO English language subjects

- Practical English for University Studies (ELC1011) 3 credits
- English for University Studies (ELC1012/1013) 3 credits
- Advanced English for University Studies (ELC2014) 3 credits

ONE Chinese language subject

- University Chinese (CLC1104C/P) 3 credits

Students are recommended to take these LCR subjects preferably in year one.

^ CAR A - Specially-designed with English Language should be completed within the first year.

General University Requirements (GUR) The pattern for GUR subjects are indicative only. Students may take these subjects according to their own schedule.

~ Students can take free electives offered by ISE or other departments.

SECTION 5 - EXAMINATION AND ASSESSMENT

GENERAL ASSESSMENT REGULATIONS (GAR)

5.1 The University's General Assessment Regulations shall apply to the programmes. The specific assessment regulations are set out here, having been developed within the framework of the GAR.

ASSESSMENT METHODS

5.2 Students' performance in a subject can be assessed by continuous assessment and/or examinations, at the discretion of the individual subject offering Department. Where both continuous assessment and examinations are used, the weighting of each in the overall subject grade is clearly stated in Section 8 of this document. The subject offering Department can decide whether students are required to pass both the continuous assessment and examination components, or either components only, in order to obtain a subject pass, but this requirement (to pass both, or either, components) will be specified in Section 8 of this document. Learning outcome should be assessed by continuous assessment and/or examination appropriately, in line with the outcome-based approach.

5.3 Continuous assessment may include tests, assignments, projects, laboratory work, field exercises, presentations and other forms of classroom participation. Continuous Assessment assignments which involve group work should nevertheless include some individual components therein. The contribution made by each student in continuous assessment involving a group effort shall be determined and assessed separately, and this can result in different grades being awarded to students in the same group.

5.4 Assessment methods and parameters of subjects shall be determined by the subject offering Department.

GRADING

5.5 Assessment grades shall be awarded on a criterion-referenced basis. A student's overall performance in a subject shall be graded as follows:

Subject grade	***Grade point***	***Short description***	***Elaboration on subject grading description***
A+ A A-	4.3 4.0 3.7	Excellent	Demonstrates excellent achievement of intended subject learning outcomes by being able to skillfully use concepts and solve complex problems. Shows evidence of innovative and critical thinking in unfamiliar situations, and is able to express the synthesis or application of ideas in a logical and comprehensive manner.
B+ B B-	3.3 3.0 2.7	Good	Demonstrates good achievement of intended subject learning outcomes by being able to use appropriate concepts and solve problems. Shows the ability to analyse issues critically and make well-grounded judgements in familiar or standard situations, and is able to express the synthesis or application of ideas in a logical and comprehensive manner.

C+ C C-	2.3 2.0 1.7	Satisfactory	Demonstrates satisfactory achievement of intended subject learning outcomes by being able to solve relatively simple problems. Shows some capacity for analysis and making judgements in a variety of familiar and standard situations, and is able to express the synthesis or application of ideas in a manner that is generally logical but fragmented.
D+ D	1.3 1.0	Pass	Demonstrates marginal achievement of intended subject learning outcomes by being able to solve relatively simple problems. Can make basic comparisons, connections and judgments and express the ideas learnt in the subject, though there are frequent breakdowns in logic and clarity.
F	0.0	Fail	Demonstrates inadequate achievement of intended subject learning outcomes through a lack of knowledge and/or understanding of the subject matter. Evidence of analysis is often irrelevant or incomplete.

'F' is a subject failure grade, whilst all others ('D' to 'A+') are subject passing grades. No credit will be earned if a subject is failed.

Indicative descriptors for modifier grades

Main Grade (solid)	The student generally performed at this level, indicating mastery of the subject intended learning outcomes at this level.
+ (exemplary)	The student consistently performed at this level and exceeded the expectations of this level in some regards, but not enough to claim mastery at the next level.
- (marginal)	The student basically performed at this level, but the performance was inconsistent or fell slightly short in some regards.

Note: The above indicative descriptors for modifier grades are not applicable to the pass grades D and D+

5.6 At the end of a semester, a Grade Point Average (GPA) will be computed as follows, and based on the grade point of all the subjects:

$$\text{GPA} = \frac{\sum_{n=1}^{N} \text{Subject Grade Point}_n \times \text{Subject Credit Value}_n}{\sum_{n=1}^{N} \text{Subject Credit Value}_n}$$

where N = number of all subjects (inclusive of failed subjects) taken by the student up to and including the latest semester/term. For subjects which have been retaken, only the grade point obtained in the final attempt will be included in the GPA calculation.

5.7 Exempted, ungraded and incomplete subjects, subjects for which credit transfer has been approved without any grade assigned[^], and subjects from which a student has been allowed to withdraw, i.e. those with the Grade "W" will be excluded from the GPA calculation. Subjects which have been given an "S" grade code i.e. absent from all assessment components, will be included in the GPA calculation and will be counted as "zero" grade point. The GPA is thus the unweighted cumulative average calculated for a student, for all relevant subjects taken from the start of the programme to a particular point of time. GPA is an indicator of overall performance, and ranges from 0.00 to 4.30 from 2020/21.

[^] Subjects taken in PolyU or elsewhere and with grades assigned, and for which credit transfer has been approved, will be included in the GPA calculation.

DIFFERENT TYPES OF GPA

5.8 GPA will be calculated for each Semester including the Summer Term. This Semester GPA will be used to determine students' eligibility to progress to the next Semester alongside with the 'cumulative GPA'. However, the Semester GPA calculated for the Summer Term will not be used for this purpose, unless the Summer Term study is mandatory for all students of the programme concerned and constitutes part of the graduation requirements.

5.9 The GPA calculated after the second Semester of the students' study is therefore a 'cumulative' GPA of all the subjects taken so far by students, and without applying any level weighting.

5.10 Along with the 'cumulative' GPA, a weighted GPA will also be calculated, to give an indication to the Board of Examiners on the award classification which a student will likely get if he makes steady progress on his/her academic studies. GUR subjects will be included in the calculation of weighted GPA for all programmes.

5.11 When a student has satisfied the requirements for award, an award GPA will be calculated to determine his/her award classification. GUR subjects will be included in the calculation of award GPA for all programmes.

5.12 For students taking the Major/Minor study route, a separate GPA will be calculated for their Major and Minor programmes. The Major GPA will be used to determine his/her award classification, which will be so reflected on the award parchment. The Minor GPA can be used as a reference for Board of Examiners to moderate the award classification for the Major.

5.13 For students taking the Major/Secondary Major study route, there is no separate "Secondary Major GPA". The Major GPA is the weighted GPA of all subjects contributing to the Major and Secondary Major.

ASSESSMENT OF THE WORK INTEGRATED EDUCATION (WIE)

5.14 The Programme uses Engineering Faculty Guidelines for assessment of WIE. WIE components will NOT be counted towards GPA calculation. Students are required to complete a minimum of 2 weeks/80 hours of full-time training or equivalent. WIE required in the form of Summer Placement or other training may take place in Hong Kong, Mainland China, or overseas. WIE activities may be organised through the Department, Careers and Placement Section (CPS) of the Student Affairs Office (SAO) or by the student's own initiative with advice from the WIE coordinator to ensure that they qualify for WIE on account of relevance, structure, and measurability. In such cases, assessment will be made using the WIE log book. The log book must be signed by the employer with a brief evaluation of the student, as appropriate. This is examined by the WIE coordinator to ensure that the WIE objectives have been achieved. The WIE coordinator may interview the student in making the evaluation.

PROGRESSION/ACADEMIC PROBATION/DEREGISTRATION

5.15 The Board of Examiners shall, at the end of each semester (except for Summer Term unless there are students who are eligible to graduate after completion of Summer Term subjects or the Summer Term study is mandatory for the programme), determine whether each student is:

(i) eligible for progression towards an award; or

(ii) eligible for an award; or

(iii) required to be de-registered from the programme.

When a student has a Grade Point Average (GPA) lower than 1.70, he/she will be put on academic probation in the following semester. Once when a student is able to pull his/her GPA up to 1.70 or above at the end of the semester, the status of "academic probation" will be lifted. The status of "academic probation" will be reflected in the examination result notification but not in transcript of studies.

5.16 A student will have 'progressing' status unless he/she falls within any one of the following categories which may be regarded as grounds for de-registration from the programme:

(i) the student has reached the final year of the normal period of registration for that programme, as specified in this document, unless approval has been given for extension; or

(ii) the student has reached the maximum number of retakes allowed for a failed compulsory subject; or

(iii) the student's GPA is lower than 1.70 for two consecutive semesters and his/her Semester GPA in the second semester is also lower than 1.70; or

(iv) the student's GPA is lower than 1.70 for three consecutive semesters.

When a student falls within any of the categories as stipulated above, except for category (i) with approval for extension, the Board of Examiners shall de-register the student from the programme without exception.

A student may be deregistered from the programme enrolled before the time frame specified in (ii) or (iii) above if his/her academic performance is poor to the extent that the Board of Examiners considers that there is not much of chance for him/her to attain a GPA of 1.70 at the end of the programme.

If the student is not satisfied with the de-registration decision of the Board of Examiners, he/she can lodge an appeal. All such appeal cases will be referred directly to Academic Appeals Committee (AAC) for final decision. Views of Faculties/Department will be sought and made available to AAC for reference.

UNIVERSITY GRADUATION REQUIREMENTS

For Normal Students

5.17 A student is eligible for award if he/she satisfies all the conditions listed below:

(i) Complete successfully an accumulation of 121 academic credits + 6 IC training credits for the award[#];

(ii) Earn a cumulative GPA of 1.70 or above at graduation;

(iii) Complete successfully the mandatory Work-Integrated Education (WIE) component;

(iv) Satisfy 30 credits of General University Requirements (GUR);

(a) Language and Communication Requirements[~]	9 credits
(b) AIDA Requirement	2 credits

(c) IE Requirement	1 credit
(d) Leadership Education and Development	3 credits
(e) Service-Learning	3 credits
(f) Cluster Areas Requirement (CAR) [3 credits from each of the 4 cluster areas]	12 credits
(g) Healthy Lifestyle[@]	Non-credit bearing
	Total = 30 credits

[#] This minimum only applies to students who are admitted through the normal route.

[~] Non-Chinese speakers and those students whose Chinese standards are at junior secondary level or below will by default be exempted from the DSR - Chinese and CAR - Chinese Reading and Writing requirements. However, this group of students would still be required to take one Chinese LCR subject to fulfil their Chinese LCR.

[@] Students admitted to the programmes as Senior Year Intakes are not required to take the Healthy Lifestyle Programme. Advanced Standing students are required to take the Healthy Lifestyle Programme (except for those who are HD/AD holders who follow the Senior/Articulation Degree programme GUR curriculum).

(v) Satisfy the residential requirement for at least 1/3 of the credits to be completed for the award he/she is currently enrolled in PolyU;

(vi) Satisfy the National Education (NE) requirement; and

(vii) Satisfy any other requirements as specified in this document and as specified by the University.

For Senior Year Students

5.18 A student is eligible for award if he/she satisfies all the conditions listed below:

(i) Complete successfully an accumulation of 64 academic credits* + 6 IC training credits for the award;

(ii) Earn a cumulative GPA of 1.70 or above at graduation;

(iii) Complete successfully the mandatory Work-Integrated Education (WIE) component;

(iv) Satisfy the following GUR requirements;

(a) Cluster Areas Requirement (CAR) [3 credits from CAR(A)[^] and 3 credits from CAR(M)]	6 credits
(b) Service-Learning	3 credits
(c) Essential Components of General Education[@]	Non-credit bearing
	Total = 9 credits

[*]Those students not meeting the equivalent standard of the Undergraduate Degree LCR (based on their previous studies in AD/HD programme and their academic performance) will be required to take degree LCR subjects on top of the normal curriculum requirement. Non-Chinese speakers and those students whose Chinese standards are at junior secondary level or below will by default be exempted from the DSR - Chinese and CAR - Chinese Reading and Writing requirements. However, this group of students would still be required to take one Chinese LCR subject to fulfil their Chinese LCR.

[^]Students are required to take a specially designed CAR(A) – English Language Subject with embedded English Reading and Writing Requirements.

[@]The Essential Components of General Education includes four modules namely Academic Integrity; AI and Data Analytics; Innovation and Entrepreneurship; and National Education.

(v) Satisfy the residential requirement for at least 1/3 of the credits to be completed for the award he/she is currently enrolled in PolyU; and

(viii) Satisfy any other requirements as specified in this document and as specified by the University.

5.19 There are subjects which are designed to fulfil the credit requirement of different types of subject. Students passing these subjects will be regarded as having fulfilled the credit requirements of the particular types of subject concerned. Nevertheless, the subject passed will only be counted once in fulfilling the credit requirements of the award, and the students will be required to take another subject in order to meet the total credit requirement of the programme concerned.

5.20 Remedial subjects are designed for new students who are in need of additional preparations in a particular subject area, and only identified students of a programme are required to take these subjects. These subjects should therefore be counted outside the regular credit requirement for award.

5.21 In addition, students may be required to take subjects that are designed to enhance their skills in particular subject areas to underpin their further advanced study in the discipline. These underpinning subjects could be of different subject areas (e.g. Mathematics, science subjects), and the number of credits each student is required to take in a particular underpinning subject area may vary according to the different academic backgrounds of the students.

5.22 Senior Year intakes admitted to the 4-year Undergraduate Degree programmes on the strength of the Associate Degree/Higher Diploma qualifications are required to complete at least 60 credits in order to be eligible for a Bachelor's degree. Exemption may be given from subjects already taken in the previous Associate Degree/Higher Diploma studies. In that case, students should take other electives (including free electives) instead to make up the total of 60 credits required.

5.23 Level-0 subjects and training subjects (including clinical/field training) will not be counted to fulfill free elective requirement for graduation purpose.

5.24 A student is required to graduate as soon as he/she satisfies the graduation requirements as stipulated in 5.17 and 5.18 above. The student concerned is required to apply for graduation, in the semester in which he/she is able to fulfil all his/her graduation requirements, and after the add/drop period for that semester has ended.

STUDENTS TAKING THE MAJOR/MINOR OPTION

5.25 Students taking the Major/Minor option will be considered for an award when they have satisfied the requirements for both the Major and Minor studies (i.e. having a GPA of 1.70 or above) and have also submitted an application for graduation. If the 18 credits taken for the approved Minor study can meet the requirements for that Minor, the Major students may apply to graduate with a specific Minor, in addition to their Major. Otherwise, students will graduate with a Major only.

5.26 Subject to the approval by the Minor-offering Department, students may count up to 6 credits from their Major/GUR [including Language Communication Requirements (LCR) subjects at proficiency level] towards their chosen Minor. Nevertheless, students must take at least 6 credits from their chosen Minor programme in order to satisfy the residential requirement of their chosen Minor. In addition, to be eligible for the Major and Minor awards, the total number of credits taken by the students for their Major-Minor studies must not be lower than the credit requirement of the single discipline Major programme.

STUDENTS TAKING THE MAJOR/SECONDARY MAJOR OPTION

5.27 Students may count up to 12 credits of their Major/GUR subjects towards the Secondary Major. Nevertheless, students must take at least 12 credits from their chosen Secondary Major in order to satisfy the residential requirement of the chosen Secondary Major. Students who have completed more than 12 credits of subjects that are eligible for double counting will need to apply for graduation and indicate the subjects intended for double counting. Notwithstanding the above, students must meet the minimum credit requirements of the "X + Secondary Major" concerned, i.e. 132 credits.

STUDENTS TAKING THE DOUBLE MAJOR OPTION

5.28 Students are required to obtain an overall GPA of at least 1.70, in order to satisfy the requirement for graduation with Double Major. They will not be allowed to graduate with one of the 2 Majors. The total credit requirement of Double Major will depend on the degree of commonality between the two Majors. Apart from the 30 credits of GUR subjects, up to 1/3 of the DSR of the first Major which are common to the second Major can be double-counted towards the second Major.

GUIDELINES FOR AWARD CLASSIFICATION

5.29 To help the Board of Examiners in arriving at award classification decisions, a weighted GPA will be computed for each student upon completion of the programme. The Weighted GPA will be computed as follows:

$$\text{Weighted GPA} = \frac{\sum_{n=1}^{N} \text{Subject Grade Point}_n \times \text{Subject Credit Value}_n \times W_n}{\sum_{n=1}^{N} \text{Subject Credit Value}_n \times W_n}$$

where Wn = weighting to be assigned according to the level of the subject

N = number of all subjects counted in GPA calculation as set out in paragraph 5.6, except those exclusions specified in paragraph 5.31 below.

For calculating the weighted GPA (and award GPA) to determine the Honours classification of students who satisfy the graduation requirements of Bachelor's degree awards, a University-wide standard weighting will be applied to all subjects of the same level, with a weighting of 2 for Level 1 and 2 subjects, a weighting of 3 for Level 3 and 4 subjects. Same as for GPA, weighted GPA ranges from 0.00 to 4.30 from 2020/21.

5.30 The contribution of each subject towards the weighted GPA depends on the product of the credits assigned and the level weighting. The weighted GPA will be used as one of the factors to be considered by the Board of Examiners in the determination of the award classifications.

5.31 Any subjects passed after the graduation requirement has been met or subjects taken on top of the prescribed credit requirements for award shall not be taken into account in the grade point calculation for award classification. However, if a student attempts more elective subjects (or optional subjects) than those required for graduation in or before the semester in which he/she becomes eligible for award, the elective subjects (or optional subjects), except for subjects which are selected by students to fulfill the free electives requirement for graduation, with a higher grade/contribution shall be included in the grade point calculation (i.e. the excessive subjects attempted with a lower grade/contribution, including failed subjects, will be excluded).

STUDENTS TAKING THE MAJOR/MINOR STUDIES

5.32 For students who have completed a Major/Minor programme, a single classification will be awarded and their award classification will mainly be based on the "Major GPA", but it can be moderated by the Board of Examiners with reference to the "Minor GPA". For students who have completed a Major programme combined with free electives, their award classification will be determined by their "Major GPA" which includes grades obtained for the free electives, if appropriate.

5.33 "Major GPA" is derived based on all subjects of the Major programme, including those meeting the mandatory General University Requirements (GUR) and programme-specific language requirement, but not necessarily including the training credits.

5.34 "Minor GPA" is derived based on the 18 credits of specific Minor programme. "Minor GPA" is unweighted.

5.35 The "Major GPA" and the "Minor GPA" will be presented separately to the Board of Examiners for consideration. The guidelines for determining award classification applicable to programmes with Major/Minor studies.

5.36 Where a student has a high GPA for his/her Major but a lower GPA for his/her Minor, he/she will not be 'penalised' in respect of his/her award classification, which is attached to the Major. On the other hand, if a student has a lower GPA for his/her Major than his GPA for the Minor, the Board of Examiners may consider giving the student a higher award classification than with reference to his/her Major GPA.

STUDENTS TAKING THE MAJOR (INCLUDING THE MAJOR/SECONDARY MAJOR OPTION)/MINOR STUDIES

5.37 For students who have completed a Major (including the Major/Secondary Major option)/Minor programme, a single classification will be awarded and their award classification will mainly be based on the "Major GPA", but it can be moderated by the Board of Examiners with reference to the "Minor GPA". For students who have completed a Major programme combined with free electives, their award classification will be determined by their "Major GPA" which includes grades obtained for the free electives, if appropriate.

5.38 "Major GPA" is derived based on all subjects of the Major programme, as well as the Secondary Major programme, if any, including those meeting the mandatory General University Requirements (GUR) and programme-specific language requirement, but not necessarily including the training credits.

5.39 "Minor GPA" is derived based on the 18 credits of specific Minor programme. "Minor GPA" is unweighted.

5.40 The "Major GPA" and the "Minor GPA" will be presented separately to the Board of Examiners for consideration. The guidelines for determining award classification applicable to programmes with Major (including the Major/Secondary Major option)/Minor studies.

5.41 Where a student has a high GPA for his/her Major (including the Major/Secondary Major option) but a lower GPA for his/her Minor, he/she will not be 'penalised' in respect of his/her award classification, which is attached to the Major. On the other hand, if a student has a lower GPA for his/her Major (including the Major/Secondary Major option) than his/her GPA for the Minor, the Board of Examiners may consider recommending a higher award classification for the student for ratification by the APRC via the Faculty Board.

STUDENTS TAKING THE DOUBLE MAJOR OPTION

5.42 The derivation of GPA for award classification for the First Major and Second Major (particularly on the counting of subjects common to both Majors) will be decided by the Department offering the Major programme. Students will be given two award parchments, one for each Major programme, which will be issued upon completion of both Majors. The honours classification of the two Major awards need not be identical.

CLASSIFICATION OF AWARDS

5.43 The following are guidelines for Board of Examiners' reference in determining award classifications:

Honours degrees	Guidelines
1st Class Honours	The student's performance/attainment is **outstanding**, and identifies him/her as **exceptionally able** in the field covered by the programme in question.
2nd Class Honours (Division 1)	The student has reached a standard of performance which is **more than satisfactory** but **less than outstanding**.
2nd Class Honours (Division 2)	The student has reached a standard of performance judged to be **satisfactory, and clearly higher than the 'essential minimum' required for graduation**.
Third Class Honours	The student has attained the **'essential minimum'** required for graduation at a standard ranging from **just adequate to just satisfactory.**

5.44 Under exceptional circumstances, a student who has completed an Honours degree programme, but has not attained Honours standard, may be awarded a Pass-without-Honours degree. A Pass-without-Honours degree award will be recommended, when the student has demonstrated a level of final attainment which is below the 'essential minimum' required for graduation with Honours from the programme in question, but when he/she has nonetheless covered the prescribed work of the programmes in an adequate fashion, while failing to show sufficient evidence of the intellectual calibre expected of Honours degree graduates.

5.45 Students who have committed academic dishonesty or non-compliance with examination regulations will be subject to the penalty of the lowering of award classification by one level. For undergraduate students who should be awarded a Third class Honours degree, they will be downgraded to a Pass-without-Honours. The minimum of downgraded overall result will be kept at a Pass. In rare circumstances where both the Student Discipline Committee and Board of Examiners of a department consider that there are strong justifications showing the offence be less serious, the requirement for lowering the award classification can be waived.

5.46 The following are the award GPA ranges for determining award classifications:

Award Classification	Award GPA
1st Class Honours	3.60 to 4.30
2nd Class Honours (Division 1)	3.00 to 3.59
2nd Class Honours (Division 2)	2.40 to 2.99
Third Class Honours	1.70 to 2.39

5.47 Decisions by the Boards of Examiners on award classifications to be granted to each student on completion of the programme shall be ratified by the Faculty Board (of Examiners). For cases the decisions of which do not conform to the above indicative GPA range, they should be referred, by the Faculty Board (of Examiners), to the APRC for ratification.

VALIDITY OF CREDITS

5.48 The validity period of credits earned is eight years from the year of attainment, i.e. the year in which the subject is completed. Credits earned from previous studies should remain valid at the time when the student applies for credit transfer.

RETAKING OF SUBJECTS

5.49 Students may only retake a subject which they have failed (i.e. Grade F or S or U). Retaking of subjects is with the condition that the maximum study load of 21 credits per semester is not exceeded. The number of retakes of a subject should be restricted to two, i.e. a maximum of three attempts for each subject is allowed.

5.50 In cases where a student takes another subject to replace a failed elective subject, the fail grade will be taken into account in the calculation of the GPA, despite the passing of the replacement subject. Likewise, students who fail a Cluster Area Requirement (CAR) subject may need to take another subject from the same Cluster Area in order to fulfill this part of the GUR, since the original CAR subject may not be offered; in such cases, the fail grade for the first CAR subject will be taken into account in the calculation of the GPA, despite the passing of the second CAR subject.

5.51 Students need to submit a request to the Faculty Board for the second retake of a failed subject.

5.52 Students who have failed a compulsory subject after two retakes and have been de-registered can submit an appeal to the Academic Appeals Committee (AAC) for a third chance of retaking the subject.

5.53 In relation to 5.52 above, in case AAC does not approve further retaking of a failed compulsory subject or the taking of an equivalent subject with special approval from the Faculty, the student concerned would be de-registered and the decision of the AAC shall be final within the University.

ABSENCE FROM AN ASSESSMENT COMPONENT

5.54 If a student is unable to complete all the assessment components of a subject, due to illness or other circumstances which are beyond his/her control and considered by the subject offering department as legitimate, the Department will determine whether the student will have to complete a late assessment and, if so, by what means. This late assessment shall take place at

the earliest opportunity, and normally before the commencement of the following academic year (except that for Summer Term, which may take place within 3 weeks after the finalisation of Summer Term results). If the late assessment cannot be completed before the commencement of the following academic year, the Faculty Board Chairman shall decide on an appropriate time for completion of the late assessment.

5.55 The student concerned is required to submit his/her application for late assessment in writing to the Head of Department offering the subject, with five working days from the date of the examination, together with any supporting documents. Approval of applications for late assessment and the means for such late assessments shall be given by the Head of Department offering the subject or the Subject Lecturer concerned, in consultation with the Programme Leader.

ASSESSMENT TO BE COMPLETED

5.56 For cases where students fail marginally in one of the components within a subject, the BoE can defer making a final decision until the students concerned have completed the necessary remedial work to the satisfaction of the subject examiner(s). The remedial work must not take the form of re-examination.

AEGROTAT AWARD

5.57 If a student is unable to complete the requirements of the programme in question the award, due to very serious illness, or other very special circumstances which are beyond his/her control, and are considered by the Board of Examiners as legitimate, the Faculty/School Board will determine whether the student will be granted aegrotat award. Aegrotat award will be granted under very exceptional circumstances.

5.58 A student who has been offered an aegrotat award shall have the right to opt either to accept such an award or request to be assessed on another occasion as stipulated by the Board of Examiners, the student's exercise of this option shall be irrevocable. The acceptance of an aegrotat award by a student shall disqualify him/her from any subsequent assessment for the same award. An aegrotat award shall normally not be classified, and the award parchment shall not state that it is an aegrotat award. However, the Board of Examiners may determine whether the award should be classified provided they have adequate information on the students' academic performance.

OTHER PARTICULAR CIRCUMSTANCES

5.59 A student's particular circumstances may influence the procedures for assessment but not the standard of performance expected in assessment.

RECORDING OF DISCIPLINARY ACTIONS IN STUDENTS' RECORDS

5.53 With effect from Semester One of 2015/16, disciplinary actions against students' misconducts will be recorded in students' records.

5.54 Students who are found guilty of academic dishonesty or non-compliance with examination regulations will be subject to the penalty of having the subject result concerned disqualified and be given a failure grade with a remark denoting 'Disqualification of result due to academic dishonesty/ non-compliance with examination regulations'. The remark will be shown in the students' record as well as the assessment result notification and transcript of studies, until their leaving the University.

5.55 Students who have committed disciplinary offences (covering both academic and non-academic related matters) will be put on ‘disciplinary probation’. The status of ‘disciplinary probation’ will be shown in the students’ record as well as the assessment result notification, transcript of studies and testimonial during the probation period, until their leaving the University. The disciplinary probation is normally one year unless otherwise decided by the Student Discipline Committee.

5.56 The University reserves the right to withhold the issuance of any certificate of study to a student/graduand who has unsettled matters with the University, or is subject to disciplinary action.

SECTION 6 - PROGRAMME OPERATION AND CONTROL

FREQUENCY OF SUBJECTS TO BE OFFERED

6.1 Subjects are normally offered once a year. There are however, several common subjects shared by other programmes in the PolyU which may be available in both Semester's 1 and 2. Subject to the availability of resources, the Department will attempt to offer as many subjects as possible in both semesters.

DAYTIME, EVENING AND SUMMER TEACHING

6.2 Most of the subjects listed in the programme will be offered in the daytime and evening. Usually, there will be no summer term teaching (with the exception of IC training at the Industrial Centre or LCR/CAR/SL subjects), subjects will only be offered in Semester's 1 and 2.

SUBJECT REGISTRATION AND WITHDRAWAL

6.3 In addition to programme registration, students need to register for the subjects at specified periods prior to the commencement of the semester. Students may apply for withdrawal of their registration on a subject after the add/drop period if they have a genuine need to do so. The application should be made to the relevant programme offering Department and will require the approval of both the subject lecturer and the Programme Leader concerned. Application submitted after the commencement of the examination period will not be considered. For approved applications of subject withdrawal, the tuition fee paid for the subject will be forfeited and the withdrawal status of the subject will be shown in the examination result notification and transcript of studies but will not be counted towards the calculation of GPA.

STUDY LOAD

6.4 For students following the progression pattern specified for their programme, they have to take the number of credits and subjects, as specified in this document, for each semester. Students cannot drop those subjects assigned by the Department unless prior approval has been given by the Department.

6.5 The normal study load is 15 credits in a semester for full-time study. The maximum study load to be taken by a student in a semester is 21 credits, unless exceptional approval is given by the Head of the programme offering Department. For such cases, students should be reminded that the study load approved should not be taken as grounds for academic appeal.

6.6 To help improve the academic performance of students on academic probation, these students will be required to take a reduced study load in the following semester (Summer Term excluded). The maximum number of credits to be taken by the students varies according to the policies of individual Departments and will be subject to the approval of the authorities concerned.

6.7 Students are not allowed to take zero subject in any semester, including the mandatory summer term as required by some programmes, unless they have obtained prior approval from the programme offering Department; otherwise they will be classified as having unofficially withdrawn from their programme. Students who have been approved for zero subject enrolment (i.e. taking zero subject in a semester) are allowed to retain their student status and

continue using campus facilities and library facilities. Any semesters in which students are allowed zero subjects will be counted towards the total period of registration.

SUBJECT EXEMPTION

6.8 Students may be exempted from taking any specified subjects, including mandatory General University Requirements (GUR) subjects, if they have successfully completed similar subjects previously in another programme or have demonstrated the level of proficiency/ability to the satisfaction of the subject offering Department. Subject exemption is normally decided by the subject offering Department. However, for applications which are submitted by students who have completed an approved student exchange programme, the subject exemption is to be decided by the programme offering Department in consultation with the subject offering Departments. In case of disagreement between the programme offering Department and the subject offering Department, the two Faculty Deans/School Board Chairmen concerned will make a final decision jointly on the application. If students are exempted from taking a specified subject, the credits associated with the exempted subject will not be counted towards meeting the award requirements (except for exemptions granted at admission stage). It will therefore be necessary for the students to consult the programme offering Department and take another subject in order to satisfy the credit requirement for the award.

CREDIT TRANSFER

6.9 Students may be given credits for recognised previous studies including mandatory General University Requirements (GUR) subjects; and the credits will be counted towards meeting the requirements for award. Transferred credits may not normally be counted towards more than one award. The granting of credit transfer is a matter of academic judgment.

6.10 Credit transfer may be done with or without the grade being carried over; the former should normally be used when the credits were gained from PolyU. Credit transfer with the grade being carried over may be granted for subjects taken from outside the University, if deemed appropriate, and with due consideration to the academic equivalence of the subjects concerned and the comparability of the grading systems adopted by the University and the other approved institutions. Subject credit transfer is normally decided by the subject offering Department. However, for applications which are submitted by students who have completed an approved student exchange programme, the decision will be made by the programme offering Department in consultation with the subject offering Departments.

6.11 The validity period of credits previously earned is up to 8 years after the year of attainment.

6.12 Normally, not more than 50% of the credit requirement for award may be transferable from approved institutions outside the University. For transfer of credits from programmes offered by PolyU, normally not more than 67% of the credit requirement for award can be transferred. In cases where both types of credits are being transferred (i.e. from programmes offered by PolyU and from approved institutions outside the University), not more than 50% of the credit requirement for award may be transferred. For students admitted to an Articulation Degree or Senior Year curriculum which is already a reduced curriculum, they should not be given credit transfer for any required GUR subjects, and are required to complete at least 60 credits in order to be eligible for a Bachelor's award.

6.13 If a student is waived from a particular stage of study on the basis of advanced qualifications held at the time of admission, the student concerned will be required to complete fewer credits for award. For these students, the 'deducted' credits at admission stage will be counted towards the maximum limit for credit transfer when students apply for further credit transfer

after their admission. This also applies to students admitted to an Articulation Degree or Senior Year curriculum when they claim further credit transfer after admission.

6.14 Credit transfer can be applicable to credits earned by students through study at an overseas institution under an approved exchange programme. Students should, before they go abroad for the exchange programme, seek prior approval from the programme offering Department (who will consult the subject offering Departments as appropriate) on their study plan and credit transferability.

6.15 All credit transfers approved will take effect only in the semester for which they are approved. A student who applies for transfer of credits during the re-enrolment or the add/drop period of a particular semester will only be eligible for graduation at the end of that semester, even if the granting of credit transfer will immediately enable the student to satisfy the credit requirement for the award.

6.16 Regarding credit transfer for GUR subjects, the Programme Host Department is the approval authority at the time of admission to determine the number of GUR credits which an Advanced Standing student will be required to complete for the award concerned. Programme Host Departments should make reference to the mapping lists of GUR subjects, compiled by the Committee on General University Requirements (CoGUR), on the eligibility of the subjects which can qualify as GUR subjects. Applications for credit transfer of GUR subjects after admission will be considered, on a case-by-case basis, by the Subject Offering Department or Office of Undergraduate Studies (OUS)/Service-Learning and Leadership Office (SLLO), in consultation with the relevant Sub-committee(s) under CoGUR, as appropriate.

6.17 For credit transfer of retaken subjects, the grade attained in the last attempt should be taken in the case of credit transfer with grade being carried over. Students applying for credit transfer for a subject taken in other institutions are required to declare that the subject grade used for claiming credit transfer was attained in the last attempt of the subject in their previous studies. If a student fails in the last attempt of a retaken subject, no credit transfer should be granted, despite the fact that the student may have attained a pass grade for the subject in the earlier attempts.

6.18 Students should not be granted credit transfer for a subject which they have attempted and failed in their current study unless the subject was taken by the student as an exchange-out student in his current programme.

DEFERMENT OF STUDY

6.19 Students may apply for deferment of study if they have a genuine need to do so such as illness or posting to work outside Hong Kong. Approval from the Department is required. The deferment period will not count towards total period of registration.

6.20 Application for deferment of study from students who have not yet completed the first year of a full-time programme will only be considered in exceptional circumstances.

6.21 Where the period of deferment of study begins during a stage for which fees have been paid, no refund of such fees will be made.

6.22 Students who have been approved for deferment are not entitled to enjoy any campus facilities during the deferment period.

NORMAL DURATION FOR COMPLETION OF THE PROGRAMME

6.23 Students should complete the programme within the normal duration of the programme as specified in the Programme Requirement Document. Those who exceed the normal duration of the programme will be de-registered from the programme unless prior approval has been obtained from relevant authorities. The study period of a student shall exclude deferment granted for justifiable reasons, and the semester(s) when the student has been approved to undertake internship. Any semester in which the students are allowed to take zero subject will be counted towards their total period of registration.

6.24 Students who have been registered for the normal duration of the programme may request extension of their studies for up to one year with the approval of the relevant Heads of Department. Applications for extension of study period beyond one year and up to two years will require the approval from Faculty Board Chairman.

6.25 Students who have exceeded the normal duration of the programme for more than two years and have been de-registered can submit an appeal to the Academic Appeals Committee to request further extension. If the appeal fails, the student shall be de-registered.

DEPARTMENTAL UNDERGRADUATE PROGRAMME COMMITTEE

6.26 The Head of Department can decide on the composition of the Departmental Undergraduate Programme Committee. The Departmental Undergraduate Programme Committee will meet at least twice a year, and additionally at the request of the Chairman or of one-third of its membership or of the Chairman of the Senate. It will exercise the overall academic and operational responsibility for the programme and its development within defined policies, procedures and regulations.

The Committee will be specifically responsible for the following:

(i) the effective conduct, organisation and development of the programme;

(ii) stimulation of the development of teaching methods and programme materials, through Heads of Departments, Theme Group Leaders, and the Educational Development Centre, as appropriate;

(iii) review of academic regulations, admission policy, assessment and examination methods;

(iv) formal submissions to appropriate professional bodies, normally via the Head of the host Department and in accord with the University's established procedures;

(v) the continuing critical review of the rationale, aims, intended learning outcomes (ILOs) and the alignment of teaching, learning and assessment with the ILOs, programme learning outcomes assessment and its results, and the improvement and development of the programme(s);

(vi) definition and maintenance of the programme's academic standard;

(vii) ensuring that the views of students and other key stakeholders on the programme are known and taken into account;

(viii) evaluation of the operation, health and progress of the programme as defined in the University's programme review procedures.

PROGRAMME LEADER

6.27 A Programme Leader will normally be a member of the programme offering Department and be appointed by the Head of Department. The appointment will be subject to the confirmation by the Chairman of the appropriate Faculty Board. In the unavoidable absence of a Programme Leader, an acting Programme Leader will be appointed by the Head of the programme offering Department. A Programme Leader is accountable in day-to-day operational terms to the Head of Department; and will normally hold office for a full cycle of the programme, but can then be considered for re-nomination. The Programme Leader will provide the academic and organizational leadership for the programme.

PROGRAMME EXECUTIVE GROUP

6.28 For programmes which are substantial, e.g. in scale, in the range of subjects or complexity, a small Programme Executive Group, would normally manage the day-to-day operation of the programme within the agreed scheme. The Group would operate informally, be organized by the Programme Leader and typically include staff with key programme responsibilities. For relatively simple programmes, the Programme Leaders would manage the day-to-day operation of the programmes.

THEME GROUP LEADERS

6.29 Theme Group Leaders are senior members of academic staff appointed by the Head of Department. They are responsible for the activities and development of subjects within a theme group which are part of the curricula of the programmes offered by the Department.

ACADEMIC ADVISOR

6.30 All full-time undergraduate students (including those admitted to Articulation Programmes or Senior Year Places) will be assigned to one full-time academic staff (normally at the Lecturer grade or above) from his/her Major Department who will act as his/her academic advisor throughout his/her course of study at PolyU.

6.31 The main responsibilities of the academic advisor will include:

- Building rapport with the student, serving as a bridge that connects them to the Department,
- Being accessible and available to students, and responding to their questions and concerns,
- Helping students to consider and clarify their intellectual, professional and personal goals,
- Helping students to develop an appropriate study plan (particular with regard to their Major), and assisting in their selection of appropriate courses to achieve their identified goals,
- Clarifying to students academic regulations and requirements, particularly those relating to the Major,
- Identifying students with special learning needs or early signs of learning problem, and referring/encouraging them to seek help or support.

6.32 Academic advisors are expected to keep in contact with their student advisees regularly (e.g., via emails or other means), and to have at least one face-to-face meeting with them, either individual or in small groups, during the academic year. Advising via electronic means (such as Skype for Business, ZOOM or Teams) with strict observance of the principle of confidentiality as a form of formal academic advising meetings is recognized to be reported in the Academic Advising (AA) Report. Student advisees are expected to consult their respective advisors on their study plan before subject registration.

6.33 Effective academic advising requires an active participation of student advisees in the processes. It is important that students understand it is their responsibilities to:

- Understand the academic regulations and requirements of their chosen programme of study and/or its Major, as well as the GUR requirements,
- Actively obtain information, and seek out advisors and resources on a regular basis and as needed,
- Take the final responsibility for making decisions and choices regarding their academic study based on the information and advice given.

STUDENT/STAFF CONSULTATIVE GROUP

6.34 The importance of assessing students' opinion on the organisation and running of the programme on a continual basis is recognised and formal arrangements for this purpose are in place. The Group should have equal numbers of students and staff, that student membership should include all years of study under the normal progression pattern and other major student groupings, and that staff membership should cover all the main subject areas and activities of the programme. A member of staff may chair the Group. The Group is to discuss any matters directly related to the programme, and to report or make recommendations, as deemed necessary, to the Departmental Undergraduate Programme Committee. Meetings are usually held once per semester.

6.35 It is important that students do not perceive meetings of the Group as the only or main channel for dealing with student problems and complaints accumulated since the last meeting. Such matters would be dealt with when they occurred, through the Programme Leader or other appropriate staff. This would allow meetings of the Group to be used for constructive discussion of the programme in general, of the demands of the programme on students, and of possible improvement.

SECTION 7 - PROGRAMME EVALUATION AND DEVELOPMENT

7.1 The programme evaluation and development procedures are intended to assess the:

(i) extent to which the aims and objectives are being met and what measures need to be taken to remedy any deficiencies identified, and

(ii) continuing relevance of the aims and subject objectives and the ways they need to be modified to take account of technological change and the development of Hong Kong's industries.

7.2 The programme evaluation procedures are conducted at two levels: firstly at the Programme Executive Group/Departmental Undergraduate Programme Committee level continuously through the year and secondly to the Departmental Undergraduate Programme Committee/Departmental Academic Advisor level at the end of each year. The first level is described in Section 6 of this document and the other below.

7.3 The Departmental Undergraduate Programme Committee holds its Annual Programme Review Meeting each year after the Board of Examiner has met as described in Section 5 of this document. The issues described in Section 6 are considered, particularly as revealed by the examination performance, and recommendations for action are made to remedy any deficiencies identified. Following the Annual Programme Review Meeting the Programme Leader submits the Annual Programme Review Report (which is encapsulated as part of the Annual Operation Plan) to the Engineering Faculty Board each year which, for the previous academic year,

(i) summarises the operation of the programme,

(ii) lists any modifications that are deemed necessary, and

(iii) makes proposals for substantial changes to the structure or content of the programme, or for changes with significant resource implications.

7.4 The Departmental Undergraduate Programme Committee adopts a policy of continuous improvement and is continuously evaluating the effectiveness and relevance of the Programme. This policy of continuous improvement includes soliciting the views of the Department's Advisory Committee, local industrialists, past graduates and the Departmental Academic Advisor.

7.5 The Programme is subject to an evaluation, normally every six years, as part of the PolyU's Departmental Review exercise. This is external to the Department and makes a critical appraisal of the standing, progress and future of all programmes that a department operates. The policy of continuous improvement as mentioned 7.4 attempts to render a major in-depth programme appraisal unnecessary prior to a Departmental Review.

SECTION 8 – SUBJECT SYLLABUSES AND PROJECTS

8.1 Syllabuses for all subjects and projects of the programme are listed in Table 8. Department of Industrial and Systems Engineering subjects are listed first, followed by subjects serviced by other departments. The subject coordinators for the ISE subjects will be updated regularly. Please access the departmental website https://www.polyu.edu.hk/ise/current-students/programme-related-info/subject-syllabus for the updated list.

TABLE 8 - SYLLABUS INDEX

TABLE 8 - SYLLABUS INDEX (Continued)

Subjects offered by
Department of Industrial and Systems Engineering

Subject Description Form

Subject Code	ISE1001
Subject Title	Basic Artificial Intelligence and Data Analytics for Efficiency and Effectiveness in Daily Life
Credit Value	2
Level	1
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject provides students with 1. the basic concepts and knowledge of artificial intelligence and data analytics (AIDA); 2. the appreciation of AIDA applications in addressing efficiency and effectiveness in daily life; and 3. the basic knowledge and skills to develop simple AIDA tools for real life applications.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. Demonstrate an understanding of the foundational concepts of AIDA; b. Acquire basic skills in using AIDA technologies and applications; c. Articulate examples of how the adoption of AIDA could enhance their studies in the ISE discipline; d. Demonstrate an awareness of global contemporary ethical issues and impact from AIDA applications in daily life.
Subject Synopsis/ Indicative Syllabus	1. <u>Introduction to Industrial and Systems Engineering (ISE) and AIDA</u> Contributions of ISE; Efficiency and Effectiveness; Operations improvement; Business competitiveness; Examples of AIDA; Relation between Artificial Intelligence and Data Analytics 2. <u>Introduction to Artificial Intelligence</u> Concept of Artificial intelligence; Machine learning; Learning process; Supervised learning, Unsupervised learning; Reinforcement learning; Artificial Intelligence for operations efficiency and effectiveness. 3. <u>Applications of Artificial Intelligence</u> Creation of machine learning models; Image recognition; Defect detection; Generative Design, Pose recognition for human robot collaboration. 4. <u>Introduction to Data Analytics</u>

<table>
<tr><td></td><td>Concept of Data Analytics; Knowledge mining process; Descriptive analytics; Diagnostic analytics; Predictive analytics; Prescriptive analytics; Data analytics for business performance.

5. <u>Applications of Data Analytics</u>

Statistics and basic analytics; Data analytics for marketing analysis; Computational tools for data analytics.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The teaching pedagogy of this subject takes a blended learning approach. It consists of the e-leaning module, classroom teaching, tutorials, and experiential learning activities, such as formal lectures, and laboratory sessions. Emphasis is put on the acquisition of required skills and knowledge in AIDA in daily life. The lectures provide the basics and theories while the laboratory activities cover the skills following an interest-based approach. Applying the flipped classroom approach, students are required to prepare for the laboratory exercises in advance.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="4">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td></tr>
<tr><td>Assignment</td><td>10%</td><td>✓</td><td></td><td></td><td>✓</td></tr>
<tr><td>Laboratory Exercises</td><td>60%</td><td></td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>Quizzes</td><td>30%</td><td>✓</td><td>✓</td><td></td><td>✓</td></tr>
<tr><td>Total</td><td>100%</td><td></td><td></td><td></td><td></td></tr>
</table>
Assignment and quizzes are used to assess students' understanding on the concepts, technologies, and applications of AIDA. The laboratories are used to assess their ability on developing AIDA tools.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td colspan="2">Class contact:</td><td></td></tr>
<tr><td>▪ Lecture</td><td>2 hours/week for 4 weeks</td><td>8 Hrs.</td></tr>
<tr><td>▪ Laboratory</td><td>2 hours/week for 6 weeks</td><td>12 Hrs.</td></tr>
<tr><td>▪ Tutorial</td><td>2 hours/week for 3 weeks</td><td>6 Hrs.</td></tr>
<tr><td colspan="2">Other student study effort:</td><td></td></tr>
<tr><td colspan="2">Self-study</td><td></td></tr>
<tr><td colspan="2">▪ E-learning Module and Preparation for Laboratory Exercises</td><td>38 Hrs.</td></tr>
<tr><td colspan="2">▪ Preparation for Assignments and Quizzes</td><td>16 Hrs.</td></tr>
<tr><td colspan="2">▪ Total student study effort</td><td>80 Hrs.</td></tr>
</table>
</td></tr>
</table>

Reading List and References	1. Wolfgang Ertel. *Introduction to Artificial Intelligence*. Springer International Publishing 2nd edition. 2017. 2. João Moreira, André De Carvalho, Tomáš Horváth. *A General Introduction to Data Analytics*. Hoboken, NJ: John Wiley & Sons. 2019. 3. Ethem Alpaydin. Machine Learning. Cambridge, Massachusetts: The MIT Press. 2021. 4. Gopinath Rebal; Ajay Ravi, Sanjay Churiwala. An Introduction to Machine Learning. Cham: Springer. 2019. 5. Avraham Shtub, Yuval Cohen. *Introduction to Industrial Engineering*. Boca Raton, FL: CRC Press. 2nd edition. c2016. 6. Ramesh Sharda, Dursun Delen, Efraim Turba , Analytics, Data Science, & Artificial Intelligence: Systems for Decision Support, 11th Edition, Pearson, c2020

Subject Description Form

Subject Code	ISE2001
Subject Title	Introduction to Enterprise Computing
Credit Value	3
Level	2
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject enables students to 1. understand the fundamentals and working knowledge in the application of enterprise computing in the running and operation of a company-wide and enterprise-wide business; 2. develop their ability to produce e-solutions.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. understand the basic concept of enterprise computing and how it supports company-wide and enterprise-wide business operation; b. understand basic computing technologies; c. apply computing technologies to implement e-solutions.
Subject Synopsis/ Indicative Syllabus	1. Introduction to Business Enterprise and Enterprise Computing From mainframe to network computing; Client/Server computing; Group-wise electronic messaging, document management systems, and corporate database systems; HTML; XML; VBScript; ASP; PHP; Application of company-wide and enterprise-wide computing 2. Development of Enterprise Applications Development of e-solutions based on applications software; Static and dynamic Webpage; Electronic publishing; Scripting language; Introduction to multimedia; Use of reporting tools; Web programming tools for e-solutions
Teaching/Learning Methodology	A mixture of lectures, tutorials, in-class exercises, laboratory exercises, and a mini-project are used to deliver the topics. Lectures are conducted to enable students to understand the concepts and techniques of enterprise computing which are reinforced by in-class exercises. Practical problems are raised as a focal point for discussion in tutorial classes. Lab sessions and exercises are conducted to enable students to reflect on and apply the knowledge learned. The mini-project enables students to learn how to apply the knowledge to application-oriented projects through teamwork.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c			
1. In-class Exercises	25%		✓				
2. Laboratory Exercises	10%			✓			
3. Mini-project	25%	✓		✓			
4. Quizzes	40%	✓	✓				
Total	100%						

Continuous assessments consist of in-class exercises, lab exercises, a mini-project, and quizzes, which are designed to facilitate students to achieve intended learning outcomes. All assessment components require students to apply computing technologies delivered in class to real-life cases and to implement e-solutions. The mini-project requires students to identify a real-life case of e-business, analyze the case, and design and implement the e-solution by using computing technologies. Quizzes are designed to facilitate students' review in relation to the breadth and depth of their understanding.

Student Study Effort Expected

Class contact:	
▪ Lectures 3 hours/week for 5 weeks; 2 hours/week for 6 weeks	27 Hrs.
▪ Tutorials 1 hour/week for 6 weeks	6 Hrs.
▪ Laboratories 3 hours/week for 2 weeks	6 Hrs.
Other student study effort:	
▪ Preparation for the mini-project, project presentation, project report, and quizzes	77 Hrs.
Total student study effort	116 Hrs.

Reading List and References

1. Kroenke, D and Auer, D 2013, *Database Concepts,* 6th edn, Prentice Hall

2. Harvey & Paul Deitel & AssociatesHarvey DeitelAbbey Deitel 2012, *Internet and World Wide Web How To Program*, 5/E, Pearson

3. Comer, D 2006, *Internet Book, The Everything You Need to Know About Computer Networking and How the Internet Works,* 4th edn, Prentice Hall

Subject Code	ISE246
Subject Title	Introduction to Logistics Engineering
Credit Value	3
Level	2
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject provides students with 1. the basic concepts and practices in logistics engineering; 2. the knowledge of common logistics problems and solution techniques; 3. the enabling technologies that are likely to drive logistics progress in the near future; 4. the concepts and emerging trends of e-commerce logistics business; 5. an opportunity to understand the role of Hong Kong as the logistics and transportation hub of South China and the Pearl River Delta region.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. appreciate logistics activities involved in running a logistics system and the required enabling technologies; b. formulate strategic solutions applied in warehouse management in order to enhance productivity and accounting control issues; c. identify and evaluate the role of logistics and transportation in today's e-commerce business; d. understand the issues of transportation mode, customs clearance, intermodal operations, logistics parks, and cold chain in Hong Kong; e. apply RFID equipment, standards, and related solutions on logistics operations in order to streamline the logistics workflow.
Subject Synopsis/ Indicative Syllabus	1. <u>Introduction</u> Logistics from a historical perspective; Economic impact of logistics; Logistics engineering tool chest; Logistics as an integrating function 2. <u>Logistics Activities</u> Customer service; Purchasing and sourcing; Demand forecasting; Facility location and layout; Inventory management; Material handling and material flow; Warehousing; Distribution networks; Transportation systems overview

<table>
<tr><td></td><td>
3. <u>Enabling Technologies</u>

Tracking technologies; Electronic connectivity and software; Reliability, maintainability, and supportability in logistics; Funding and justifying logistics activities; Logistics and the Internet

4. <u>Emerging and Growing Trends</u>

Global logistics concerns; Outsourcing and 3PLs; Logistics in service industries; Current and future logistics research needs; E-fulfillment in distribution centers; Hong Kong's role as the logistics and transportation hub
</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A mixture of lectures, tutorials, laboratory exercises, and case studies are used to deliver the various topics in this subject, some of which are covered in a problem-based format, thereby enhancing the learning objectives. Others are covered through directed study in order to enhance the students' ability of "learning to learn."</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td><td></td></tr>
<tr><td>1. Laboratory Exercises</td><td>20%</td><td>✓</td><td></td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>2. Individual Assignments</td><td>12%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>3. Case Study</td><td>8%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>4. Examination</td><td>60%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="5"></td></tr>
</table>
Assessment includes examination, and individual-based and group-based performance measurements. The examination is designed to measure students' depth of knowledge in the area of logistics engineering. The case study is designed to reflect students' understanding on the enabling technologies taught, warehouse management, and other logistics engineering issues. The laboratory exercises and individual assignments are designed to appraise students' recommendations in addressing specific issues related to logistics engineering.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture/Tutorial</td><td>24 Hrs.</td></tr>
<tr><td>▪ Laboratory/Case Study</td><td>15 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Preparation for Case Study and Report Writing</td><td>33 Hrs.</td></tr>
</table>
</td></tr>
</table>

	▪ Self-revision for Examination	30 Hrs.
	Total student study effort	102 Hrs.
Reading List and References	1. Leung, K. H., Cheng, Stephen W. Y., Choy, K. L., Wong, David W. C., Lam, H. Y., Hui, Y. Y., Tsang, Y. P. & Tang, Valerie. (2016). A Process-Oriented Warehouse Postponement Strategy for E-Commerce Order Fulfillment in Warehouses and Distribution Centers in Asia. In Patricia Ordóñez de Pablos (Eds.), *Managerial Strategies and Solutions for Business Success in Asia* (pp.21-34). Hershey, PA: IGI Glob. 2. Don Taylor, G 2008, *Introduction to Logistics Engineering*, Taylor and Francis Group, LLC 3. Jones, EC and Chung, CA 2008, *RFID in Logistics: A Practical Introduction*, Boca Raton: CRC Press/Taylor and Francis 4. Shepard, S 2005, *RFID: Radio Frequency Identification*, McGraw-Hill Publishing Company 5. Blanchard, BS 2003, *Logistics Engineering and Management,* 6th edn, Prentice Hall Inc., Upper Saddle River, NJ 6. Stock, R and Lambert, M 2001, *Strategic Logistics Management,* 4th edn, McGraw-Hill Publishing Company	

Subject Description Form

Subject Code	ISE247
Subject Title	Fundamental of Enterprise Systems
Credit Value	3
Level	2
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject enables students to 1. learn the business processes in an enterprise and how information is managed in an enterprise; 2. understand the characteristics and components of different enterprise systems and how enterprise systems can improve the efficiency and effectiveness of business activities; 3. understand the basic principles of enterprise modeling.
Intended Learning Outcomes	Upon completion of this module, students will be able to a. understand how information flows across enterprise systems and the business operations in an enterprise; b. analyze different enterprises and apply system concepts in both manufacturing and service industries; c. know the basic principle and components of enterprise modeling.
Subject Synopsis/ Indicative Syllabus	1. Business Activities in Enterprise Development of modern organization and enterprise engineering - Basic functional areas of organizations and business activities, such as account and financial management, sales and marketing, customer services, manufacturing and production cycle, and human resource planning; Information flow and collaboration across different functional areas of an enterprise; Need for new business and technology professionals; Benefits of adopting enterprise applications; Enterprise engineering 2. Enterprise Information Systems and its Application to Enterprise Business System concepts; Types and nature of enterprise systems; Classification by function and process; Managing information in an enterprise; Traditional classifications of enterprise information systems - Transaction processing system, such as systems for financial and accounting information, sales and marketing, human resource, manufacturing and production, enterprise resources planning, office automation (e.g., workflow system, GroupWare, and business processes management systems), knowledge work (e.g., CAD), decision support, management

<table>
<tr><td></td><td>information, and executive information; Software vendor products

3. <u>Principles of Enterprise Modeling</u>

What is a business process; Concept of process design; Basic component of enterprise modeling - Entity modeling, role modeling, process modeling, scenario modeling, information modeling, client/server modeling, dialog and action modeling, software component modeling, and workflow modeling</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The subject is delivered by a mixture of lectures, seminars, tutorials, case studies, and lab exercises. Lectures are conducted to initiate student exchange on concepts and techniques. Practical problems are raised as a focal point for discussion in tutorial classes. Seminars, case studies, and lab exercises, which are largely based on business and industrial experiences, are used to integrate these topics. These allow students to appreciate how various principles and technologies are interrelated and how they apply in real life situations. Quizzes are designed to enable students to periodically review their acquired knowledge, and consequently, to evaluate if the topics were understood.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td></td><td></td><td></td></tr>
<tr><td>1. Lab Exercises</td><td>10%</td><td></td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>2. Seminar Studies</td><td>15%</td><td></td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>3. Case Studies</td><td>35%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>4. Quizzes</td><td>40%</td><td>✓</td><td></td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="6"></td></tr>
</table>
Continuous assessments consist of lab exercises, seminar reports, case studies, and quizzes. These are designed to help students achieve the intended learning outcomes. All components for assessment will require students to understand the basic principles and components of enterprise modeling. Lab exercises will require students to analyze and design an enterprise system by using computer-based tools. Seminar reports are designed to help students review and acquire a deeper understanding of the topics delivered during seminars. Case studies will require students to study a number of real-life enterprise systems and identify their benefits and impacts. Quizzes are designed to help students review, and assess the breadth and depth of their understanding on the concepts taught.</td></tr>
<tr><td>Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td></td><td>▪ Lecture 3 hours/week for 8 weeks</td><td>24 Hrs.</td></tr>
<tr><td></td><td>▪ Laboratory 3 hours/week for 1 week</td><td>3 Hrs.</td></tr>
</table>

	▪ Tutorial/Case Study/Presentation	12 Hrs.
	Other student study effort:	
	▪ Preparation for Case Studies, Quizzes, and Lab Reports	74 Hrs.
	Total student study effort	113 Hrs.
Reading List and References	1. O'Brien, J and Marakas, G 2006, *Enterprise Information Systems*, McGraw-Hill 2. Dennis, A, Wixom, B, and Roth, R 2006, *Systems Analysis and Design,* 3rd edn, John Wiley & Sons 3. Schmuller, J 2004, *Sams Teach Yourself UML in 24 Hours, Complete Starter Kit,* 3rd edn, Sams 4. Miles, R and Hamilton, K 2006, *Learning UML 2.0*, O'Reilly, USA 5. Arlow, J and Neustadt, I 2005, *UML 2 and the Unified Process: Practical Object-Oriented Analysis and Design,* 2nd edn, Addison Wesley 6. Hsu, C 1996, *Enterprise Integration and Modeling: The Metadatabase Approach*, Kluwer Academic Publisher 7. Kendall, K and Kendall, J 2005, *System Analysis and Design,* 6th edn, Prentice Hall 8. Whitten, J and Bentley, L 2005, *System Analysis and Design Methods,* 5th edn, McGraw-Hill 9. Wasson, C, 2006, *System Analysis, Design, and Development: Concepts, Principles, and Practices*, John Wiley & Sons 10. Vernadat, F, B 1996, *Enterprise Modeling and Integration: Principles and Applications*, Chapman & Hall 11. Marshall, C 2000*, Enterprise Modeling with UML: Designing Successful Software Through Business Analysis*, Addison-Wesley	

Subject Description Form

Subject Code	ISE3001
Subject Title	Operations Research I
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject will provide students with 1. ability to understand the concepts and importance of Operations Research; 2. knowledge of formulating mathematical models in day to day business operations; 3. skills in improving management by applying Operations Research theories in real life; 4. Operations Research models in decision makings.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. recognize the importance of Operations Research; b. build an Operations Research model from real-life problems; c. understand Operations Research theories and models and their applications to a variety of scenarios; d. apply computer tools to obtain optimal solutions from a mathematical model.
Subject Synopsis/ Indicative Syllabus	1. Introduction Basic concepts in Operations Research and Mathematical Modeling. 2. Linear Programming Concept in Linear Programming, Graphics method, the Simplex method, Duality Theory. 3. The Assignment and the Transportation Problem The model of the assignment problem, and the transportation problem. The transshipment problem. 4. Decision Analysis

Decision Tree, Bayesian Analysis, Utility Theory

5. Integer Linear Programming

Concepts in Integer Programming, the Branch-and-Bound Algorithm. The cutting plane method.

6. Network and Dynamic Programming

Network and methods. Dynamic Programming and its applications.

Teaching/Learning Methodology

A mixture of lectures, tutorial exercises, and case studies will be used to deliver the various topics in this subject. Some of them will be covered in a problem-based format which enhances the learning objectives. Others will be covered through directed study in order to enhance the students' ability of "learning to learn". Some case studies will be used to integrate these topics and thus demonstrate to students how the various techniques are interrelated and how they can be applied to real problems in industry.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c	d		
1. Examination	60%	✓	✓	✓	✓		
2. Assignment exercise	15%	✓	✓	✓	✓		
3. laboratory/case study	15%	✓	✓	✓	✓		
4. Test	10%	✓	✓	✓			
Total	100%						

The assignment exercises, case studies and laboratory assess students' capability to synthesize and apply the concepts and skills learnt in analyzing and solving Operations Research problems.

The examination assesses students' understanding on the concepts and capability in the application of the skills for analyzing and solving problems related to the subject.

Student Study Effort Expected

Class contact:		
▪ Lectures	3 hours/week for 10 weeks	30 Hrs.
▪ Lab., Presentation, Test	3 hours/week for 3 weeks	9 Hrs.
Other student study effort:		
▪ Preparation and Review, Self-study		60 Hrs.
▪ Report Writing		21 Hrs.

	Total student study effort	120 Hrs.
Reading List and References	1. Rader, D. J. 2010, *Deterministic Operations Research: Models and Methods in Linear Optimization*, J. Wiley & Sons 2. Taha, H. A. 2007, *Operations Research*, 8th edn, Pearson 3. Taylor, B. W. III 2013, *Introduction to Management Science*, 11th edn, Prentice Hall 4. Schrage, L. 1997, *Optimization Modeling with LINDO*, 5th edn, Thomson 5. Winston, W. L. 2004, *Operations Research: Applications and Algorithms,* 4th edn, Thomson 6. Williams, H. P. 2013, *Model Building in Mathematical Programming*, 5th edn, Wiley 7. Hillier, F. S. and Lieberman, G. J. 2010, *Introduction to Operations Research*, 9th edn, McGraw-Hill 8. Ravindran, R. 2009, *Operations Research*, CRC Press	

Subject Description Form

Subject Code	ISE3002
Subject Title	Planning of Production and Service Systems
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject provides students with 1. an understanding of the concepts of production and service systems; 2. the ability to apply principles and techniques in the design, planning and control of these systems to optimize/make best use of resources in achieving their objectives.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. apply the systems concept for the design of production and service systems; b. make forecasts in the manufacturing and service sectors using selected quantitative and qualitative techniques; c. apply the principles and techniques for planning and control of the production and service systems to optimize/make best use of resources; d. understand the importance and function of inventory and to be able to apply selected techniques for its control and management under dependent and independent demand circumstances.
Subject Synopsis / Indicative Syllabus	1. <u>The Systems Concept</u> The transformation model of production systems. The boundary and attributes of a socio-technical production system. Effects of the environmental factors. Systems balance and sub-optimization. The need for systems integration and adaptation to environment. 2. <u>Forecasting</u> Production demand management. Qualitative and quantitative methods in forecasting. Forecasting errors and control. Forecasting and its relationship to capacity planning. 3. <u>Capacity Planning</u> Capacity measurement. Aggregate units. Manual and mathematical methods for aggregate planning. Master production scheduling.

<table>
<tr><td></td><td>
4. <u>Inventory Control and Material Requirement Planning (MRP)</u>

Independent inventory control and management; Types of inventory; Continuous review and periodic review systems; Reorder level and order quantities, including quantity discounts; ABC analysis. Planning of dependent inventory; MRP concepts and principles; Lot sizing

5. <u>Operations Loading and Scheduling</u>

Gantt charts for loading and scheduling. Techniques and algorithms for operations scheduling and Personnel Scheduling

6. <u>Just-in-time and Lean Manufacture</u>

Push and pull systems of production control; Advantages and limitations; Set-up and changeover times and their reduction; Use of Kanban; Effect on inventory; Issues of implementation
</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A mixture of lectures and workshops will be used to deliver the various topics in this subject to attain the intended learning outcomes. Some of which will be covered in a problem-based format where this enhances the learning outcomes. Others will be covered through directed study in order to enhance the students' ability of "learning to learn". Workshops are conducted as group activities so that students can discuss, practice and understand materials in the class. Case studies and simulation exercises will be provided to provoke students' further thinking about and integration of the factors related to real life problem solving in the discipline of studies.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% Weighting</td><td colspan="4">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td></tr>
<tr><td>1. Assignments/Case Studies</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Workshop Exercises</td><td>20%</td><td></td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>3. Examination</td><td>60%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100%</td><td colspan="4"></td></tr>
</table>
The assignments/case studies assess students' ability to synthesize and apply the concepts and skills learnt in solving problems related to the subject.

The workshop exercises assess students' capability in the planning and control of activities in production and service systems to optimize/make the best use of resources to attain system's objectives.

The examination assesses students' understanding on the concepts and in the use of the skills in solving problems related to the subject.
</td></tr>
</table>

<table>
<tr><td rowspan="7">Student Study Effort Expected</td><td colspan="2">Class Contact:</td><td></td></tr>
<tr><td>a. Lecture</td><td>2.0 hours/week for 12 weeks</td><td>24 Hrs.</td></tr>
<tr><td>b. Workshop</td><td>3.0 hours/week for 5 weeks</td><td>15 Hrs.</td></tr>
<tr><td colspan="2">Other student study effort:</td><td></td></tr>
<tr><td colspan="2">▪ Studying and self learning</td><td>59 Hrs.</td></tr>
<tr><td colspan="2">▪ Assignment and report writing</td><td>25 Hrs.</td></tr>
<tr><td colspan="2">Total student study effort</td><td>123 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="3">1. Krajewski, L J, Ritzman, L P and Malhotra, M K 2013, Operations Management: Processes and Supply Chains, Upper Saddle River, N.J.: Pearson/Prentice Hall

2. Nahmias, S 2009, Production and Operations Analysis, 5th edn, McGraw-Hill

3. Schroeder, R G, Goldstein, S M and Rungtusanatham, M J 2013, Operations Management : Contemporary Concepts and Cases, New York, NY : McGraw-Hill/Irwin

4. Chase, R B., Aquilano, N J, and Robert, J F 2006, Operations Management for Competitive Advantage, Boston: McGraw-Hill Irwin

5. Shafer, S M and Meredith, J R 2003, Operations Management, New York: John Wiley & Sons

6. Vollmann, T E et al. 2005, Manufacturing Planning and Control Systems for Supply Chain Management, New York: McGraw-Hill

7. Turner, W C et al. 2001, Introduction to Industrial and Systems Engineering, Beijing : Tsing Hua University: Prentice Hall

8. Schroeder, R G and Flynn, B B 2001, High Performance Manufacturing: Global Perspectives, New York: John Wiley

9. Sipper, D and Bulfin, R L Jr 1997, Production: Planning, Control, and Integration, McGraw-Hill

10. Markland, R E, Vickery, S K, and Davis, R A 1998, Operations Management: Concepts in Manufacturing and Services, Cincinnati, Ohio : South-Western College Pub</td></tr>
</table>

Subject Description Form

Subject Code	ISE3005
Subject Title	Knowledge Management Systems and Applications
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject will equip students with 1. the basic understanding of the role of knowledge in organizations in the new economy; 2. the knowledge about the types and importance of knowledge processes and how enterprise applications and social software can be aligned to support these processes, both in a corporate and in a personal environment; 3. the insights into how Knowledge Management Systems are being designed, deployed and accomplish the desired outcomes.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. define the role and importance of knowledge in support of decision making in organizations; b. outline common knowledge processes and align these processes with everyday work tasks; c. critically compare and contrast Knowledge Management Systems with common Enterprise Applications; d. outline how Knowledge Management Applications can be used to solve problems in various industries.
Subject Synopsis/ Indicative Syllabus	1. <u>Introduction to the knowledge-based enterprise in the new economy.</u> Knowledge-intensive decision making. Linear Vs non-linear work as well as Physical Vs Manual work are compared while their respective proportion in today's work tasks are also discussed. The concept, skills and duties of a knowledge worker are critically examined. 2. <u>Types of knowledge, knowledge processes and common approaches for KM</u> Tacit and explicit knowledge, knowledge processes, Nonaka Cycle of knowledge conversion i.e. SECI model, codification and personalization approaches to KM.

3. Knowledge Management Systems

A range of enterprise applications is reviewed especially with respect to their support of various knowledge processes. Definition of a Knowledge Management System (KMS) is critically examined, as well the origin and evolution of these systems. Students will also learn about how to identify potential applications and plan the deployment of a KMS in an organization, fully understanding the common problems and constraints that occur in the deployment of such systems.

4. Personal KM System and Social Software

Personal KMS, in addition to Enterprise KMS, will also be discussed in the context of bottom-up knowledge sharing. Emergence of social media. Governance and security issues. Local and international case studies, tool demonstrations will be used.

Teaching/Learning Methodology

The delivery of this subject will be via lectures, lab session, scenarios, invited lecture(s), replays of interviews and tool demonstrations. Students will be asked to review specific cases and provide comments, assessments on various issues including, for example, appropriateness of a KMS to solve a problem, how to encourage the adoption of a KMS, appropriate content management processes and more.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c	d		
1. Individual assignment	15%	✓	✓				
2. Mid-of-semester short quiz	15%	✓	✓	✓			
3. Workshop assignment	15%	✓	✓	✓	✓		
4. Presentation of guided project	10%	✓	✓	✓	✓		
5. Written report of guided project	20%	✓	✓	✓	✓		
6. End-of-semester open book Test	25%	✓	✓	✓	✓		
Total	100%						

The individual assignment is designed to test a student's ability to conduct background research and write comprehensively about a given topic related to KMS. The workshop assignment serves to enhance a student's research

<table>
<tr><td></td><td colspan="2">mindset and demonstrates by projecting, with substantiation, how the whole field of KMS would evolve in coming years. The mid-of-semester short quiz and end-of-semester open book test are designed to ascertain students' understanding and their ability to apply the concepts in given cases across a comprehensive set of topics covered in the subject. The Guided project is designed to test students' ability to apply what they have learnt in a real world environment. All components except the Guided project are individually assessed.</td></tr>
<tr><td rowspan="12">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures (In-person & online)</td><td>18 Hrs.</td></tr>
<tr><td>▪ Lab Sessions</td><td>9 Hrs.</td></tr>
<tr><td>▪ Tests</td><td>3 Hrs.</td></tr>
<tr><td>▪ Personal Learning Environment & Network (Bulletin Board)</td><td>6 Hrs</td></tr>
<tr><td>▪ Case Study Presentations</td><td>3 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self-Study</td><td>36 Hrs.</td></tr>
<tr><td>▪ Preparation for Assignment</td><td>20 Hrs.</td></tr>
<tr><td>▪ Preparation for Tests</td><td>20 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>115 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="2">1. Davenport, T.H. and Prusak, L 1998, Working Knowledge, How Organizations Manage What They Know, Harvard Business School Press .Holsapple, C.W. 2003, Handbook of Knowledge Management, Volume 1 and Volume 2, Springer-Verlag Berlin-Heidelberg
2. Lee, W.B., Cheung, C.F., Tsui, E. and Kwok, S.K. "Collaborative Environment and Technologies for Building Knowledge Work Teams in Network Enterprises", International Journal of Information Technology and Management, Vol. 6, No. 1, p. 5-22 (2006).
3. Ruggles, R. 1997, Knowledge Management Tools, Butterworth-Heinemann.
4. Thomas H. Davenport, Gilbert J.B. Probst, Knowledge Management Case Book, 2nd Ed., John Wiley & Sons (2002).
5. Tiwana, A. 2002, The Knowledge Management Toolkit: Practical Techniques for Building a Knowledge Management System, 2nd edn, Prentice Hall
6. Zeno Leung,C.S.,Cheung,C.F.,Chan,K.T. and Lo,H.K."Effectiveness of Knowledge Management System in Social Services-Food Assistance Project as an Example",Administration in Social Work,Vol.36,p.302-313 (2012).</td></tr>
</table>

Subject Description Form

Subject Code	ISE3018
Subject Title	Logistics Automation
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject provides students with 1. the understanding of artificial intelligence and automation concept; 2. the understanding of artificial intelligence and automation applications in facilitating logistics operations; and 3. the ability to identify potential applications of artificial intelligence and automation in logistics operations in practice.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. evaluate and improve the performance of terminal operations based on logistics engineering approach; b. analyze and design a solution to enhance warehouse operation efficiency and accuracy by using robots and automation technology; and c. analyze and develop a solution to support last-mile delivery operations by using drones and unmanned guided vehicles.
Subject Synopsis/ Indicative Syllabus	1. <u>Artificial Intelligence and Automation</u> Introduction to artificial intelligence and automation. 2. <u>Container Terminal Automation</u> Introduction to container terminal industries and container terminal operations. Applications of automation technologies, (e.g., automated cranes, automated vehicles, information systems) in yard, quay, and gate operations. 3. <u>Warehouse Automation</u> Warehouse and distribution center operations. Applications of autonomous robots, e.g., order picking robots and autonomous mobile robots, to enhance order picking, and goods storage and retrieval operations. 4. <u>Last-mile Automation</u> Last-mile delivery operations. Applications of drones and unmanned

<table>
<tr><td></td><td>guided vehicles in last-mile delivery.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The teaching pedagogy of this subject is a combination of classroom teaching and experiential learning. It consists of a series of lectures and well-organized laboratory activities. Emphasizing is put on the acquisition of required skills and knowledge in artificial intelligence and automation applied in logistics industries. The lectures provide the basics and theories while the laboratory activities cover the skills following an interest-based approach.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="3">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td></tr>
<tr><td>Quizzes and Midterm Test</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Laboratory Exercises</td><td>20%</td><td></td><td>✓</td><td></td></tr>
<tr><td>Final Examination</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100%</td><td></td><td></td><td></td></tr>
</table>
Quizzes and midterm test are used to assess students' understanding on the concepts of applying logistics automations in logistics operations. The laboratories are used to assess their ability on using logistics automation technology. At the end of the subject, an examination is given to students to assess their learning outcomes.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture 3 hours/week for 7 weeks</td><td>21 Hrs.</td></tr>
<tr><td>▪ Tutorial/Laboratory 3 hours/week for 6 weeks</td><td>18 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>Self-study</td><td></td></tr>
<tr><td>▪ Laboratory Reports</td><td>39 Hrs.</td></tr>
<tr><td>▪ Preparation for Tests and Examination</td><td>39 Hrs.</td></tr>
<tr><td>▪ Total student study effort</td><td>117 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>

1. Jerry Kaplan 2016, *Artificial Intelligence*, New York, NY: Oxford University Press.
2. Eric Su 2016, *Operational Risk Management in Container Terminals*, Abingdon, Oxon, New York, NY: Routledge.
3. Ning Zhao, Yuan Liu, Weijian Mi 2020, *Digital Management of Container Terminal Operations*, Singapore: Springer.
4. Gwynne Richards 2018, *Warehouse Management: A Complete Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse*,

</td></tr>
</table>

	London, United Kingdom: Kogan Page Limited. 5. Christian Wurst, Luca Graf 2021, *Disrupting Logistics: Startups, Technologies, and Investor Building Future Supply Chains*, Springer International Publishing. 6. Albert Causo 2020, *Advances on Robotic Item Picking: Applications in Warehousing & e-commerce Fulfillment*, Springer.

Subject Description Form

Subject Code	ISE318
Subject Title	Industrial Engineering Techniques and Methods
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil (but some basics of mathematics such as matrix and probability are preferable)
Objectives	This subject provides students with 1. basic skills for analyzing and improving working methods, procedures and systems in the context of the workstations and a department, taking into account ergonomic considerations in order for them to carry out a project on work improvement in a company for the purpose of productivity improvement; 2. skills in the use of learning curve, as well as a basic understanding of the techniques and concepts of Just-In-Time, Toyota Production System, and Lean Production, thereby allowing them to draft measures for efficiency improvement and waste reduction in industrial engineering; 3. ability to use multi-criterion decision making method (Analytic Hierarchy Process) in order for them to draft industrial decision planning and evaluation (i.e. layout plan selection, human resource strategy, best available technology, sustainable manufacturing); 4. working knowledge on the techniques for facilities layout and their interaction with materials handling system (if relevant), thereby enabling them to evaluate an existing layout and recommend improvements and/or to plan a new layout; 5. basic skills of calculating cycle time, line efficiency, understanding the basic rules for work improvement, mastering the common recording techniques, systems flowchart, quality management tools, and basics for product development (design of goods and service, product life cycle and decision tree to product design).
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. determine productivity and examine an existing work situation and conduct a work improvement program in order to identify low productivity in a manufacturing or service company; b. apply appropriate recording techniques, or to design new work methods and procedures, for a manufacturing or service company, and apply lean production methods; c. employ the multi-criterion decision making method (AHP) for industrial decision planning and evaluation;

<table>
<tr><td></td><td>d. master the total quality management tools, the basics of product development, analyze the results, and use line balancing theory for applications, and propose suggestions for improvement for industrial engineering;

e. identify the objectives of layout planning in both manufacturing and service companies, evaluate its effectiveness, and apply layout planning techniques, recognizing their limitations when considering relevant constraints.</td></tr>
<tr><td>Subject Synopsis/ Indicative Syllabus</td><td>1. <u>Introduction</u>

Productivity; Causes of low productivity in organizations; Resources and outputs, their importance, brief history of industrial engineering techniques and methods, and how they are measured.

2. <u>Work Improvement</u>

Leaning Curves. Just in Time (JIT), Toyota Production System/Lean Production. Human resources strategy and job design. Industrial Decision planning and evaluation: Analytical Hierarchy Process (AHP) and multi-criterion decision-making. Layout Planning. Inter relationships among entities. Types of layout manufacturing and offices. Layout planning techniques. Line balancing. Procedure diagrams. Line balancing applications. Flow time, cycle time, line efficiency; Systems flowchart; Recording techniques. Work improvement, benefits, the logical approach, the Pareto Principles, identifying improvement areas in enterprise. Interview Personnel. Recording Techniques.

3. <u>Quality Management and Product development</u>

Quality management. Dimensions of quality. "Costs" of Quality. Total quality management tools. Seven Quality Control tools. ISO 9000 Series of Quality Standards. Design of goods and service. Product Life Cycle. Product Development (Quality Function Deployment). Decision tree to product design. Project management.

4. <u>Layout Planning</u>

Objectives, types of layout found in the manufacturing industry and the clerical sector; Systematic layout planning, as applied to manufacturing and clerical work; Introduction to the design of flowlines in manufacturing; Line balancing; Techniques; Efficiency of assembly lines; Balance loss.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A mixture of lectures, tutorial exercises, and case studies are used to deliver the various topics in this subject, some of which are covered in a problem-based format, as these can enhance the learning objectives. Others are covered through directed study in order to enhance the students' ability of "learning to learn." Some case studies, largely based on consultancy experience, are used to integrate the topics, thus demonstrating to students how the various techniques are interrelated and how they can be applied in real work situations.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td>Specific Assessment Methods/Tasks</td><td>% Weighting</td><td>Intended subject learning outcomes to be assessed</td></tr>
</table>
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<tr><td></td><td>
<table>
<tr><td></td><td></td><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td></tr>
<tr><td>1. Continuous Assessment (Four Case Studies, each accounts to 10%)</td><td>40%</td><td></td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Examination (Open Book)</td><td>60%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100%</td><td colspan="5"></td></tr>
</table>
Continuous assessment comprises case studies with individual and group components. Note: Questions for the assessment of Intended Learning Outcomes (ILOs) may vary from year to year in terms of whether they are by Continuous Assessment or by Examination. However, all ILOs are covered each year. Moreover, all assessment components require students to apply what they learned to realistic work applications.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td colspan="2">Class contact:</td><td></td></tr>
<tr><td>▪ Lecture/Tutorial</td><td>3 hours/week for 11 weeks</td><td>33 Hrs.</td></tr>
<tr><td>▪ Laboratory/Case Study</td><td>3 hours/week for 2 weeks</td><td>6 Hrs.</td></tr>
<tr><td colspan="2">Other student study effort:</td><td></td></tr>
<tr><td colspan="2">▪ Studying and Self-learning</td><td>38 Hrs.</td></tr>
<tr><td colspan="2">▪ Case Study and Report Writing</td><td>28 Hrs.</td></tr>
<tr><td colspan="2">Total student study effort</td><td>105 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>
1. Heizer, Jay and Render, Barry, 2014, Principle of Operations management, 9th edition, Pearson

2. Mundel ME and Danner DL 1994, Motion and Time Study: Improving Productivity, 7th edn, Prentice Hall

3. Tompkins, JA, White, JA, Bozer, YA, Tanchoco, JMA, and Trevino J 1996, Facilities Planning, 2nd edn.

4. Gavriel Salvendy (Ed.) 2007, Industrial Engineering Handbook, John Wiley & Sons Ltd.

Note: Other books with the same or similar titles as above can also be used.
</td></tr>
</table>

Subject Description Form

Subject Code	ISE328
Subject Title	Technology and Applications of Electronic Business Systems
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject will provide students with 1. the opportunity to understand and evaluate the basic design and architecture of electronic business systems; 2. awareness of the latest electronic business system applications in the manufacturing and service industry; 3. opportunity to evaluate the contemporary application of electronic business systems; and 4. concepts and applications related to business intelligence for electronic businesses.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. apply the design techniques to the development of architecture of electronic business systems; b. identify, examine, and evaluate the application of electronic business systems in the manufacturing and service industry; c. analyze and evaluate the contemporary application of electronic business systems in the context of the manufacturing and service industry; d. select an appropriate type of electronic business system and apply it to the relevant work context of the manufacturing and service industry; and e. apply the business intelligence software and techniques to enhance electronic businesses
Subject Synopsis/ Indicative Syllabus	The syllabus consists of the following topics: 1. <u>Design and Architecture of Electronic Business Systems</u> System development and analysis; Web-based technology, mobile technology, database technology, network and web security; Data visualization and analysis of business intelligence in the support of electronic business 2. <u>Application of Electronic Business Systems in the Manufacturing and Service Sector</u>

<table>
<tr><td></td><td>Applications in workflow management, production planning and inventory control, electronic procurement and trading, and others</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A combination of lectures, case studies, and projects with the support of laboratory work is used to deliver the various topics in this subject. Students carry out the practical work in the Microsoft Enterprise Systems Center. Some topics are covered in a case-based format to enhance learning experience, whereas others are covered through directed study to cultivate self-learning. Case studies are used to demonstrate how the various techniques are interrelated and how they are deployed in an actual environment.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td><td></td></tr>
<tr><td>1. Assignments</td><td>30%</td><td></td><td></td><td>✓</td><td></td><td>✓</td><td></td></tr>
<tr><td>2. Lab Exercise</td><td>20%</td><td></td><td>✓</td><td></td><td></td><td>✓</td><td></td></tr>
<tr><td>3. Project</td><td>20%</td><td>✓</td><td>✓</td><td></td><td>✓</td><td></td><td></td></tr>
<tr><td>4. Test</td><td>30%</td><td></td><td>✓</td><td></td><td>✓</td><td>✓</td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="6"></td></tr>
</table>
Assignments are designed to assess students' knowledge in identifying and testing the contemporary application of electronic business systems in real situations, and the understanding of the business intelligence techniques.

Projects are designed using some case studies to assess students' understanding and presentation skills of different concepts, including how to identify, select, and apply e-business technology, and to develop and evaluate an e-business system.

Laboratory exercise is designed to explore a business intelligence software in the context of electronic business, and assess students' knowledge in data visualization and analysis.

Examinations are designed to test students' understanding of the topics and whether they can present the concepts clearly.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact</td><td></td></tr>
<tr><td>▪ Lectures 3 hours/week for 10 weeks</td><td>30 Hrs.</td></tr>
<tr><td>▪ Laboratories 3 hours/week for 3 weeks</td><td>9 Hrs.</td></tr>
<tr><td>Other student study efforts</td><td></td></tr>
</table>
</td></tr>
</table>

	▪ Working on assignments	15 Hrs.
	▪ Preparation for presentation and report writing	40 Hrs.
	▪ Preparation for quiz and test	30 Hrs.
	Total student study effort	124 Hrs.
Reading List and References	1. Lawrence, E, Corbitt, B, Tidwell, A, Fisher, J, & Lawrence, J R 2003, *Internet Commerce: Digital Models for Business*, Milton, Qld: Wiley 2. Davidow, W H & Malone, M S 1992, *The Virtual Corporation*, New York: HarperBusiness 3. Schneider, G P & Perry, J T 2000, *Electronic Commerce,* Business Course Technology, Pearson, Prentice Hall 4. Timmers, P 1999, *Electronic Commerce – Strategies and Models for Business-to-Business Trading*, John & Sons 5. Kuglin, F A & Rosenbaum, B A 2001, *The Supply Chain Network @ Internet Speed*, New York: American Management Association 6. Daum, B & Scheller, M, 2000, *Success with Electronic Business-Design Architecture and Technology of Electronic Business Systems*, Addison-Wesley 7. Labbe, P, Hand, P & Kharpate, N, 2018, *Qlik Sense Cookbook: Over 80 recipes on data analytics to solve business intelligence challenges,* Packt Publishing Ltd.	

Subject Description Form

Subject Code	ISE369
Subject Title	Quality Engineering
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	AMA1110 Basic Mathematics I – Calculus and Probability & Statistics or AMA1103 Introductory Linear Algebra or AMA1104 Introductory Probability
Objectives	The subject will provide students with 1. knowledge of the modern concept of quality; 2. appreciation of the functions served by a quality management system; 3. ability to design quality products to satisfy both internal and external customers; 4. ability to control process performance using appropriate statistical tools; 5. ability to diagnose quality problems and develop sustainable improvement.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. apply the modern concepts of quality and quality management system to solve the existing quality problems of a company; b. obtain design quality from internal and external customers and formulate plans thereof; c. use appropriate statistical tools for better process control; d. diagnose quality problems and develop substainable improvement.
Subject Synopsis/ Indicative Syllabus	1. <u>Quality Management Processes</u> Modern quality concepts; Quality planning, quality control, and quality improvement; New and old 7-QC tools 2. <u>Design for Quality</u> Reliability fundamental, life distribution, failure rate prediction, and estimation; Failure mode, effects, and criticality analysis (FMECA); Fault tree analysis (FTA);Taguchi approach to achieving quality; Design reviews 3. <u>Statistical Quality Control</u> Process variation; Process capability study; Control charts; Statistical tolerancing; Acceptance sampling plans

<table>
<tr><td></td><td>4. <u>Partnership with Suppliers</u>

Vendor evaluation; Joint planning with suppliers; Best practices of partnership with suppliers

5. <u>Quality Management Systems</u>

ISO 9000 series of standards; Quality audits; Product and system certification programs

6. <u>Quality Improvement</u>

Project approach to quality improvement; Diagnostic techniques for identifying root causes; Implementing change and substaining gains</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The major teaching activities contain a combination of lectures, tutorials, and practical exercises to achieve the objectives of this subject. Some of the topics are not taught in the classroom environment; students are directed to learn these topics by themselves during the process of writing problem-based assignments.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
<tr><td>1. Examination</td><td>60%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>2. Assignment & tests</td><td>30%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>3. Case Studies</td><td>10%</td><td>✓</td><td>✓</td><td></td><td>✓</td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>
The continuous assessment involves three components: two tests (10%), two case studies (10%), and four take-home assignments (20%). The tests aim to assess the interim knowledge gained by the students. The assignments are designed to assess students' ability to apply the equations in assessing the performance of the processes. The case study requires students to complete two team projects involving quality improvement and quality management. The results of the case study are presented both orally and in written form. The final examination is also used to assess the abilities of students in achieving the learning outcomes of the subject.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact</td><td></td></tr>
<tr><td>▪ Lecture 2 hours/week for 13 weeks</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorial/Case Study 1 hour/week x 13 weeks</td><td>13 Hrs.</td></tr>
<tr><td>Other student study efforts</td><td></td></tr>
</table>
</td></tr>
</table>

	▪ Self Study/Assignment	58 Hrs.
	▪ Case Study	13 Hrs.
	Total student study effort	110 Hrs.
Reading List and References	1. Montgomery, D C 2009, *Introduction to Statistical Quality Control*, 6th edition, John Wiley 2. Gryna, F M 2000, *Quality Planning & Analysis*, 4th edition, McGraw Hill 3. ISO 9001: 2008, *Quality Management Systems – Requirements*	

Subject Description Form

Subject Code	ISE373
Subject Title	Packaging and Storage Technology
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject aims to enable students to 1. appreciate the contemporary issues faced by packaging professionals in generating an appropriate package design in the product design and development phase; 2. understand the working principles of key packaging materials and processes needed to provide a workable packaging solution to meet logistics and regulatory requirements; 3. become competent in identifying the technological, economic, and societal factors that underline the selection of appropriate packaging materials, processes, and storage methods for specific products.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. define the packaging requirements for a given product within an overall package design and development framework; b. select an appropriate type of packaging material and testing method to satisfy a given set of logistics functions; c. recognize the shelf-life limiting factors for foods and identify appropriate packaging and storage techniques to prolong the shelf-life of common food; d. define the design requirements for packing decoration and choosing an appropriate printing process for a given package.
Subject Synopsis/ Indicative Syllabus	1. <u>Logistics Functions of Packaging</u> Types of packaging; Impact of packaging on costs and other logistics activities; Packaging terminology; Packaging materials; Characteristics of products that influence packaging selection; Packaging design considerations; Package printing and decorating; Management and recycling of packaging waste 2. <u>Plastics and Glass-based Packaging</u> Packaging films; Extrusion and thermoforming; Injection and blow molding; Packaging adhesives; Glass container

<table>
<tr><td></td><td>3. <u>Metal-based Packaging</u>

Metal cans and containers; Aluminum foils; Bonding and mechanical clinching; Pressurized dispensing systems; Aerosol container legal requirements

4. <u>Paper-based Packaging</u>

Methods of pulping, paper making, and paperboard cartons manufacture; Coatings, calendaring, and other treatments; Paperboard packaging: paperboard cutting, creasing, and folding; Laminated packaging structures; Metalized paper and film; Corrugated fiberboard specifications; Shipping container making; Box strength and stacking loads

5. <u>Packaging for Food Preservation</u>

Factors affecting food storage and preservation; Product quality and shelf-life; Packaging regulations on food stuff; Refrigeration and distribution of packaged foods

6. <u>Packaging for Transportation</u>

Preparation for marketing; Wholesales and retail packages; Transportation by rail, highway, air, and sea; Treatment after transportation; International standards; Materials testing standards; Additives, labeling, and hazardous materials; Carrier rules</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Classes are conducted in a combination of lectures, tutorials, case studies, mini-projects, and reflective journals on factory visits. Directed study is used to develop student’s self-learning ability.

The assignments are designed to facilitate students’ periodical reflection and application of knowledge.

The integrated application-oriented mini-project is designed to facilitate students’ acquisition of knowledge of different working principles and capability of manufacturing process through team work.

Presentation is designed to facilitate students’ exhibition of their group performance on the application of different technologies in the product development workflow.

The written report is designed to facilitate students’ acquisition of a thorough understanding of the topic in order to present the concepts of the training clearly.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td>
<table>
<tr><td>1. In-class assignments</td><td>10%</td><td></td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>2. Mini-project</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>3. Individual writing assignment</td><td>10%</td><td></td><td>✓</td><td></td><td>✓</td><td></td><td></td></tr>
<tr><td>4. Final examination</td><td>60%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="6"></td></tr>
</table>
The subject learning outcomes are mainly assessed through the final examination. The assessment of in-class assignments is used to test the understanding of the basic principles of packaging techniques, whereas the mini-project is used to assess students' ability in applying technical knowledge in selecting the appropriate packaging design.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorial and mini-project</td><td>13 Hrs.</td></tr>
<tr><td>Other student study efforts</td><td></td></tr>
<tr><td>▪ Preparation for mini-project presentation and report writing</td><td>9 Hrs.</td></tr>
<tr><td>▪ Preparation for assignments</td><td>16 Hrs.</td></tr>
<tr><td>▪ Preparation for quiz and final examination</td><td>46 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>110 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>

1. Soroka, W 2002, *Fundamentals of Packaging Technology*, 3rd edn, Institute of Packaging Professionals, Herndon, Virginia

2. Twede, D 2005, *Cartons, Crates and Corrugated Board: Handbook of Paper and Wood Packaging Technology*, DEStech Publications

3. Kirwan, M J et al. (Ed) 2003, *Food Packaging Technology*, CRS Press

</td></tr>
</table>

Subject Description Form

Subject Code	ISE374
Subject Title	Logistics Facility Design
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject provides students with 1. ability to conduct analytical investigations on facility design issues while considering both efficiency and effectiveness; 2. understanding of integration and simple monitoring devices in facility design.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. design/select appropriate facilities to facilitate material handling in logistics operations; b. apply sensors, actuators, robotics, and integration techniques in handling automation projects related to development of logistics facilities; c. determine how to develop a strategic framework for facility location, including the use of a suitable approach to formulate an efficient facility layout, addressing warehousing issues and understanding inventory models;
Subject Synopsis/ Indicative Syllabus	1. <u>Material Handling Device Selection and Design</u> Introduction to material handling facilities: truck, crane and hoist, forklift, conveyer system, automated guided vehicle, tote pan, box, case, and pallet; Present value and capital recovery factor; Equipment selection and the implications of pallet standards; Simple and close-loop conveyor systems and automated guided vehicle planning considerations 2. <u>System Control and Automation</u> Applications of RFID, RFID basic setup, and introduction to precise asset location; Utilization of sensors and actuators in automation and simple graphical programming; Introduction to automatic system control and integration; Robotics Applications 3. <u>Warehouse Design</u> Warehouse layout design, honeycomb loss, storage assignment, and basic order picking policies; Introduction to automated storage and retrieval system construction modules; Introduction to probabilistic inventory

<table>
<tr><td></td><td>models

4. <u>Facility Location Models and Layouts</u>

Cellular layout and rank order clustering method; Facility layout modeling; Shortest path algorithms, such as Dijkstra's/Floyd's algorithms, and their application in equipment replacement</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Teaching is conducted through class lectures, tutorials, and case studies/laboratory exercises. Both hardware technologies and theoretical models are included in that subject. The understanding of how to address problems is emphasized and the skills are taught in class. Related scenarios are provided to enhance students' problem-solving abilities. Laboratory exercises with short reports contribute to the course work marks.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td></td><td></td><td></td></tr>
<tr><td>1. Laboratory Exercise</td><td>30%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>2. Examination</td><td>70%</td><td>✓</td><td></td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="6"></td></tr>
</table>
By the end of each laboratory exercise, a written report is required to be submitted to show the findings. At the end of the subject, an examination is given to students to assess their learning outcomes.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td colspan="2">Class contact</td><td></td></tr>
<tr><td>▪ Lecture/Seminar</td><td>2 hours/week for 10 weeks</td><td>20 Hrs.</td></tr>
<tr><td>▪ Tutorial</td><td>2 hour/week for 1 week</td><td>2 Hrs.</td></tr>
<tr><td>▪ Laboratory/Case study</td><td>3 hours/week for 3 weeks
6 hours/week for 1 week
2 hours/week for 1 week</td><td>17 Hrs.</td></tr>
<tr><td colspan="2">Other student study efforts</td><td></td></tr>
<tr><td colspan="2">▪ Assignment</td><td>35 Hrs.</td></tr>
<tr><td colspan="2">▪ Self-study/Preparation work of both examination and laboratory exercises</td><td>48 Hrs.</td></tr>
<tr><td colspan="2">Total student study effort</td><td>122 Hrs.</td></tr>
</table>
</td></tr>
</table>

Reading List and References	1. Heragu, S S 1997, *Facilities Design*, PWS Publishing Company 2. Francis, R L, McGinnis, F, & White, J A 1996, *Facility Layout and Location: an Analytical Approach (2nd edition)*, Prentice-Hall 3. Daskin, M S 2013, *Network and Discrete Location: Models Algorithms, and Applications (2nd edition)*, Wiley 4. Simchi-Levi, D, Chen, X, Bramel, J 2008, *The Logic of Logistics*, Springer 5. Sule, D R 2001, *Logistics of Facility Location and Allocation*, CRC Press 6. Necsulescu, D S 2002, *Mechatronics*, Prentice Hall 7. Wells, K, Travis, J 1996, *LabVIEW for Everyone: Graphical Programming Made Even Easier*, Prentice Hall 8. Lahmar, M 2007, *Facility Logistics: Approaches and Solutions to Next Generation Challenges*, Auerbach Publications 9. Sule, D R 2008, *Manufacturing Facilities: Location, Planning, and Design (3rd edition)*, Taylor & Francis 10. Garcia-Diaz, A, Smith, J M 2007, *Facilities Planning and Design*, Prentice Hall

Subject Description Form

Subject Code	ISE375
Subject Title	Enterprise Systems Modeling and Design
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject aims to enable students to 1. have fundamental concepts of enterprises systems and modeling; 2. understand various methods in modeling enterprise systems; 3. apply basic system design methods; 4. analyze and evaluate an enterprise system with reference to the predefined specification.
Intended Learning Outcomes	Upon completion of this subject, students will be able to a. demonstrate good understanding on the fundamental concepts of enterprises systems and modeling; b. understand the processes and logic of enterprise modeling; c. identify and apply the appropriate methods in enterprise modeling; d. perform system analysis to justify the feasibility of an enterprise system.
Subject Synopsis/ Indicative Syllabus	1. <u>Principles of Enterprise Modeling</u> • Fundamentals of enterprise systems, and process modeling; • Various types modeling in enterprise systems: Entity modeling; Role modeling; Process modeling, Workflow modeling etc. • Enterprise modeling approaches: Business process modeling. 2. <u>System Modeling Methods</u> • Process modeling – e.g. Entity-relationship diagrams (ERD); Data flow diagram (DFD); State transition diagram (STD); • Modeling tools - Object modeling and Rapid application development using CASE tools, etc.

<table>
<tr><td></td><td>3. <u>System Analysis and Design</u>
• System development life cycle;
• Feasibility analysis and requirements collection: Interviewing and questionnaires;
• System modeling; Specification analysis and development; System verification and validation; System integration, test, and evaluation</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A mix of lectures, tutorials, in-class exercises, lab exercises, and projects are adopted. Lectures and Lab exercises illustrate fundamental principles of system design and modeling. Practical problems are discussed in tutorial classes.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
<tr><td>1. Individual assignment (s)</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>2. Lab /Tutorial</td><td>10%</td><td></td><td></td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>3. Group project</td><td>30%</td><td></td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>4. Tests</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
Continuous assessments consist of individual assignments, lab exercises or in class tutorial exercises, project, and tests are adopted.

In-class exercises and assignments require students to reflect and apply the knowledge learnt from the lectures. Group Project requires students to apply the knowledge in real-life case of enterprise system. Tests are used to offer the objective assessments on students' understanding on the topics.</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture</td><td>24 Hrs.</td></tr>
<tr><td>▪ Laboratory/Tutorial /Case studies/Tests</td><td>15 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Preparation for the in-class exercises, assignments, lab project reports, the project presentation and report, and quizzes.</td><td>77 Hrs.</td></tr>
</table>
</td></tr>
</table>

	Total student study effort	116 Hrs.
Reading List and References	1. Leong, Cheong, 2015, Business Modeling with Spreadsheets, 3rd edition, McGraw Hill. 2. Whitten, J and Bentley, L, 2005, *System Analysis and Design Methods* 5th edn, McGraw Hill 3. Dennis, A 2012, *Systems Analysis & Design* 5th edn, John Wiley & Sons 4. Kendall, K and Kendall, J 2013, *System Analysis and Design,* 9th edn, Prentice Hall 5. Wasson, C 2006, *System Analysis, Design, and Development: Concepts, Principles, and Practices,* Wiley 6. Marshall, C 2000, *Enterprise Modeling with UML: Designing Successful Software Through Business Analysis*, Addison-Wesley	

Subject Description Form

Subject Code	ISE376
Subject Title	Entrepreneurship and Innovation
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	The objectives of the subject are to enable the students to 1. gain an overview of the concept of entrepreneurship and entrepreneurship strategies; 2. develop an awareness of the sources/processes of innovation; 3. develop the ability to analyze innovative business.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. understand entrepreneurship strategies in which innovation is an important part of business and corporate strategy; b. recognize various types of innovations and their processes; c. apply the techniques involved in assessing corporate ventures; d. evaluate the management of innovative business development or processes from a strategic and contemporary viewpoint.
Subject Synopsis/ Indicative Syllabus	Entrepreneurship and Industry Analysis 1. <u>Overview of Entrepreneurship</u> This provides the fundamental concept of entrepreneurship and relevant issues. 2. <u>Understanding Industry Context and Entrepreneurship Strategies</u> This details the approaches to justify the industry context. This introduces the various strategies involved in the business development process. Innovation and Business Development 3. <u>Introduction of Innovation Types</u> Innovation styles and approaches are discussed.

<table>
<tr><td></td><td>4. <u>Implementation of Innovation</u>

This discusses the approaches to integrate innovation in entrepreneurship.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The teaching/learning approach combines lectures, cases, and in-class activities.

Each session includes a number of readings (required/optional) pertaining to the theme of the session.

Lectures: Lectures are conducted to give students an overview of the fundamental concepts and theories.

Case studies are given to students to facilitate the application of learned knowledge and interactive knowledge sharing.

In-class activities include seminars by industrialists (in-person, online or pre-recorded interviews) and projects involving hands-on experience on the subject.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
<tr><td>1. Assignment</td><td>20%</td><td>✓</td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. Guided Project</td><td>40%</td><td></td><td></td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>3. Online discussions</td><td>10%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>4. In-class assessments</td><td>10%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>5. Test</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="6"></td></tr>
</table>

The various forms of assessments/assignments allow students not only to understand the learned topics but also to reflect on the topics.

● Assessment methods 1 & 4: Assignments, in-class activities and test(s) are used to assess students' understanding of the basic concepts of the subject, students are also required to participate in in-class activities

● Assessment method 2: Project is used to assess the students' ability in applying learned knowledge, that is, the techniques in assessing corporate ventures and the management of innovative entrepreneurship.

● Assessment method 3: Online discussions are to enhance students' digital literacy skills, learn from multiple sources, and practice lifelong</td></tr>
</table>

<table>
<tr><td></td><td colspan="2">learning

● Assessment method 4: In-class assessments are based on student's performance in asking and answering questions and participating in discussions in class

● Assessment method 5: Test is used to evaluate student's accomplishment of the learning outcomes</td></tr>
<tr><td rowspan="8">Student Study Effort Expected</td><td>Class contact</td><td></td></tr>
<tr><td>▪ Lectures / Test

3 hours/week x 7 weeks</td><td>21 Hrs.</td></tr>
<tr><td>▪ Online activities</td><td>15 Hrs.</td></tr>
<tr><td>▪ Project presentations</td><td>3 Hrs.</td></tr>
<tr><td>Other student study efforts</td><td></td></tr>
<tr><td>▪ Individual reading and assignments</td><td>42 Hrs.</td></tr>
<tr><td>▪ Project</td><td>42 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>123 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="2">1. Swanson, L.A. 2017, Entrepreneurship and Innovation Toolkit, 3rd edition, Creative Common License.

2. Hisrich, R D, Peters, M P, & Shepherd, D A. 2016, Entrepreneurship, 10th edn, McGraw Hill.

3. Harvard Business Review's 10 Most Reads on Business Model Innovation, Harvard Business Review, 2019.

4. Drucker, P.F. 2006, Innovation and Entrepreneurship: Practice and Principles, New York: Harper Business

Additional materials will be provided by the Subject Coordinator</td></tr>
</table>

Subject Description Form

Subject Code	ISE4004
Subject Title	Enterprise Resources Planning
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject will provide students with 1. the fundamental principles of Enterprise Resources Planning (ERP); 2. the major components in an ERP system and the relationship between these components; Selection, Evaluation and Implementation of ERP; 3. the basic skills in developing corporate strategies.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. identify major components in an ERP system and conduct feasibility of ERP; b. develop effective corporate strategies and to implement these strategies using ERP.
Subject Synopsis/ Indicative Syllabus	The topics of this syllabus are: 1. Enterprise Systems Strategic inventory management; collaborative planning; forecasting; replenishment. 2. Enterprise Strategy Enterprise and corporate strategies; strategic management building; implementation techniques. 3. Enterprise Resources Planning (ERP) Solutions Distribution items and purchased material, manufactured items, sales and operation planning, sales order processing, warehouse management, production order processing, multisite operations.
Teaching/Learning Methodology	A mixture of lectures, tutorial exercises, seminars, and case studies will be used to illustrate and teach the fundamental principles of Enterprise Resources Planning (ERP). The use of a typical enterprise system (such as Microsoft Dynamics) and an enterprise simulator will enable students to solve problems in a simulated enterprise environment. Such environment enables students to develop effective corporate strategies and to implement these strategies in an organizational context. It also enables to improve students' strategic

<table>
<tr><td></td><td>management skills and to increase the quality of their business decision making.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td></td><td></td><td></td><td></td></tr>
<tr><td>1. Laboratory work</td><td>35%</td><td>✓</td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. Assignment</td><td>30%</td><td></td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>3. Quiz</td><td>20%</td><td>✓</td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>4. Case Study</td><td>15%</td><td></td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="6"></td></tr>
</table>
The quiz is designed to assess students' depth of knowledge in recognizing the complexity of a modern enterprise. The case study is designed to appraise students' performance in presenting the concepts of the enterprise systems and strategy. The laboratory work and assignments are designed to measure students’ understanding in corporate strategy development and to reflect their performance in the simulated enterprise simulator.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures/Tutorials</td><td>21 Hrs.</td></tr>
<tr><td>▪ Seminar/Case Studies</td><td>18 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Preparation Work for Laboratory and Assignment</td><td>30 Hrs.</td></tr>
<tr><td>▪ Quiz preparation</td><td>21 Hrs.</td></tr>
<tr><td>▪ Case Study preparation</td><td>12 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>102 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>

1. Hamilton, S 2009, *Managing Lean Manufacturing Using Microsoft Dynamics AX 2009*, Visions First
2. Hamilton, S 2009, *Managing Your Supply Chain Using Microsoft Dynamics AX 2009*, McGraw-Hill
3. DeWit, B & Meyer, R 2003, *Strategy: Process, Content,* 3rd edn, International Thomson Business Press
4. Blanchard, BS 2003, *Logistics Engineering and Management,* 6th edn, Prentice Hall Inc., Upper Saddle River, N.J.

</td></tr>
</table>

	5. Stock, R. & Lambert M. 2001, *Strategic Logistics Management,* 4th edn, McGraw-Hill Publishing Company

Subject Description Form

Subject Code	ISE4006
Subject Title	Integrative Studies in Enterprise Systems and Management
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject will provide students with 1. the ability to work at their own pace, in groups as well as individually; 2. the understanding of the importance of teamwork and the complexity of a modern enterprise; 3. the knowledge to develop business plans/proposals in implementing an enterprise project; 4. the skills to design, develop and evaluate a prototype of enterprise portal.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. learn various skills and practical knowledge at their own pace; b. start-up of a business with entrepreneurial business skills; c. build an enterprise portal with needed features to show the business idea; d. critique the quality of work of their peer group.
Subject Synopsis/ Indicative Syllabus	1. <u>Company Formation</u> Company registration, role play to be company secretary and directors, 2. <u>Business Plan Development</u> Apply brainstorming techniques to develop innovative business ideas, formulate company strategies using SWOT analysis, analyse market and competitive environments using PEST and Porter's Five Forces analysis, formulate marketing strategies according to different stage of product life cycle, designing marketing program, and financial and operation plans, financial and risk analyses. 3. <u>Business Plan Write-up and Competition</u> Business plan writing, application prototype, portal development, design, plan and control of an enterprise, business plan competition and interview.

Teaching/Learning Methodology

Throughout the duration of the project, the project tutors provide guidance and monitor the progress of the business projects. The project-based learning approach is recommended for adoption. It is a systematic teaching method engaging students to learn the essential knowledge and life-enhancing skills through extended and student-influenced inquiry process, which are structured around complex and real problems.

Before commencing this project, students are required to form a company with 5 to 7 students and do the company registration, attend briefing and seminar sessions to ensure its smooth running. In particular, one of these will include business plan writing and portal development. This will contain topics that will assist students to plan, schedule and control the various activities involved so as to effectively complete their work within the time frame allowed. In addition, other topic areas will be covered including, the awareness of various engineering options, strategic management skills, creativity and idea generation, and the use of the IT skills that they will have learnt in Year 1 of the programme.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c	d		
Progress monitoring and progress report	15%		✓	✓			
Presentation and portal demonstration	30%	✓	✓	✓	✓		
Proposal Report writing	25%	✓	✓	✓			
Interview	20%		✓	✓			
Reflective Journal	10%	✓	✓	✓	✓		
Total	100%						

a. Students have to attend various seminars and progress meeting in order to develop their own knowledge in a business environment.

b. In conducting the business project, students have to execute how to develop their own business by writing a business plan and developing a company portal.

c. Students have to present their business to a panel in form of a competition and attend an interview individually for assessment.

d. Students have to compare their peer groups and to assess the quality of their work.

Student Study Effort Expected	Class contact:	
	▪ Business Plan briefing and seminars	9 Hrs.
	▪ Progress meeting 1hour/week for 9 weeks	9 Hrs.
	▪ Presentation	8 Hrs.
	▪ Interview	1 Hrs.
	Other student study effort:	
	▪ Research and preparation	30 Hrs.
	▪ Report writing	40 Hrs.
	▪ Preparation for presentation and interview	30 Hrs.
	Total student study effort	127 Hrs.
Reading List and References	• Knowles, Ronald A. 2007, *Small Business – An Entrepreneur's Plan*, Toronto, Ont. Thomson Nelson • Truitt, Wesley B. 2002, *Business Planning: A Comprehensive Framework and Process*, Quorum Books • Capezio, Peter 2010, *Manager's Guide for Business Planning*, McGraw Hill • Applegate, Jane 2011, *201 Great Ideas for Your Small Business*, Bloomberg Press • Finch, Brian 2013, *How to Write a Business Plan*, Kogan Page Limited • InfoSci-Books 2011, *Global Business Concepts, Methodologies, Tools and Applications*, Business Science Reference • Ignatius Ekanem, 2017, *Writing A Business Plan: A Practical Guide*. Abingdon, Oxon : Routledge • Barrow, Colin; Barrow, Paul; Brown, Robert 2018, *The Business Plan Workbook : A Step-By-Step Guide to Creating and Developing a Successful Business.* Kogan Page.	

Subject Description Form

Subject Code	ISE4008
Subject Title	Individual Project
Credit Value	6
Level	4
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	While the specific objectives of individual projects may vary from one project to another, students are expected to develop the following generic skills through the learning experience of working on an individual project under the guidance of a supervisor: 1. Skills to obtain information needed to formulate a problem, and to devise and implement strategies that will produce a solution. 2. Skills to apply knowledge, procedures (principles, techniques and methods), and to understand their limitations in problem identification, data analysis and formulation of logical observations and or solutions. 3. Skills to work effectively as an individual using one's own initiative and within constraints. 4. Skills to prepare, present, and defend a project report effectively.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. understand the background, as well as define the objectives (time, cost and technical requirements) and deliverables of a project that address a significant issue relevant to the award pursued by the student; b. formulate strategies and methodologies to achieve the project objectives within the constraints of a given situation; c. select, apply, integrate and, ideally, extend available knowledge, procedures and tools to collect data in performing the needed investigational or design work, and to draw conclusions that address the project objectives; d. communicate effectively with stakeholders of the project outputs and work independently to produce, within applicable constraints, optimal solutions that address the project objectives; e. prepare, present, and defend a clear, coherent and succinct report.

Teaching/Learning Methodology	Throughout the duration of the project, the supervisor provides guidance and monitors the progress of the project. The progression of the project typically follows the following indicative stages: **Project Definition** – in this stage, the student will work in consultation with the project supervisor to draw up a project plan addressing issues such as: ● Background of the project ● Aims and objectives ● Deliverables ● Project scope and applicable constraints ● Coverage of literature review ● Methodologies to be considered ● Project schedule **Project Execution** – This is the major part of the project. After the project requirements are defined, the student will work independently under the guidance of the project supervisor towards the achievement of the project objectives and produce the project deliverables in a given situation. On his own initiative, the student will meet the project supervisor regularly to review progress and discuss issues of the project. In this stage, the student should demonstrate: ● Adherence to the schedule ● Initiatives to acquire and synthesize knowledge, collect the needed data, and solve problems ● Tenacity, resourcefulness, critical thinking and creativity in achieving project objectives ● Systematic documentation of data, design and results throughout the process The student is required to maintain a project workbook that records the meetings held and summarizes the work performed in this stage. **Project Report** – On completion of the project, the student will disseminate the results to his peers and examiners to review. The major deliverables of this stage are: ● A written project report (softcopy and hardcopy) ● An oral presentation ● Taking questions and comments in a question-and-answer session The proposed project defined by the student and/or the supervisor should be in an area relevant to the discipline. The project will be used as a vehicle for the student to integrate his/her knowledge gained in the programme. In order to achieve the subject learning outcomes, it is not appropriate to have projects mainly focused on literature review or pure computer programming. Depends on the nature of the project, the work covers by the students may include the background and scope of the project; literature review, field works; experiments; data collection; case studies; methodology; discussion; and conclusion.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed				
		a	b	c	d	e
▪ Progress	15%	✓	✓	✓	✓	
▪ Workbook	10%	✓	✓	✓	✓	
▪ Final Report	50%	✓	✓	✓	✓	✓
▪ Oral Presentation	25%	✓	✓	✓	✓	✓
Total	100%					

The workbook is designed to assist the project student to organise and document, in summary form, his project work in a systematic manner. This workbook, to be submitted at the end of Semester 1, will be commented by the Project Supervisor and then assessed by a co-examiner of the project. The final report should be a clear, coherent and succinct document that disseminate the background, problem statement, objectives and expected deliverables, literature review, methodologies, project execution, analysis and, where appropriate, design, as well as discussion and conclusions. Thus, the written report and the oral presentation are assessed by the project supervisor and a co-examiner to determine the achievement of all the learning outcomes of the project work.

The project supervisor, who communicates regularly with the student, will assess the student's progress during project execution.

Student Study Effort Expected

Class contact:	
▪ Briefing on Final Year Project	2 Hrs.
▪ Information Literacy Seminar	2 Hrs.
Other student study effort:	
▪ Meetings with Supervisor and/or project stakeholders 2 Hrs. × 13	26 Hrs.
▪ Literature review/field work/experiments	120 Hrs.
▪ Analysis/report writing	90 Hrs.
Total student study effort	**240 Hrs.**

Reading List and References

1. Blaxter, L., et al. 2001, *How to Research*, 2nd edn, Open University Press
2. Bryman, A. 1989, *Research Methods and Organization Studies*, Unwin Hyman
3. Campbell, W.G., et al. 1990, *Forms and Style: Thesis, Reports, Term Papers*, 8th edn, Boston, Houghton Mifflin
4. Murray, Rowena 2002, *How to Write a Thesis*, Open University Press

Subject Description Form

Subject Code	ISE4025
Subject Title	Enterprise Analytics
Credit Value	3
Level	4
Pre-requisite/~~Co-requisite/Exclusion~~	ISE247 Fundamental of Enterprise Systems and ISE2001 Introduction to Enterprise Computing or equivalent knowledge.
Objectives	This subject provide students with 1. the understanding of the importance of organizing analysts in enterprise; 2. the understanding of data analytics and knowledge discovery in databases; 3. the ability to use software tools/applications for predictive analytics and data visualization for decision making in enterprise; and 4. the ability to apply data analysis techniques and analytical tools to support decision making and market analysis in enterprise.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. examine the concepts of data modeling and visualization; b. apply data mining techniques for clustering, association, and classification; c. perform predictive analytics to organize data for facilitating the development of business strategies and applications; and d. apprehend the real-life applications of data analysis and visualization.
Subject Synopsis/ Indicative Syllabus	1. Review of data analytics Concept of prescriptive analytics, cluster analysis, data science technology (e.g., R/Python programming language). 2. Machine learning for business analytics Supervised machine learning, Bayes classification methods, random forest, support vector machine, neural network, successful design methodology, measuring and refining success. 3. Organizing analysts Goals of particular analytics organization, basic models of organizing analysts, triangulating model and coordination mechanisms, governance for analytics. 4. Case Studies Case studies drawn from commercial, industrial, and research applications. These include market data analysis, cross-sell and up-sell methods, fraud

<table>
<tr><td></td><td>detection; market prediction and forecasting; and big data application in cloud manufacturing and web analytics.

In this subject, the techniques and methods covered are applied to both intra-organizational data and market data (e.g., industry statistics, trends, and competitive information). Enterprise as well as market-oriented applications are covered.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Learning is facilitated through face to face lecturing and guided learning. Face-to-face seminars/labs are available to facilitate students' learning. The integrated application-oriented mini-project is designed to help students acquire the knowledge of understanding and using different enterprise analytics principles, techniques, and tools to solve a real problem through team work.
<table>
<tr><td rowspan="2">Teaching/Learning Methodologies</td><td colspan="5">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td></tr>
<tr><td>Lecture</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>Tutorial/Labs</td><td></td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>Projects</td><td></td><td></td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>Case Studies</td><td>✓</td><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="5">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td></tr>
<tr><td>Assignment</td><td>20%</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>Mini-project/ project presentation</td><td>30%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Test</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="5"></td></tr>
</table>
Assignment is designed to measure students’ knowledge on data analytics. Mini-project/project presentation is designed to reflect students’ ability on the applications of data analytics techniques in enterprise. Test is designed to assess students’ understanding of the data analytics knowledge in enterprise.</td></tr>
<tr><td rowspan="3">Student Study Effort Expected

(Block Mode/ Evening Mode)</td><td>Class contact:</td><td></td></tr>
<tr><td>Lectures/seminars/labs</td><td>24 Hrs.</td></tr>
<tr><td>Presentation/test/case studies/project discussion</td><td>15 Hrs.</td></tr>
</table>

	Other student study effort:	
	▪ Study of materials for exercises/assignments	28 Hrs.
	▪ Preparation and revision for in class test	28 Hrs.
	▪ Project and presentation preparation	28 Hrs.
	Total student study effort	123 Hrs.
Reading List and References	1. Gopal, M. 2019, *Applied machine learning*, McGraw Hill 2. Jerzy Surma 2011, *Business Intelligence: Making Decisions through Data Analytics*, New York, N.Y., Business Expert Press 3. Davenport, T.H. and Philips, J. 2013, *Enterprise Analytics: Optimize Performance, Process, and Decision Through Big Data*. 4. Barry Keating and J. Holton Wilson and John Solutions Inc. 2019*, Forecasting and Predictive Analytics with Forecast X (TM)*, McGraw Hill	

Subject Description Form

Subject Code	ISE431
Subject Title	Engineering Costing and Evaluation
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject provides students with knowledge of 1. the major types of costing methods and budgeting operations that support engineering cost analysis and project/operations planning and control; 2. concepts and techniques of economic analysis that can be applied to solving engineering and business problems; 3. methods that evaluate/support engineering projects and operations.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. apply costing principles and techniques to the planning and control of profitability in the production of goods and services in the engineering industry; b. prepare budgets and relate them to production plans for performance evaluation; c. apply the principles and techniques of economic analysis to the appraisal of investment alternatives; d. understand the foregoing principles and apply the foregoing techniques in the evaluation of engineering projects.
Subject Synopsis/ Indicative Syllabus	1. <u>Costing in the Production of Goods and Services in the Engineering Industry</u> Production and operation costs; job and product costing; process costing; absorption of overhead; cost behaviour and cost estimation; functional-based costing; activity-based costing; cost database and its maintenance; learning curve; cost-volume-profit analysis; pricing and profitability analysis; make-or-buy decisions. 2. <u>Performance Planning and Evaluation</u> Enterprise strategy and budget setting; standard costing and variance analysis; flexible budgeting and variance analysis; production plan; cash budget; profit plan; master budget; performance evaluation; balanced

scorecard and its implementation.

3. Engineering and Project Economic Analysis

Cost and benefit concepts; worth measures and efficiency measures; time value of money; capital budgeting and investment appraisal decisions; financing methods; cost of capital; evaluation of project alternatives using discounted cash flow methods; opportunity cost; lease versus buy decisions; replacement and timing decisions; effects of tax and depreciation; sensitivity and risk analysis in project evaluation.

4. Engineering Evaluation

Technological forecasting; evaluation of technological innovation; environmental cost evaluation and management. Process and the social context of engineering decision making.

Teaching/Learning Methodology

A mixture of lectures, tutorial exercises, and case studies is used to deliver the various topics in this subject. Some material is covered using a problem-based format where this advances the learning objectives. Other material is covered through directed study to enhance the students' self-learning abilities. Tutorials, projects, and case studies are conducted mainly as group activities so that students can discuss and practice the materials learnt in the class. This also stimulates further thinking about the materials together with the factors to be considered in solving problems related to the subject.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c	d		
1. Continuous assessment (Assignments/ Projects/Case studies)	40%	✓	✓	✓	✓		
2. Examination	60%	✓	✓	✓	✓		
Total	100%						

The assignments, projects, and case studies are designed to assess students' capability to synthesise and apply the concepts and skills learnt in analysing and solving engineering costing and evaluation problems.

The final examination assesses students' understanding of the concepts and their ability to apply the skills learnt to analysing and solving problems related to the subject.

Student Study Effort Expected

Class contact:		
▪ Lectures	2 hours/week for 13 weeks	26 Hrs.

	▪ Tutorials/Case studies 1.5 hours/week for 8 weeks + 1 hour	13 Hrs.
	Other student study effort:	
	▪ Studying and self-learning	58 Hrs.
	▪ Assignment and report writing	26 Hrs.
	Total student study effort	123 Hrs.
Reading List and References	1. Hartman, J C 2007, *Engineering Economy and the Decision-Making Process*, Upper Saddle River, N.J.: Prentice Hall 2. Chan, S P 2012, *Fundamentals of Engineering Economics*, Upper Saddle River, N.J.: Pearson/Prentice Hall 3. Horngren, C T, Datar, S M & Foster**,** G 2011, *Cost Accounting: a Managerial Emphasis,* Upper Saddle River, NJ: Pearson/Prentice Hall 4. Rogers, M & Duffy, A 2012, *Engineering Project Appraisal,* Oxford: Blackwell Science	

Subject Description Form

Subject Code	ISE448
Subject Title	Production Logistics
Credit Value	3
Level	4
Pre-requisite	ISE246 Introduction to Logistics Engineering
Objectives	This subject will provide students with 1. an introduction to basic concepts and practices in production logistics; 2. comprehensive coverage of both traditional methods and contemporary topics in production logistics; 3. understanding of the importance and functionalities of inventory control and of the application of the principles of inventory costs, policies, and models for the control and management of dependent and independent inventories; 4. techniques to design and examine warehouses, material handling systems, and transportation systems.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. examine an existing work situation in production logistics environment and conduct a productivity improvement program; b. apply appropriate techniques for improving an existing warehouse and for designing a new material handling system; c. understand the functionalities and importance of inventory control and management of a production logistics system; d. apply the principles of inventory control and management in managing dependent and independent inventories, with consideration of the element of demand uncertainty; e. determine product demand forecasts and establish an optimal routine for production transportation; f. apply established algorithms for transportation management.
Subject Synopsis/ Indicative Syllabus	1. <u>Introduction</u> Productivity, logistics mission, the work of logistics, integrated logistics, operating objectives, barriers to internal integration, logistics performance cycles, and managing operational uncertainty 2. <u>MRP, DRP and Inventory Management</u>

Dependent and independent demand inventory; Material requirement planning and distribution requirements planning; Economic ordering quantity and reordering models; Planning inventory resources and accommodating uncertainty; Vendor inventory management systems; The just-in-time concept; Collaborative, planning, forecasting, and replenishment methods

3. Warehouse design and material handling

Warehouse design: Layout design, the concept of honeycomb loss in goods stacking, method of assigning dedicated storages; Material handling: Equipment types and quantitative flow balance analysis

4. Forecasting and its implication to Supply Chain Management

General forecast considerations, forecast processes, and techniques; Simulation game to illustrate forecasting techniques and forecasting impact on managing a supply chain

5. Distribution networks and Supply Chain Dynamics

Function of distribution centers, cross-docking versus value-added processes, determining the number of distribution centres required, and warehouse management system

Teaching/Learning Methodology

A mixture of lectures, tutorial exercises, laboratories, and case studies are used to deliver the various topics in this subject, some of which are covered in a problem-based format to enhance learning objectives. Others are covered by directed study in order to enhance students' ability in "learning to learn." Some case studies, largely based on actually industrial practices, are used to integrate topics and thereby demonstrate to students how the various techniques are inter-related.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c	d	e	f
1. Group project	30%	✓	✓	✓			
2. Laboratory work	20%			✓	✓	✓	
3. Case study	20%			✓	✓	✓	
4. Quiz	20%		✓	✓	✓		
5. In-class assignment	10%	✓	✓	✓	✓	✓	✓
Total	100%						

The quiz and in-class assignments are designed to measure the students' depth of knowledge in production logistics. Laboratory work and case study are designed to reflect the students' understanding of inventory management issues in production logistics. The group project is designed to appraise

	student recommendations in applying different techniques on production and warehouse layout design.	
Student Study Effort Expected	Class contact:	
	▪ Lectures/Tutorial	21 Hrs.
	▪ Seminar/Case studies	18 Hrs.
	Other student study effort	
	▪ Self-learning and practice for laboratory work	20 Hrs.
	▪ Self-learning and practice for project	28 Hrs.
	▪ Assignment and quiz preparation	25 Hrs.
	Total student study effort	112 Hrs.
Reading List and References	1. Stephens, MP & Meyers, FE 2010, *Manufacturing Facilities Design and Material Handling,* 4th edn, Boston: Pearson Prentice Hall 2. Nyhuis, P 2009, *Fundamentals of Production Logistics: Theory, Tools and Applications*, Berlin: Springer 3. Sule, DR 2009, *Manufacturing Facilities: Location, Planning, and Design,* 3rd edn, Boca Raton: CRC Press 4. Chase, RB, Jacobs, FR & Aquilano, NJ 2006, *Operations Management for Competitive Advantage,* 11th edn, Irwin, New York: McGraw-Hill 5. Tompkins, JA, 2003, *Facilities Planning,* 3rd edn, Hoboken, N.J.: J. Wiley	

Subject Description Form

Subject Code	ISE449
Subject Title	Mobile Technologies for Logistics Systems
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject aims to 1. enable students to understand the concept of mobile technology and to apply relevant techniques to solve traditional logistics process problem; 2. provide students with knowledge in applying latest commercial available hardware and software technologies to enable efficient information capturing, processing and exchanges among various business entities in today's supply chain and logistics environment; 3. provide a working knowledge of latest information and communication technology and an interactive environment in which students can learn and practice their skills in mobile applications.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. understand the existing logistics operations and to design process improvement procedures in various supply chain areas; b. apply appropriate mobile devices and data capturing techniques to improve data exchange and information flow; c. integrate existing logistics infrastructure into mobile technologies to form a more effective system; d. identify the advantages and limitations of mobile technologies in various areas.
Subject Synopsis/ Indicative Syllabus	1. <u>Basics of Mobile Technologies</u> Mobility of data; Industry classifications of mobile technologies; Mobile network infrastructure concepts and capabilities. 2. <u>Information Exchange, Identification, Location and Tracking Techniques</u> Identification techniques (Barcode/Smartcard/RFID); Logistics management requirements; Wireless Network Services (WAP/SMS); Personal Digital Assistant (PDA) business tools; Image capture and transmission using camera phones; Video streaming and conferencing.

3. Workflow Improvement

Business automation tools; Mobile functionality requirements for productivity support; Personal productivity tools; Instant messaging using mobile technology; Technology integration requirements.

4. Mobile Applications in Different Areas

Integration of message delivery services; Export/import process enhancement; Mobile security; Personalization of consumer profiles; Mobile entertainment; Mobile platform functionality; Market growth attributes and projections.

Teaching/Learning Methodology

A mix of lectures, tutorials, case studies, a mini project, and laboratory exercises is used to deliver the modules in this subject. Case studies, largely based on real cases, are used to demonstrate to students how the mobile techniques can be applied to improve the existing logistics operations.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c	d		
1. Laboratory Exercise	30%		✓	✓	✓		
2. Case Study	20%	✓	✓	✓	✓		
3. Mini Project	25%	✓	✓	✓	✓		
4. Test	25%	✓	✓	✓	✓		
Total	100%						

Laboratory exercises provide hands-on experiences to the students. They are good tools to measure the students' practical skills in applying principles related to mobile technology. The case study and mini project give good opportunities for students to share their ideas and evaluate their knowledge in problem solving in different supply chain areas. The test is used to measure their individual performance in this subject.

Student Study Effort Expected

Class contact:	
▪ Lecture/Tutorial 3 hours/week for 9 weeks	27 Hrs.
▪ Laboratory/Case Study 3 hours/week for 4 weeks	12 Hrs.
Other student study effort:	
▪ Self Study/Group Discussion for Mini Project, Case Study and Laboratory Exercise	30 Hrs.
▪ Preparation for Presentation and Write-up Assignment	28 Hrs.

	▪ Preparation for Test	15 Hrs.
	Total student study effort	112 Hrs.
Reading List and References	1. Hedgepeth WO 2007, *RFID Metrics: Decision Making Tools for Today's Supply Chains*, CRC Press 2. Sadeh N 2002, *Mobile Commerce: Technologies, Services and Business Models*, Wiley 3. Anderson C 2001, *GPRS and 3G Wireless Applications*, Wiley 4. Landt J 2001, *Shrouds of Time The history of RFID*, AIM Inc. 5. Buckingham S 2000, *Success 4 SMS*, Mobile Lifestreams 6. Rankl W and Effing W 2000, *Smart Card Handbook*, 2nd edn, John Wiley and Sons Australia Ltd.	

Subject Description Form

Subject Code	ISE450
Subject Title	Simulation of Logistics Systems
Credit Value	3
Level	4
Pre-requisite	ISE246 Introduction to Logistics Engineering
Objectives	This subject provides students with an in-depth knowledge of the techniques of computer simulation in general industrial and logistics systems. On completion, students will be capable of 1. understanding the role of simulation in design, planning, and control of industrial and logistics systems; 2. identifying how discrete event simulation can be used to model and analyze the performance of industrial and logistics systems; 3. assessing available simulation packages in the market in relation to particular requirements for the analysis of industrial and logistics systems; 4. planning and managing the design and development of industrial and logistics systems using relevant simulation software.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. understand the concept of simulation and various techniques of modeling industrial and logistics systems using computer simulation; b. understand the behavior of logistics system; c. identify the bottlenecks of industrial and logistics systems through computer simulation, and verify feasible scenarios to improve the performance of such systems; d. formulate different approaches in solving simulation problems that involve analysis of the performance of different parties in a supply chain.
Subject Synopsis/ Indicative Syllabus	1. <u>Introduction</u> A comprehensive and state-of-the-art treatment of all the important aspects of a simulation study, including modeling, simulation software, model verification, and validation, input modeling, statistical design, and analysis of simulation experiments 2. <u>System Dynamics and Modeling Techniques</u> Definition of a system; System variables; Problem formulation; Discrete event simulation 3. <u>Supply Chain Simulation and Decision-Making using Simulation</u>

<table>
<tr><td></td><td>
The value of information; Supply chain variation; Bullwhip effect; Risk pooling
4. <u>Waiting line</u>
Basic probability; Queuing theory, and multi-stage and multi-server problems
5. <u>Computer Modeling and Experimentation</u>
Model design, testing, verification and validation, alternative approaches to computer modeling; Role of experimental design; Design approach; Factorial designs; Determination of optimum conditions in different scenarios of logistics systems
6. <u>Using Simulation for General Industrial System Analysis and Design</u>
Optimization; Comparison of systems; System analysis technique; Useful industrial tools
7. <u>Simulating Logistics Systems</u>
Techniques in simulating production logistics systems, such as machine setup, machine loading, rework and scrap, and transfer machines; Techniques in simulating transportation and material handling, such as conveyers, vehicles, carousels, automatic-guided vehicles, and robots; Techniques in simulating other systems, such as banks, retail stores, service factories, professional services, distribution centers, delivery services, and transportation services
8. <u>Typical Tutorials/Case Studies</u>
Modeling and experimentation using a ProModel
</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A mixture of lectures, tutorial exercises, laboratory work, and case studies are used to deliver the various topics in this subject. Different types of scenarios for the analysis of industrial and logistics systems are adopted using various simulation software programs as problem-solving tools. The subject is project-oriented, and exposes students to hands-on experience in the simulation process, including design, model construction, validation of the model, generation of results, and model maintenance. Some case studies, largely based on actually industrial practices, are used to illustrate operations of logistics systems using appropriate simulation packages. The in-class assignments are designed to facilitate students' understanding of the concept of simulation and various techniques in modeling industrial and logistics systems using computer simulation.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
</table>
</td></tr>
</table>

	1. Quiz	30%	✓		✓	✓		
	2. Group project	30%		✓	✓			
	3. Lab exercises	20%			✓	✓		
	4. Individual assignment	10%	✓		✓	✓		
	5. In-class assignment	10%	✓		✓	✓		
	Total	100%						

The assignments and quiz are designed to assess the students' knowledge of the different principles and techniques in applying the concept of logistics simulation. In addition, these test whether students are able to formulate and solve industrial and logistics problems.

The group project is designed to assess students in their understanding of logistics systems and the use of simulation software.

Laboratory work is designed to assess whether students can analyze and formulate logistics problems, and whether they can solve the problems by using the simulation approach.

Student Study Effort Expected		
	Class contact:	
	▪ Lecture	15 Hrs.
	▪ Tutorial	6 Hrs.
	▪ Laboratory/Project	18 Hrs.
	Other student study effort	
	▪ Self-learning and practice for Laboratory work	20 Hrs.
	▪ Self-learning and practice for Project	23 Hrs.
	▪ Assignment and quiz preparation	25 Hrs.
	Total student study effort	107 Hrs.

Reading List and References

1. Harrell, C, Ghosh, B.K. & Bowden, R 2000, *Simulation using ProModel*, Boston : McGraw-Hill

2. Simchi-Levi, D & Kaminsky, P 2003, *Designing and Managing the Supply Chain*, 2nd edn, Boston: McGraw-Hill

3. *ProModel User Guide*, 2000, ProModel Corporation

4. Law, AM & Kelton, W.D. 2000, *Simulation Modeling and Analysis*, Boston: McGraw-Hall

	5. Pidd, M 1989, *Computer Modelling for Discrete Simulation*, Chichester, New York: Wiley 6. Banks, J 1998, *Handbook of Simulation*, New York: Wiley 7. Render, B, Stair, RM JR &. Hanna, ME 2006, *Quantitative Analysis for Management*, 9th Edition, Upper Saddle River, N.J.: Prentice Hall

Subject Description Form

Subject Code	ISE457
Subject Title	Business Process Management
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject aims at enabling students to 1. appraise the importance of structuring and measuring business processes in an organization; 2. identify and build business processes for various business applications; 3. apply appropriate measures to assess, report and improve the performance of business processes.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. describe the basic concept of business process management; b. assess the organizational implications of functional and process-centric management; c. illustrate the process of designing and developing a Business Process Management Solution; d. configure and manage a business process management system with knowledge of the scope and limitations of such tools; e. develop an overall understanding of team building and governance of processes in an organization.
Subject Synopsis/ Indicative Syllabus	1. <u>Introduction to Business Process Management</u> Definition of business process management; Process and workflow life cycle; Transformation of a functional enterprise to a process-centric enterprise; Business value and risk of process automation. 2. <u>Business Process Management Solution Development</u> Business process management solution architectures; Business process analysis; BPM Process Development; BPM reporting and monitoring. BPM and application integration; BPM and Robotic Process Automation; Configuration of business process management solutions; BPM software vendor products; and Evaluation and selection. 3. <u>Technology for Business Process Management</u>

<table>
<tr><td></td><td>Process Modeling Standards - Business Process Modeling Notation (BPMN); Process repository and Business rules systems.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A mix of lectures, laboratories, tutorial exercises, and projects is used to deliver the various topics in this subject. Practical problems and case studies are raised as a focal point for discussion in tutorial classes. Laboratory session(s) are also used to illustrate and assimilate some fundamental principles of business process management, some of which are covered in a problem-based format and exercises to enhance the learning objectives. Others are covered through directed study in order to enhance the students' ability of "learning to learn." The subject stresses creative thinking, and problem solving approach. Local and overseas case studies are also included to reinforce understanding and enhance practicality.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><th rowspan="2">Specific assessment methods/tasks</th><th rowspan="2">% weighting</th><th>a</th><th>b</th><th>c</th><th>d</th><th>e</th></tr>
<tr><td>1. Workshop Exercise</td><td>25%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>2. Forum discussions</td><td>10%</td><td>✓</td><td>✓</td><td></td><td></td><td>✓</td></tr>
<tr><td>3. Test</td><td>25%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>4. Project</td><td>30%</td><td></td><td></td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>5.In-class assessments</td><td>10%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100%</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
The coursework consists of assignments with individual and group components, usually up to two individual tests. All assessment components require students to apply concepts delivered in lectures to real life cases. The assignments require students to conduct background research on BPM and identify, among others, potential applications and benefits. Short quizzes are also used to test student's understanding of the taught concepts and ability to apply BPM to stated situations. In-class assessments are based on student's performance in asking questions and responding to questions and participating in discussions in class. As they work in groups, students must tackle a project by identifying the problem structure, representing the processes, presenting and simulating the process flow, as well as identifying innovations and potential improvements in the current design.</td></tr>
<tr><td rowspan="5">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture (In-person & Online)</td><td>21 Hrs.</td></tr>
<tr><td>▪ Tutorial/Case Study/Guest presentation(s)</td><td>9 Hrs.</td></tr>
<tr><td>▪ Online Bulletin Board</td><td>6 Hrs.</td></tr>
<tr><td>▪ Laboratory</td><td>3 Hrs.</td></tr>
</table>

	Other student study effort:	
	▪ Tackling of assignments and preparation for tests	35 Hrs.
	▪ Background research and project	40 Hrs.
	Total student study effort	114 Hrs.
Reading List and References	Reference Books 1. Burton, R 2001, B*usiness Process Management: Profiting from Process*, Sams, Indianapolis 2. Smith, H and Fingar, P 2006, *Business Process Management*: *The Third Wave*, Megan Kiffer Press, Tampa Journal 3. Bradford X 2005, *Business Process Management Journal*, England: MCB University Press	

Subject Description Form

Subject Code	ISE460
Subject Title	Logistics Information Management
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject will provide students with 1. understanding of the practical applications and principles of logistics information management in dispersed logistics networks; 2. knowledge of the operation of an order-processing system at the strategic and tactical level; 3. ability to examine IT applications in transportation and warehouse management; 4. ability to identify the methodology for implementing the integrated logistics management concept using total cost analysis.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. apply the techniques and concepts of information system for warehousing, distribution, and transportation; b. identify how the logistics systems can be configured to support global logistics strategy; c. examine the ordering process and methods for implementing company's logistics information system; d. apply learned skills in articulating the requirements in processes and procedures related to logistics, marketing, and the total cost concept.
Subject Synopsis/ Indicative Syllabus	1. <u>Strategic Logistics Management</u> Global logistics management processes, including environmental analysis, planning, structure, plan implementation, and controlling the logistics program; Factors affecting global logistics strategies; Financial aspect of global logistics and global market opportunities 2. <u>Managing Order Processing Information System</u> Customer order cycle, communication function with Electronic Data Interchange (EDI) and Value-Added Networks (VAN); Integrating order processing and the company's information system; Managing information systems to support time-based competition and e-Procurement

<table>
<tr><td></td><td>3. <u>Distribution Planning Management</u>

Strategic and operational issues drawn from logistics companies to highlight the use of management information systems for warehousing, freight forwarding, and distribution planning and vehicle routing with Global Position System (GPS) and Geographical Information System (GIS); Data requirement for computer-based distributed systems; Monitoring the performance of logistics system</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A mixture of lectures and case studies, with the support of laboratory work, is used to deliver the various topics. Lectures on concepts and principles are given in class. Activities at tutorial involve discussions with students regarding their readings and assignments to provide technical guidance during the progress of the projects and render advice on report writing. Hands-on laboratory work and case studies are used to enhance students' understanding and awareness of the latest development and contemporary issues related to the subject area.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
<tr><td>1. Assignments</td><td>15%</td><td></td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. Quiz</td><td>15%</td><td>✓</td><td>✓</td><td></td><td>✓</td><td></td><td></td></tr>
<tr><td>3. Test</td><td>30%</td><td>✓</td><td>✓</td><td></td><td>✓</td><td></td><td></td></tr>
<tr><td>4. Labs</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="6"></td></tr>
</table>
Assignments are designed to assess students' knowledge on the techniques and concepts of information systems through specific operations in warehouse, distribution, and transportation.

The quiz is designed to assess students' knowledge regarding the application of information systems.

Projects are designed in as case studies to assess students' understanding of the application of logistics information management, including the development of logistics information systems for warehouse and transportation.

The test is designed to assess students' understanding of the topics, and whether they can present the concepts clearly.</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td><td></td></tr>
<tr><td>▪ Lectures</td><td>3 hours/week for 8 weeks</td><td>24 Hrs.</td></tr>
<tr><td>▪ Tutorials</td><td>3 hours/week for 2 weeks</td><td>6 Hrs.</td></tr>
</table>
</td></tr>
</table>

	▪ Laboratory 3 hours/week for 9 weeks	9 Hrs.
	Other student study effort:	
	▪ Working on assignment	15 Hrs.
	▪ Preparation for presentation and report writing	40 Hrs.
	▪ Preparation for quiz and test	30 Hrs.
	Total student study effort	124 Hrs.
Reading List and References	1. Stock, J.R. and Douglas, M.L. 2001, *Strategic Logistics Management*, McGraw-Hill 2. Simchi-Levi, D., Kaminsky, D. and Simchi-Levi, E. 2003, *Designing & Managing the Supply Chain Concepts, Strategies & Case Studies*, McGraw Hill 3. Fawcett, P., McLeish, R. and Ogden, I. 1992, *Logistics Management*, Pitman Pub 4. Baudin, M. c2004, *Lean Logistics: the Nuts and Bolts of Delivering Materials and Goods*, Productivity Press: New York, NY	

Subject Description Form

Subject Code	ISE461
Subject Title	Green Legislation and Supply Chain Logistics
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Knowledge of supply chain management
Objectives	The subject relates green practices to supply chain management. Students learn how green legislation has evolved over the years, and the importance and impacts of environmental regulations with respect to supply chain management. In this connection, the environmental impacts of supply chains are discussed. In addition, the course introduces related methodologies and tools for analysing, designing, and improving supply chains in a green context.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. understand recent trends in green legislation with respect to supply chains; b. understand the environmental impacts of supply chains and hence the need for green supply chains; c. apply related methodologies and tools to the design of green supply chains and the improvement of existing supply chains; d. integrate green practices, based on green legislation, into supply chain activities for sustainable development; e. have a critical and analytical perspective that enhances their appreciation and independent judgment of green supply chain design; f. understand the importance of green legislation and thus comply with green regulations in their future professional career.
Subject Synopsis/ Indicative Syllabus	1. Overview of Green Supply Chain Management Recent trends in green supply chain management; environmental impacts of supply chains, the green supply chain as a competitive advantage in today's business environment. 2. Evolution of Green Legislation Drivers of green supply chains; recent trends in green legislation; RoHS, WEEE, and REACH; need for and importance of green legislation related to supply chain management. 3. Life-Cycle Approach to Green Supply Chains Life-cycle assessment as a tool; greening of supply chains; green supply

chain design.

4. GreenSCOR model

Supply chain operations reference (SCOR) model; Supply Chain Council; cross-industry standard and diagnostic tool for supply-chain management; GreenSCOR as a focused model; applications of the GreenSCOR model to a green supply chain.

5. Greening Supply Chains by Reverse Logistics

Reverse logistics; comparison with traditional forward logistics flow; effective means to reduce operational costs; waste generated in supply chain processes; reverse logistics case studies.

6. Sustainable Development

Sustainable development with respect to supply chain management.

Teaching/Learning Methodology

A mixture of lectures and discussions of industrial case studies in small groups in tutorial sessions is employed. This interactive approach offers better opportunities for students to gain a theoretical understanding of the principles and hands-on experience. Students present the results of their discussion of selected cases in assigned project work either as individuals or in teams. This helps the students to develop a critical and analytical perspective to enhance their appreciation and independent judgment of green supply chain design. Industry experts may be invited to speak on a specific area such as the manufacture of electronics, printed circuit boards, and electrical appliances. This helps the students to understand the recent trends in green legislation with respect to supply chains, and to understand green practices and green supply chains for sustainable development in the real world.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c	d	e	f
1. Mid-term test	20%	✓	✓			✓	
2. Reflective Essay	5%				✓		✓
3.Take-home assignment	10%			✓		✓	
4. Mini project (oral presentation and report)	20%	✓	✓	✓	✓		✓
5. Examination	45%		✓	✓	✓	✓	
Total	100%						

The test and reflective essay are designed to facilitate students to reflect on and apply the knowledge gained of green legislation to real-life cases and industrial companies.

<table>
<tr><td></td><td colspan="3">The take-home assignment is designed to assess students' ability to apply different logistics techniques in building up and enhancing a green supply chain management system in a typical company.

The integrated application-oriented group project is designed to facilitate students to acquire knowledge of the different areas of green legislation and supply chain logistics in various industrial sectors through team work (presentation and report).

The final written examination is designed to assess students' understanding of the topic. Students are required to analyze problem-based and case-based questions/scenarios and to present concepts clearly and logically.</td></tr>
<tr><td rowspan="11">Student Study Effort Expected</td><td colspan="2">Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>2 hours/week for 11 weeks</td><td>22 Hrs.</td></tr>
<tr><td>▪ Tutorials</td><td>1 hour/week for 11 weeks</td><td>11 Hrs.</td></tr>
<tr><td>▪ Industrial case studies</td><td>3 hours/week for 2 weeks</td><td>6 Hrs.</td></tr>
<tr><td colspan="2">Other student study effort:</td><td></td></tr>
<tr><td colspan="2">▪ Preparation for tests and site visit (s)</td><td>12 Hrs.</td></tr>
<tr><td colspan="2">▪ Execution of the group project</td><td>27 Hrs.</td></tr>
<tr><td colspan="2">▪ Reading background information in preparation for tutorials; presentation and report writing</td><td>21 Hrs.</td></tr>
<tr><td colspan="2">▪ Preparation for case studies, the take-home assignment, application software</td><td>27 Hrs.</td></tr>
<tr><td colspan="2">Total student study effort</td><td>126 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="3"><u>Recommended</u>

1. Sarkis, J., Greener manufacturing and Operations, Greenleaf Publishing Limited, latest edition.

2. Taylor, D. and Brunt, D. Manufacturing Operations and Supply Chain Management: The LEAN Approach, Thomson Learning, latest edition.

<u>Supplementary</u>

1. Plenert, G., How to Create an Integrated World-Class Lean SCM Environment, In Reinventing Lean, Chapter 10, pp. 290-294, Butterworth-Heinemann, latest edition.

2. Van Hoek, R. I. 2001, Case Studies of Greening the Automotive Supply Chain Through Technology and Operations, International Journal of Environmental Technology and Management, 1(1-2), 140-163

3. Sarkis, J. 2003, A Strategic Decision Framework for Green Supply Chain</td></tr>
</table>

	Management, Journal of Cleaner Production, 11(4), 397-409 Journals 1. Logistics Information Management 2. Journal of Operations Management 3. Supply Chain Management: An International Journal. Websites 1. Supply Chain Council: http://www.supply-chain.org 2. Supply Chain Management for Environmental Improvement: http://www.pprc.org/pubs/grnchain

Subjects offered by
School of Accounting and Finance

Subject Description Form

Subject Code	AF2111
Subject Title	Accounting for Decision Making
Credit Value	3
Level	2
Normal Duration	1-semester
Pre-requisite / Co-requisite/ Exclusion	**Exclusions:** Financial Accounting (AF2108) Management Accounting 1 (AF2110)
Role and Purposes	This subject contributes in providing students with a framework to understand the accounting process in organizations. It also introduces to students the tools to understand and interpret financial information. Students should be capable of making informed decisions, including but not limited ethical decision making.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. Describe the role and importance of management and financial accounting information in decision-making in a business environment. b. Identify assumptions, principles and conventions underlying financial reports as well as the potential ethical issues in organizations. c. Interpret and analyze financial reports d. Use cost and management accounting information in business decision-making.
Subject Synopsis/ Indicative Syllabus	**Framework of Financial Reporting** Information needs of capital markets, basic financial statements, accounting cycle: capturing economics events; accruals and deferrals; reporting financial results and roles of an auditor. **Preparation of Financial Statements** Income Statement Retained Earnings Statement Balance Sheet Statement of Cash flows **Analysis and Interpretation of Financial Statements** Financial ratios, financial statement analysis and measuring business performance. **Internal control and corporate governance** Ethical decision making and corporate governance. **Costing Principles and Operations Management issues** Manufacturing costs, product costs and period costs. Enterprise Resources Planning and other developments in operations management. Activity based costing with multiple activity cost pools and cost drivers relevant to each cost pool. **Cost-Volume-Profit (CVP) Analysis**

<table>
<tr><td></td><td>Variable and fixed costs, contribution margin & breakeven analysis

Incremental Analysis and Capital Budgeting
Incremental analysis in make/ buy or stop/ process further and various decisions. The concept of present value and capital expenditure decision making</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A two hour mass lecture will be conducted each week to initiate students into the ideas, concepts and techniques of the topics in the syllabus, which is then reinforced by a one hour tutorial designed to consolidate and develop students' knowledge through discussion and practical problem solving.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
<tr><td>Continuous Assessment</td><td>50%</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>1. Quizzes</td><td>10%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>2. Analytical Writing Assignment</td><td>20%</td><td></td><td>√</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>3. Weekly Assignments and discussions</td><td>20%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>Final Examination</td><td>50%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>

To pass this subject, students are required to obtain Grade D- or above.</td></tr>
<tr><td>Student Study Effort Required</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorials</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Studying textbook & other material
▪ Preparation of lecture & tutorial</td><td>39 Hrs.</td></tr>
<tr><td>▪ Working on assignments and projects</td><td>39 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>117 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>Kimmel, Weygandt and Kieso, Accounting: Tools for Business Decision Making, latest Edition

Weygandt, J & et al, 2012, Accounting Principles, 10th Edition, John Wiley & Sons, (Asia) Pte Ltd.

Larson & Chiapetta, 2013, Fundamental Accounting Principles, McGraw-Hill</td></tr>
</table>

	Irwin. Marshall, McManus & Viele, **2014**, ***Accounting - What the Numbers Mean***, McGraw-Hill Irwin. Dyson, J. R. **2010**. ***Accounting for Non-Accounting Students***, Financial Times Prentice Hall.

Subject Description Form

Subject Code	AF3513
Subject Title	Business Law
Credit Value	3
Level	3
Normal Duration	1-semester
Pre-requisite / Co-requisite/ Exclusion	None
Objectives	This subject enables students to analyze business problems by applying conceptual frameworks drawn from case law and legislation, demonstrate critical and creative thinking in the business setting, and identify and respond appropriately to ethical issues arising in the business settings.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. Identify and explain the core structural characteristics of the legal system in Hong Kong, including sources of law and the court system. b. Identify legal issues and apply legal reasoning to resolve practical legal problems arising in the business setting, critically assess all alternative arguments in different business contexts. (BBA Outcome 3) c. Organize written English answers to practical legal problems in a systematic and coherent manner. d. Identify and critically evaluate ethical issues arising in policy initiatives in the Hong Kong business context. (BBA Outcome 11) e. Identify and critically evaluate how AI affect the field of law in Hong Kong.
Subject Synopsis/ Indicative Syllabus	**Legal Framework** The Hong Kong legal framework: the Legislative Council and the judiciary; dispute resolution. Laws against Corruption. Anti-Money Laundering and Counter-Terrorist Financing. **The Law of Contract** Essentials of a valid contract; reasons for invalid or unenforceable contracts; terms of contract; discharge of contract and remedies; electronic contracts; the use of AI in Hong Kong legal environment. **Sale of Goods** Definition of goods; sale of goods contract; implied terms; remedies of the seller and buyer. **Tort** Negligence; contributory negligence; professional liability for careless misstatements; legal responsibility for words and conduct. **Employment Law**

<table>
<tr><td></td><td>Contract of Service and Contract for Service, Employment Ordinance, Employees' Compensation Ordinance, Discrimination Ordinances in Hong Kong.

Law of Commercial Associations
Types of companies; formation and documents; nature of corporate personality; comparison between partnerships and incorporated associations.

Agency Law
Formation of an agency agreement; authority of an agent; duties of an agent; relationship of principal with third party; relationship of an agent with third party; termination of agency.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The subject will be taught through lectures and interactive seminars. Lectures will introduce legal principles, legislation, and case law. In the seminar, students will work in small groups on problem-solving activities.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td><td></td></tr>
<tr><td>Continuous Assessment</td><td>50%</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>1. Group assignments</td><td>20%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>2. Individual essay on the use of AI in Hong Kong legal environment</td><td>10%</td><td></td><td></td><td></td><td></td><td>√</td><td></td></tr>
<tr><td>3. Individual test</td><td>20%</td><td></td><td>√</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>4. Final Examination</td><td>50%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>
To reflect the significant technology content in this subject, 10% (or more) of the overall weighting of this subject is based on individual assessment concerning technology-related knowledge.
</td></tr>
<tr><td>Student Study Effort Required</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>• Lectures</td><td>13 Hrs.</td></tr>
<tr><td>• Seminars</td><td>26 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>• Reading materials/ textbook</td><td>52 Hrs.</td></tr>
<tr><td>• Group Assignments and Individual Test</td><td>20 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>111 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>Textbook
Srivastava, D.K., Business Law in Hong Kong, latest edn, Sweet & Maxwell</td></tr>
</table>

	Reference book Anjunan, K. & Majid, A. (2009), *Business Law in Hong Kong*, 2nd edn, Lexis Nexis Stott, V (2010), *An Introduction to Hong Kong Business Law*, 4th edn, Prentice Hall Pearson ***Legislation*** The Laws of Hong Kong *http://www.elegislation.gov.hk* ***Law Reports*** Hong Kong Law Reports Hong Kong Law Reports and Digests Hong Kong Cases HK Electronic Citations (Westlaw)

Subject Description Form

Subject Code	AF3625
Subject Title	Engineering Economics
Credit Value	3
Level	3
Exclusion	AF2618
Objectives	This subject aims to equip students with 1. The fundamental concepts of micro- and macroeconomics related to the engineering industry; 2. The fundamental understanding of finance and costing for engineering operations, budgetary planning and control.
Intended Subject Learning Outcomes	**Upon successful completion of this subject, students will be able to:** 1. Understand how the relevant economic factors shape the environment within which an engineering company operates; 2. Evaluate the financial condition of a company; 3. Apply the basic cost accounting techniques in the planning and control of engineering and production activities.
Subject Synopsis/ Indicative Syllabus	<u>Economic Environment of a Firm</u> **Microeconomic Factors** Scarcity, choice and opportunity cost; Demand, supply and price; Profit-maximizing behavior of the firm; Organization of industry: perfect competition and monopoly **Macroeconomic Factors** International trade and globalization <u>Engineering Economics</u> Return on investment; Accounting profit versus economic profit <u>Fundamentals of Budgetary Planning and Control</u> Principle types of budgets for production and service operations; Approaches to budgeting and the budgeting process; Investment and source of finance; Cost of capital; Evaluation of investment alternatives
Teaching/ Learning Methodology	The two-hour lecture each week focuses on the introduction and explanation of key concepts of Engineering Economics. The one-hour tutorial provides students with directed studies to enhance their self-learning capacities. Individual and group activities including discussions and presentations are conducted to facilitate students' understanding and application of the concepts they have learned to tackling real-life problems in Engineering Economics.

<table>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><th rowspan="2">Specific Assessment Methods/Tasks</th><th rowspan="2">% Weighting</th><th colspan="3">Intended Subject Learning Outcomes to be Assessed (Please tick as appropriate)</th></tr>
<tr><th>1</th><th>2</th><th>3</th></tr>
<tr><td>Continuous Assessment</td><td>50%</td><td></td><td></td><td></td></tr>
<tr><td>1. In-class activities</td><td>15%</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2. Written assignments</td><td>15%</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3. Test</td><td>20%</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>Final Examination</td><td>50%</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="3"></td></tr>
</table>
</td></tr>
<tr><td>Student Study Effort Required</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>• Lecture</td><td>26 Hours</td></tr>
<tr><td>• Tutorial</td><td>13 Hours</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>• Study and self-learning</td><td>48 Hours</td></tr>
<tr><td>• Presentation preparation and written assignments</td><td>18 Hours</td></tr>
<tr><td>Total student study effort:</td><td>105 Hours</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>Recommended Textbooks

1. Parkin and Bade, Foundations of Microeconomics, 8th ed., Pearson, 2018.
2. Sullivan, Wicks and Koelling, Engineering Economy, 17th ed., Pearson, 2019.

References

1. Robert H. Frank, The Economic Naturalist: Why Economics Explains Almost Everything?, Basic Books, 2011.</td></tr>
<tr><td>Last Updated</td><td>July 2022</td></tr>
<tr><td>Prepared by</td><td>School of Accounting and Finance</td></tr>
</table>

Subject offered by
Department of Applied Mathematics

Subject Description Form

Subject Code	AMA1110
Subject Title	Basic Mathematics I – Calculus and Probability & Statistics
Credit Value	3
Level	1
Pre-requisite	Nil
Exclusion	Calculus and Linear Algebra (AMA1007) Calculus for Engineers (AMA1130) Calculus (AMA1131) Foundation Mathematics for Accounting and Finance (AMA1500) Calculus (AMA1702)
Objectives	This subject aims to introduce students to the basic concepts and applications of elementary calculus and statistics. Emphasis will be on the understanding of fundamental concepts and the use of mathematical techniques in handling practical problems in science and engineering.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) apply analytical reasoning to solve problems in science and engineering; (b) make use of the knowledge of mathematical/statistical techniques and adapt known solutions to various situations; (c) apply mathematical modeling in problem solving; (d) demonstrate abilities of logical and analytical thinking.
Subject Synopsis/ Indicative Syllabus	Elementary calculus: Limit and continuity, derivatives and their geometric meaning, rules of differentiation including chain rule, Leibniz's rule and L'Hopital's rule, exponential and logarithmic functions, trigonometric functions and their inverses, hyperbolic and inverse hyperbolic functions, applications of differential calculus. Elementary Probability and Statistics: Descriptive statistics, random variables, probability and probability distributions, binomial, Poisson and normal distributions, applications. Population and random samples. Sampling distributions related to sample mean, sample proportions, and sample variances. Concepts of a point estimator and a confidence interval. Point and interval estimates of a mean and the difference between two means.
Teaching/Learning Methodology	Basic concepts and elementary techniques of differential and integral calculus and elementary statistics will be taught in lectures. These will be further enhanced in tutorials through practical problem solving.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)			
		a	b	c	d
1.Assignments and mid-term tests	40%	✓	✓	✓	✓
2. Examination	60%	✓	✓	✓	✓
Total	100 %				

Continuous Assessment comprises of assignments, in-class quizzes, online quizzes and a mid-term test. An examination is held at the end of the semester.

Questions used in assignments, quizzes, tests and examinations are used to assess students' level of understanding of the basic concepts and their ability to use mathematical techniques in solving problems in science and engineering.

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

The subject focuses on understanding of basic concepts and application of techniques in differential/integral calculus, elementary statistics. As such, an assessment method based mainly on examinations/tests/quizzes is considered appropriate. Furthermore, students are required to submit homework assignments regularly in order to allow subject lecturers to keep track of students' progress in the course.

Student Study Effort Expected

Class contact:	
▪ Lecture	26 Hrs.
▪ Tutorial	13 Hrs.
Other student study effort:	
▪ Homework and self-study	81 Hrs.
Total student study effort	120 Hrs.

Reading List and References

Chung, K.C. *A Short Course in Calculus and Matrices*, McGraw Hill 2013

Hung, K.F., Kwan, Wilson, Pong, T.Y. *Foundation Mathematics & Statistics*, McGraw Hill 2013

Larson, R., Edwards, B. *Single Variable Calculus*, Brooks/Cole 2012

Walpole, R.E., Myers, R.H., Myers, S.L. Ye, K. *Probability and Statistics for*

	Engineers and Scientists, Prentice Hall, 2012

Subject offered by
Department of Applied Social Sciences

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	APSS1L01
Subject Title	Tomorrow's Leaders
Credit Value	3
Level	1
GUR Requirements Intended to Fulfill	This subject intends to fulfill the following requirement(s): ☐ **Healthy Lifestyle** ☐ **Freshman Seminar** ☐ **Languages and Communication Requirement (LCR)** ☒ **Leadership Education and Development** ☐ **Service-Learning** ☐ **Cluster-Area Requirement (CAR)** ☐ Human Nature, Relations and Development ☐ Community, Organization and Globalization ☐ History, Cultures and World Views ☐ Science, Technology and Environment ☐ **China-Study Requirement** ☐ Yes or ☐ No ☐ **Writing and Reading Requirements** ☐ English or ☐ Chinese
Pre-requisite / Co-requisite/ Exclusion	Nil
Assessment Methods	

100% Continuous Assessment	Individual Assessment	Group Assessment
1. Class Participation (including 5% "Learning to learn" self-reflection)	20%	--
2. Group Project	--	30%
3. Term Paper	50%	--
4. Online Academic Integrity Tutorial Test	Compulsory Pass Requirement	

	<table><tr><td>5. Law Abiding-Leadership Test</td><td>Compulsory Pass Requirement</td><td></td></tr></table> • The grade is calculated according to the percentage assigned; • The completion and submission of all component assignments are required for passing the subject; and • Student must pass all component(s) if he/she is to pass the subject.
Objectives	The course is designed to enable students to learn and integrate theories, research and concepts of the basic personal qualities (particularly intrapersonal and interpersonal qualities) of effective leaders. This subject also intends to help students develop and reflect on their intrapersonal qualities, interpersonal qualities and connection of learning to oneself. Finally, the subject cultivates students' appreciation of the importance of intrapersonal and interpersonal qualities in effective leadership.
Intended Learning Outcomes *(Note 1)*	Upon completion of the subject, students will be able to: a. understand and integrate theories, research and concepts on the basic qualities (particularly intrapersonal and interpersonal qualities) of effective leaders; b. develop self-awareness and self-understanding; c. demonstrate self-leadership in pursuit of continual self-improvement; d. apply intrapersonal and interpersonal skills in daily lives; e. appreciate the importance of intrapersonal and interpersonal qualities in effective leadership, particularly the connection of learning in the subject to one's professional development and personal growth; f. recognize and accept their responsibility as professionals and citizens to the society and the world.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	1. An overview of the personal attributes of effective leaders: roles of intrapersonal and interpersonal qualities in effective leadership and university graduates' employability in the service economy; **compulsory requirements of the subject**: "Learning to learn" assessment; Online Tutorial on Academic Integrity; law abiding-leadership assessment; group presentation; individual assignment; class participation. 2. Self-leadership in effective leaders: the importance of self-understanding and self-management; "Learning to learn" ability; life-long learning and leadership. 3. Cognitive competence (critical thinking): misinformation, disinformation, and propaganda; different types of thinking styles; critical thinking model; roles of cognitive competence, critical thinking and problem solving in effective leadership; learning to learn.

	4. Social emotional competence: social awareness; relationship management; the application of social emotional competence in daily lives and in effective leadership. 5. Resilience and stress-coping: concepts and theories of resilience and stress-coping; relationship between resilience, stress and stress-coping; role of resilience in effective leadership; application of resilience and stress-coping on daily basis. 6. Morality and integrity: moral competence; role of morality in effective leadership; ethical leadership; importance of moral competence in different professions, academic integrity in university students (online tutorial on academic integrity). 7. Spirituality: connectedness to others, personal beliefs and values, meaning of life, spirituality and professional development, role of spirituality in effective leadership; spiritual practices in daily lives. 8. Law-abidance as a quality of leadership: basic concepts and theories related to law-abiding leadership and socially responsible leadership; importance of law-abiding leadership and socially responsible leadership to professionals and the general public; basic knowledge on national security and the Hong Kong; Hong Kong National Security Law; a brief overview of modern Chinese history, the Constitution, and the Basic Law. 9. Cultural competence and global citizenship: cultual competence in a globalized world; global citizenship and effective leadership; responsibilites of university students as both professionals and citizens of the society. 10. Effective communication: basic communication skills; importance of effective communication to daily life and leadership; care and compassion in effective leadership. 11. Team building: theories, concepts, skills and blocks of team building; role of team building in effective leadership; application of team building in different professions and daily lives. **Note:** For the topic on law abidance and the Hong Kong National Security Law, students are required to pass an online assessment with multiple-choice questions. Students can take the assessment with multiple attempts. The assessment does not carry any mark.
Teaching/Learning Methodology *(Note 3)*	Students taking this course are expected to be sensitive to their own behavior in intrapersonal and interpersonal contexts. Intellectual thinking, reflective learning, experiential learning and collaborative learning are emphasized in the course. Case studies on successful and fallen leaders will also be covered in the course. The teaching/learning methodology includes: 1. Lectures (including e-learning modules); 2. Experiential classroom activities; 3. Group project presentation; 4. Written assignment.

Assessment Methods in Alignment with Intended Learning Outcomes

(Note 4)

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	f
1. Class Participation (including 5% "Learning to learn" self-reflection) ^	20%	✓	✓	✓	✓	✓	✓
2. Group Project*	30%	✓	✓	✓	✓	✓	✓
3. Term Paper^	50%	✓	✓	✓		✓	
4. Academic integrity online module and assessment^	0%	✓			✓	✓	
5. Quiz on law abidance and Hong Kong National Security Law^	0%	✓	✓	✓	✓	✓	✓
Total	100 %						

*assessment is based on group effort
^assessment is based on individual effort

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

1. Assessment of Class Participation (20%): It is expected that both online and classroom activities, and preparation for lectures can help students understand the subject matter and oneself, develop social skills, connect learning to oneself and promote an appreciation of the importance of intrapersonal and interpersonal leadership qualities. Hence, marks for class participation (including the participation in e-learning modules) and preparation for lectures will be given. Students will be assessed by: a) preparation for class (e.g., complete e-learning modules, online assignment, and dig up materials before class), b) participation in class and online learning activities (e.g., completion of worksheets and sharing in class, participation in online discussion forum) and c) volunteering to answer questions and join discussions. Also, students will be invited to rate the performance and learning of other group members in an honest and authentic manner. The marks will reflect the mastery of knowledge, self-reflection and

	quality of interpersonal skills (such as collaboration with other members and contribution to the group) of the group members. Peer assessment will contribute to marks in class participation. As the university strategic priority, "Learning to learn" has the aim to support the development of students' ability to engage in the learning process, manage their own learning, and take their learning to a higher level. "Learning to learn" concept will be covered in the lectures and students are required to develop a personal development plan at the beginning of the course. To encourage students to reflect on their experience in achieving their learning goals set in the development plan, students are required to reflect on their learning to learn ability and related learning experience in a reflective journal (5%). 2. Assessment of Group Project (30%): Group project presentation can give an indication of the students' understanding and integration of theories and concepts on the personal qualities in effective leadership, personal and group reflections, interpersonal skills and degree of recognition of the importance of active pursuit of knowledge covered in the course. 3. Assessment of Term Paper (50%): Individual paper can give an indication of the students' understanding and integration of theories and concepts on the personal qualities in effective leadership, self-assessment, self-reflection, connection of the subject matter to oneself and degree of recognition of the importance of active pursuit of knowledge covered in the course. 4. Quiz on Law Abidance and Hong Kong National Security Law (0%): As universities have the obligation to conduct education on the Constitution, Basic Law and Hong Kong National Security Law, students are required to take a 3-hour face-to-face lecture on law abiding leadership and 7 hours of self-study. Based on the related materials on modern Chinese history, the Constitution, the Basic Law, restoration of Hong Kong to mainland China, national security and the Hong Kong National Security Law, students have to take an assessment with 20 multiple choice questions. Students can pass the assessment if he/she has correct answers on at least 16 questions (multiple attempts allowed). A student will fail in this subject if he/she cannot pass this assessment component. 5. Academic Integrity Online Module and Assessment (0%): As academic integrity is very important for university students, students are required to take an online Academic Integrity program lasting for two hours. First, students are required to take a multiple-choice test with 10 questions in the pre-test without a passing mark (multiple attempts allowed). After that, students need to study four online modules to understand the concepts of

	academic integrity and ways to avoid academic dishonesty. Finally, students are required to take another multiple-choice test with 20 questions in the post-test with a passing benchmark of 15 questions (multiple attempts allowed). A student will fail in this subject if he/she cannot pass this assessment component. They must complete this component by the 5th week of the semester. Based on the implementation of this subject in the past ten academic years (2012-2022), evaluation findings consistently showed that this subject was able to achieve the intended learning outcomes in the students. The positive evaluation findings are documented as follows: Leung, H. (2016). Levels of reflection on teaching a leadership and positive youth development subject. *International Journal on Disability and* Human *Development, 15*(2)*,* 211-220. Leung, H., Shek, D. T. L., & Mok, B. P. W. (2016). Post-lecture subjective outcome evaluation of a university subject on leadership and intrapersonal development. *International Journal of Child and Adolescence Health, 9*(2)*,* 223-234. Li, X., & Shek, D. T. L. (2020). Objective outcome evaluation of a leadership course utilising the positive youth development approach in Hong Kong. *Assessment & Evaluation in Higher Education, 45*(5), 741-757. Ma, C. M. S., Shek, D. T. L., & Li, P. P. K. (2017). Evaluation of a leadership and intrapersonal development subject for university students: Experience in Hong Kong. *International Journal of Child and Adolescent Health, 10*(3), 337-346. Ma, C. M. S., Shek, D. T. L., Li, P. P. K., Mok, B. P. W. & Leung, E. Y. K. (2016). Qualitative evaluation of a leadership and intrapersonal development subject for university students in Hong Kong. *International Journal of Child and Adolescent Health, 9*(2), 217-224. Shek, D. T. L. (2012). Development of a positive youth development subject in a university context in Hong Kong. *International Journal on Disability and Human Development, 11*(3), 173-179. Shek, D. T. L. (2013). Promotion of holistic development in university students: A credit-bearing subject on leadership and intrapersonal development. *Best Practices in Mental Health, 9*(1), 47-61. Shek, D. T. L., Fok, H. K., Leung, C. T. L., & Li, P. P. K. (2016). Qualitative evaluation of a credit-bearing leadership subject in Hong Kong. *International Journal of Child and Adolescent Health, 9*(2), 173-183. Shek, D. T. L., & Leung, J. T. Y. (2014) Perceived benefits of a

university subject on leadership and intrapersonal development. *International Journal on Disability and Human Development. 13*(4), 481-488.

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Shek, D. T. L., & Yu, L. (2014). Post-course subjective outcome evaluation of a subject on leadership and intrapersonal development for university students in Hong Kong. *International Journal on Disability and Human Development, 13*(4), 457-464.

Shek, D. T. L., & Yu, L. (2016). Student feedback on a subject on leadership and intrapersonal development for university students in Hong Kong. *International Journal on Disability and Human Development, 15*(3), 339-345

Shek, D. T. L., & Yu, L. (2017). An evaluation study on a university general education subject in Hong Kong. *International Journal of Adolescent Medicine and Health, 29*(1),103-109.

Shek, D. T. L., Yu, L., Lin, L., Li, X., Zhu, X., Dou, D., Chai, W., Chak, Y., Ho, W., Leung, E., Li, P., Mok, B., Shek, V., Shek, E., & Jin, T. (2021). Nurturing leadership qualities under COVID-19: Student perceptions of the qualities and effectiveness of online teaching and learning on leadership development. *International Journal of Child and Adolescent Health, 14*(1), 89-100.

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Yu. L., Shek, D. T. L., & Leung, E. Y. K. (2016). Post-lecture evaluation of a university subject on leadership and

	intrapersonal development. *International Journal of Child and Adolescent Health, 9*(2)*,* 155-164.	
Student Study Effort Expected	Class contact:	
	▪ Lectures and experiential/online learning activities	39 Hrs.
	Other student study effort:	
	▪ Group project preparation	20 Hrs.
	▪ Reading and writing term paper	61 Hrs.
	Total student study effort	120 Hrs.
Reading List and References	**Basic References** Catalano, R. F., Berglund, M. L., Ryan, J. A. M., Lonczak, H. S., & Hawkins, J. D. (2002). Positive youth development in the United States: Research findings on evaluations of positive youth development programs. *Prevention and Treatment, 5*(15), 1-106. Dalton, J., & Crosby, P. (2007). Being and having: Shouldn't excellence in higher education (and people) be a measure of what one does rather than what one has? *Journal of College and Character, 9*(1), 1-5. Davies, L. (2006). Global citizenship: abstraction or framework for action? Educational Review, *58*(1), 5-25. Dugan, J. P. (2006). Involvement and leadership: A descriptive analysis of socially responsible leadership. *Journal of College Student Development*, *47*(3), 335-343. Dugan, J. P. (2015). The measurement of socially responsible leadership: Considerations in establishing psychometric rigor. Journal of Educational, Cultural and Psychological Studies, *12*, 23-42. Hong Kong Government. (2020, July 7). The Law of the People's Republic of China on Safeguarding National Security in the Hong Kong Special Administrative Region. Available at https://www.isd.gov.hk/nationalsecurity/eng/pdf/NSL_QnA_Book.pdf. Gilley, A., Gilley, J. W., McConnell, C. W., & Veliquette. A. (2010). The competencies used by effective managers to build teams: An empirical study. *Advances in Developing Human Resources, 12*(1), 29-45. Goleman, D. (1995). *Emotional Intelligence: Why it can matter more than IQ.* New York: Bantam Books. Houghton, J. D., & Yoho, S. K. (2005). Toward a contingency model of leadership and psychological empowerment: When should self-leadership be encouraged? *Journal of Leadership and*	

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Shek, D. T. L. (2010). Nurturing holistic development of university students in Hong Kong: Where are we and where should we go? *The Scientific World Journal, 10*, 563-575.

Shek, D. T. L. (2012). Spirituality as a positive youth development construct: A conceptual review. *The Scientific World Journal*, *2012*, 8 pages. doi:10.1100/2012/458953

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Govier, I. (2000). Spiritual care in nursing: A systematic approach. *Nursing Standard, 14*(17), 32-36.

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Note 1: Intended Learning Outcomes

Intended learning outcomes should state what students should be able to do or attain upon completion of the subject. Subject outcomes are expected to contribute to the attainment of the overall programme outcomes.

Note 2: Subject Synopsis/ Indicative Syllabus

The syllabus should adequately address the intended learning outcomes. At the same time over-crowding of the syllabus should be avoided.

Note 3: Teaching/Learning Methodology

This section should include a brief description of the teaching and learning methods to be employed to facilitate learning, and a justification of how the methods are aligned with the intended learning outcomes of the subject.

Note 4: Assessment Method

This section should include the assessment method(s) to be used and its relative weighting, and indicate which of the subject intended learning outcomes that each method purports to assess. It should also provide a brief explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes.

Subjects offered by
Chinese Language Centre

The Hong Kong Polytechnic University

Subject Description Form

Please read the notes at the end of the table carefully before completing the form.

Subject Code	CLC1104C (Cantonese) / CLC1104P (Putonghua) [2019-20 onward] CBS1104C (Cantonese) / CBS1104P (Putonghua) [2018-19 and before] ***Remarks: Students taking the Cantonese version of CLC/CBS1104 (i.e. CLC/CBS1104C) will be offered a 39 hour non-credit bearing e-learning course in Putonghua (optional).***
Subject Title	University Chinese（大學中文）
Credit Value	3
Level	1
Pre-requisite / Co-requisite/ Exclusion	Students with HKDSE Chinese subject result at level 3 or above or equivalent
Objectives	This subject aims at enhancing the students' command of language knowledge to communicate effectively in both written and spoken Chinese, with particular reference to the stylistic variations of expression in different communicative settings. The ultimate goal of this subject is to train students to be effective communicators and life-long learners, and to equip them for the Chinese Discipline-Specific Language Requirement subject.
Intended Learning Outcomes *(Note 1)*	Upon completion of the subject, students will be able to: (a) consolidate the ability to identify and correct the most common errors in written texts; (b) develop Chinese writing skills through the analysis and in-depth reading of selected literary masterpieces; (c) master the format, organization, language and style of expression of various genres of Chinese writing; (d) produce formal presentations in spoken Chinese effectively and appropriately.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	1. Written communication Language, format and organization of each genre; coherence and thread of thinking in Chinese writing; style of expression of different genres; context dependent stylistic variation; development of logical and persuasive arguments. 2. Spoken communication Choice of words; articulation and flow of speaking; manner of speaking and gesture; identification of main idea and key messages; evaluation of relevancy of information in a message; skills of summarizing; agreeing / disagreeing / answering to questions politely; use of visual aids; body movement. 3. Reading strategies

<table>
<tr><td></td><td>Intensive and critical reading; identification of authors' stances, arguments and purposes; extracting useful information from the texts; determination of the meanings of the important concept words in context; evaluation of the validity of the factual information and arguments of the texts; appreciation of different genres including literary masterpieces.

4. Language development
Grammatical skills; use of clear words; use of specific sentences; choice of diction.</td></tr>
<tr><td>Teaching/Learning Methodology

(Note 3)</td><td>The teaching/learning methodology is a combination of highly interactive seminars, self-formed study groups, seminar discussion, oral presentations and written assignments. E-learning materials for enhancing students' proficiency in both spoken and written Chinese are included in Chinese LCR teaching.

Students are expected to follow teachers' guidelines and get access to the materials on the e-Learning platform for self-study on a voluntary basis.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes

(Note 4)</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="4">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td></tr>
<tr><td>Quizzes / Exercises</td><td>20%</td><td>√</td><td></td><td>√</td><td></td></tr>
<tr><td>Written Assignments</td><td>55%</td><td>√</td><td>√</td><td>√</td><td></td></tr>
<tr><td>Oral presentation</td><td>25%</td><td>√</td><td></td><td>√</td><td>√</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="4"></td></tr>
</table>

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

The quizzes and exercises are designed to assess students' basic knowledge of Chinese linguistics and how well they achieve ILOs (a) and (c). The writing assessments aim to obtain an objective measurement of students' basic competence in the use of written Chinese in accurate and appropriate grammatical structures (ref. ILOs (a), (b) and (c)). The oral assessment assesses students' ability to plan and present accurately, appropriately and effectively (ref. ILOs (a), (c) and (d)). Explanations and exercises are provided in classroom teaching.</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Seminar</td><td>39 Hrs.</td></tr>
<tr><td>Additional activity:</td><td></td></tr>
<tr><td>▪ e-Learning in Putonghua and written Chinese</td><td>9 Hrs.</td></tr>
</table>
</td></tr>
</table>

	Other student study effort:	
	▪ Outside Class Practice	39 Hrs.
	▪ Self-study	39 Hrs.
	Total student study effort	126 Hrs.

Reading List and References	1. 于成鯤、陳瑞端、秦扶一、金振邦主編：《當代應用文寫作規範叢書》，上海：復旦大學出版社，2011年。 2. 任伯江：《口語傳意權能：人際關係策略與潛力》，香港：香港中文大學出版社，2006年。 3. 吳禮權：《演講的技巧》，香港：商務印書館，2013年。 4. 李錦昌：《商業溝通與應用文大全》，香港：商務印書館，2012年。 5. 邵敬敏：《現代漢語通論》，上海：上海教育出版社，2007年。 6. 香港城市大學語文學部編著：《中文傳意— 基礎篇》。香港：香港城市大學出版社，2001。 7. 香港城市大學語文學部編著；《中文傳意— 寫作篇》。香港：香港城市大學出版社，2001。 8. 孫光萱：《中國現代散文名家名篇賞讀》，上海：上海教育出版社，2001年。 9. 梁慧敏：《正識中文》，香港：三聯書店，2010年。 10. 梁慧敏：《語文正解》，香港：三聯書店，2015年。 11. 梁慧敏：《語文通病》，香港：三聯書店，2014年。 12. 陳瑞端，《生活病語》，香港 : 中華書局，2000。 13. 陳瑞端：《生活錯別字》，香港：中華書局，2000年。 14. 賴蘭香：《傳媒中文寫作》(新修本)，香港：中華書局，2012年。

Note 1: Intended Learning Outcomes
Intended learning outcomes should state what students should be able to do or attain upon completion of the subject. Subject outcomes are expected to contribute to the attainment of the overall programme outcomes.

Note 2: Subject Synopsis/ Indicative Syllabus
The syllabus should adequately address the intended learning outcomes. At the same time over-crowding of the syllabus should be avoided.

Note 3: Teaching/Learning Methodology
This section should include a brief description of the teaching and learning methods to be employed to facilitate learning, and a justification of how the methods are aligned with the intended learning outcomes of the subject.

Note 4: Assessment Method
This section should include the assessment method(s) to be used and its relative weighting, and indicate which of the subject intended learning outcomes that each method purports to assess. It should also provide a brief explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes.

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	CLC3241P (2019-20 onward) CBS3241P (2018-19 and before)
Subject Title	Professional Communication in Chinese
Credit Value	2
Level	3
Pre-requisite / Co-requisite	Chinese LCR subjects (in Semester 2 of Year 3 or Semester 1 of Year 4)
Objectives	This subject aims to develop the language competence for professional communication in Chinese required by students to communicate effectively with various parties and stakeholders in regard to engineering-related project proposals and reports.
Intended Learning Outcomes	Upon completion of the subject, and in relation to effective communication with a variety of intended readers/audiences in Chinese, students will be able to a. plan, organise and produce professionally acceptable project proposals and reports with appropriate text structures and language for different intended readers b. plan, organise and deliver effective project-related oral presentations with appropriate interactive strategies and language for different intended audiences c. adjust the style of expression and interactive strategies in writing and speaking in accordance with different intended readers/audiences
Subject Synopsis/ Indicative Syllabus	1. Project proposals and reports in Chinese • Planning and organising project proposals and reports • Explaining the background, rationale, objectives, scope and significance of a project • Referring to the literature to substantiate project proposals • Describing the methods of study • Describing and discussing project results, including anticipated results and results of pilot study • Presenting the budget, schedule and/or method of evaluation • Writing executive summaries./abstracts

<table>
<tr><td></td><td>2. Oral presentations of projects
Selecting content for audience-focused presentations
Choosing language and style appropriate to the intended audience
Using appropriate transitions and maintaining coherence in team presentations
Using effective verbal and non-verbal interactive strategies</td></tr>
<tr><td>Teaching/Learning Methodology</td><td><u>Learning and teaching approach</u>

The subject is designed to develop the students' Chinese language skills, both oral and written, that students need to communicate effectively and professionally with a variety of stakeholders of engineering-related projects. It builds upon the language and communication skills covered in GUR language training subjects.

The study approach is primarily seminar-based. Seminar activities include instructor input as well as individual and group work, involving drafting and evaluating texts, mini-presentations, discussions and simulations.

The learning and teaching activities in the subject will focus on a course-long project which will engage students in proposing and reporting on an engineering-related project to different intended readers/audiences. During the course, students will be involved in:
- planning and researching the project
- writing project-related documents such as project proposals and reports
- giving oral presentations to intended stakeholders of the project</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td></td><td></td><td></td></tr>
<tr><td>1. Project proposal in Chinese</td><td>60%</td><td>✓</td><td></td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>2. Oral presentation of project proposal</td><td>40%</td><td></td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The assessments will arise from the course-long engineering-related project.
Students will be assessed on written documents and oral presentations targeted at different intended readers/audiences. This facilitates assessment of students' ability to select content and use language and</td></tr>
</table>

<table>
<tr><td></td><td colspan="2">style appropriate to the purposes and intended readers/audiences.
• Students will collaborate in groups in planning, researching, discussing and giving oral presentations on the project. The written proposals will be individual work to ensure that students will be rigorously engaged in the application of language skills for the entire document.</td></tr>
<tr><td rowspan="5">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Seminars</td><td>26 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Researching, planning, writing, and preparing the project</td><td>44 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>70 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="2">a) 司有和 (1984) ：《科技寫作簡明教程》，安徽教育出版社。
b) 葉聖陶、呂叔湘、 朱德熙、 林燾 (1992)：《文章講評》 語文出版社。
c) 于成鯤主編（2003）：《現代應用文》，復旦大學出版社。
d) 岑紹基、謝錫金、祈永華 (2006) ：《應用文的語言・語境・語用》，香港教育圖書公司。
e) 邵敬敏主編 (2010) ：《現代漢語通論 (第二版)》，上海教育出版社。
f) 于成鯤、陳瑞端、秦扶一、金振邦主編 (2010)：《中國現代應用文寫作規範叢書：科教文與社交文書寫作規範》，復旦大學出版社。
g) 香港特別行政區政府教育局・課程發展處中國語文教育組 (2012) ：《常用字字形表》，政府物流服務署印。</td></tr>
</table>

Subjects offered by
English Language Centre

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	ELC1011
Subject Title	Practical English for University Studies
Credit Value	3
Level	1
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject aims to develop and enhance students' general proficiency and communication skills in English. A strong focus will be given to enhancing communicative competence and confidence in text structure, grammar, vocabulary, pronunciation and fluency.
Intended Learning Outcomes	Upon successful completion of the subject, students will be able to: a. produce short written texts in a university context using appropriate structures, vocabulary and tone b. analyse and select information from a range of text types in order to present content and views in a university context c. apply multimodal communication strategies (e.g. spoken, written, visual and aural) to present information and views for an academic audience To achieve the above outcomes, students are expected to use language and text structure appropriate to the context, select information critically, and present their views logically and coherently.
Subject Synopsis/ Indicative Syllabus	1. Written communication Enhancing the use of accurate and appropriate grammatical structures and vocabulary for various communicative purposes; improving the ability to organise written texts logically; and improving cohesion and coherence in writing. 2. Spoken communication Developing verbal and non-verbal interaction strategies appropriate to the context and level of formality. 3. Reading and listening Understanding the content and structure of information delivered in written and spoken texts; developing effective reading and listening strategies. 4. Language development Improving and extending relevant features of grammar, vocabulary, pronunciation and fluency.

<table>
<tr><td></td><td>5. Multimodal communication
Developing the application of multimodal communication strategies; using a range of media and modes to present information and opinions</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The study method is a combination of seminar, self-access work and online learning. Following a blended delivery approach, activities include teacher input as well as in- and out-of-class individual and group work involving drafting of texts, information search, mini-presentations and discussions. Students will make use of elearning resources and web-based work to improve their grammar and vocabulary, and other language skills.

Learning materials developed by the English Language Centre are used throughout the course. Students will be referred to learning resources on the Internet and in the ELC’s Centre for Independent Language Learning. Additional reference materials will be recommended as required.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="3">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td></tr>
<tr><td>1. Paragraph writing</td><td>20%</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>2. Essay writing</td><td>40%</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>3. Documentary presentation</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="3"></td></tr>
</table>

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

The paragraph writing test, which assess students’ grammar, vocabulary and paragraph organisation skills, necessitates achievement of LOs (a) and (b).

The essay writing assessment evaluates students' ability to write a longer text ~~in~~ using accurate and appropriate structures and vocabulary (ref. LOs (a) and (b)).

The documentary presentation assesses students’ ability to speak accurately, appropriately and confidently. Students will research a topic, organise information from a variety of sources, and deliver the information as a digital documentary and mini-presentation (ref. LOs (a), (b) and (c)).

Students are required to complete further language training outside the class through-face-to-face initiatives and online tasks which are aligned with all the three LOs and correspond to their learning in class.</td></tr>
<tr><td>Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td></td><td>▪ Seminar</td><td>39 Hrs.</td></tr>
<tr><td></td><td>Other student study effort:</td><td></td></tr>
</table>

	▪ Self-study/preparation	78 Hrs.
	Total student study effort	117 Hrs.

Reading List and References	*Course material* Learning materials developed by the English Language Centre *Recommended references* Boyle, J. & Boyle, L. (1998). *Common Spoken English Errors in Hong Kong*. Hong Kong: Longman. Brannan, B. (2003). *A writer's workshop: Crafting paragraphs, building essays (3rd ed.)*. Boston: McGraw-Hill. Hancock, M. (2003). *English pronunciation in use*. Cambridge: Cambridge University Press. Nettle, M. and Hopkins, D. (2003). *Developing grammar in context: Intermediate*. Cambridge: Cambridge University Press. Redman, S. (2003). *English vocabulary in use: Pre-intermediate and intermediate*. Cambridge: Cambridge University Press. Powell, M. (2011). *Presenting in English. How to get successful presentations.* USA. Heinle & Heinle Publishers.

June 2022

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	ELC1012/ELC1013
Subject Title	English for University Studies (This subject will be offered in two versions for students who will primarily be using (1) APA/Harvard referencing styles or (2) IEEE/Vancouver referencing styles in their university studies.)
Credit Value	3
Level	1
Pre-requisite / Co-requisite/ Exclusion	Students entering the University with Level 3-5** from the HKDSE will be required to take this course.
Objectives	This subject aims to help students study effectively in the University's English medium learning environment, and to improve and develop their English language proficiency within a framework of university study contexts.
Intended Learning Outcomes	Upon successful completion of the subject, students will be able to: a. refer to sources in written texts and oral presentations b. paraphrase and summarise materials from written and spoken sources c. plan, write and revise expository essays with references to sources d. deliver effective oral presentations To achieve the above outcomes, students are expected to use language and text structure appropriate to the context, select information critically, and present information logically and coherently.
Subject Synopsis/ Indicative Syllabus	1. Written communication Analysing and practising common writing functions; improving the ability to write topic sentences and strategies for paragraph development; understanding common patterns of organisation in expository writing; taking notes from written and spoken sources; practising summarising and paraphrasing skills; improving coherence and cohesion in writing; developing revision and proofreading skills. 2. Spoken communication Recognising the purposes of and differences between spoken and written communication in English in university study contexts; identifying and practising the verbal and non-verbal interaction strategies in oral presentations; developing and applying critical thinking skills to discussions of issues. 3. Language development Improving and extending relevant features of grammar, vocabulary and pronunciation.

Teaching/Learning Methodology

The study method is primarily seminar-based. Following a blended delivery approach, activities include teacher input as well as in- and out-of-class individual and group work involving drafting and evaluating texts, mini-presentations, discussions and simulations. The process approach to writing is adopted, and students make use of elearning resources to engage in academic discussions and to reflect on their learning.

Learning materials developed by the English Language Centre are used throughout the course. Students will be referred to learning resources on the Internet and in the ELC's Centre for Independent Language Learning. Additional reference materials will be recommended as required.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)			
		a	b	c	d
1. Academic essay 1	25%	✓	✓	✓	
2. Academic essay 2	35%	✓	✓	✓	
3. Oral presentation	40%	✓	✓		✓
Total	100 %				

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

Assessments 1 and 2 necessitate achievement of LOs (a), (b) and (c) in order to write an effective academic essay via the process of extending and improving the essay for assessment 1. In order for students to present an effective academic oral presentation, as demanded in assessment 3, they will need to read, note and synthesise from a variety of sources, and refer to those sources in their presentation (ref. LOs (a), (b) and (d)).

In addition to these assessments, students are required to complete further language training, through web-based language work, reading tasks and online reflections. The additional language training offered in online tasks is aligned with all the four LOs. In some of the tasks, students critically read and summarise information contained in a variety of sources, as required in LOs (a) and (b).

Student Study Effort Expected

Class contact:	
▪ Seminars	39 Hrs.
Other student study effort:	
▪ Self study/preparation	78 Hrs.
Total student study effort	117Hrs.

Reading List and References

Course material

Learning materials developed by the English Language Centre

	Recommended references ▪ Bailey, S. (2014). *Academic writing: a handbook for international students*. Abingdon: Routledge. ▪ Comfort, J. (2001). *Effective presentations.* Oxford: Cornelsen & Oxford University Press. ▪ Hung, T. T. N. (2005). *Understanding English grammar: A course book for Chinese learners of English*. Hong Kong: Hong Kong University Press. ▪ Tang, R. (2012). *Academic writing in a second or foreign language: Issues and challenges facing ESL/EFL academic writers in higher education contexts*. London: Continuum International Pub. ▪ Zwier, L. J. (2002). *Building academic vocabulary.* Ann Arbor, MI: University of Michigan Press.

Updated: July 2022

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	ELC2011
Subject Title	Advanced English Reading and Writing Skills
Credit Value	3
Level	2
Pre-requisite / Co-requisite	Pre-requisite: ELC1012 / ELC1013 English for University Studies
Objectives	This subject aims to help students become more effective readers and writers. It focuses on developing students' facility to read a variety of texts in a critical manner, both intensively and extensively; and to write texts that demonstrate knowledge and insight.
Intended Learning Outcomes	Upon successful completion of the subject, students will be able to examine a variety of texts, including literary texts, and: a. reflect on and critically analyze texts of different genres and styles, identifying the writer's aims and stance b. identify and evaluate language used to make claims and support these with valid arguments c. write a text on a chosen topic that includes their opinion and interpretation of some key issues and demonstrates critical thinking and creativity
Subject Synopsis / Indicative Syllabus	Reading strategies Reading extensively to appreciate the use of language, acquire information, promote understanding, and develop empathy. Reading intensively to investigate a particular topic and develop an in-depth understanding of issues and stances. Reading critically to extract implications, identify writers' assumptions and purposes, and analyze issues raised in texts written from different perspectives. Writing strategies Describing and analyzing the structure, meaning and characteristics of a variety of texts. Presenting views and arguments to educated readers with sophisticated language and appropriate visual images and formats.
Teaching/Learning Methodology	The study method is primarily seminar-based. Following a blended learning approach, activities include teacher input as well as in- and out-of-class work involving sharing and discussion of reading experiences; and reading, evaluating and drafting texts. The process approach to writing is adopted, and students make use of e-learning resources to engage in discussions and to reflect on their learning. Learning materials developed by the English Language Centre are used throughout the course. Students will be referred to learning resources on the Internet and in the ELC's Centre for Independent Language Learning. Additional reference materials will be recommended as required.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)		
		a	b	c
1. Analyzing genres of writing	30%	✓	✓	
2. Reflective writing	30%	✓		
3. Feature article writing	40%			✓
Total	100%			

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

Assessment 1 requires students to employ effective critical reading and thinking skills to interpret texts, identify the writer's style and stance, and evaluate the choice of language used; and is aligned with ILOs (a) and (b). Assessment 2 requires students to write a reflection after reading a range of literary genres and sharing their ideas in class; and is aligned with ILO (a). Assessment 3 requires students to first conduct research and gain some insight into a particular topic, then produce an article which can inform and impress readers through its substance, structure and language; and is aligned with ILO (c). Through these assessments, students will be able to develop and demonstrate more advanced reading and writing skills.

Student Study Effort Expected

Class contact:	
Seminars	39 Hrs.
Other student study effort:	
Online forums and blogs Readings and sharing session preparation Research and drafting/revising of texts	78 Hrs.
Total student study effort:	117 Hrs.

Reading List and References

Course material

Learning materials developed by the English Language Centre

Recommended references

Best, J. (2012). *Damned lies and statistics: Untangling numbers from the media, politicians, and activists.* Berkeley, CA: University of California Press.

Cooper, S. & Patton, R. (2015). *Writing logically, thinking critically* (8th ed.). Boston, MA: Pearson.

Damer, T. E. (2013). *Attacking faulty reasoning: A practical guide to fallacy-free arguments* (7th ed.). Boston, MA: Wadsworth Cengage Learning.

Kennedy, X. J. & Gioia, D. (2016). *Literature: An introduction to fiction, poetry, drama, and writing* (13th ed.). Boston, MA: Pearson.

	Metcalfe, M. (2006). *Reading critically at university.* London: Sage.

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	ELC2012
Subject Title	Persuasive Communication
Credit Value	3
Level	2
Pre-requisite / Co-requisite/ Exclusion	Pre-requisite: ELC1012 or ELC1013 English for University Studies
Objectives	This subject aims to help students become more persuasive communicators in a variety of contexts that they may encounter at university and in the workplace.
Intended Learning Outcomes *(Note 1)*	By the end of the subject, students should be able to communicate effectively in an English-medium environment through: a. writing persuasive texts intended for a variety of audiences b. communicating persuasively in oral contexts c. making persuasive arguments in formal discussions To achieve these, students are expected to use language and text structure appropriate to the context, select information critically, and present and support stance and opinion.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	1. Preparing for effective persuasion Assessing the situation; selecting relevant content; organising ideas and information; selecting an appropriate tone, distance and level of formality to support the communication of messages. 2. Persuasion through writing Developing and practising appropriate language, tone, style and structure; achieving cohesion and coherence. 3. Persuasion through speaking Developing and practising appropriate verbal and non-verbal skills for persuasive oral communication; improving and extending relevant pronunciation features, including articulation, pausing, intonation, word stress and sentence stress.
Teaching/Learning Methodology *(Note 3)*	The study method is primarily seminar-based. Activities include teacher input as well as individual and group work involving reading and appreciating texts, discussions and presentations of ideas. Learning materials developed by the English Language Centre are used

<table>
<tr><td></td><td>throughout the course. Students will be referred to learning resources on the Internet and in the ELC's Centre for Independent Language Learning. Additional reference materials will be recommended as required.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes

(Note 4)</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td></td><td></td><td></td></tr>
<tr><td>1. Speech</td><td>30%</td><td></td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. Persuasive written text</td><td>40%</td><td>✓</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>3. Debate</td><td>30%</td><td></td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>

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

Assessment 1 is an individual speech. Assessment 2 concentrates on persuasive writing. Assessment 3 examines a different aspect of persuasion, the debate.</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Seminars</td><td>39 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self study/preparation</td><td>78 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>117 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>Required readings

ELC-provided subject materials.

Recommended references

Breaden, B. L. (1996). Speaking to persuade. Fort Worth, TX: Harcourt Brace College.

Covino, W.A. (1998). The elements of persuasion. Boston: Allyn and Bacon.

Edwards, R. E. (2008). Competitive debate: The official guide. New York: Alpha Books.

Leanne, S. (2008). Say it like Obama: The power of speaking with purpose and vision. New York: McGraw Hill.

Rogers, W. (2007). Persuasion: messages, receivers, and contexts. Lanham, MD: Rowman & Littlefield Publishers.

Stiff, J. B. (2003). Persuasive communication (2nd ed.). New York: Guilford</td></tr>
</table>

	Press.

Appendix to C4
Form AS 140

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	ELC2013
Subject Title	English in Literature and Film
Credit Value	3
Level	2
Pre-requisite / Co-requisite/ Exclusion	Pre-requisite: English for University Studies (ELC1012/1013)
Objectives	This subject aims to to introduce students to a range of literary genres in English as well as to enable them to consider differences in media representations of genres, and to appreciate and negotiate the meanings of a variety of literary texts. It is also intended that the subject will help students further develop literacy, as well as higher order thinking and life-long learning skills.
Intended Learning Outcomes *(Note 1)*	Upon successful completion of the subject, students will be able to: a. examine and analyse literary texts from different perspectives b. discuss literacy techniques employed by writers c. appreciate and articulate differences in textual and visual media representations To achieve the above outcomes, students are expected to use language and text structure appropriate to the context, select information critically, and present and support stance and opinion.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	1. Written communication Describing and interpreting content and language in literary texts; employing appropriate grammatical structures and vocabulary. 2. Spoken communication Presenting critical evaluation of literary works effectively and convincingly. 3. Reading Developing understanding of and competence in using literary devices such asmetaphor, simile and symbolism, via reading literary texts and viewing film versions. 4. Language development Improving fluency and pronunciation, and extending grammatical and lexical competence.

<table>
<tr><td>Teaching/Learning Methodology

(Note 3)</td><td>The study method is primarily seminar-based. Following a blended delivery approach, activities include teacher input as well as in- and out-of-class individual and group work involving listening to and viewing a variety of audio-visual sources, reading and drafting texts, conducting internet research, making mini-presentations, participating in discussions, and comparing various representations of literature. Students will make use of elearning resources and web-based work to further improve their English literacy skills.

Learning materials developed by the English Language Centre are used throughout the course. Students will be referred to learning resources on the Internet and in the ELC's Centre for Independent Language Learning. Additional reference materials will be recommended as required.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes

(Note 4)</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="3">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td></tr>
<tr><td>1. Individual Essay</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Group Presentation</td><td>30%</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>3. Individual Project</td><td>30%</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="3"></td></tr>
</table>

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

In assessment 1, students are required to write an individual paper in which they critically reflect on their reading of prose, and by so doing, demonstrate their achievement of LO (a). Assessments 2 and 3 are aligned with all three LOs.
Assessment 2 assesses students' understanding of a literary drama and requires comparison of the merits of its textual and theatrical versions. Assessment 3 isan individual project that requires interpretation and presentation of more creative literature and audio-visual sources.</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Seminars</td><td>39 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self study/preparation</td><td>78 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>117 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>Recommended reading
The PolyU library retains either hardcopies or electronic copies of the followingtitles. The titles can also be found online.

Stam, R., and Raengo, A. (eds.). (2004). A companion to literature and film.[electronic source] Blackwell reference online. Malden: Blackwell.
Call number PN1995.3.C65 2004eb
http://www.blackwellreference.com/subscriber/uid=262/book?id=g9780631</td></tr>
</table>

	230533_9780631230533&authstatuscode=202 Other readings will be specified by the ELC teacher, and may contain short fiction, novelettes, plays and poetry.

June 2022

The Hong Kong Polytechnic University

Subject Description Form

Please read the notes at the end of the table carefully before completing the form.

Subject Code	ELC2014
Subject Title	Advanced English for University Studies
Credit Value	3
Level	2
Pre-requisite/ Co-requisite/ Exclusion	Pre-requisite: English for University Studies (ELC1012/ELC1013) (unless exempted)
Objectives	This subject aims to help students study effectively in the University's English medium learning environment, and to improve and develop their English language proficiency within a framework of university study contexts.
Intended Learning Outcomes *(Note 1)*	Upon successful completion of the subject, students will be able to: a) research relevant academic texts for a topic and integrate the sources into a position argument essay appropriately and effectively; b) plan, research for, write and revise a position argument essay; and c) present and justify views effectively in a mini oral defence. To achieve the above outcomes, students are expected to use language and text structure appropriate to the context, select information critically, and present and support stance and opinion logically and persuasively.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	1. Written communication Developing logical and persuasive arguments; applying a variety of organisation patterns in discursive writing, including the writing of explanatory and evaluative texts; selecting information from academic texts critically; supporting stance; maintaining cohesion and coherence in discursive writing; achieving appropriate style and tone. 2. Spoken communication Enhancing and practising the specific oral and aural skills required to participate effectively in an academic discussion and to present and justify views in an oral defence. 3. Reading and listening Understanding the content and structure of information in oral and written texts; comprehending, inferring and evaluating messages and attitude. 4. Language development Improving and extending relevant features of grammar, vocabulary and pronunciation.

Teaching/Learning Methodology

(Note 3)

The study method is primarily seminar-based. Following a blended delivery approach, activities include teacher input as well as in- and out-of-class individual and group work involving drafting and evaluating texts, mini-presentations, discussions and simulations. The process approach to writing is adopted, and students make use of elearning resources to engage in academic discussions and to reflect on their learning.

Learning materials developed by the English Language Centre are used throughout the course. Students will be referred to learning resources on the Internet and in the ELC's Centre for Independent Language Learning. Additional reference materials will be recommended as required.

Assessment Methods in Alignment with Intended Learning Outcomes

(Note 4)

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)		
		a	b	c
1. Position Argument Essay (draft)	20%	✓	✓	
2. Academic Presentation & discussion	35%	✓		✓
3. Position Argument Essay (final)	45%	✓	✓	
Total	100 %			

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

Assessments 1 and 3 assess students' abilities to produce a coherent academic text which requires research, and effective use and referencing of sources (ref. LOs (a) and (b)). Assessment 2 assesses their abilities to plan, present and justify their views in an oral defence (ref. LOs (a) and (c)).

In addition to their assessments, students complete further language training by carrying out academic research and by completing a variety of independent-learning tasks focussing on grammar and academic skills such as paraphrasing and discussion strategies.

Student Study Effort Expected

Class contact:	
▪ Seminars	39 Hrs.
Other student study effort:	
▪ Self study/preparation	78 Hrs.
Total student study effort	117 Hrs.

Reading List and References	*Course material* Learning materials developed by the English Language Centre *Recommended references* Davies, B. (2012). *Reading research: A user friendly guide for health professionals* (5th ed.). Toronto, ON: Elsevier Canada. Faigley, L. (2012). *Backpack writing: Reflecting, arguing, informing, analyzing, evaluating* (3rd ed.). Boston, MA: Pearson. Madden, C. and Rohlck, T. N. (1997). *Discussion and interaction in the academic community*. Ann Arbor, MI: University of Michigan Press. McWhorter, K. T. (2007). *Academic reading* (6th ed.). New York, NY: Pearson/Longman Oshima, A. & Hogue, A. (2006). *Writing academic English* (4th ed.). White Plains, NY: Pearson/Longman. Reinhart, S. M. (2013). *Giving academic presentations* (2nd ed.). Ann Arbor, MI: University of Michigan Press. Rost, M. (2013). *Active listening.* Harlow, England: Pearson. Wood, N. V. (2012). *Perspectives on argument* (7th ed.). Boston, MA: Pearson.

Note 1: Intended Learning Outcomes
Intended learning outcomes should state what students should be able to do or attain upon subject completion. Subject outcomes are expected to contribute to the attainment of the overall programme outcomes.

Note 2: Subject Synopsis/Indicative Syllabus
The syllabus should adequately address the intended learning outcomes. At the same time, overcrowding of the syllabus should be avoided.

Note 3: Teaching/Learning Methodology
This section should include a brief description of the teaching and learning methods to be employed to facilitate learning, and a justification of how the methods are aligned with the intended learning outcomes of the subject.

Note 4: Assessment Method
This section should include the assessment method(s) to be used and its relative weighting, and indicate which of the subject intended learning outcomes that each method is intended to assess. It should also provide a brief explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes.

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	ELC3531
Subject Title	Professional Communication in English for Engineering Students
Credit Value	2
Level	3
Pre-requisite / Co-requisite	English LCR subjects
Objectives	This subject aims to develop the language competence for professional communication in English required by students to communicate effectively with various parties and stakeholders in regard to engineering-related project proposals.
Intended Learning Outcomes	Upon completion of the subject, and in relation to effective communication with a variety of intended readers/audiences in English, students will be able to: d. plan, organise and produce professionally acceptable project proposals with appropriate text structures and language for different intended readers e. plan, organise and deliver effective project-related oral presentations with appropriate interactive strategies and language for different intended audiences f. adjust the style of expression and interactive strategies in writing and speaking in accordance with different intended readers/audiences
Subject Synopsis / Indicative Syllabus	1. Project proposal in English • Planning and organising a project proposal • Explaining the background, rationale, objectives, scope and significance of a project • Referring to the current situation or existing literature to substantiate a project proposal • Describing the methods of study • Describing and discussing anticipated project results and (if applicable) results of a pilot study • Presenting the budget, schedule and (if applicable) method of evaluation • Writing an executive summary 2. Oral presentation of project proposal in English • Selecting content for an audience-focused presentation • Choosing language and style appropriate to the intended audience • Using appropriate transitions and maintaining coherence in a team presentation • Using effective verbal and non-verbal interactive strategies

Teaching/Learning Methodology	The subject is designed to develop the English language skills, both oral and written, that students need to use to communicate effectively and professionally with a variety of stakeholders of engineering-related projects. It builds upon the language and communication skills covered in GUR language training subjects. The study approach is primarily seminar-based. Seminar activities include instructor input as well as individual and group work, involving drafting and evaluating texts, mini-presentations, discussions and simulations. The learning and teaching activities in the subject will focus on a course-long project which will engage students in proposing and reporting on an engineering-related project to different intended readers/audiences. During the course, students will be involved in: • planning and researching the project • writing project-related documents such as project proposals • giving oral presentations to intended stakeholders of the project

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c			
1. Project proposal in English	40%	✓		✓			
2. Oral presentation of project proposal in English	60%		✓	✓			
Total	100%						

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

The assessments will arise from a course-long engineering-related project. Students will collaborate in groups in planning, researching, discussing and giving oral presentations on the project. They will be assessed on written documents and oral presentations targeted at different intended readers/audiences. This facilitates assessment of students' ability to select content and use language and style appropriate to the purposes and intended readers/audiences.

Assessment type	Intended readers/audience	Timing
1. Project proposal in English Each team writes a proposal of 2000-2500 words; and each member writes a report of 200-250 words explaining his/her contribution to the project	Mainly engineering experts	Week 8
2. Oral presentation of project proposal in English Each team delivers a speech (30 minutes for a team of four), simulating a presentation of the final proposal	Mainly non-experts	Weeks 12-13

Student Study Effort Expected

Class contact:	
Seminars	26 Hrs.
Other student study effort:	
Researching, planning and writing the project Rehearsing the presentation	52 Hrs.
Total student study effort:	78 Hrs.

Reading List and

References	1. D. F. Beer, Ed., *Writing and Speaking in the Technology Professions: A practical guide*, 2nd ed. Hoboken, NJ: Wiley, 2003. 2. R. Johnson-Sheehan, *Writing Proposals,* 2nd ed. New York: Pearson/Longman, 2008. 3. S. Kuiper and D. Clippinger, *Contemporary Business Reports*, 5th ed. Mason, OH: South-Western, 2013. 4. M. H. Markel, *Practical Strategies for Technical Communication*. New York: Bedford/St. Martin's, 2016. 5. D. C. Reep, *Technical Writing: Principles, strategies, and readings*, 8th ed. Boston: Pearson/Longman, 2011. 6. E. D. Zanders and L. Macleod, *Presentation Skills for Scientists: A practical guide*, 2nd ed. Cambridge: Cambridge University Press, 2018.

Subjects offered by
Faculty of Engineering

Subject Description Form

Subject Code	ENG2003
Subject Title	Information Technology
Credit Value	3
Level	2
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	To provide the foundation knowledge in internet applications, computer networks, and database management that is essential to modern information system design
Intended Subject Learning Outcomes	Upon completion of the subject, students will be able to: Category A: Professional/academic knowledge and skills 1. Understand the functions and features of modern computing systems. 2. Understand the client-server architecture and be able to set up multiple internet applications. 3. Understand the principles of computer networks and be able to set up simple computer networks. 4. Understand the basic structure of a database system and be able to set up a simple database system. Category B: Attributes for all-roundedness 1. Solve problems using systematic approaches.
Subject Synopsis/ Indicative Syllabus	**Syllabus:** 1. Introduction to computers Introduction to information technology using Internet of Things as a real life example. Introduction to modern computing systems. 2. Computer Networks Introduction to computer networks (Client-Server Architecture). Study different internet applications (HTTP/FTP/DNS). Explain basic concepts on packet routing (Data Encapsulation/IP Addressing/Functions of Routers). Introduction to basic network security measures. 3. Introduction to data processing and information systems Database systems – architecture, relational database concept, structural query language (SQL), database management systems, Web and database linking, database application development. Introduction to Information systems. Workflow management. Case study: Database design, implementation and management.

<table>
<tr><td>Teaching/Learning Methodology</td><td>There will be a mix of lectures, tutorials, and laboratory sessions/workshops to facilitate effective learning. Students will be given case studies to understand and practice the usage of modern information systems.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><th colspan="2" rowspan="2">Specific assessment methods/tasks</th><th rowspan="2">% weighting</th><th colspan="5">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th></tr>
<tr><th>A1</th><th>A2</th><th>A3</th><th>A4</th><th>B1</th></tr>
<tr><td>1.</td><td>Quizzes (in tutorials)</td><td>3%</td><td>√</td><td>√</td><td>√</td><td></td><td>√</td></tr>
<tr><td>2.</td><td>Quizzes (in lectures)</td><td>14%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3.</td><td>Workshops</td><td>14%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>4.</td><td>Mid-term Test</td><td>11%</td><td>√</td><td>√</td><td>√</td><td></td><td>√</td></tr>
<tr><td>5.</td><td>Assignment</td><td>8%</td><td></td><td></td><td></td><td>√</td><td>√</td></tr>
<tr><td>6.</td><td>Examination</td><td>50%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td colspan="2">Total</td><td>100 %</td><td colspan="5"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The assessment methods include an end-of-subject 2-hour written examination (total 50%) and other assessment methods (total 50%), including quizzes, a mid-term test, workshops, and an assignment, which cover intended subject learning outcomes A1, A2, A3, A4, and B1.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>• Lectures (18), tutorials (6), and workshops (15)</td><td>39 Hours</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>• Workshops preparation (6/workshop)</td><td>30 Hours</td></tr>
<tr><td>• Self study (3/week)</td><td>39 Hours</td></tr>
<tr><td>Total student study effort</td><td>108 Hours</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>

1. B. Williams and S. Sawyer, Using Information Technology: A Practical Introduction to Computers and Communications, 11th ed., McGraw-Hill, 2014.
2. J. F. Kurose and K. W. Ross, Computer Networking: A Top-Down Approach, 7th ed., Pearson, 2016.
3. D. E. Comer, Computer Networks and Internets, 6th ed., Pearson, 2015.
4. B. A. Forouzan, TCP/IP Protocol Suite, 4th ed., Tmh, 2010.
5. W. Stalling, Data and Computer Communications, 10th ed., Pearson, 2013.
6. S. Morris and C. Coronel, Database Systems: Design, Implementation, and Management, 11th Edition, Course Technology, 2014.
7. M. Mannino, Database Design, Application Development, & Administration. 6th ed., Chicago Business Press, 2014.

</td></tr>
</table>

Subject Description Form

Subject Code	ENG3004
Subject Title	Society and the Engineer
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject is designed for engineering students as a complementary subject on the role of the professional engineer in practice and their responsibilities toward the profession, colleagues, employers, clients, and the public. The objectives of the subject are to enable students to 1. appreciate the historical context of modern technology and the nature of the process whereby technology develops and the relationship between technology and the environment, as well as the implied social costs and benefits; 2. understand the social, political, legal, and economic responsibilities and accountability of the engineering profession and the organizational activities of professional engineering institutions; 3. be aware of the short-term and long-term effects related to safety and health, and the environmental impacts of technology; 4. observe professional conduct, as well as the legal and other applicable constraints, related to various engineering issues; and 5. develop a strong vision to optimize their contribution to sustainable development.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. identify and evaluate the effects of technology as it applies to the social, cultural, economic, legal, health, safety, and environmental dimensions of society; b. explain the importance of local and international professional training, professional conduct and ethics, and responsibilities in various engineering disciplines, particularly the Washington Accord; c. evaluate and estimate, in a team setting, the impact of contemporary issues, planned projects, and unforeseen technological advances related to engineers; effectively communicate and present the findings to laymen and peers.
Subject Synopsis/ Indicative Syllabus	1. <u>Impact of Technology on Society</u> Historical cases and trends of technological innovation explored through their impact on social and cultural developments of civilization and their

	commonalities. 2. <u>Environmental Protection and Related Issues</u> Roles of the engineer in energy conservation, ecological balance, and sustainable development. 3. <u>Global Outlook for Hong Kong's Economy and Industries</u> Support organizations, policies and their impacts on industrial and economic development in Greater China, the Pacific Rim, and the world. 4. <u>Regulatory Organizations and Compliance</u> Discussion of engineer's responsibilities within different regulatory frameworks and environments; Examples from various entities such as the Labor Department and the Occupational Health and Safety Council; Legal dimensions to engineering such as liability, contract law, and industrial legislation. 5. <u>Professional Institutions</u> Local and overseas professional institutions; Washington Accord and the qualifications and criteria of professional engineers. 6. <u>Professional Ethics</u> Prevention of bribery and corruption; The work of the Independent Commission Against Corruption (ICAC); Social responsibilities of engineers.
Teaching/Learning Methodology	Class comprises short lectures to provide essential knowledge and information on the relationships between society and the engineer under a range of dimensions. Other methods include in-class discussions, case studies, and seminars to develop students' in-depth analysis of the relationships. Each student will submit two assignments based on their weekly learning activities, which will be part of the subject's evaluation. The assignments will deal with important issues of social, cultural, economic, legal, health, safety, and environmental dimensions of society. Students are assembled into groups; throughout the course, they will work on engineering cases by completing the following learning activities: 1. Case analysis where students explore the relationships between society and the engineering issues of a project under specific dimensions; 2. Construction and assembly of a case portfolio which includes i. Presentation slides ii. Feedback critiques iii. Individual Reflections 3. Final oral presentation

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed		
		a	b	c
1. Continuous assessment	70%			
• Group weekly learning activities	(20%)	✓	✓	✓
• Individual Assignments (2)	(20%)	✓	✓	
• Individual final presentation	(15%)	✓	✓	
• Individual reflection statement	(5%)	✓	✓	
• Group project	(10%)	✓	✓	✓
2. Take-home Assignment	30%	✓	✓	
Total	100%			

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

The coursework requires students to work in groups to study cases from the perspectives of the eight dimensions in an engineering setting. Based on these exercises, students' ability to apply and synthesize acquired knowledge can be assessed through their performance during groups' discussion, oral presentations, and the quality of their portfolio reports on the case studies.

The take-home assignment is used to assess students' critical thinking and problem-solving skills when working on their own and give students more time and flexibility to complete an assignment. It provides students the opportunity to review and extend what they have learnt in class and to check their understanding and progress.

Student Study Effort Expected

Class contact:	
▪ Lectures and review	27 Hrs.
▪ Presentation	12 Hrs.
Other student study efforts:	
▪ Research and preparation	55 Hrs.
▪ Report and Assignments writing	25 Hrs.
Total student study effort	119 Hrs.

Reading List and References	**Reference Books & Articles:** 1. Education for Sustainable Development - An Expert Review of Processes and Learning, UNESCO, 2011 2. Poel, Ibo van de, and Lambèr M. M. Royakkers. Ethics, Technology, and Engineering : an Introduction. Wiley-Blackwell, 2011 3. Engineering-Issues, Challenges and Opportunities for Development, USECO, 2010 4. Engineering for Sustainable Development: Guiding Principles, Royal Academy of Engineering, 2005 5. Securing the future: delivering UK sustainable development strategy, 2005 6. Johnston, F S, Gostelow, J P, and King, W J, 2000, *Engineering and Society Challenges of Professional Practice*, Upper Saddle River, N.J.: Prentice Hall 7. Hjorth, L, Eichler, B, and Khan, A, 2003, *Technology and Society A Bridge to the 21st Century*, Upper Saddle River, N.J.:Prentice Hall 8. The Council for Sustainable Development in Hong Kong, http://www.enb.gov.hk/en/susdev/council/ 9. Poverty alleviation: the role of the engineer, http://publications.arup.com/publications/p/poverty_alleviation_the_role_of_the_engineer **Reading materials:** Engineering journals: - Engineers by The Hong Kong Institution of Engineers - Engineering and Technology by The Institution of Engineers and Technology Magazines: Time, Far East Economic Review Current newspapers: South China Morning Post, China Daily, Ming Pao Daily

(revised) July 2021

Subject Description Form

Subject Code	ENG4001
Subject Title	Project Management
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject provides students with knowledge in: 1. project management tools in business organizations, taking into account the time-cost relationships, resources, processes, risks, the project life cycle, organization, and management principles; 2. project management methodologies and their application; 3. choosing project variables for effective project management; and 4. various developments of project management.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. demonstrate good understanding of definition of a project, the characteristics and project life cycle; b. identify appropriate project variables and practices that are applicable to engineering projects; c. perform project planning, cost/resources estimation, evaluate and monitor of project progress; and d. propose project management solutions, taking into consideration the project objectives and constraints.
Subject Synopsis/ Indicative Syllabus	1. <u>Project Overview, Management Principles, and the Systems Approach</u> Characteristics of projects and project management. Management principles. Project organization. Team development. Systems concepts and principles. Conflict management. 2. <u>Project Methodologies and Planning Techniques</u> Constraints: time, cost, and technical performance. Work breakdown structure. Management of scope. Scheduling tools: Gantt charts, network analysis techniques, time-phased networks, CPA, PERT, and resource smoothing. 3. <u>Cost Estimation and Cost Control for Projects</u> Types of estimates. Budgeting project costs. Experience curve. Cost schedules and forecasts. Cost control systems. 4. <u>Evaluation and Control of Projects</u> Earned value measurement system. Managing project risks. Status reporting. Project closeout and termination.

Teaching/Learning Methodology

A mixture of lectures, tutorial exercises, case studies, and laboratory work are used to deliver the various topics in this subject. Some material is covered using a problem-based format where this advances the learning objectives. Other material is covered through directed study to enhance the students' "learning to learn" ability. Some case studies are from best practices of projects, based on a literature review. They are used to integrate the topics and demonstrate to students how the various techniques are interrelated and applied in real-life situations.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed			
		a	b	c	d
1. Tutorial exercises/ written report	10%		✓	✓	
2. Oral presentation	10%		✓	✓	
3. End Term Test	20%	✓	✓	✓	
4. Written examination	60%	✓	✓	✓	✓
Total	100%				

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

Continuous assessment (1), (2), and (3): Test, written reports, oral presentation, and tutorial exercises are used to assess students' understanding and application of the knowledge that they have learnt relative to learning outcomes (a), (b) and (c).

Written examination: questions are designed to assess learning outcomes (a), (b), (c), and (d).

Student Study Effort Expected

Class contact:	
▪ Lectures 3 hours/week for 9 weeks	27 Hrs.
▪ Tutorials / Case studies 3 hours/week for 4 weeks	12 Hrs.
	39 Hrs.
Other student study effort:	
▪ Preparation for assignments, short tests, and the written examination	79 Hrs.
Total student study effort	118 Hrs.

Reading List and References	1. Meredith, J. R., Shafer, S. M., Mantel Jr, S. J., 2017, *Project Management: a Strategic Managerial Approach*. John Wiley & Sons. 2. Kerzner, H. 2017, *Project Management: a Systems Approach to Planning, Scheduling, and Controlling,* John Wiley & Sons. 3. Project Management Institute, 2013, *A Guide to the Project Management Body of Knowledge (PMBOK® Guide),* Fifth Edition. 4. Smith, NJ (ed.) 2008. *Engineering Project Management*, Blackwell, Oxford

(Revised) June 2022

Subjects offered by
Department of Logistics and Maritime Studies

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT2009
Subject Title	Introduction to Shipping and Transport Logistics Operations
Credit Value	3
Level	2
Normal Duration	1-semester
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This is an introductory course, to develop necessary skills and knowledge for analyzing simple shipping and transport logistics operations, and to provide a foundation for advanced level courses in these subjects.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. Evaluate the suitability of different types of ships for specific cargo transportation requirements, by applying basic concepts of ship design and classification. b. Appraise how maritime geography (including common sea routes, navigation channels and geographic constraints) affects shipping operations. c. Be familiar with current developments in the shipping industry to a level that is adequate for continued self-enhancement of knowledge of the subject. d. Be familiar with ships, ports and maritime geography to a level that provides adequate foundation for advanced level courses in shipping and logistics.
Subject Synopsis/ Indicative Syllabus	**Basic Ship Design and Layout** Elementary ship design, construction and layout. An overview of different ship types (Bulk / Container carriers, tankers, specialist ships, passenger vessels). Propulsion systems, fuels. Tonnage measurement of ships. **Ship Stability and Safety** Ship stability and use of stability information. Load-line zones. Safety: navigational safety, fire safety, cargo safety, flooding, water tight compartments, safety systems.

	Vessel Operations Elementary navigation, navigation aids. Berthing, anchoring and mooring arrangements. Rules of the Road. Watch- keeping requirements, ship's crew composition and functions. Time zones and time differences, local time, standard time, UTC and International Date Line. **Cargo types** Characteristics of primary cargoes: container / bulk / hazardous cargoes, dangerous goods, deck cargoes, specialized cargoes. **Ports and operations** Ports and terminals, terminal design and equipment characteristics, harbor configurations, pilotage, port controls, tugs, water/fuel/refuse barges, bunkers, ship handling. **Cargo operations** Types of cargoes, cargo compartments, hatch covers, cargo planning, stowage, handling and preparation, measurement, shipboard and dock side cargo handling systems, venting and ballast systems. **Maritime Geography** Sea routes, navigable canals, waterways and geographic constraints. Draft and maneuverability limitations. **Voyage Planning** Passage planning, route selection, transit time, turn around, economical speed, operational speed. **Organization and Structure of Shipping** Role of shipping registers, classification societies and various international maritime and trade organizations. Different types of shipping companies including their structures and management. Coastal and foreign trade. Maritime conventions and rules. Customs, Quarantine. Introduction to selected maritime conventions (STCW, MARPOL, SOLAS, SAR and COLREGs. Maritime Zones.
Teaching/Learning Methodology	Lectures introduce and explain key concepts with appropriate examples. Tutorials give students an opportunity to enhance their understanding of concepts taught in lectures. Tutorials are highly interactive and include

<table>
<tr><td></td><td>discussions of current / past events, case studies and may include student presentations.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
<tr><td>Coursework</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Examination</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The coursework includes - Group Project 40%; Participation in class discussions/attendance 10%. Students would be given regular feedback on their performance, by email or as comments on assignments submitted.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorials</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self study</td><td>31 Hrs.</td></tr>
<tr><td>▪ Group project</td><td>60 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>130 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td><u>Compulsory</u>

Branch, Alan Edward & Robarts, Michael. (2014). Branch’s Elements of Shipping (9th Edition). Routledge, New York

(PolyU library call no: HE 571.B67 2014eb. Also available as eBook.)

Alderton, Patrick M. (2011). Reeds Sea Transport: Operation and Economics (6th edition). Adlard Coles Nautical, London.

<u>Supplementary</u>

Lun, Lai & Cheng. (2010). Shipping and Logistics Management. Springer; London, ISBN:978-1-84882-996-1, e-ISBN:978-1-84882-997-8.

<u>Indicative</u></td></tr>
</table>

	Karahalios, H. (2015). The Management of Maritime Regulations. Abingdon, Oxon; Routledge. *Lloyd's Practical Shipping Guides: Port Management and Operations* (2008), Informa, London *The Admiralty Manual of Navigation Volume I* (2008), The Nautical Institute, London

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT3102
Subject Title	Management Science
Credit Value	3
Level	3
Normal Duration	1-semester
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	To introduce to students the methodology of Management Science as a scientific approach to managerial decision making. To impart in students the concepts, theories and techniques of a variety of management science methods. To develop students' ability and confidence in the use of management science methods for solving management decision problems.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. Have basic knowledge of the principles, concepts and techniques in management science. b. Gain the basic technical and analytical skills for management science. c. Apply management science in a managerial context for management decision-making. Students are expected to be able to demonstrate a range of skills to solve problems in management science (**BBA Outcome 14**). These include: d. Critical thinking and analytical skills that include the capability to identify assumptions, evaluate statements, detect false logic and formulate problems. e. Effective problem solving and decision-making using appropriate analytical skills including identifying, formulating and solving problems in management science. f. Numeracy and quantitative skills including the use of models in management science.
Subject Synopsis/ Indicative Syllabus	The methodology of Management Science Linear Programming: model formulation, graphical solution for problems with two variables, computer solutions, sensitivity analysis

<table>
<tr><td></td><td>Assignment and Transportation Problems

Goal Programming

Integer Programming

Network Modeling: shortest route, maximal flow, minimum cost flow

Waiting Line Models</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Concepts and techniques will be introduced through lectures. In seminars students are required to apply their knowledge and skills to analyse and solve various management science problems. Use of relevant computer packages will be included.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td><td>f</td></tr>
<tr><td>1. Assignments</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Tests</td><td>30%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>3. Examination</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes: The assessment methods include assignments, tests, and examination. Problems will be set to test the students' performance with respect to the learning outcomes.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Seminars</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Assignments</td><td>27 Hrs.</td></tr>
<tr><td>▪ Revisions</td><td>60 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>126 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>J.D. Camm, J.J. Cochran, M.J. Fry, J.W. Ohlmann, D.R. Anderson, D.J. Sweeney and T.A. Williams, An Introduction to Management Science: Quantitative Approaches to Decision Making, 16th edition, Cengage Learning, 2023.

B. Render, R.M. Stair, M.E. Hanna and T.S. Hale, Quantitative Analysis for</td></tr>
</table>

	Management, 13rd edition, Pearson, 2018. F.S. Hillier, M.S. Hillier, K. Schmedders and M. Stephens, *Introduction to Management Science: A Modeling and Case Studies Approach with Spreadsheets*, 6th edition, McGraw Hill, 2019. W.L. Winston, *Microsoft Excel Data Analysis and Business Modeling: (Office 2021 and Microsoft 365)*, 7th edition, Pearson, 2022.

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT4106
Subject Title	Supply Chain Management
Credit Value	3
Level	4
Normal Duration	1-semester
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	The course focuses on operations management and analytics in basic supply chains, such as manufacturer-retailer and supplier-manufacturer systems. The course objectives are to learn recent best practices in supply chain management, and to develop analytical skills in solving specific types of logistics and supply chain problems. The course also intends to improve students' ability to deal with unstructured dynamic problems encountered in logistics and supply chain management. Skill development is accomplished through lectures, group assignments, and case studies.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. Understand the strategic importance of supply chain management in improving a firm's competitive position in the marketplace**;** b. Identify the key characteristics of successful supply chains and how they differ from the traditional approaches; c. Gain insights into issues involved in the design, planning, and deployment of a supply chain. **(BBA Outcome 14)** d. Evaluate the impact of supply chain management principle on a firm's overall strategy. e. Demonstrate an understanding on the importance of information technologies and analytics in the integration of supply chains. f. Gain fundamental skills for analyzing and managing a supply chain in an organization. **(BBA Outcome 14)** Studying this subject will also help develop students' global outlook on global supply chain and global outsourcing, critical and creative thinking, and entrepreneurship.
Subject Synopsis/ Indicative Syllabus	Concepts in supply chain management; inventory management in the supply chain; logistics network design and planning; bullwhip effect and value of information; supply chain integration; product and process design for logistics; supply contracts; pricing and revenue management; strategic alliances and partnerships; information technology for supply chain; emerging topics in

<table>
<tr><td></td><td>supply chain management and analytics.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>In the lectures, the general principles of the syllabus topics will be presented and developed, together with guidance on further reading and activities. Lectures may also be used for the presentation and discussion of leading cases.

In the tutorials, students will develop and apply the general principles of the topic in student-centered activities, including simulation games, in-class exercises, and discussions.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td><td>f</td></tr>
<tr><td>1. Coursework</td><td>50 %</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Final Examination</td><td>50 %</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Assessment of Coursework (i.e., Continuous Assessment) includes homework assignments, test(s), and simulation game(s). The test(s) and final exam will cover all topics in the syllabus, with a focus of testing students' understanding of the strategic importance of supply chain management, key characteristics of successful supply chains, impact of supply chain management principle on a firm's overall strategy, and the importance of information technologies and analytics. It will also test students' insights into issues involved in the supply chain planning and design, as well as students' fundamental skills for analyzing a supply chain.

To reflect the significant technology content in this subject, 10% (or more) of the overall weighting of this subject is based on individual assessment concerning technology-related knowledge.</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>• Lectures</td><td>26 Hrs.</td></tr>
<tr><td>• Tutorials</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>• Homework assignments and case studies</td><td>45 Hrs.</td></tr>
<tr><td>• Reading assignments</td><td>42 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>129 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>Chopra, S. (2019), Supply Chain Management: Strategy, Planning and Operation, 7th edition, Global edition, Pearson.

Simchi-Levi, D., Kaminsky, P. and Simchi-Levi, E. (2022), Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies, 4th edition, McGraw-Hill.</td></tr>
</table>

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT4115
Subject Title	E-Commerce and Logistics
Credit Value	3
Level	4
Normal Duration	1-semester
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	The role of this subject is to provide undergraduate students with an understanding of the basic business models and strategies for e-commerce within different organizations. The students should be able to explain how the internet and related technologies (e.g., artificial intelligence, big data, and high-performance computing) can effectively improve business decision and reshape the business strategy. The course introduces the difference between traditional businesses and currently fast-evolving e-business and the students will analyze related cases to evaluate how e-commerce changes the traditional business processes. The interactions between e-commerce and logistics industry will be analyzed and the students will be challenged to apply the information techniques and data analytics tools to improve the e-logistics management.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. Describe and explore various business and marketplace models and basic concepts and knowledge for e-commerce b. Describe structure and functions of key technologies supporting e-commerce and apply corresponding tools to improve e-commerce processes and make better business decisions c. Analyze sample e-commerce cases and evaluate how e-commerce business influence traditional business through the use of information technology among governments, people, and companies; d. Understand the information systems approach for the planning, analysis, design, development, and evaluation of supply chain and e-logistics management. e. Identify emerging trends in e-commerce development.
Subject Synopsis/ Indicative Syllabus	**Fundamentals of e-commerce**

<table>
<tr><td></td><td>
Common business models, critical success factors, and key technologies, etc.

E-commerce Infrastructure

The Internet, the web, and important features and services, etc.

E-commerce applications

Digital commerce, online media, social commerce, e-marketing, e-advertising, and mobile commerce, etc.

E-commerce Security

Key dimensions of e-commerce security, security threats, important technologies that secure e-commerce, and e-payment systems, etc.

Web Statistics & Web Analytics

Business intelligence, search engine optimization, web traffic, visitor analysis, and cloud computing, etc.

Supply chain and e-logistics management

Business strategies, analytical methodologies, and information technology in supply chain management; the information system techniques for planning, analyzing, designing, development, and evaluation of supply chain and e-logistics management; operations research and artificial intelligence foundation of e-commerce retail and services; etc.

Hands-on Topics

Basic skills in web design, data analytics, database management system, decision support system, and enterprise resource planning system, etc.
</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>There will be a mix of lectures, discussions, case studies, and laboratories. Mini-group discussion and projects will be carried out on some business cases in depth and reports are produced at the end of the term. Hands-on experiences of using e-commerce tools will also be provided to the students.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="5">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td></tr>
<tr><td>Continuous Assessment</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Final Exam</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td>✓</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="5"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
</td></tr>
</table>

	The various methods are designed to ensure that all students taking this subject have a balanced learning experience. Individual assignment will be designed to test students' understanding on e-commerce concepts and knowledge, as well as the ability to explore new knowledge and apply them to solve the real business problems. Term project will require students to propose e-commerce business plan, design and apply information technology to deliver the proposal.	
Student Study Effort Expected	Class contact:	
	▪ Lecture	26 Hrs.
	▪ Tutorial	13 Hrs.
	Other student study effort:	
	▪ Preparation for lectures/tutorials	45 Hrs.
	▪ Preparation for individual assignment/ group project/ final exam	42 Hrs.
	Total student study effort	126 Hrs.
Reading List and References	**Recommended Textbooks** Laudon, K. C. and Traver, C. G. (2018). *E-Commerce: Business, Technology, Society*. Pearson Education, 14th Edition. ISBN: 9781292251707. **Reference Books** Turban, E., King, D., Lee, J. K., Liang, T.-P., and Turban, D. C. (2015) *Electronic Commerce: A Managerial and Social Networks Perspective*. Springer, 8th edition. ISBN: 978-3319100906. Camm, J.D. (2017). *Essentials of Business Analytics* (Second ed.). Boston, MA: Cengage Learning. Evans, J. (2016). *Business Analytics: Methods, Models, and Decisions* (Second ed.). Boston: Pearson.	

Subjects offered by
Department of Management and Marketing

Subject Description Form

Subject Code	MM1031
Subject Title	Introduction to Innovation and Entrepreneurship
Credit Value	1
Level	1
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject introduces students to the essential aspects of innovation and entrepreneurship in a digital world. The objective is to prepare the first-year students with an entrepreneurial mindset and apply innovative strategies to find creative solutions that benefit both organizations and society in the age of digital transformation.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. demonstrate an elementary understanding of innovation and entrepreneurship; b. appreciate the importance of innovation and entrepreneurship in the local and global community; c. appreciate the applications and implications of the latest technologies on entrepreneurship and innovation; and d. identify ethical issues in entrepreneurship and innovation.
Subject Synopsis/ Indicative Syllabus	This subject is built upon three pillars – **Nature and importance of innovation and entrepreneurship** Defining innovation and entrepreneurship; differences between innovation and entrepreneurship; the importance of innovation and entrepreneurship in Hong Kong and beyond; entrepreneurship as a career path; ethical issues **Innovation** Technology and innovation; technology life cycle; diffusion of innovation; technology leadership and followership; assessing technology needs; making technology decisions; sourcing and acquiring new technologies; organizing for innovation **Entrepreneurship** Technology and entrepreneurship; design thinking; value proposition canvas; business model canvas; lean start-up

	Indicative Outline: *(A) Introduction* Videos (~10 minutes in total), plus discussion/activities/self-study in between the following topics • Defining innovation and entrepreneurship • Differences between innovation and entrepreneurship • The importance of innovation and entrepreneurship in Hong Kong and beyond • Entrepreneurship as a career path *(B) Innovation and entrepreneurship toolkit* Videos (~40 minutes in total), plus discussion/activities/self-study in between the following topics • Design Thinking • Value Proposition Canvas • Business Model Canvas • Lean Start-up (including MVP) *(C) Applications and implications of artificial intelligence on entrepreneurship and innovation* Videos (~40 minutes in total), plus discussion/activities/self-study in between the following topics • Hand-written digit recognition • Face detection • Stock price prediction • ROC Concept • Chatbot applications, e.g. customer service, enquiry handling in the customer journey • Latest A.I. development *(D) Applications and implications of blockchain technology on entrepreneurship and innovation* Videos (~40 minutes in total), plus discussion/activities/self-study in between the following topics • Defining blockchain technology • Background • Applications (e.g., verifying educational or employment credentials, intellectual property, smart contract, billing and revenue allocation, rights and royalties, history of ownership – critical minerals, diamond, fine art, garment, wine and spirits, supply chains, etc.) • Advantages and Disadvantages • Ethical implications (e.g., cryptojacking, co-ownership of illegal data, etc.) *(E) Applications and implications of Internet of Things technology on entrepreneurship and innovation* Videos (~40 minutes in total), plus discussion/activities/self-study in between the following topics

<table>
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Defining Internet of Things technology
Background (from 1G to 5G)
Applications (e.g., daily life, manufacturing, retail, smart cities, etc.)
Advantages and Disadvantages
Ethical implications (e.g., privacy, security, etc.)

<u>(F) Managing technology for competitive advantage in a digital world</u>
Videos (~10 minutes in total), plus discussion/activities/self-study in between the following topics

Technology life cycle
Diffusion of innovation
Technology leadership and followership
Assessing technology needs
Making technology decisions
Sourcing and acquiring new technologies
Organizing for innovation

</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>This subject is designed to be interactive, with short videos, cases, in-class discussions and activities interspersed throughout an introductory session and thirteen 1-hour seminars. Students are encouraged to go beyond the understanding of concepts, and to reflect on their learning process. Learning from the responses and feedback from their peers is also critical.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="4">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td></tr>
<tr><td>1. Quizzes</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Reflection</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="4"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
Requiring students to answer multiple-choice questions at the end of each module is appropriate for helping the first-year students confirm their understanding of the concepts. The requirement of writing some textual responses is to assess the schema established by the students toward innovation and entrepreneurship.
</td></tr>
<tr><td rowspan="2">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ One online introductory session, plus four online video modules, combined with in-class discussions and activities, interspersed throughout</td><td>13 Hrs.</td></tr>
</table>

	Other student study effort:	
	▪ Self-study and preparation	20 Hrs.
	▪ Assignment	10 Hrs.
	Total student study effort	43 Hrs.
Reading List and References	Bateman, T. S., & Konopaske, R. (2021). *Management: Leading & collaborating in a competitive world.* NY: McGraw-Hill. Bamford, C., & Bruton, G. (2022). *Entrepreneurship: The art, science, and process for success.* McGraw-Hill. Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: A handbook for visionaries, game changers, and challengers*. Hoboken, NJ: John Wiley & Sons. Osterwalder, A., Pigneur, Y., Bernarda, G., & Smith, A. (2014). *Value proposition design: How to create products and services customers want.* Hoboken, NJ: John Wiley & Sons. Ries, E. (2011). *The lean start-up*. NY: Crown Business.	

Subject Description Form

Subject Code	MM2021
Subject Title	Management & Organisation
Credit Value	3
Level	2
Normal Duration	1-semester
Pre-requisite/ Co-requisite/ Exclusion	**Exclusion:** People and Management (MM2191) or equivalent
Objectives	This subject contributes to the achievement of the BBA (Hons) Programme Outcomes by enabling students with an understanding of management functions, group and individual dynamics within organisations and to apply such concepts to analyse and solve problems in business situations. The subject also provides students with knowledge and skills in leadership, teamwork, and decision making. In addition, it prepares students on how to analyse and resolve ethical issues in various business settings.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. explain the nature of managerial work in a variety of forms of organisations, and analyse the impact of the external environments, both domestic and global, on managers' jobs; b. explain and analyze the functions of management in organisations, i.e. planning, organising, leading, and controlling; c. apply the essence of human behavior in teamwork, leadership, and decision making and evaluate the implications for the management of organisations; (**BBA Outcome 10**) d. analyse and compare the arguments surrounding social responsibility and ethical behavior in organisations and businesses; e. explain the nature of entrepreneurship, technology-driven innovation and artificial intelligence in business organisations.
Subject Synopsis/ Indicative Syllabus	**Management Functions** The major elements of the management functions: planning, organising, leading, and controlling, and their importance for the effective management of business organisations. **Planning** Foundations of planning. Decision making and problem solving. Global business environment. Strategic management. **Organising an Enterprise** Review of a variety of organisational structures and the identification of the conditions under which they are appropriate. Managerial communication and information technology. Staffing and human resource management.

Leading
The manager's role as a leader. Foundations of human behaviour. Leading and motivating employees – individuals and groups.

Controlling
Foundations of control. Operations and quality management. Controlling for organisational performance.

Social Responsibility and Managerial Ethics
Arguments for and against social responsibility as a business objective. Factors affecting managerial ethics. Approaches to improving ethical behaviour.

Entrepreneurship, Innovation and Technology
Entrepreneurial process, techniques for stimulating innovation. How new technology affects management.

Teaching/Learning Methodology

The two-hour weekly lecture will be structured to guide and promote students' understanding of relevant management and organisation concepts. In addition, there will be one tutorial of one hour per week. The tutorials will adopt a student of centred approach, including case study, in-class exercises, newspaper and professional articles for discussion and team-presentation.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	*% weighting*	*Intended subject learning outcomes to be assessed (Please tick as appropriate)*				
		a	b	c	d	e
Continuous Assessment	**50%**					
1. Individual Work	20%	✓	✓	✓	✓	✓
2. Group Project	15%	✓	✓	✓	✓	✓
3. Participation	15%	✓	✓	✓	✓	✓
Examination	**50%**	✓	✓	✓	✓	✓
Total	100 %					

**Weighting of assessment methods/tasks in continuous assessment may be different, subject to each subject lecturer.*

To reflect the significant technology content in this subject, 10% *(or more)* of the overall weighting of this subject is based on individual assessment concerning technology-related knowledge.

To pass this subject, students are required to obtain Grade D or above in the overall subject grade.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes: the various methods are designed to ensure that all students taking this subject –

- Read the key chapters of the recommended textbooks and indicative journals in subject outline;

<table>
<tr><td></td><td colspan="2">

- Demonstrate the basic understanding of management functions which are presented in the lectures;
- Analyse business situations and problems in contemporary business settings;
- Identity teamwork, leadership and decision making process in the business environment;
- Discuss the ethical issues arising from the cases and other questions;
- Participate in in-class exercises, case study, professional articles or discussion question to be presented in the lectures.

Feedback is given to students immediately following the presentations and all students are invited to join this discussion.
</td></tr>
<tr><td rowspan="8">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorials</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Preparation for lectures/ seminars</td><td>39 Hrs.</td></tr>
<tr><td>▪ Preparation for individual work/ group project/ examination</td><td>39 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>117Hrs.</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Reading List and References</td><td colspan="2">

Recommended Textbooks and References

Stephen P. Robbins & Mary Coulter, ***Management,*** Global Edition, Prentice Hall, 15th edition, 2021.

Bateman & Snell, ***Management – Leading & Collaborating in the Competitive World***, 13th edition, McGraw-Hill, 2019.

Daft, R.L., ***New Era of Management,*** 12th edition; South-Western Cengage learning, 2021.

Jones & George, ***Essentials of Contemporary Management,*** 9th edition; McGraw Hill, 2021.

Lussier, ***Management Fundamentals: Concepts, Applications, Skill Development***, 8th edition, South-Western Publishing, 2021.
</td></tr>
</table>

Subject Description Form

Subject Code	MM2711
Subject Title	Introduction to Marketing
Credit Value	3
Level	2
Normal Duration	1-semester
Pre-requisite / Co-requisite/Exclusion	**Exclusion**: Introduction to Marketing (MM2BN05) or equivalent
Objectives	This core subject introduces the basic principles and concepts of Marketing. It provides an analytical foundation for further study of Marketing and also contributes to the BBA Programme Outcomes in two ways. First, the content directly addresses the creation of value, ethics, cultural diversity and globalization. Second, the classroom activities and assessments develop students' teamwork, ability to communicate in English, analyse business situations by applying relevant conceptual frameworks and critical thinking.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. Analyse diverse marketing situations and identify marketing opportunities and threats; b. Apply marketing theories and models to practical marketing situations; c. Evaluate ethical issues from a marketing perspective and suggest appropriate actions; d. Appreciate the use of recent technology and tools in creating and delivering product values to customers **(BBA Outcome 6)**; e. Critically select and manage information, develop and present coherent arguments on marketing issues. f. Explore different modes of learning, understand individual learning tendencies, observe possibilities for future learning in the workplace, and reflect on readiness for learning in professional contexts. **(BBA Outcome 13)**
Subject Synopsis/ Indicative Syllabus	**Overview of Marketing** What is marketing and why is it important? The marketing process **Developing Marketing Strategies and a Marketing Plan** The marketing plan and strategic planning tools **Marketing and Society** Marketing's impact on individual consumers, society and other businesses Marketing ethics and corporate social responsibility

	UNDERSTANDING THE MARKET **Analyzing the Marketing Environment** The company's macro- and micro- environment **Consumer Behaviour** The consumer decision making process Types of buying decision behaviour Factors affecting consumer behaviour: cultural, social, personal, psychological **Business Buying Behaviour** Business to business markets Business buyer behaviour Factors affecting the buying process: buying centre, buying situations Role of the internet in business-to-business marketing **Marketing Research and Information Systems** The marketing research process Marketing information systems **VALUE CREATION** **Market Segmentation, Targeting and Positioning** Market segmentation Segmentation bases Market Targeting The positioning process and repositioning **Product and Services** Product and Service Classifications Product Decisions Product Lifecycle Branding Characteristics of services and their implications for marketing **Price** Considerations affecting pricing decisions Major pricing strategies New product pricing: skimming and penetration pricing Price adjustment strategies **Distribution** Nature and importance of marketing channels Channel design decisions: channel structure, distribution intensity Channel management **Promotion** The communication process AIDA model Importance of integrated marketing communications Designing the promotion mix Setting the promotion budget
Teaching/Learning Methodology	The two-hour weekly lecture aims to guide and promote students' understanding of relevant concepts. The weekly one-hour tutorial activities include discussions on case studies, contemporary marketing topics and journal articles. Students will also work in

<table>
<tr><td></td><td>groups to prepare and make presentations, and to critique the work presented by others. Emphasis is placed throughout on the application of theory to the solution of practical and realistic marketing problems in the local and global setting.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td></td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td><td>f</td></tr>
<tr><td>Continuous Assessment</td><td>50%</td><td colspan="6"></td></tr>
<tr><td>1. Individual essay</td><td>15%</td><td></td><td></td><td></td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Group project(s) and presentation</td><td>25%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>3. Individual contribution to class discussions</td><td>10%</td><td></td><td></td><td></td><td></td><td>✓</td><td></td></tr>
<tr><td>Examination</td><td>50%</td><td>✓</td><td>✓</td><td></td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td></td><td colspan="5"></td></tr>
</table>
*Weighting of assessment methods/tasks in continuous assessment may be different, subject to each subject lecturer.

To reflect the significant technology content in this subject, 10% (or more) of the overall weighting of this subject is based on individual assessment concerning technology-related knowledge.

To pass this subject, students are required to obtain Grade D or above in the overall subject grade.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes: the above methods are designed to ensure that all students –

• Read the recommended material;
• Discuss the issues brought up in the lectures/seminars;
• Appreciate the different approaches that may be adopted in solving marketing problems and
• Participate in presenting the group’s views on a case/marketing situation.

Feedback is given to students immediately following the presentations. All students are also invited to join the discussion.
</td></tr>
<tr><td>Student Study Effort Required</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26Hrs.</td></tr>
<tr><td>▪ Seminars</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
</table>
</td></tr>
</table>

	▪ Preparation for tutorials and presentation	26 Hrs.
	▪ Reading and essay writing	21 Hrs.
	▪ Self study in preparation for exam	40 Hrs.
	Total student study effort	126 Hrs.
Reading List and References	***Recommended Textbook and References*** ***Recommended Textbook*** Kotler, P., Armstrong, G., Ang, S.H., Leong, S.M., Tan, C.T., Yau, O.H.M. (2017) ***Principles of Marketing: An Asian Perspective***, 4th Edition, Singapore, Pearson Education South Asia. ***References*** Kerin, R. A., Hartley, S. W. and Rudelius, W. (2023), ***Marketing***, 16th edition, Singapore, McGraw-Hill. Grewal, D. and Levy, M. (2021) ***Marketing***, 8th Edition, New York, McGraw-Hill. Various newspapers, magazines, journal articles and web addresses will be referenced.	

Subject Description Form

Subject Code	MM4311
Subject Title	Strategic Management
Credit Value	3
Level	4
Normal Duration	1-semester
Pre-requisite/ Co-requisite/ Exclusion	**Pre-requisite:** Management and Organisation (MM2021) or equivalent
Objectives	This subject provides students with an understanding of the concepts of strategy, strategizing and strategic management, and enabling them to apply tools, concepts and frameworks to help an organization define / redefine its sustained competitive advantage. This subject will also enable students to develop global outlook, the analysis of the business environments, critical thinking, analytical skills, and ethical awareness, inter alia.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. Demonstrate a global outlook and understand cultural diversity, globalization in management issues; b. Identify and respond appropriately to ethical issues as they arise in different business settings; c. analyze business situations and problems by applying conceptual frameworks drawn from different disciplines when determining the sustained competitive advantage through value co-creation of an organization; d. evaluate the processes and structures through which organizations plan, decide, motivate and control their activities and their impact on strategy implementation; e. Specify parameters of strategic choice within which business organizations set objectives and take actions; f. demonstrate an understanding of entrepreneurship and its links with strategy pertaining to recognizing and creating innovative opportunities, strategic decision-making under uncertainty and impact of entrepreneurial activity on organisational performance; **(BBA Outcome 5)** g. Demonstrate an understanding on the applications and implications of the latest technologies to strategic options and strategic decision-making.
Subject Synopsis/ Indicative Syllabus	**Understanding Strategic Management** Strategic management process; mission and vision statements; corporate governance. **Environmental Analysis and Diagnosis** Environmental scanning; general environment; techniques for environmental analysis; industry and competitive analysis; competitive and co-operative dimensions; synthesis of external strategic factors. **Internal Scanning and Analysis**

Internal scanning and analysis of the competitive value of resources; value chain analysis; synthesis of internal strategic factors; assessment of assets, capabilities and competencies.

Strategy Formulation
Situational analysis: SWOT; formulating organizational strategies; corporate strategy; business strategy; international strategy; strategic choice.

Strategy Implementation
Implementation process; strategic leadership; strategic change; organizational structure; organization culture; creating an ethical organization.

Strategic Evaluation and Control
Evaluation and control in strategic management; strategic control: problems in measuring performance; balanced scorecard approach.

Teaching/Learning Methodology

Lectures cover core principles and concepts of the subject syllabus. Seminars are structured to enhance students' understanding of relevant concepts through various kinds of activities, including case studies, presentation and discussion. Students are expected to play an active role in seminars, and are required to present real-life cases and apply subject knowledge to the discussion. Emphasis is also placed on bringing research findings into classroom discussions and in what way they can help managers make better decisions about strategy, strategizing and strategic management.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	*% weighting*	*Intended subject learning outcomes to be assessed (Please tick as appropriate)*						
		a	b	c	d	e	f	g
Continuous Assessment	**100 %**							
GROUP:	***40%***							
Major Group Project (+ 5% on Ethics)	30%		✓	✓		✓		
Group (Individual) Peer Evaluation	10%				✓	✓		
INDIVIDUAL:	***60%***							
Individual test	15%	✓	✓			✓	✓	✓
Individual Write-up Assignment	15%	✓				✓	✓	✓
Class Participation	30%	✓	✓	✓	✓	✓		
Total	100 %							

**Weighting of assessment methods/tasks in continuous assessment may be different, subject to each subject lecturer.*

To reflect the significant technology content in this subject, 10% *(or more)* of the overall weighting of this subject is based on individual assessment concerning technology-related knowledge.

<table>
<tr><td></td><td colspan="2">To pass this subject, students are required to obtain Grade D or above in the overall subject grade.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes: the various methods are designed to ensure that all students taking this subject –
• Consider and analyse the issues and concepts which are presented in the seminars;
• Read relevant chapters of the recommended textbook and other support learning material including research journal articles, cases, newspaper reports, industry reports, BBC programs, etc…;
• Appreciate that there are alternative approaches, perspectives and theories to deal with the strategic issues;
• Undertake critical reflective thinking and practice about new ways of thinking and new ways of doing for a company's sustained competitive advantage.

Feedback is given to students immediately after they have presented their view and all students are invited to join this discussion.</td></tr>
<tr><td rowspan="7">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Seminars</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Preparation for discussion</td><td>39 Hrs.</td></tr>
<tr><td>▪ Preparation for project/assignment/tests</td><td>39 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>117 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="2">Recommended Textbook and References

Required Textbook (subject teachers will decide on one of the followings):
Dess, G., McNamara, G., Eisner, A. & Lee, Seung-Hyun. 2021. Strategic Management: Text and Cases (10th Edition). McGraw-Hill.

Grant, R. M. (2016), Contemporary Strategy Analysis: Text and Cases Edition, 9th Edition, ISBN: 978-1-119-12084-1

Hitt, M. A., Ireland, R. D., & Hoskisson, R. E. 2019. Strategic Management Concepts: Competitiveness and Globalization (13th Edition). Cengage Learning.

Rothaermel, F. T. 2020. Strategic Management (5th Edition). New York, NY: McGraw-Hill, Irwin.

Whittington, R., Regner, P., Angwin, D., Johnson, G., & Scholes, K. 2020. Exploring strategy. 12th Edition. Pearson Education Limited. (Text and Cases).

Recommended Periodicals and Newspapers
The Asian Wall Street Journal, Financial Times, China Daily, Business Week, Fortune, South China Morning Post, The Economist, Hong Kong Economic Times …</td></tr>
</table>

	Recommended Academic Journals Harvard Business Review, Strategic Management Journal, Academy of Management Journal, Academy of Management Review, Organization Science, Journal of Management Studies, Journal of Management, Strategic Entrepreneurship Journal, Academy of Management Executive / Perspectives …

SECTION 9 – INDUSTRIAL CENTRE TRAINING MODULES

The IC Training modules for the programme are listed below. Note that this list is not exhaustive and other modules may be developed to replace or supplement those listed. Such alterations are on-going and will be made in conjunction with the Departmental Undergraduate Programme Committee's assessment of current needs in conjunction with the Industrial Centre.

TABLE 9 - INDEX

Subject Description Form

Subject Code	ISE2126
Subject Title	ERP Advanced
Credit Value	1 Training Credit
Level	2
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject aims at providing students with hands-on practice on the operation of contemporary enterprise resource planning in the whole business environment.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Acquire a certain level of understanding and practical skill in using ERP software in assisting their future study and professional *(Objective 1 and Syllabus Item 1). Category A* b) Describe business process common to most businesses (order processing, inventory management, procurement, etc.) *(Objective 1 and Syllabus Item 1). Category A*
Subject Synopsis/ Indicative Syllabus	1) <u>Integrate Business Processes</u> Sales order process, master schedule, procurement, invoicing the customer, payment, financial accounting, production management, inventory management
Learning Methodology	Both tutorial and hands-on exercises will be used to deliver various topics. Some of them covered in a problem-based learning approach where enhances intended learning outcomes, and the remaining hands-on practice for real-life applications.

Assessment Methods in Alignment with Intended Learning Outcomes

Assessment Methods	Weighting (%)	Intended Learning Outcomes Assessed	
		a	b
1. Assignment	60	✓	✓
2. Test	40	✓	✓
Total	100		

Assignment:
To reflect and apply the knowledge periodically throughout the training.

Test:
To reflect the understanding of the concepts throughout the training.

Student Study Effort Expected

Class Contact	
▪ Workshop practice	30 Hrs.
Other Study Effort	0 Hr.
Total Study Effort	**30 Hrs.**

Reading List and References

1. Training material, manual and articles published by Industrial Centre

2. Shtub, A., Enterprise Resource Planning (ERP): The Dynamics of Operations Management, Boston, Mass: Kluwer Academic Publishers, 1999.

3. Monk, Ellen F. and Bret J Wagner, Concepts in Enterprise Resource Planning, Boston, Mass: Course Technology/Cengage Learning, 2013.

Subject Description Form

Subject Code	ISE2129
Subject Title	Computing Tools in Resources Planning & Analysis
Credit Value	2 Training Credits
Level	2
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject offers wide coverage on the application of software in areas encompass computer-aided statistical analysis, enterprise resource planning and industrial safety that aims at providing the necessary fundamental knowledge and computer skills to students.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Acquire a certain level of understanding and practical skill in using specific software in assisting their future study and professional *(Objective 1 and Syllabus Item 1-2). Category A*. b) Interpret basic occupational health and industrial safety requirements for engineering practice *(Objective 1 and syllabus Item 3). Category A*.
Subject Synopsis/ Indicative Syllabus	Students are required to take 3 modules: - 1) <u>Basic Computer-aided Statistical Analysis</u> Introduction to SPSS, data collection, questionnaire design, variables and reverse coding, descriptive statistics; non-normality handling, grouping, randomisation and transformation; bivariate statistics, confidence intervals and effect size; factor analysis, reliability analysis with measured and latent variables; simple and multiple linear regression, goodness-of-fit and multicollinearity; One-way and two-way ANOVA, F-ratio and planned comparison; visualising and reporting statistics with histograms, box-plots, line charts, scatter-plots. 2) <u>Fundamentals of Enterprise Resource Planning</u> Overview of ERP system, major components and its functions; operation principle of manufacturing resources planning, BOM, master production schedule, work orders. 3) <u>Industrial Safety</u> Safety Management: Overview, essential elements of safety management, safety training, accident management, and emergency procedures. Safety Law: F&IU Ordinance and principal regulations, OSH Ordinance and principal regulations. Occupational Hygiene and Environmental Safety: Noise hazard and control; dust hazard and control; ergonomics of manual handling.

<table>
<tr><td></td><td>Safety Technology: Mechanical lifting, fire prevention, dangerous substances and chemical safety, machinery hazards and guarding, electrical safety, first aid, job safety analysis, fault tree analysis, personal protective equipment.</td></tr>
<tr><td>Learning Methodology</td><td>For Industrial Safety, lecture will be used to help students on learning local legal requirement, safety concepts, accident phenomena, hazard identification and control measures. Video illustrations, case studies, group discussion and hands-on practices will be used to support the learning.

For Basic Computer-aid Statistical Analysis, lecture, demonstration and real-life case study will be used to showcase the features and functions of the software. Problem based learning with hand-on exercises will be used throughout the course to help students solve common statistical problems and discover common application mistakes. Group discussions and Q&A section after each problem will be used for reflection, checking misunderstandings and prompt feedback.

For Fundamentals of Enterprise Resource Planning, both tutorial and hands-on exercises will be used to deliver various topics. Some of them covered in a problem-based learning approach where enhances intended learning outcomes, and the remaining hands-on practice for real-life applications.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><th rowspan="2">Assessment Methods</th><th rowspan="2">Weighting (%)</th><th colspan="2">Intended Learning Outcomes Assessed</th></tr>
<tr><th>a</th><th>b</th></tr>
<tr><td>1. Assignments</td><td>65</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Test</td><td>35</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100</td><td colspan="2"></td></tr>
</table>

Assignments:
The assignment is designed to facilitate students to reflect and apply the knowledge periodically throughout the training.

Test:
Test is designed to assess students' declarative knowledge on the topics.</td></tr>
<tr><td>Student Study Effort Required</td><td>
<table>
<tr><td>Class Contact</td><td></td></tr>
<tr><td>▪ Mini-lectures</td><td>32 Hrs.</td></tr>
<tr><td>▪ In-class assignments / hands-on practice and test</td><td>28 Hrs.</td></tr>
<tr><td>Total Study Effort</td><td>60 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and</td><td>1) PASW Statistics 19 Made Simple, Hove, East Sussex: Psychology</td></tr>
</table>

References	Press, 2012 2) Discovering statistics using SPSS 5th edition, London: SAGE Publications, 2018. 3) Applied statistics using SPSS, STATISTICA and MATLAB, Berlin; Hong Kong: Springer, 2007. 4) Shtub, A., Enterprise Resource Planning (ERP): The Dynamics of Operations Management, Boston, Mass: Kluwer Academic Publishers, 1999. 5) Joseph A Brady, Ellen F Monk, Bret Wagner, "Concepts in Enterprise Resource Planning", Thompson Course Technology, USA, 2001. 6) Labour Department publications on occupational safety, available at: http://www.labour.gov.hk/eng/public/content2_8.htm 7) Labour Department publications on occupational health, available at: http://www.labour.gov.hk/eng/public/content2_9.htm 8) Hong Kong Laws: Cap. 59 and Cap. 509, available at: https://www.elegislation.gov.hk

Subject Description Form

Subject Code	ISE3103
Subject Title	Integrated Project
Credit Value	3 Training Credits
Level	3
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject aims to provide students hands-on engineering-business project experience. In real industrial situations, all projects are related to both engineering and business; such as design feasibility and market opportunity. Engineers are expected having the skills of working in interdisciplinary teams on multidisciplinary projects. In this subject, students have to work in a team with members from other disciplines on an engineering-business project which students may practice and integrate their learned theories and knowledge from academic subjects in their programmes.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Describe the benefits from experience in working within an interdisciplinary team on a multidisciplinary project of both engineering and business. *(Objective 1 and Syllabus Item 1-4). Category A* b) Formulate solutions for different stages of a multidisciplinary project such as project planning, market research, design & packaging, CAD & prototyping, technology investigation, inventory & distribution management, and business proposal & presentation. *(Objective 1 and Syllabus Item 1-4). Category A* c) Integrate knowledge developed over the course of their field of study to achieve the objectives of the project by producing the deliverables *(Objective 1 and Syllabus Item 1-4). Category A* d) Manifest their work effectiveness in multidisciplinary and multilateral teams, and demonstrate tolerance and awareness of other viewpoints *(Objective 1 and Syllabus Item 1-4). Category B* e) Collaboratively execute an application oriented project through group work and discussions and inspires oneself to learn continuously about current industrial technologies *(Objective 1 and Syllabus Item 1-4). Category B*.

Subject Synopsis/ Indicative Syllabus	The extent of the project will depend on the nature of the project that students work on, not all listed activities are likely to be undertaken for all projects. 1. Project Planning Scheduling of Market Research, Design, Prototype, Technology Audit, Inventory and Distribution Management, and Business Proposal. Allocation of resources of Manpower, Machines, and Money. 2. Market Research Start with collecting information in market in the view of the given project theme. Then analyze the potential market, estimate the market opportunity, and identify the market niche, 3. Design Activity Iterative design processes to evaluate & make concept decisions for the theme product and also packaging; document and communicate the concept information to designer, engineers, and marketing people. 4. Prototype Development Build a prototype with the facilities in the centre such as CAD, RP, or CNC; to evaluate, demonstrate, and present the design concepts as well as functionality. 5. Technology Investigation Investigate the existing technologies and equipment in the centre. Evaluate the cost and performance of different manufacturing processes. Study the feasibility of manufacturing of the product. 6. Inventory & Distribution Management Estimate the production volume and the inventory control level, or if necessary as well as the warehouse management. Propose the wholesale and retail distribution channels. 7. Business Proposal and Presentation Present a business proposal with consolidating the findings from Market Research to Distribution Management. Summarize the pricing strategy, cost, resources, volume, time and prediction of the profit.

<table>
<tr><td>Learning Methodology</td><td>All projects assigned will be of ‘real’ work basis proposed by supervisors. Typical projects are product for a specific application, material handling systems, testing jig and fixture…etc. These projects are always having a real problem of serious interest to the clients which requires students to meet the expected demand.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><th rowspan="2">Assessment Methods</th><th rowspan="2">Weighting (%)</th><th colspan="5">Intended Learning Outcomes Assessed</th></tr>
<tr><th>a</th><th>b</th><th>c</th><th>d</th><th>e</th></tr>
<tr><td>1. In-class Assignment</td><td>30</td><td>✓</td><td>✓</td><td>✓</td><td></td><td>✓</td></tr>
<tr><td>2. Project Performance</td><td>30</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>3. Oral Presentation</td><td>20</td><td>✓</td><td>✓</td><td></td><td>✓</td><td></td></tr>
<tr><td>4. Written Report</td><td>20</td><td></td><td></td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Total</td><td>100</td><td colspan="5"></td></tr>
</table>
The In-class assignment is aimed at assessing student’s individual performance and practical ability in the project works.

The Project Performance is a group assessment on the deliverables in different stages during the project.

Oral Presentation allows students presenting their project clearly and logically including the project objectives, approaches, and deliverables. It consists both “group” and “individual” works to reflect the overall group performance and individual student’s contribution.

Written Report is to facilitate students to sum up the project holistically. The assessment will focus on the discussion and reflection. It consists both “group” and “individual” works to reflect the overall group performance and individual student’s contribution.
</td></tr>
</table>

Student Study Effort Required	**Class Contact**	
	▪ Practical appreciation and Group Project	90 Hrs.
	Total Study Effort	**90 Hrs.**
Reading List and References	Reading materials published by the Industrial Centre on 1. Rapid Prototyping 2. Computer Aided Manufacturing 3. Plastics Processing 4. Surface Finishing	

Appendix I

GENERAL UNIVERSITY REQUIREMENTS FOR NORMAL STUDENTS

General University Requirements (GUR)

(a)	Language and Communication Requirements	9 credits
(b)	GUR - AIDA	2 credits
(c)	GUR - IE	1 credit
(d)	Leadership Education and Development	3 credits
(e)	Service-Learning	3 credits
(f)	Cluster Areas Requirements (CAR)	12 credits
(g)	Healthy Lifestyle	Non-credit bearing
		Total = 30 credits

(a) Language and Communication Requirements (LCR)

English

All undergraduate students must successfully complete two 3-credit English language subjects as stipulated by the University, according to their English language proficiency level (**Table A**). These subjects are designed to suit students' different levels of English language proficiency at entry, as determined by their HKDSE score or the English Language Centre (ELC) entry assessment (when no HKDSE score is available, e.g. in the case of non-local students).

Students entering the University with specified attainment grades in certain public examinations can be given credit transfer or exemption for one or both LCR English subjects. Please refer to the following link for details on English LCR credit transfer and exemption arrangement:
https://www.polyu.edu.hk/ous/docdrive/_sso/Staff/Guidelines_for_Credit_Transfer_on_General_University_Requirements_Subjects.pdf

Table A: English LCR subjects (each 3 credits)

English language competence level	***Practical English for University Studies (ELC1011)***	***English for University Studies (ELC1012/1013)***	**Any LCR Proficient level elective subject in English (Table B)**
HKDSE Level 4 and above or equivalent	--	Subject 1	Subject 2
HKDSE Level 3 or equivalent	Subject 1	Subject 2	--

Table B: Proficient level elective subjects for DSE Level 4 students and above (or equivalent) (each 3 credits)

LCR Proficient level elective subjects	*Advanced English Reading and Writing Skills (ELC2011)*
	Persuasive Communication (ELC2012)
	English in Literature and Film (ELC2013)
	Advanced English for University Studies (ELC2014)

Chinese

All undergraduate students are required to successfully complete one 3-credit Chinese language subject as stipulated by the University, according to their Chinese language proficiency level (**Table C**).

Table C: Chinese LCR subjects

Categories of students	Required subject
For Chinese speaking students	University Chinese (Cantonese or Putonghua version) 3 credits CLC1104C (Cantonese version) CLC1104P (Putonghua version)
For non-Chinese speakers or students whose Chinese standards are at junior secondary level or below	One subject from **Table D** below

Table D: Chinese LCR subjects for non-Chinese speakers or students whose Chinese standards are at junior secondary level or below

Subject (3 credits)	**Pre-requisite/exclusion**
Chinese I (for non-Chinese speaking students) CLC1151	• For non-Chinese speaking students at beginners' level
Chinese II (for non-Chinese speaking students) CLC1152	• For non-Chinese speaking students; and • Students who have completed Chinese I or equivalent
Chinese III (for non-Chinese speaking students) CLC2151	• For non-Chinese speaking students at higher competence levels; and • Students who have completed Chinese II or equivalent
Chinese IV (for non-Chinese speaking students) CLC2154	• For non-Chinese students at intermediate competence levels; and • Students who have completed Chinese III or equivalent
Chinese Literature – Linguistic and Cultural Perspectives (for non-Chinese speaking students) CLC2152	• For non-Chinese speaking students at higher competence levels

Students who have obtained verified qualifications or certain results in some public examinations [e.g. HKDSE, HKALE, JEE, GSAT(Taiwan)] may be granted credit transfer or exemption for the Chinese LCR subject. Please refer to the following link for details on Chinese LCR credit transfer and exemption arrangements:
https://www.polyu.edu.hk/ous/docdrive/_sso/Staff/Guidelines_for_Credit_Transfer_on_General_University_Requirements_Subjects.pdf

Writing Requirement

In additional to the LCR in English and Chinese explained above, all students must also, among the Cluster Areas Requirement (CAR) subjects they take (see section (f) below), pass

one subject that includes a requirement for a substantial piece of writing in English and one subject with a requirement for a substantial piece of writing in Chinese.

Reading Requirement

All students must, among the CAR subjects they take, pass one subject that includes the requirement for a reading of an extensive text in English and one subject with a requirement for the reading of an extensive text in Chinese.

A list of approved CAR subjects for meeting the Writing Requirement (with a "W" designation) and Reading Requirement (with an "R" designation) is shown at:
https://www.polyu.edu.hk/ous/GURSubjects/

Non-Chinese speakers and those students whose Chinese standards are at junior secondary level or below will by default be exempted from DSR – Chinese and CAR – Chinese Reading and Writing requirements. However, this group of students would still be required to take one Chinese LCR subject to fulfil their Chinese LCR.

Note: In addition to the LCR and Reading and Writing Requirements, students must also complete 4 credits of discipline-specific language requirements (2 credits in English and 2 credits in Chinese) as specified in the curriculum requirements of their Major.

(b) Artificial Intelligence and Data Analytics (AIDA)

All students must successfully complete one 2-credit subject in the area of Artificial Intelligence and Data Analytics, which is designed to (i) demonstrate an understanding of the foundational concepts of Artificial Intelligence and Data Analytics (AIDA); (ii) acquire basic skills in using AIDA technologies and applications; (iii) articulate examples of how the adoption AIDA could enhance their chosen disciplines; and (iv) demonstrate an awareness of global contemporary ethical issues and impact from AIDA applications in daily life.

These subjects may take the form of:

- An open-for-all GUR-AIDA subject
- GUR-AIDA subject targeting a particular student group (e.g. a programme).

A list of designated subjects for meeting the GUR-AIDA requirement is available at: https://www.polyu.edu.hk/ous/GURSubjects/

(c) Innovation and Entrepreneurship (IE)

All students must successfully complete one 1-credit subject in the area of Innovation and Entrepreneurship, which is designed to (i) demonstrate an elementary understanding of innovation and entrepreneurship; (ii) appreciate the importance of innovation and entrepreneurship in local and global community; (iii) appreciate the applications and implications of the latest technologies on entrepreneurship and innovation in their chosen disciplines; and (iv) identify ethical issues in entrepreneurship and innovation.

These subjects may take the form of:

- An open-for-all GUR-IE subject
- GUR-IE subject targeting a particular student group (e.g. a programme).

A list of designated subjects for meeting the GUR-IE requirement is available at: https://www.polyu.edu.hk/ous/GURSubjects/

(d) Leadership Education and Development (LEAD)

All students must successfully complete one 3-credit subject in the area of Leadership Education and Development, which is designed to enable students to (i) understand and integrate theories, research, and concepts on the basic qualities (particularly intrapersonal and interpersonal qualities including law abidance) of effective leaders, (ii) develop self-awareness and self-understanding, (iii) demonstrate self-leadership in pursuit of continual self-improvement, (iv) apply intrapersonal and interpersonal skills in daily lives, (v) appreciate the importance of intrapersonal and interpersonal qualities in effective leadership, particularly the connection of learning in the subject to one's professional development and personal growth, and (vi) recognise and accept their social responsibility as professionals and citizens to the society and the world.

A list of designated subjects for meeting the leadership education and development requirement is available at: https://www.polyu.edu.hk/ous/GURSubjects/

(e) Service-Learning

All students must successfully complete one 3-credit subject designated to meet the Service-Learning Requirement, in which they are required to (1) participate in substantial community service or civic engagement activities that will benefit the service users or the community at large in a meaningful way, (2) apply the knowledge and skills acquired from their Major or other learning experiences at the University to the community service activities, and (3) reflect on their service learning experience in order to link theory with practice for the development of a stronger sense of ethical, social and national responsibility.

These subjects may take the form of:

- An open-to-all GUR service-learning subject
- A GUR service-learning subject targeted for a particular student group (e.g. a Broad Discipline), or
- A customised DSR subject (core or elective) within the Major/Minor with all the required features and components to meet the Service-Learning Requirement.

Students who have satisfied the Service-Learning Requirement via a customised DSR subject will be required to take another 3-credit subject to make up for the total credit requirement.

A list of designated subjects for meeting the service-learning requirement is available at: https://www.polyu.edu.hk/ous/GURSubjects/

(f) Cluster Areas Requirement (CAR)

To expand students' intellectual capacity beyond their disciplinary domain and to enable them to tackle professional and global issues from a multidisciplinary perspective, students are required to successfully complete at least one 3-credit subject in each of the following four Cluster Areas:

- Human Nature, Relations and Development
- Science, Technology and Environment
- Chinese History and Culture
- Cultures, Organizations, Societies and Globalization

A list of CAR subjects under each of the four Cluster Areas is available at: https://www.polyu.edu.hk/ous/GURSubjects/

(g) Healthy Lifestyle

Healthy lifestyle is the platform for all-round development. Students are required to successfully complete a non-credit-bearing programme in healthy lifestyle.

Students are required to complete the following components: (i) sports training/participation, (ii) e-learning modules, and (iii) lectures/talks. The syllabus covers physical health, mental health, social health, spiritual health, values and priorities on health behaviour with reference to competing priorities in life, reflection on healthy living and plans for self-improvement or maintenance of health behaviour. Details of the programme can be found at: https://www.polyu.edu.hk/ous/GURSubjects/HLS.php

Students in UGC-funded articulation degree programmes and Senior Year intakes to the 4-year Ug degree programmes are not required to take the Healthy Lifestyle (HLS) Programme. Advanced Standing students are required to take HLS (with the exception of those who are AD/HD holders following the Senior Year/Articulation Degree programme GUR curriculum).

Appendix II

GENERAL UNIVERSITY REQUIREMENTS FOR SENIOR YEAR STUDENTS

General University Requirements (GUR)

(a)	Cluster Areas Requirement (CAR) [3 credits from CAR(A)^ and 3 credits from CAR(M)]	6 credits
(b)	Service-Learning	3 credits
(c)	Essential Components of General Education	Non-credit-bearing
		Total = 9 credits

^Students are required to take a specially designed CAR(A) – English Language Subject with embedded English Reading and Writing Requirements.

(a) Language and Communication Requirements (LCR)

Those students not meeting the equivalent standard of the Undergraduate Degree LCR (based on their previous studies in AD/HD programme and academic performance) will be required to take degree LCR subjects on top of the normal curriculum requirement. The programme offering department will refer to the guidelines provided by the Language Centres (ELC and CLC) to determine whether a new student has met the equivalent standard. Non-Chinese speakers and those students whose Chinese standards are at junior secondary level or below will by default be exempted from the DSR - Chinese and CAR - Chinese Reading and Writing requirements. However, this group of students would still be required to take one Chinese LCR subject to fulfil their Chinese LCR.

Degree LCR subjects include

<u>TWO English language subjects</u>

- Practical English for University Studies (ELC1011) 3 credits
- English for University Studies (ELC1012/1013) 3 credits
- Advanced English for University Studies (ELC2014) 3 credits

<u>ONE Chinese language subject</u>

- University Chinese (CLC1104C/P) 3 credits

(b) Cluster Areas Requirement (CAR)

- 3 credits from CAR(M) Chinese History and Culture.
- A specially-designed CAR (A) – English language subject with embedded English Reading and Writing Requirements, which should be completed within the first year.
- Students should not take more than 3 credits (normally 1 subject) from the same cluster area.
- Students need to fulfil the English and Chinese Reading and Writing Requirements.
- Students may apply for a waiver if they have fulfilled the English and Chinese Reading and Writing requirements in their previous studies.

(c) Service-Learning

All students must successfully complete <u>one</u> 3-credit subject designated to meet the Service-Learning Requirement, in which they are required to (1) participate in substantial community service or civic engagement activities that will benefit the service users or the community at large in a meaningful way, (2) apply the knowledge and skills acquired from their Major or other learning experiences at the University to the community service activities, and (3) reflect on their service learning experience in order to link theory with practice for the development of a stronger sense of ethical, social and national responsibility.

These subjects may take the form of:

- An open-to-all GUR service-learning subject

- A GUR service-learning subject targeted for a particular student group (e.g. a Broad Discipline), or
- A customised DSR subject (core or elective) within the Major/Minor with all the required features and components to meet the Service-Learning Requirement.

Students who have satisfied the Service-Learning Requirement via a customised DSR subject will be required to take another 3-credit subject to make up for the total credit requirement.

A list of designated subjects for meeting the service-learning requirement is available at: https://www.polyu.edu.hk/ous/GURSubjects/

(d) Essential Components of General Education

To allow Senior Year Intakes and articulation Degree Programmes students to acquire the basic knowledge of the following e-modules:

- Academic Integrity
- Artificial Intelligence and Data Analytics
- Innovation and Entrepreneurship
- National Education

BSC (HONS) IN LOGISTICS ENIGNEERING (LE) WITH A SECONDARY MAJOR IN ARTIFICIAL AND DATA ANALYTICS (AIDA)

(a) Rationale and Aims of LE award

Logistics Engineering (LE) concerns the design, development, testing, implementation, control, operation, and maintenance of various systems involving the supply and distribution of goods and services and their associated information flow, with particular emphasis on the development of new systems and the reengineering of existing systems. This enables better understanding of the complex problems of logistics engineering, and operations, and draws on specialised knowledge and skills in engineering to specify, predict, and evaluate the results to be obtained from such systems.

The overall aim of this programme is to produce professionals who are competent in the design, implementation, control, execution and management of logistics systems, and related technologies in particular AIDA used in industry. In this programme, students will study the underpinning knowledge and theory in Logistics Engineering. As a consequence, the graduates of the programme will be the logistics engineers and professionals.

On completion of the programme students should

1. Be versed in the activities the persons employed in the logistics engineering disciplines that they may be called upon to fulfil in the execution of their duties, recognising the necessity of life-long learning;
2. Be capable of formulating problems, recognizing areas in logistics organisation where improvements are necessary, devising and implementing strategies aimed at producing solutions by the applications of procedures (the application of principles, techniques and methods) recognising their limitations so that they can design and control logistics systems in the logistics industry;
3. Have been exposed to a range of academic activities of such style and content as will enable them to develop effective communication skills (oral, written, graphical and numerical) so that they are able to work both independently and in groups;
4. Have an awareness of the responsibilities and ethics of logistics engineering professionals and a realisation of the constraints imposed on the organisation by economic and environmental factors, recognising the global implications of the logistics industry.

(b) Intended Learning Outcomes of LE award

These are aligned with the programme aims specified in above.

1. To be versed in the activities of various logistics disciplines and in particular, engineering, so that graduates are able to appreciate and interact with other professionals during execution of their duties recognising the necessity of lifelong learning.
2. To be able to formulate problems, recognise areas in an organisation where improvements are necessary devising and implementing strategies to produce solutions.
3. To be able to apply knowledge, procedures (principles, techniques and methods), and, where appropriate, mathematics and science, to logistics problems and to have sufficient understanding of their limitations so that they can select the most appropriate for a particular situation.

4. To be able to design systems and to apply technologies (in particular AIDA), and so to prepare them for the logistics industry.
5. To be able to effectively communicate (oral, written, graphical and numerate), so as to enable them to function on multidisciplinary teams and as individuals where cooperation from others is necessary.
6. To be aware of the responsibilities and ethics of logistics engineers and professionals in the modern world and possess a realisation of the constraints imposed on the enterprises by economics and environmental factors.
7. To be able to understand the social, managerial and economic aspects of logistics business, between Hong Kong and Mainland China.
8. To possess the ability to engage in lifelong learning for continuous career development and personal growth.

(c) Rationale and Aims of AIDA award

The AIDA Secondary Major is designed in response to the rapidly developing fields of artificial intelligence and data analytics that are currently gaining unprecedented traction in industry as well as generating demand for qualified professionals in the job market. By integrating within the major discipline of the student, this secondary major aims to produce the next generation of graduates skilled with AI computational thinking and data analytics acumen in their chosen discipline to meet the needs of society, help improve efficiencies and augment human capabilities.

(d) Intended Learning Outcomes of AIDA award

On successful completion of this secondary major in AIDA, students will be able to

1. Understand the fundamentals of AIDA, and have the ability to apply them.
2. Design AIDA systems, components and processes to meet given specifications and constraints.
3. Identify, formulate and solve problems relevant to AIDA.
4. Use modern IT tools appropriate to AIDA practice.
5. Know the contemporary issues, and understand the impact of AIDA solutions in a global and societal context.

(e) Selection Mechanism

Studying a Secondary Major is a free choice by students and not mandatory. Only students with a Cumulative GPA of 2.70 or above may be considered for Secondary Major enrolment. Students must apply to and obtain approval from programme offering Department no later than the commencement of second year of study, to be admitted to the Secondary Major.

(f) Professional Accreditation

The department is currently working with the professional bodies on the accreditation of this programme with secondary major.

PROGRESSION PATTERN OF CURRICULUM (LE+AIDA)

(Total Credits Required for Graduation: 133 academic credits + 6 IC training credits)

Year 1 (33 academic credits)			
Semester 1 (18 credits)		**Semester 2 (15 credits)**	
Healthy Lifestyle#	0	Healthy Lifestyle# – cont'd	0
CAR I#	3	Introduction to Innovation and Entrepreneurship (MM1031)#	1
CAR II#	3	Basic Artificial Intelligence and Data Analytics for Efficiency and Effectiveness in Daily Life (ISE1001)#	2
English I (LCR I)#	3	English II (LCR II)#	3
Tomorrow's Leader (APSS1L01)#	3	Introduction to Enterprise Computing (ISE2001)	3
Information Technology (ENG2003)	3	Introduction to Logistics Engineering (ISE246)	3
Basic Mathematics I – Calculus and Probability and Statistics (AMA1110)^	3	Fundamental of Enterprise Systems (ISE247)	3
Year 2 (33 academic credits + 2 IC training credits)			
Semester 1 (18 credits)		**Semester 2 (15 credits + 2 IC)**	
CAR III#	3	CAR IV#	3
Chinese Communication# (LCR III)	3	Data Analytics Fundamentals (AMA1611) / Introduction to Data Analytics (COMP1433) / Foundations of Data Science (EIE1003)~	3
Management and Organisation (MM2021)	3	Business Law (AF3513)	3
Mathematics I (AMA2111)~	3	Shipping and Transport Logistics Operations (LGT3029)	3
Computer Programming (ENG2002)~	3	Data Structures and Algorithms (COMP2013)~	3
Technology and Applications of E-Business Systems (ISE328)	3	Computing Tools in Resources Planning and Analysis (ISE2129)	2 IC

Year 3 (34 academic credits + 3 IC training credits)			
Semester 1 (18 credits + 1.5 IC)		**Semester 2 (16 credits + 1.5 IC)**	
Industrial Engineering Techniques and Methods (ISE318)	3	Professional Communication in Chinese (CLC3241P)	2
Packaging and Storage Technology (ISE373)	3	Professional Communication in English for Engineering Students (ELC3531)	2
Planning of Production and Service Systems (ISE3002)	3	Mobile Technologies for Logistics Systems (ISE449)	3
Logistics Automation (ISE3018)^ (=DSR-AIDA Bridging Subject)	3	Management Science (LGT3102)	3
Service-Learning#	3	E-commerce and Logistics (LGT4115)	3
AIDA Elective 1~	3	Machine Learning (COMP4432)~	3
Integrated Project (ISE3103)	1.5 IC	Integrated Project (ISE3103) – cont'd	1.5 IC
Year 4 (33 academic credits + 1 IC training credit)			
Semester 1 (15 credits + 1 IC)		**Semester 2 (18 credits)**	
Production Logistics (ISE448)	3	Society and the Engineer (ENG3004)	3
Simulation of Logistics Systems (ISE450)	3	Project Management (ENG4001)	3
Logistics Information Management (ISE460)	3	Green Legislation and Supply Chain Logistics (ISE461)	3
Supply Chain Management (LGT4106)	3	Artificial Intelligence (COMP4431)~	3
ERP Advanced (ISE2126)	1 IC	AIDA Elective 2~	3
Individual Capstone Project (ISE4001)^	3	Individual Capstone Project (ISE4001)^ – cont'd	3

Elective subjects

AIDA Electives	Select any **TWO** from the subject list Link

General University Requirements (GUR) The pattern for GUR subjects are indicative only. Students may take these subjects according to their own schedule.
~ Secondary Major in AIDA subjects
^ Double-counted subjects to fulfill both LE and AIDA requirements