THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF INDUSTRIAL & SYSTEMS ENGINEERING

BACHELOR OF SCIENCE DEGREE WITH HONOURS

IN

AVIATION OPERATIONS AND SYSTEMS

Mode of Study: Full-time

Programme Code: 45497

PROGRAMME REQUIREMENT DOCUMENT

(For 2023/24 cohort)

September 2023

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SECTION 1 - GENERAL INFORMATION

Programme Title & Award	**BSc(Hons) in Aviation Operations and Systems**
Mode of Study	Full-time
Normal Duration	2 Years
Total Credit Requirements for Graduation	Normally 66 Academic Credits* + 4 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	School of Accounting and Finance (AF) Chinese Language Centre (CLC) English Language Centre (ELC) Faculty of Engineering (FENG) Industrial Centre (IC) School of Hotel and Tourism Management (SHTM) Department of Logistics and Maritime Studies (LMS)

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

Aviation industries are well-known to be fast-moving and highly competitive, striving for efficiency, safety, reliability, and high quality of services. Aviation is crucial to support the economic growth of local industries. It comprises many different highly interrelated entities, such as airports, air traffic control, airlines, catering, air cargo terminals, etc., working closely together to contribute to an efficient aviation system. However, each of them alone is already a very complicated system with a tremendous range of operations to deal with. Coordination between the entities requires knowledge, skills, and advanced technology. Accordingly, professional knowledge in system and operations design is essential to plan, schedule, implement, and control aviation activities.

Based on this philosophy, Aviation Operations and Systems focuses on the design and development, planning and scheduling, and implementation and control of various processes, operations, and systems in aviation and related industries. Particular emphasis is given to the development of new processes, new operations, and new systems, and the reengineering of existing processes, operations, and systems. This enables better understanding of the complex problems and interrelationships in various aviation operations, and draws on specialised knowledge and skills in engineering, management and social sciences to specify, optimize, predict, and evaluate the results obtained from such processes, operations, and systems.

The overall aim of this programme is to produce professionals who are competent in the design, development, planning, scheduling, controlling, executing, and managing of aviation operations, systems, and related technologies. In this programme, students will study the underpinning Industrial Engineering fundamentals and theories used in aviation operations and systems. As a consequence, graduates of the programme will become competitive professionals in aviation operations and systems for the local and global aviation industry.

The programme aims at producing graduates with

1. the knowledge and understanding needed to perform duties in operations and systems design, development, and improvement, particularly in the areas of aviation operations and systems;

2. an ability to identify and solve problems in aviation operations and systems, both as individuals and as members of teams;

3. exposure to a range of academic activities of such style and content as will enable them to develop effective communication skills (oral, written, graphical and numerate);

4. awareness of professional ethics and social responsibilities to the community at large;

5. exposure to a range of activities that will enable them to seek, learn and apply information that is pertinent to the work they are undertaking.

2.3 CHARACTERISTICS OF THE PROGRAMME

Hong Kong needs to upgrade its manpower to meet the aviation industry's prevailing and future demands, maintaining its competitiveness in the rapidly changing world and highly competitive markets in the region. Only university graduates possessing profound aviation-related professional knowledge and diverse management skill-sets have the ability and adaptability to be successful in such an environment. This programme is designed from a multi-stakeholder perspective to cover the whole spectrum of the aviation industry, spanning policy, management, operations, logistics, and systems levels. Various relevant departments are collaborating to co-design and deliver this programme, including the Department of Industrial & Systems Engineering, the Department of Logistics & Maritime Studies, and the School of Hotel & Tourism Management. The programme offers a highly integrated, broad-based education aimed at producing degree-level aviation professionals to meet the high-level diverse manpower needs of the aviation industry.

In the first year, students are required to take the Industrial Training subject IC383 "Integrated Aviation Systems Project". This subject aims at developing students' practical understanding of the common technological systems and processes found in aviation industry. Through undertaking hands-on projects, students will also be able to integrate their academic knowledge with practical skills about key engineering tasks including: problem identification, design, fabrication, and evaluation.

In the final year, students can specialize in areas such as aircraft logistics, airline operations and revenue management, and inflight service management, through the selection of their Final Year Project and Electives, the latter being selected from a large pool of options.

2.4 RELATINSHIP BETWEEN UNIVERSITY MISSIONS AND PROGRAMME AIMS

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

2.5 INTENDED LEARNING OUTCOMES (ILOs) OF THE PROGRAMME

The attributes of graduates produced by this programme, as listed below, are aligned with the programme aims specified in above. On successful completion of the BSc (Hons) in AOS programme, students will be able to

1. identify problems and recognize the constraints imposed on the aviation industry by economic and environmental factors.
2. have the knowledge and understanding to solve aviation operations and systems problems by applying mathematics, science and engineering principles.
3. design a system, operation or process to meet a desired need in the aviation industry.
4. experience a range of activities that will enable them to seek, learn and apply information that is pertinent to the work they are undertaking.
5. communicate (oral, written, graphical and numerate) effectively.

6. effectively work individually on their own initiative, and as members of a team.
7. have awareness of the responsibilities and professional ethics.

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

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

2.7 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).

2.8 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 THE PROGRAMME	1	X						
	2	X	X					
	3				X			
	4					X		
	5			X				
	6			X				
	7						X	X

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

SUBJECT CODES	SUBJECT TITLES	ILOs OF THE PROGRAMME						
		1	2	3	4	5	6	7
AAE4902	Pilot Ground Theory	TP	TP	TP	TP	TP	TP	T
AF3513	Business Law					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		
ELC2014	Advanced English for University Studies					TP		
ELC3531	Professional Communication in English for Engineering Students					TPM		
ENG3004	Society and the Engineer				TP		T	TPM
ENG4001	Project Management				TP		TP	T
HTM4401	Inflight Service Management	TP	TP	TP	T	T		
HTM4402	Environmental Management in the Travel and Hospitality Industry	TP	TP	TP	T	T		
LGT3027	Air Flight Operations Management	TP	TP	TP	T	T		

LGT3106	Quality Management	TP			T	T		
LGT3800	Airline Operations and Revenue Management	TP	TP	TP	T	T	T	
LGT4012	Airport Management	TP	TP	TP	T	T		T
LGT4017	Information Systems for Logistics Management	T			T	T		
LGT4800	Airline Strategy and Management	TP	TP	TP	T			
ISE3004	Systems Modeling and Simulation	TP	TP	TP	T			
ISE3010	Integrated Aviation Systems Project	TP	TP	TP	T	T	TPM	
ISE3013	Data Management in Aviation Industries	TP	TP	TP	T			
ISE3015	Applications of Operations Research in Aviation	TP	TPM	TP	T		T	T
ISE3016	Aviation Safety and Security Management	TP	TP	TP	T			TPM
ISE3020	Introduction to Aviation Management	TP	TP	TP	TP			T
ISE3021	Warehousing Technologies and Operations	TP	TP	TP	T			
ISE404	Total Quality Management	T			T			T
ISE431	Engineering Costing and Evaluation	TP	TP	TP	T			
ISE449	Mobile Technologies for Logistics Systems	TP	TP	TP	T			
ISE461	Green Legislation and Supply Chain Logistics	T			T			
ISE4008	Individual Project	PM	TPM	PM	PM	TPM	PM	P
ISE4014	Aircraft Service Engineering and Logistics	TP	TP	TP	T			
ISE4015	Airport Logistics Engineering	TP	TP	TPM	T			
ISE4022	Fleet and Flight Management	TPM	TP	TP	T			
Work Integrated Education (WIE)							PM	PM

GUR subjects of service-learning and cluster area requirement (CAR) 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 Successful candidates are admitted into the programme on an annual basis into Semester 1 of the academic year. Subject registration will be arranged in both semesters.

MINIMUM ENTRANCE REQUIREMENTS

3.2 Candidates who hold an Associate Degree or Higher Diploma in a relevant discipline or equivalent qualifications will be eligible to apply for the programme.

SELECTION PROCEDURE

3.3 The Programme Leader will be responsible for admission and the admission procedures will be coordinated by the Admissions Officer. Candidates will be selected on the basis of academic achievement and by interview.

SECTION 4 - CURRICULUM STRUCTURE

4.1 The curriculum structure is illustrated on progression pattern for full-time mode students on page 4-4 to 4-5.

GENERAL UNIVERSITY REQUIREMENTS (GUR)

4.2 Students are required to complete 9 credits of GUR subjects which are cluster areas requirement, service-learning and essential components of general education (non-credit bearing). It is further explained in Appendix I.

COMPULSORY AND ELECTIVE SUBJECTS

4.3 In the development of the programme curriculum, since this is an articulation programme designed for holders of Higher Diploma/Associate Diploma, the curriculum is essentially made up of level 3 and 4 subjects. This multidisciplinary programme consists of subjects contributed by the departments of Industrial and Systems Engineering, Chinese Language Centre, English Language Centre, Department of Logistics and Maritime Studies, School of Hotel and Tourism Management, together with the Faculty of Engineering. There are 66 academic credits and 4 IC training credits required for graduation from the programme.

4.4 Students will take TWO elective subjects. Choices are available in three areas offered by ISE, LMS, and SHTM and would normally be taken during second year. In this way, apart from being able to specialize in a particular elective area, his/her interest in subjects available in other elective areas can also be accommodated.

INDUSTRIAL CENTRE BASED TRAINING

4.5 This is of 4 weeks duration and is undertaken in the University's Industrial Centre. This 4 weeks compose of workshop-based hands-on activities and group-based integrated project, the Integrated Aviation Systems Project and are taken during the semester 1 & 2 of Year 1.

4.6 A variety of objectives are fulfilled by this training experience and these are listed below. However, all of these are but facets of one over-riding aim to create, within the time limitations, an environment of learning by doing under a holistic approach. Objectives of these training periods are:

(i) to develop the students' practical understanding of common technological systems and processes found in the aviation industry;

(ii) to give the students a broad acquaintance with and a grasp of practices in engineering (and other) industries in order to integrate/relate their theoretical knowledge to the real industrial application;

(iii) to enable the students to gain a holistic understanding of the constraints imposed on common aviation systems by technical, economic, environmental and safety factors.

4.7 During the Industrial Centre based training period, students undertake specific subjects in the following areas in order to achieve the above mentioned objectives.

(i) Integrated Aviation Systems Project (ISE3010) (during the semester 1 & 2 of Year 1).
Detail training subject descriptions of (i) can be found in Section 9 – IC Training Subjects and Modules.

THE INDIVIDUAL PROJECT

4.8 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.

4.9 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)

4.10 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.

4.11 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 the 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 – BSc (Hons) in Aviation Operations and Systems

(Total Credits Required for Graduation: 66 academic credits* + 4 IC training credits)

Year 1 (33 academic credits + 4 IC training credits)			
Semester 1 (16 credits + 2 IC)		**Semester 2 (17 credits + 2 IC)**	
CAR M#	3	CAR A - Specially-designed with English Language^	3
Professional Communication in Chinese (CLC3241P)	2	Professional Communication in English for Engineering Students (ELC3531)	2
Business Law (AF3513)	3	Systems Modeling and Simulation (ISE3004)	3
Applications of Operations Research in Aviation (ISE3015)	3	Aviation Safety and Security Management (ISE3016)	3
Introduction to Aviation Management (ISE3020)	3	Total Quality Management (ISE404)	3
Warehousing Technologies and Operations (ISE3021)	2	Engineering Costing and Evaluation (ISE431)	3
Integrated Aviation Systems Project (ISE3010)	2 IC	Integrated Aviation Systems Project (ISE3010) – cont'd	2 IC
Year 2 (33 credits)			
Semester 1 (18 credits)		**Semester 2 (15 credits)**	
Society and the Engineer (ENG3004)	3	Project Management (ENG4001)	3
Airport Logistics Engineering (ISE4015)	3	Airport Management (LGT4012)	3
Fleet and Flight Management (ISE4022)	3	Airline Strategy and Management (LGT4800)	3
Elective 1	3	Elective 2	3
Service-Learning#	3	-	
Individual Project (ISE4008)	3	Individual Project (ISE4008) – cont'd	3

List of electives (Select **TWO** from the following subjects)
• Pilot Ground Theory (AAE4902) • Inflight Service Management (HTM4401) • Environmental Management in the Travel and Hospitality Industry (HTM4402) • Data Management in Aviation Industries (ISE3013) • Mobile Technologies for Logistics Systems (ISE449) • Green Legislation and Supply Chain Logistics (ISE461) • Aircraft Service Engineering and Logistics (ISE4014) • Air Flight Operations Management (LGT3027) • Quality Management (LGT3106) • Airline Operations and Revenue Management (LGT3800) • Information Systems for Logistics Management (LGT4017)

*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) subjects

Students may take these subjects according to their own schedule or students are recommended to take CAR subjects in the summer term to lessen their workload.

SECTION 5 - EXAMINATION AND ASSESSMENT

GENERAL ASSESSMENT REGULATIONS (GAR)

5.1 The University's General Assessment Regulations shall apply to the programme. 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.

ASSESEMENT OF INDUSTRIAL CENTRE TRAINING

5.12 An assessment panel (Industrial Centre Training) assesses the performance of students during the IC training period.

5.13 Industrial Centre Training is given a training credit value equivalent to one credit for each week spent on such training. Accordingly, a 4-week equivalent of industrial training generates a total of 4 training credits. The typical schedule of IC Training is as follows:

Subject Description	Duration & Semester
Integrated Aviation Systems Project (ISE3010) (4 credits)	4 weeks, during semester 1 & 2 of Year 1

Subject will be graded at the time when an assessment is made. Only ONE aggregate grade is given to sum up the performance of the student in this subject at the end of semester 2.

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, the 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

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

(i) Complete successfully an accumulation of 66 academic credits* + 4 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 9 credits of 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

*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

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

5.18 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.

5.19 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.

5.20 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.

5.21 In the case that students have already taken certain subject(s) in their previous Associate Degree/Higher Diploma studies, exemption may be given from these subjects and students should take other electives (including free electives) instead to make up the minimum of 60 credits required.

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

5.23 A student is required to graduate as soon as he/she satisfies the graduation requirements as stipulated in 5.17 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.

GUIDELINES FOR AWARD CLASSIFICATION

5.24 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 5.26 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.

5.25 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.

5.26 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).

CLASSIFICATION OF AWARDS

5.27 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.**

5.28 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.

5.29 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.

5.30 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

5.31 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

5.32 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

5.33 Students may only retake a subject which they have failed (i.e. Grade F 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.

5.34 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.

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

5.36 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.

5.37 In relation to 5.36 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

5.38 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.

5.39 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

5.40 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

5.41 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 Board will determine whether the student will be granted aegrotat award. Aegrotat award will be granted under very exceptional circumstances.

5.42 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 BoE, 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

5.43 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

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

5.45 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.

5.46 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.

5.47 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 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 language or General University Requirements (GUR) subjects; and the credits will be counted towards meeting the requirements for award. Transferred credits may be not normally 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 exempted credits 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 PROJECT

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	ISE3004
Subject Title	Systems Modeling and Simulation
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject provides students with 1. the basic system concept and definitions of system; 2. techniques to model and to simulate various systems; 3. the ability to analyze a system and to make use of the information to improve the performance.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. understand the system concept and apply functional modeling method to model the activities of a static system; b. understand the behavior of a dynamic system and create an analogous model for a dynamic system; c. simulate the operation of a dynamic system and make improvement according to the simulation results.
Subject Synopsis/ Indicative Syllabus	1. <u>System definitions and classification</u> Introduction to system definitions. System Classification. Components in a System. 2. <u>Basic Static and Dynamic System Modeling Techniques</u> Static System Modeling: IDEF0 (Input, Control, Output, Mechanism). Dynamic System Modeling: Stella (Stock, Flow, Converter). 3. <u>Introduction to Discrete Event Simulation</u> Analytical and Simulation Modeling, Simulation Worldviews, Preparation for Model Building. Generation of Random Number and Vitiate. Introduction to Distribution Functions, Fitting of Probability Distribution Function to Data. 4. <u>Applications of Discrete Event Simulation</u> Simulation Modeling with Probabilistic Functions. Applications of Simulation in Business, Medical, Manufacturing and Transportation systems.

Teaching/Learning Methodology

The emphasis of this subject is on application aspects and considerable efforts are needed on hand-on activities. Teaching is conducted through class lectures, tutorials, laboratory exercises and a mini-project in related to the application of simulation. The lectures are targeted at the understanding system concept, modeling methods, and different simulation techniques. Substantial works on laboratory exercises and tutorials are employed to enforce students' capabilities in building system models and application of simulation software. The mini-project is to give students a chance of conducting a simulation related project in a more comprehensive manner, and test/quiz is used to classify students' achievement in this subject.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c			
Laboratory/Exercise	40%	✓	✓				
Mini-project/Case Study	30%			✓			
Test/Quiz	30%	✓	✓	✓			
Total	100 %						

Each laboratory exercise would be divided into two parts such that the group work would have to be submitted by the end of the laboratory class while the individual component can be hand-in afterward. Test/quiz will be given to access students' learning outcomes, and, a mini-project in related to application of simulation in practical situation.

Student Study Effort Expected

Class contact:	
▪ Lecture/Seminar 2 hours/week for 6 weeks	12 Hrs.
▪ Tutorial/Hand-on Exercise 2 hours/week for 3 weeks	6 Hrs.
▪ Laboratory/Case Study/Test 3 hours/week for 5 weeks + 6 hours/week for 1 week	21 Hrs.
Other student study effort:	
▪ Project report	31 Hrs.
▪ Self Study/Laboratory Report	52 Hrs.
Total student study effort	122 Hrs.

Reading List and References	1. Zeigler, BP, Praehofer, H, Kim, TG 2000, *Theory of Modeling and Simulation: Integrating Discrete Event and Continuous Complex Dynamic Systems*, Academic Press 2. Altiok, T, Melamed, B 2007, *Simulation Modeling and Analysis with Arena*, Academic Press 3. Evans, JR, Olson, DL 2001, *Introduction to Simulation and Risk Analysis*, Prentice Hall, New Jersey 4. Banks J. et al., 2010, *Discrete-Event System Simulation*, Pearson Education 5. Kelton, WD, Sadowski, R, Zupick, 2014, *Simulation with Arena*, McGraw-Hill

Subject Description Form

Subject Code	ISE3013
Subject Title	Data Management in Aviation Industries
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	The subject will enable students to develop the ability to 1. describe the basic concepts and methods of data management; 2. formulate models for quantitative analysis of managerial problems; 3. derive the data requirements of aviation management project; 4. identify the major applications and limitations of data management for the aviation industries; 5. apply data management techniques and tools for aviation management projects.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. understand the basic principles of data management by demonstrating a basic level of knowledge regarding the practical use of Decision Support and Business Intelligence Systems for data management; b. convert a managerial decision problem into a model formulation to provide the necessary decision support information for practitioners in the aviation industries; c. formulate a data management plan in the context of aviation management; d. apply data management tools in the context of aviation management, showing a moderate level of skills in using related decision support and modeling applications.
Subject Synopsis/ Indicative Syllabus	1. <u>Introduction to Data Management</u> - Why Data Management is needed in the Aviation Industries - the data life cycle, data sharing requirements, naming conventions, metadata, storage, data ownership, security, privacy, and long-term access, basic concepts in data science and mathematical modeling. 2. <u>Data Visualization: Pattern Analysis</u> - Introduction to data visualization - Patterns and models through On-Line Analytical Processing (OLAP) and MS-Excel tools based on datasets gathered in the aviation industries.

<table>
<tr><td></td><td>3. <u>Data Mining and Techniques for Operational and Managerial Data in the Aviation Industries</u>
- Beyond pattern analysis, performing complex data analysis
- Clustering;
- Single factor and two factor analysis;
- t- test and ANOVA test
- Moving average technique; Exponential smoothing (forecasting)
- Cases studies drawn from industrial and business applications in the Aviation Industries.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A mix of lectures, tutorials, and lab sessions is used to deliver the various topics in this subject. Lectures are conducted to introduce students to theoretical concepts and techniques. Some topics are covered in a problem-based format to enhance learning objectives. Lab sessions will be used to illustrate practical application of theories and techniques. Students are given the opportunity to gain hands-on experience on operating Data Management tools during the laboratory sessions.</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. Project</td><td>30%</td><td></td><td></td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>2. Lab exercise</td><td>30%</td><td></td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>3. Test I, II</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 a project, lab exercises, presentation, and quizzes that are designed to facilitate students to achieve the intended learning outcomes. Lab exercise is designed to encourage students to acquire deep understanding of the relevant knowledge from hands-on practice. Project is designed to enhance students' ability to holistically apply what they have learnt in the context of a real problem through team work. Presentation is designed to facilitate students to show ability to communicate complex concepts clearly. Quiz is designed to test students' understanding and application of theoretical concepts and techniques acquired.
</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 x 6 weeks</td><td>18 Hrs.</td></tr>
<tr><td>▪ Lab and test 3 hours/week x 7 weeks</td><td>21 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Preparation for the lab reports
▪ Preparation for tests and self-study</td><td>21 Hrs.
60 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>120 Hrs.</td></tr>
</table>
</td></tr>
</table>

Reading List and References	1. Han JW, Kamber M, and Pei J 2011, *Data Mining: Concepts and Techniques*, 3rd ed., Morgan Kaufmann Publishers 2. Tan, P, Steinbach M and Kumar V 2006, *Introduction to Data Mining*, Addison Wesley 3. Berson A, and Dubov L 2010, *Master Data Management And Data Governance*, 2nd ed., McGraw-Hill 4. Taylor, B W III 2012, *Introduction to Management Science*, 11th ed., Prentice Hall 5. Winston, W L 2011, *Microsoft® Excel® 2010: Data Analysis and Business Modeling*, 3rd ed., Microsoft Press

Subject Description Form

Subject Code	ISE3015
Subject Title	Applications of Operations Research in Aviation
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 in aviation industry; 2. knowledge of formulating mathematical models in daily airline and airport operations; 3. skills in improving management by applying Operations Research theories for planning optimization; 4. knowledge of applying Operations Research models in decision makings for airline operation and dispatch.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. recognize the challenges faced by aviation industry and propose solution to enable disruptive management; b. understand Operations Research theories and build an Operations Research model from real-life problems; c. apply computer tools to obtain optimal solutions from a mathematical model.
Subject Synopsis/ Indicative Syllabus	1. <u>Introduction</u> Basic concepts in Operations Research and Mathematical Modeling. 2. <u>Linear Programming</u> Concept in Linear Programming; Graphics method; the Simplex method. 3. <u>Integer Linear Programming for airline/airport operation</u> Concepts in Integer Programming; the Branch-and-Bound Algorithm for gate assignment; crew pairing and crew rostering 4. <u>Advanced Topics in delay and disruption management</u>

Operation reliability; Proactive Planning; Robust Planning; Strategic schedule planning; Reactive Planning.

5. Network and Dynamic Programming

Network and methods; Dynamic Programming and its applications to air aviation industry.

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			
1. Examination	60%	✓	✓				
2. Assignment exercise/ laboratory/case study	30%	✓	✓	✓			
3. 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

1. Hillier, F. S. and Lieberman, G. J. 2010, *Introduction to Operations*

References	*Research*, 9th edn, McGraw-Hill 2. Yu, Gang 2012, *Operations Research in the Airline Industry*. Vol. 9. Springer Science & Business Media 3. Belobaba, Peter, Amedeo Odoni, and Cynthia Barnhart 2015, *The Global Airline Industry,* John Wiley & Sons 4. Bazargan, Massoud 2012, *Airline Operations and Scheduling,* Ashgate Publishing, Ltd. 5. Wu, Cheng-Lung 2010, *Airline Operations and Delay Management,* Farnham/GB: Ashgate

Subject Description Form

Subject Code	ISE3016
Subject Title	Aviation Safety and Security Management
Credit Value	3
Level	3
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject will provide students to 1. gain fundamental knowledge of managing aviation safety and security; 2. develop students' understanding of methods and techniques used in evaluating the safety and security of aviation operations and services.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. appreciate the safety, reliability and security provisions and infrastructure in aviation administration and service providers; b. identify major causes of aviation accidents and security infiltrations; c. participate in the planning and execution of aviation safety and security programmes; d. participate in the management functions for aviation safety and security.
Subject Synopsis/ Indicative Syllabus	1. <u>Introduction</u> The many faces of damages: accidents, failures, crimes and attacks. Safety. Security. Assurance: Airlines; airports, air traffic control, MRO, OEM and stakeholders. Aviation industry certification and compliance. 2. <u>Accident Causation</u> Accident causation models. Classifications. Regulatory bodies, rules and procedures. Reporting System. Root cause analysis. 3. <u>Failures and Reliability</u> Failures. Failure rate. MTBF. Reliability assessment. System Reliability. Failure prevention tools. Maintenance errors and human factor.

<table>
<tr><td></td><td>
4. Security Practices

Threats. Role of Intelligence. Total Approach: Passengers, Employees, Cargo and others. Screening and access control. Inflight security measures. Security Technologies. Enforcement.

5. Systems and Management

Safety Management System. Sustainability Management. Hazard analysis and control. Contingency. Crisis Management. Emergency Response. Performance indicators. Quantitative techniques. Personnel Competence. Safety Culture. Emerging issues and technologies.

6. Legal Issues

Legal issues related to safety and security management, notably legal systems, law of contract and law of negligence.
</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>
Lectures are used to deliver the fundamental knowledge in relation to various aspects of aviation system safety and security management (outcomes a to d).

Tutorials are used to illustrate the application of fundamental knowledge to practical situations (outcomes a to d).

Group mini-projects are used to help students to deepen their knowledge on a specific topic through search of information, analysis of data and report writing (outcomes a to d).

Special seminar(s) delivered by invited industrial professionals may be used to relate the concepts learnt in class to engineering practices. Students are expected to achieve better understanding of aviation safety and security management through this activity (outcomes a, c and d).

<table>
<tr><td rowspan="2">Teaching/Learning Methodology</td><td colspan="6">Outcomes</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
<tr><td>Lecture</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Tutorial</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Mini-project</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Special seminar</td><td>✓</td><td></td><td>✓</td><td>✓</td><td></td><td></td></tr>
</table>
</td></tr>
</table>

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. Assignments	15%		✓	✓	✓		
2. Group mini-project	15%	✓	✓	✓			
3. Tests	15%	✓	✓	✓	✓		
4. Examination	55%	✓	✓	✓	✓		
Total	100%						

Examination is adopted to assess students on the overall understanding and the ability of applying the concepts. It is supplemented by seminars and continuous assessment including assignments, group mini-project, and tests. The continuous assessment is aimed at enhancing the students' comprehension and assimilation of various topics of the syllabus. In particular, group mini-project is used to assess the students' capacities of self-learning and problem-solving and effective communication skill in English so as to fulfill the requirements of working in the aviation industries.

Student Study Effort Expected

Class contact:	
▪ Lecture and Seminar	30 Hrs.
▪ Tutorial	9 Hrs.
Other student study effort:	
▪ Course work	25 Hrs.
▪ Self-study	46 Hrs.
Total student study effort	110 Hrs.

Reading List and References

1. Redrigues, C.C. and Cusick, S.K., *Commercial Aviation Safety*, McGraw Hill, latest edition.
2. Price, J.C. and Forrest, J.S., *Practical Aviation Security*, Elsevier BH, latest edition.
3. Ferguson, M. and Nelson, S., *Aviation Safety: a balanced industry approach*, Delmar Cengage Learning, latest edition.
4. O'Connor, P.D.T., *Practical Reliability Engineering*, Wiley, latest edition.
5. Civil Aviation Department (HKSAR), *Hong Kong Safety Programme*, latest issue.

Subject Description Form

Subject Code	ISE3020
Subject Title	Introduction to Aviation Management
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject will provide students with a comprehensive overview of aviation industries and management knowledge, and develop their ability to 1. understand the principles, practical factors, and strategies applied by airlines and airports in aviation industry; 2. analyze airline strategies using the main concepts, methods and tools of strategic management; 3. understand the interrelationship between different aviation parties, including airlines, airports, air traffic control, air cargo terminal, etc., in aviation industry; 4. identify the key success factors of airlines and airports; develop methodology for the implementation of a strategic approach; and 5. understand the challenges and solutions for sustainable development of the aviation industry.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. understand the importance of strategies applied by major airlines and low cost airlines; b. understand the importance of strategies by "design" through clear vision, mission and values, and how internal and external factors play a role in achieving strategy objectives. c. recognize the importance of practical issues in aviation industry; and d. acquire basic knowledge and tools of the air transport system structure and basic knowledge of commercial airline. Understand the economic and management principles for analyzing the aviation industry.

Subject Synopsis/ Indicative Syllabus	1. Introduction Describe the overall structure of the aviation industry and understand the airline financial planning process, meteorology, and introduction to international aviation organizations and authorities. 2. Airline Industry Introducing the role and explaining the key functions of airlines; introducing the airline operation process; introducing the concept of long term scheduling and airline revenue management in airline. 3. Marketing and Customer Relationship in Airline Industry Introducing marketing and product sharing; customer relationship management; commerce and sales; alliances; frequent flyer program; code share. 4. Finance Introducing cost structure, management control of major airline, and low cost model. 5. Airport Introducing the role of airport and explaining airport operations; airport strategy development; communication of airport with government, local community, and customers; impact of air coordination analysis; slot management. 6. Air Traffic Control Introducing the role of air traffic control, and explaining the air traffic control operation. 7. Air Cargo industry Introduction to air cargo industries and the role of air cargo terminal; air transport logistics. 8. Sustainability Introduction to the challenges and solutions for sustainable development of the aviation industry.
Teaching/Learning Methodology	A mixture of lectures, tutorial exercises, case studies, and laboratories 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 a better picture of the overall of aviation industries.

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.Test	50%	✓	✓	✓	✓		
2. Assignment exercise	50%	✓	✓	✓	✓		
Total	100%						

The assignment exercises assess students' capability to synthesize and apply the concepts and principle in demonstrating their ability in understanding the basic knowledge of aviation industries.

The test assesses students' understanding on the concepts and capability in the application of the skills and knowledge to analyze and solve problems related to the subject.

Student Study Effort Expected

Class contact:		
▪ Lectures	3 hours/week for 9 weeks	27 Hrs.
▪ Tutorial, Lab., Presentation, Test	3 hours/week for 4 weeks	12 Hrs.
Other student study effort:		
▪ Preparation and Review, Self-study		51 Hrs.
▪ Report writing		20 Hrs.
Total student study effort		110 Hrs.

Reading List and References

1. Wensveen, J. G. 2016. *Air Transportation – A management perspective*, Ashgate.
2. de Neufville, R. and Odoni, A. 2013. *Airport Systems*, Mc Graw Hill
3. Morrell, P. S. 2020. *Moving Boxes by Air*, Routledge
4. Sales, M. 2016, *Aviation Logistics: the dynamic partnership of air freight and supply chain*, Kogan Page

Subject Description Form

Subject Code	ISE3021
Subject Title	Warehousing Technologies and Operations
Credit Value	2
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject provides students with 1. the basic knowledge of warehouse technologies and operations; 2. various techniques to improve warehouse operations including hardware and software; 3. skills to establish performance measures in relation to warehouse operations.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. understand warehouse operations and applications of advance hardware; b. apply various techniques to improve warehouse operations; c. formulate performance measures for warehouse to monitoring.
Subject Synopsis/ Indicative Syllabus	1. <u>Introduction to warehouse operations and management</u> Purpose and functions of warehouse. Role of warehouse in supply chain. Basic facilities in warehouse. Warehouse Management Systems (WMS). Simulation of warehouse operations/inventory control. 2. <u>Techniques for warehouse operations and management</u> Inventory management and optimization (EOQ, Safety Stock, EPQ, and Quantity Discount model). Stock management policies (random storage, delegated storage, stacking, and ABC analysis). Applications of dynamic programming in inventory control. 3. <u>Warehouse performance measures</u> Formulation of good Key Performance Indicators [KPIs]. KPIs for warehouse activity efficiency, inventory management, service quality, order and cost control. Analysis of warehouse performance indicators. 4. <u>Advance hardware applications and programming</u> Use of robots, image processing and applications, utilizations of hardwares in Automated Storage and Retrieval Systems (ASRS) operations.

Teaching/Learning Methodology

The learning method of this subject consists of class lectures and laboratory exercises. The lectures are employed to help students to understand the fundamental principles and techniques in related to field of warehouse technologies and operations. Midterm test is given to testify issues may arise from the lectures and to assist the understanding of analytical skills. Laboratory exercises are incorporated to give students more practical familiarity on relevant areas and to exercise the applications of simulation in warehouse operations.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c			
Laboratory Reports	40%	✓	✓				
Midterm Test	20%		✓	✓			
Final Examination	40%	✓	✓	✓			
Total	100%						

Laboratory reports will be given at each laboratory class, students need to submit them later, which measure the learning outcome a and b. Midterm test will be given to check the students' performance of learning outcomes b, and c, the testing results will be analyzed and some improvements will be made during the rest of lectures. At the end of this subject, an examination will be given to obtain the students' all learning outcomes.

Student Study Effort Expected

Class contact:		
▪ Lecture/Seminar /Tutorial	2 hours/week for 10 weeks	20 Hrs.
▪ Laboratory	2 hours/week for 3 weeks	6 Hrs.
Other student study effort:		
▪ Self Study		30 Hrs.
▪ Laboratory Report/Tutorial		30 Hrs.
Total student study effort		86 Hrs.

Reading List and References

1. Gwynne Richards 2011, *Warehouse Management: A Complete Guide to Improving Efficiency and Minimizing Costs in the Modern Warehouse*, Kogan Page [ISBN-10: 0749460741]

2. David J. Piasecki 2021, *Inventory Accuracy: People, Processes, & Technology*, OPS Publishing, 2nd Edition [ISBN- 978-0972763134]

3. John J. Bartholdi, III, Steven T. Hackman 2017, *Warehouse & Distribution Science*, www.warehouse-science.com.

	4. Harold R. Kerzner 2013, *Project Management Metrics, KPIs, and Dashboards: A Guide to Measuring and Monitoring Project Performance*, Wiley [ISBN-10: 1118524667]

Subject Description Form

Subject Code	ISE404
Subject Title	Total Quality Management
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Students who do not have background knowledge in quality control and quality engineering should be prepared to do additional reading.
Objectives	This subject provides students with the knowledge to 1. understand the philosophy and core values of Total Quality Management (TQM); 2. determine the voice of the customer and the impact of quality on economic performance and long-term business success of an organization; 3. apply and evaluate best practices for the attainment of total quality.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. select and apply appropriate techniques in identifying customer needs, as well as the quality impact that will be used as inputs in TQM methodologies; b. measure the cost of poor quality and process effectiveness and efficiency to track performance quality and to identify areas for improvement; c. understand proven methodologies to enhance management processes, such as benchmarking and business process reengineering; d. choose a framework to evaluate the performance excellence of an organization, and determine the set of performance indicators that will align people with the objectives of the organization.
Subject Synopsis/ Indicative Syllabus	1. *Principles of Total Quality* *Concepts of quality; Core values and paradigms for TQM, including corporate citizenship and protection of the environment; Models for performance excellence: Deming Prize, Baldrige Quality Award, European Quality Award* 2. *Customer Needs* Internal and external customers; Voice of the customer; Customer satisfaction; Customer loyalty; Service recovery; Crisis management 3. *Economics of Quality* Classification and analysis of quality costs; Implementing quality costing

systems; Economic value of customer loyalty and employee loyalty

4. *TQM Methodologies*

   Quality Function Deployment (QFD); Benchmarking; Business process reengineering; Process improvement

5. *Learning and Growth*

   Organizational learning; Organizational renewal; Change management; Employee empowerment

6. Strategic Quality Management

   Vision, strategy, goals, and action plans; Measurement of organizational performance

Teaching/Learning Methodology

A mixture of lectures, group discussions (tutorials), and mini-case studies are used to achieve the objectives of this subject. Some topics are taught in the classroom environment; students have to learn these topics by themselves in the process of writing problem-based assignments. Directed study is also used to develop the self-learning ability of students.

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. Assignments/Case Studies	40%	✓	✓	✓	✓		
2. Tests	15%	✓	✓	✓	✓		
3.Examination	45%	✓	✓	✓	✓		
Total	100%						

The assignments, reflective journals, essays, and case studies facilitate the application of concepts and skills learned in analyzing and attaining total quality while emphasizing factors that may affect decisions.

Examination/tests allow students to demonstrate the extent of their understanding of concepts, as well as their abilities to analyze and solve problems related to the subject.

Student Study Effort Expected

Class contact:		
▪ Lecture/Tutorial	2 hours/week for 13 weeks	26 Hrs.
▪ Tutorial/Case Study	1 hour/week for 13 weeks	13 Hrs.
Other student study effort:		
▪ Studying and self learning		50 Hrs.

	▪ Assignment and report writing	28 Hrs.
	Total student study effort	117 Hrs.
Reading List and References	1. Oakland, John S, 2014, *Total Quality Management and Operational Excellence: Text with Cases*, Taylor and Francis 2. Besterfield, DH, et.al. 2003, *Total Quality Management*, 3rd edn, Prentice Hall 3. Goetsch, DL & Davis, B 2006, *Quality Management: Introduction to Total Quality Management for Production, Processing and Services*, 5th edn, Pearson 4. Gryna FM 2001, *Quality Planning & Analysis*, 4th edn, Jr., McGraw-Hill 5. Selected articles in Quality Progress and the web site of American Society for Quality	

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	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. <u>Workflow Improvement</u> 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	25%		✓	✓	✓		
2. Case Study	15%	✓	✓	✓	✓		
3. Mini Project	30%	✓	✓	✓	✓		
4. Test	30%	✓	✓	✓	✓		
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	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. <u>Overview of Green Supply Chain Management</u> 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. <u>Evolution of Green Legislation</u> 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. <u>Life-Cycle Approach to Green Supply Chains</u> 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	15%	✓	✓			✓	
2.Tutorial assignment	20%			✓	✓	✓	✓
3. Mini project (oral presentation and report)	20%	✓	✓	✓	✓		✓
4. Examination	45%		✓	✓	✓	✓	
Total	100%						

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

The tutorial 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.	
Student Study Effort Expected	Class contact:	
	▪ Lectures 2 hours/week for 12 weeks	24 Hrs.
	▪ Tutorials 1 hour/week for 12 weeks	12 Hrs.
	▪ Presentation 3 hours/week for 1 week	3 Hrs.
	Other student study effort:	
	▪ Preparation for test	12 Hrs.
	▪ Execution of the group project	27 Hrs.
	▪ Reading background information in preparation for tutorials; presentation and report writing	21 Hrs.
	▪ Preparation for case studies and take-home assignment	27 Hrs.
	Total student study effort	126 Hrs.
Reading List and References	1. Ulas Akkucuk, 2016, *Handbook of Research on Waste Management Techniques for Sustainability*, Bogazici University, Turkey. 2. Lam, HL, et.al, 2015, *Green supply chain toward sustainable industry development,* ScienceDirect. 3. Sarkis, J., *Greener manufacturing and Operations*, Greenleaf Publishing Limited, latest edition. 4. Taylor, D. and Brunt, D. *Manufacturing Operations and Supply Chain Management: The LEAN Approach*, Thomson Learning, latest edition.	

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	ISE4014
Subject Title	Aircraft Service Engineering and Logistics
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject will enable students to 1. estimate failure rate of aircrafts; 2. evaluate aircraft reliability; 3. schedule an optimal maintenance plan for aircrafts; 4. maintain fleet readiness; 5. apply principles of quality assurance, quality control, and reliability standards for aircraft services.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. understand and apply different methodologies in aircraft maintenance, such as condition monitored, on-condition and scheduled maintenance process; b. understand and apply different scheduling methodologies to plan and design fleet aircraft maintenance schedule to maximize aircraft reliability and availability.
Subject Synopsis/ Indicative Syllabus	1. <u>Fundamentals of Maintenance</u> Aircraft Reliability; Types of Maintenance; Failure Rate Patterns; Aircraft Ageing; Technology in Aircraft Maintenance. 2. <u>Development of Maintenance Program</u> Process-Oriented Maintenance; Task-Oriented Maintenance; Maintenance Program Documents; Line Maintenance Operations and Schedule; Aircraft Logbook. 3. <u>Aircraft Maintenance Management</u> Role of Management in Aviation; Aircraft Maintenance Management Structure; Aircraft Maintenance Planning and Scheduling; Management Area of Concerns in an Airline; Cost of aircraft maintenance; Implementing Human Factors in Maintenance.

<table>
<tr><td></td><td>4. <u>Aviation Industry Certification Requirements</u>

Aircraft Maintenance Engineer; Aircraft certification; Delivery Inspection; Operator certification; Certification of Personnel; Aviation Maintenance certification; JAA joint certifications; National certifications; FAA type certification.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A mixture of lectures, tutorials, and projects are used to deliver the various topics in this subject. Some materials are covered in a problem-based format, exercise, and assignments to enhance learning effectiveness. Others will be covered through directed study in order to enhance the students' ability of "learning to learn." Some case studies, mainly based on business and industrial experience, are used to integrate these topics and thereby demonstrate to students how the various principles and techniques are inter-related and how they apply in real-life situations.</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>10%</td><td>✓</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. Individual Assignment (×3)</td><td>45%</td><td></td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>3. Group Project</td><td>20%</td><td>✓</td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>4. Test</td><td>25%</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 assignments are designed to assess students' understanding about the knowledge of aircraft maintenance and certifications.

The tutorials and exercises are designed to assess students' understanding of analyzing reliability and failure rate patterns.

The projects and case studies are designed to assess students' understanding of the working principles in the development of maintenance program and management.

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>Class contact:</td><td></td></tr>
<tr><td></td><td>▪ Lectures</td><td>21 Hrs.</td></tr>
<tr><td></td><td>▪ Laboratories</td><td>18 Hrs.</td></tr>
<tr><td></td><td>Other student study effort:</td><td></td></tr>
</table>

	▪ Assignments and exercises	25 Hrs.
	▪ Self-learning and practice for projects	30 Hrs.
	▪ Test preparations	25 Hrs.
	Total student study effort	119 Hrs.
Reading List and References	1. Kinnison, Harry A. 2013, *Aviation Maintenance Management*, McGraw-Hill 2. Friend, C.H. 1992, *Aircraft Maintenance Management*, Longman 3. Florio, Fillppo De 2006, *Airworthiness An Introduction to Aircraft Certification*, A Guide to Understanding JAA, EASA, and FAA Standards 4. Kroe, Micheal J., Watkins, William A., and Delp, Frank 2013, *Aircraft Maintenance and Repair*, Seventh Edition, McGraw-Hill Professional 5. Salas, Eduardo, Jentsch, Florian, and Maurino, Dan 2010, *Human Factors in Aviation*, Academic Press	

Subject Description Form

Subject Code	ISE4015
Subject Title	Airport Logistics Engineering
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject provides students with 1. understanding in aviation logistics and transportation engineering; 2. ability to conduct analytical investigations on aviation logistics operations; and 3. basic engineering techniques in logistics applications.
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. apply various theories and frameworks to analyze airport operations like capacity management, project investment management, and human resource planning; b. manage challenges in airport logistics engineering systems; and c. propose solutions to airports for logistics engineering problems using the knowledge learned in this subject.
Subject Synopsis/ Indicative Syllabus	1. <u>Capacity management</u> The definition of airport peaks, the indicators of airport peaks, the calculation formula of runway capacity, and the calculation formula of gate capacity. 2. <u>Ground handling</u> Passenger handling operations, baggage handling operations, airport layout planning, typical logistics engineering problems like facility location problem 3. <u>Human resource planning</u> The planning for normal staff like check-in counter staff, the work regulations for flight crew members like cabin crew and cockpit crew, the network-based air crew scheduling approach. 4. <u>Project investment management</u> Airport project evaluation methods with/without risk considerations, payback method, rate of return method, net present value method, internal

<table>
<tr><td></td><td>rate of return method, benefit-cost ratio, mean-variance method.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Teaching is conducted through a series of class lectures, tutorials, and case studies/laboratory exercises. Both engineering techniques and theoretical knowhow in relation to logistics with particular emphasis on aviation sectors are introduced. Normally, the essential knowledge is taught in class and laboratory exercises are given to develop a student’s practical ability. Students are required to complete three assignments and a group presentation for a case study. An in-class test is used to enhance the understanding of 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="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.Assignments</td><td>60%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>2.Test</td><td>15%</td><td>✓</td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>3.Case study</td><td>25%</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>
This subject covers both optimization and engineering techniques. Three assignments are established for airport capacity management, air crew scheduling, and airport project investment management, which are designed to assess parts a, b and c of the learning outcomes. An in-class test is used to assess parts a and b. A case study about a real challenge faced by an airport (in which a group presentation is required) is designed to assess parts a and c.</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 11 weeks</td><td>22 Hrs.</td></tr>
<tr><td>▪ Tutorial</td><td>3 hour/week for 3 weeks</td><td>9 Hrs.</td></tr>
<tr><td>▪ Laboratory</td><td>2 hours/week for 1 week
3 hours/week for 2 weeks</td><td>8 Hrs.</td></tr>
<tr><td colspan="2">Other student study efforts:</td><td></td></tr>
<tr><td colspan="2">▪ Assignments</td><td>35 Hrs.</td></tr>
<tr><td colspan="2">▪ Self-study/Preparation work of both case study and laboratory exercises</td><td>48 Hrs.</td></tr>
<tr><td colspan="2">Total student study effort</td><td>122 Hrs.</td></tr>
</table>
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</table>

Reading List and References	1. Richard de, N., Amedeo, R. O., Peter, P. B., & Tom, G. R. (2013). *Airport Systems: Planning, Design, and Management* (2nd ed.): McGraw-Hill Education. 2. Peoples, J., & Bitzan, J. (2017). *The Economics of Airport Operations*: Emerald Publishing Limited. 3. Price, J., & Forrest, J. (2016). *Practical Airport Operations, Safety, and Emergency Management: Protocols for Today and the Future*: Butterworth-Heinemann. 4. Lynch, S. (2019). *Logistics Engineering and Management*: Willford Press.

Subject Description Form

Subject Code	ISE4022
Subject Title	Fleet and Flight Management
Credit Value	3
Level	4
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject will provide students with a comprehensive overview of airline scheduling processes and operations and develop the ability to 1. understand the procedure of building a long, medium, and short term airline scheduling; 2. understand the process and principles of assigning aircraft to flights; 3. learn the calculation of airline revenues and airline costing through the fleet assignment and fleet profitability; 4. learn the controlling and managing skills in airline operations (crew, stations, maintenances, operation center).
Intended Learning Outcomes	Upon completion of the subject, students will be able to a. recognize the impact of the "Aircraft to Flight Assignment" on airline profitability; b. acquire knowledge of airline operation procedure; c. acquire technical skills for flight/aircraft planning and scheduling.
Subject Synopsis/ Indicative Syllabus	1. <u>Airline Planning</u> Airline economics, airline demand analysis, airline demand forecasting; factors and concerns in airline scheduling and revenue. 2. <u>Fleet Assignment</u> Aircraft revenue management; spill cost calculation; airline fleet planning; airline fleet scheduling. 3. <u>Aircraft Rotation Planning</u> Introduction to aircraft checking and maintenance; airline fleet assignment; aircraft routing calculation. 4. <u>Flight Planning</u> Describe the overall procedure of airline operation; introduction to flight

plan; managing flight delay/cancellation.

5. Airline Crew Assignment

Airline crew regulation, airline crew structure; airline crew scheduling techniques, reliability of crew pairing, robust crew pairing, reserve crew assignment.

6. Operations Management

Airline operations management; operation control center.

7. Legal Issues

Relevant legal issues, notably law of agency, arbitration and insurance.

Teaching/Learning Methodology

A mixture of lectures, tutorial exercises, case studies, and laboratories 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 a better picture of the overall of aviation industry.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c			
1.Test	30%	✓	✓	✓			
2. Assignment exercise	40%	✓	✓	✓			
3. laboratory/case study	30%	✓	✓	✓			
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 fleet scheduling and assignment problems.

The test assesses students' understanding on the concepts and capability in the application of the skills and knowledge to analyze and solve problems related to the subject.

Student Study Effort Expected

Class contact:	
▪ Lectures 3 hours/week for 8 weeks	24 Hrs.
▪ Tur., Lab., Presentation, Test 3 hours/week for 5 weeks	15 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. Bazargan, M. 2010, *Airline Operations and Scheduling*, Farnham, England, Burlington, VT 2. Bruce, P.J. 2011, *Understanding Decision-making Processes in Airline Operations Control* 3. Hauppauge, N.Y. 2011, *Airline Industry: Strategies, Operations and Safety*, Nova Science Publisher 4. Macário, R., and Voorde, E.V. 2011, *Critical Issues in Air Transport Economics and Business*, Routledge 5. Kinnison, H.A., and Siddiqui, T. 2013, *Aviation Maintenance Management*, McGraw-Hill	

Subject offered by
Department of Aeronautical and Aviation Engineering

Subject Description Form

Subject Code	AAE4902
Subject Title	Pilot Ground Theory
Credit Value	3
Level	4
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	1. To teach the fundamental knowledge to students who wish to learn the technical and theoretical aspects of flying, and have the desire to pursue their PPL or CPL in the future; and 2. To familiarise student with the use of aeronautical information services, government references and publications for flight planning and navigation purposes; and 3. To teach students aeromedical factor and pilot decision-making to improve pilot's performance; and 4. To develop student's knowledge on the essential knowledge in airworthiness, preparation for flight, and the safe operation of aircraft.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Possess good knowledge in pilot (aeroplane) ground theory including air law, flight rules and procedures; and b. Efficiently utilise aeronautical information services, government references and publications for flight planning and navigation purposes; and c. Recognise the influence and importance of human factor and human performance on flight safety; and d. Possess in-depth understanding of the principle of flight, operation of airplane, pre-flight and airworthiness.
Subject Synopsis/ Indicative Syllabus	**Aviation Law, Flight Rules and Procedure -** Aviation law, Flight Rules and Procedure covering: The Air Navigation Order, The Hong Kong Aeronautical Information Publication, Hong Kong Civil Aviation (Investigation of Accidents) Regulations, AOPA Ground Training Manual. **Navigation -** Meteorology, Aviation Weather Theory and Aviation Weather Services, Air Traffic Control and Airspace, Aeronautical Charts, Navigation Charts and Publications, Communication, Radar Navigation Systems.

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Aircraft - Airplane Instruments and Basics of Onboard Guidance and Navigation Systems from a pilot's perspective. Airplane Performance, Aircraft Weight and Balance.

Aeromedical Factors and Aeronautical Decision Making - Basic Aviation Physiology and Health Maintenance, Human Limitations, Stress and Stress Management, Ergonomics of the Flight Deck, the Decision-Making Process and Situational Awareness.

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

Lectures are used to deliver the fundamental theory, technical and operational knowledge, and civil aviation regulations that are studied by student private and commercial pilots in ground theory courses. The knowledge will provide the fundamental knowledge necessary to students who may wish to later pursue their private or commercial pilot's licenses (outcomes a to d).

Tutorials are used to illustrate and familiarise the application of fundamental knowledge to practical flight situations (outcomes b and c).

Homework assignments, in the form of investigations and evaluations, case studies and flight planning, are used to allow students to deepen their knowledge on a selected topic through search of information, analysis of data and report writing (outcomes a to d).

<table>
<tr><td rowspan="2">Teaching/Learning Methodology</td><td colspan="4">Intended subject learning outcomes to be covered</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td></tr>
<tr><td>1. Lecture</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Tutorial</td><td></td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>3. Homework assignments</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="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. Homework assignments</td><td>25%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Test</td><td>25%</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></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:

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

	Overall Assessment: 0.5 × End of Subject Examination + 0.5 × Continuous Assessment All homework assignments are designed to assist and enhance the understanding the fundamental theories and concepts taught during the course of the subject, and to be sufficiently practical to allow students to apply the theories and concept in practice. Test and Examination serve to evaluate the student's ability in all of the intended learning outcomes.	
Student Study Effort Expected	Class contact:	
	▪ Lecture	33 Hrs.
	▪ Tutorial / Experiment	6 Hrs.
	Other student study effort:	
	▪ Course work	30 Hrs.
	▪ Self-study	36 Hrs.
	Total student study effort	**105 Hrs.**
Reading List and References	1. CAD 54 – Requirements Document: Pilot Licenses and Associated Ratings, Hong Kong Civil Aviation Department. 2. Paul E, Illman, The Pilot's Handbook of Aeronautical Knowledge, latest edition, McGraw-Hill, New York, latest edition. 3. FAA Pilot's Handbook of Aeronautical Knowledge, FAA-H-8083-25A, Flight Standard Service, US DOT FAA, latest edition.	

Revised in July 2022

Subjects offered by
School of Accounting and Finance

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 the fintech development on legal and regulatory framework 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 fintech development on legal and regulatory framework in Hong Kong</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>
</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>
</table>

Reading List and References	***Textbook*** Srivastava, D.K., *Business Law in Hong Kong*, latest edn, Sweet & Maxwell ***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)

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 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.
Teaching/Learning Methodology *(Note 3)*	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.
Assessment Methods in Alignment with Intended Learning Outcomes *(Note 4)*	See table below

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)			
		a	b	c	d
Quizzes / Exercises	20%	√		√	
Written Assignments	55%	√	√	√	
Oral presentation	25%	√		√	√
Total	100 %				

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.

Student Study Effort Expected		
	Class contact:	
	▪ Seminar	39 Hrs.
	Additional activity:	
	▪ e-Learning in Putonghua and written Chinese	9 Hrs.
	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 2. Oral presentations of projects • Selecting content for audience-focused presentations

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

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 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

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

	in the application of language skills for the entire document.	
Student Study Effort Expected	Class contact:	
	▪ Seminars	26 Hrs.
	Other student study effort:	
	▪ Researching, planning, writing, and preparing the project	44 Hrs.
	Total student study effort	70 Hrs.
Reading List and References	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。	

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. 5. Multimodal communication Developing the application of multimodal communication strategies; using a range of media and modes to present information and opinions.

<table>
<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. Extended outline</td><td>5%</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Multimodal essay + Q&A</td><td>50%</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>3. Group digital documentary + Q&A</td><td>45%</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 extended outline assesses how students write, select and organize their ideas, which necessitates achievement of LOs (a), (b) and (c).

The multimodal essay writing assessment evaluates students' ability to write a longer text using accurate and appropriate structures and vocabulary; the Q&A encourages reflection and facilitates deeper understanding, leading to improved learning outcomes (ref. LOs (a), (b) and (c)).

The group digital 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; the Q&A encourages reflection on the production process, leading to improved communication and engagement (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 rowspan="5">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Seminar</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>
</table>

	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.	

May 2023

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. Extended proposal	5%	✓			
2. Academic essay	45%	✓	✓	✓	
3. Oral presentation	50%	✓	✓		✓
Total	100 %				

The extended proposal assesses students' ability to formulate draft arguments based on analysis and evaluation of academic texts: ref. ILO (a)

The essay assesses students' ability to produce longer written texts, in which credible source material is integrated: ref. ILOs (a), (b) and (c)

The presentation assesses students' ability to deliver persuasive and engaging digital texts and to discuss credible arguments in negotiated spoken interactions: ref ILOs (a), (b) and (d)

Students also complete independent learning components, which are a collection of compulsory activities designed to help students achieve the LOs and complete the assessments step-by-step. Activities include a range of reflective tasks, peer review activities and recorded interactive tasks. Further language training is required through web-based language work aligned with the four LOs.

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

<u>Course materials</u>

Learning materials developed by the English Language Centre

<u>Recommended references</u>

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: June 2022

The Hong Kong Polytechnic University

Subject Description 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	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

(Note 3)

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)	15%	✓	✓	
2. Academic Presentation & discussion	40%	✓		✓
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: a. plan, organise and produce professionally acceptable project proposals 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	*Synopsis* This subject enables students to develop the transferrable thinking, language, and communication skills that they will employ as aspiring professionals in the engineering field. Topics include analysis, clarity, appropriacy and persuasion in language and communication. Through a course-long engineering-related project, students will produce a professional project proposal on a creative solution which addresses problems and needs in the society, and deliver an effective pitch justifying the need for the project and the feasibility of the idea. In both tasks, students are required to demonstrate critical research and thinking when planning, organising and producing written and spoken discourses. They are also required to employ advanced language and

	communication strategies to convey meaning clearly, accurately, appropriately, and persuasively to different audiences. 1. Project proposal in English • understanding and analysing problems, needs and requirements • analysing the structure and language of project proposals • extracting and evaluating information • discussing project ideas with the teacher and peers • developing and writing goals, objectives, and informed solutions based on critical analysis • integrating well-researched evidence and discipline specific knowledge clearly and convincingly • organising content logically and coherently • employing advanced language and communication strategies to convey meaning clearly, accurately, appropriately, and persuasively • producing a professional and reader-friendly document • peer-reviewing other proposals and reflecting on their project proposal 2. Project pitch in English • having a clear presentation purpose • selecting appropriate content and evidence • adapting language and style appropriate to the purpose, context and intended audience • employing advanced communication strategies and language features to convey meaning clearly, accurately, appropriately, and persuasively • speaking with clarity (including clear pronunciation) • speaking with fluency and confidence • using effective verbal and non-verbal interactive strategies • using visuals and text to support the spoken message • handling questions professionally • establishing rapport and connection with the audience
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. Classes are seminar / workshop based. The lessons and materials help students to

articulate and pitch their ideas in professionally acceptable language structures, text formats and registers. Activities include discussions, sample analysis, student-led investigations, process writing, peer reviews and mini-presentations. Online resources are integrated into the course for in-class and out-of-class learning.

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. Project pitch in English	60%		✓	✓			
Total	100%						

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

Project proposal in English

The project proposal is used to assess a student's essential writing skills relevant to their field. These skills include using discipline specific concepts and knowledge to justify their rationale and approach, writing with clarity and purpose by adopting a style, structure and design which meets the funder's requirements, and using persuasive language, communication and writing strategies to win support. Embedded into this task is a consultation in which students explain the feasibility of their idea and the overall structure of their project proposal, and followed by a peer-review task in which students review and give actionable feedback to their peers.

Project pitch in English

The project pitch is applied to assess a student's ability to deliver professional and persuasive presentations to an audience relevant to the engineering field. The assignment requires students to justify their project idea, and persuade the audience to take action. Students will need to speak with fluency, clarity and purpose, pitch ideas in a style and structure appropriate to the specific audience, engage the audience, and use persuasive language and communication strategies.

Assessment type	Intended readers/audience	Timing
1. Project proposal in English Each team writes a proposal of 2000-2500 words	ELC Fund Assessment Panel (including engineering experts)	Week 7
2. Project pitch in English Each individual delivers a 5-6 minute project pitch followed by a question-and-answer session.	ELC Fund Assessment Panel and competitors	Weeks 12-13

Student Study Effort Expected	Class contact:	
	Seminars	26 Hrs.

	Other student study effort:	
	Researching, planning and writing the project proposal 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*, 2nd ed. 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	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. Global Outlook for Hong Kong's Economy and Industries Support organizations, policies and their impacts on industrial and economic development in Greater China, the Pacific Rim, and the world. 4. Regulatory Organizations and Compliance 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. Professional Institutions Local and overseas professional institutions; Washington Accord and the qualifications and criteria of professional engineers. 6. Professional Ethics 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) June 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
School of Hotel and Tourism Management

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	HTM4401
Subject Title	Inflight Service Management
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	To survive in the keen aviation business environment, airlines are putting in a lot of effort on quality service to create inflight customer satisfaction. It is very important for airlines to manage and monitor the inflight service quality. This subject is an introductory course in inflight service management. This subject helps students to understand the nature of service and the scope of service industry. It examines the concept of service encounters and its impact on customer satisfaction and evaluates various practices of inflight service. It also discusses and examines the service gap model; and reviews the impact of each gap in the gap models on inflight service satisfaction.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: **a) Competent professional:** Graduates should be able to integrate and to apply in-depth inflight service 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 aviation service industry (global outlook); and demonstrate entrepreneurial spirit and skills in their work, including the discovery and use of opportunities, and experimentation with novel ideas (entrepreneurship). **b) Critical thinker:** Students should be able to examine and critique the validity of information, arguments, and different viewpoints, and to reach sound judgments on the basis of credible evidence and logical reasoning. **c) Innovative problem solver:** Students should be able to identify and define problems in both professional and day-to-day contexts, and produce innovative solutions to solve inflight service problems. **d) Effective communicator:**

	Students should be able to comprehend and communicate effectively in English, and Chinese where appropriate, orally and in writing, in professional and day-to-day contexts. **e) Lifelong learner:** Students 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 goals. **f) Ethical leader:** Students should have an understanding of inflight service 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); and demonstrate ethical reasoning in professional and day-to-day contexts (ethical reasoning). **g) Socially responsible global citizen:** Students 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).
Subject Synopsis/ Indicative Syllabus	a. Overview of Inflight Service Management in Airline Industry b. Application of Service Gap Model in Airline Industry c. Managing Inflight Service Encounters d. Inflight Customer Behaviour e. Inflight Service Innovation and Design f. Inflight Service Standard Development on Full Service Carrier and Low Cost Carrier g. Inflight Service for passengers with special needs h. Inflight Catering Service Management i. Inflight technology and cabin design j. Complaints Handling and Service Recovery k. Managing Flight Attendent Service Performance l. Organization Culture and Inflight service quality

<table>
<tr><td></td><td>m. Building Customer Relationship through Quality Inflight Service</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>I. Interactive Lectures – to deliver subject knowledge, theories, and relevant information to students, supported by lecturer’s handouts and reading material.

II. Tutorials will be conducted with interactive activities and group discussions to support and reinforce the topics covered in lectures.

III. Group Project will involve asking students to form small teams for working on a project that relates to inflight service. The project requires students to analyze an inflight service scenario and make appropriate recommendations on the airline company. Inflight Service or Inflight Performance Managers from airlines will be invited to share their knowledge and experience with students (e.g. how to handle complaints inflight, how to manage inflight service quality). Students will then be required to submit a written report about the assigned scenario and to deliver a 15-minute presentation to the class.

IV. Guest speakers or speakers from aviation organizations (private jets are preferable) will be invited to give lectures/seminars on specific issues related to managing inflight services.</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="7">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><td>g</td></tr>
<tr><td>i.Group tutorial exercise and discussions</td><td>10%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>ii. Mid Term Test</td><td>20%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
<tr><td>iii. Group project</td><td>30%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>iv. Final examination</td><td>40%</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="7"></td></tr>
</table>

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

<u>In-class activities and Participation</u>:

Students will work on exercises and discussions on problems related to the topic discussed in lecture to demonstrate their understanding of the conceptions and ability to apply the concepts in solving the inflight service related problem.

<u>Mid Term Test:</u>

Test will be used to assess students’ understanding of the concept they learned in class, tutorial exercises, and assigned readings.</td></tr>
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<tr><td></td><td colspan="2"><u>Group Project</u>:

A managerial case study is given to each group of students. The case study is used to assess the students' analytical skills, application ability and writing skills.

<u>Examination</u>:

Examination is purely used to test the professional competency, knowledge and intellectual skills learnt and acquired by the students.</td></tr>
<tr><td rowspan="11">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorial</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Reading textbook and assigned reading</td><td>13 Hrs.</td></tr>
<tr><td>▪ Preparation for tutorial</td><td>13 Hrs.</td></tr>
<tr><td>▪ Preparation for group project</td><td>26 Hrs.</td></tr>
<tr><td>▪ Studying for mid-term test</td><td>8 Hrs.</td></tr>
<tr><td>▪ Studying for examination</td><td>10 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>109 Hrs.</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Reading List and References</td><td colspan="2"><u>Textbook:</u>

Kossmann, M. (2017). Delivering Excellent Service Quality in Aviation: A Practical Guide for Internal and External Service Providers. Ashgate Publishing, Ltd.

Zeithaml, V.A., Bitner, M.J., & Gremler, D. D. (2018). Services marketing: integrating customer focus across the firm. McGraw-Hill. 7th Edition.

<u>Suggested Readings and other relevant Sources</u>

An, M., & Noh, Y. (2009). Airline customer satisfaction and loyalty: impact of in-flight service quality. Service Business, 3(3), 293-307.

Balcombe, K., Fraser, I., & Harris, L. (2009). Consumer willingness to pay for in-flight service and comfort levels: A choice experiment. Journal of Air Transport Management, 15(5), 221-226.

Chen, Y. H., Tseng, M. L., & Lin, R. J. (2011). Evaluating the customer perceptions on in-flight service quality. African Journal of Business Management, 5(7), 2854.
Han, H., Hyun, S. S., & Kim, W. (2014). In-flight service performance and</td></tr>
</table>

passenger loyalty: A cross-national (China/Korea) study of travelers using low-cost carriers. *Journal of Travel & Tourism Marketing*, *31*(5), 589-609.

Heracleous, L. T., Wirtz, J., & Pangarkar, N. (2006). *Flying high in a competitive industry: cost-effective service excellence at Singapore Airlines*. McGraw-Hill.

Kim, Y. K., & Lee, H. R. (2011). Customer satisfaction using low cost carriers. *Tourism Management*, *32*(2), 235-243.

Lee, J. H., Kim, M. S., & Jeon, A. (2013). The effects of emotional intelligence on service recovery and organizational loyalty: a case of flight attendants of South Korean airlines. *Service Business*, *7*(4), 665-686.

Liou, J. J., Hsu, C. C., Yeh, W. C., & Lin, R. H. (2011). Using a modified grey relation method for improving airline service quality. *Tourism Management*, *32*(6), 1381-1388.

McKechnie, D. S., Grant, J., & Shabbir Golawala, F. (2011). Partitioning service encounters into touchpoints to enhance quality. *International Journal of Quality and Service Sciences*, *3*(2), 146-165.

Shaw, S. (2011). *Airline marketing and management*. Ashgate Publishing, Ltd.

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	HTM4402
Subject Title	Environmental Management in the Travel and Hospitality Industry
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	Basic concepts, principles and technique of environmental management will be taught to enable students to describe and understand the specific features of environmental management in the travel and hospitality industry as well as the way in which environmental management systems relate to the management as a whole. Some environmental issues such as global warming, ozone depletion and deforestation are also discussed. A critical assessment of the environmental impact attributable to travel and hospitality activities will be reviewed.
Intended Learning Outcomes	**a) Competent professional:** • Students will be able to identify the environmental problems that relate to the travel and hospitality sector; acquire knowledge of the concepts and principles of environmental management in the industry, and understand the global trends of environmental management including adoption of internationally-recognized environmental management system standards and green marketing in the travel and hospitality sector. **b) Critical thinker:** • Students will be able to demonstrate creativity, strategic thinking and critical thinking to inform sound judgment; critically assess the environmental practices as well as different international environmental management systems in a travel and hospitality context, and apply the principles to estimate the environmental impact. **c) Innovative problem solver:** • Students will be able to explain the process of various kinds of environmental actions; critically assess and apply the environmental conservation practices in travel and hospitality businesses, and design, implement and evaluate methods to enhance environmental quality in the travel and lodging sectors. **d) Effective communicator:** • Students will be able to interpret and use data related to environmental management; effectively communicate their data analysis results and solutions in both written and verbal forms, and demonstrate individual and group dynamics in communication.

	e) Lifelong learner: • Students will be able to demonstrate continuous awareness about environmental issues both at micro, macro and global levels **f) Ethical leader:** • Students will be able to work collaboratively within a team, and have the understanding of leadership and be prepared to lead a team within hotel and travel management context; and demonstrate ethical reasoning in professional and day-to-day contexts. **g) Socially responsible global citizen:** • Students will be able to understand environmental management as a critical part in personal and corporate social responsibility for professionals working in the travel and tourism sectors.
Subject Synopsis/ Indicative Syllabus	1. Background issues in environmental management 2. International and national green actions, green consumerism 3. Energy management in the travel and hospitality industry 4. Water management in the travel and hospitality industry 5. Solid waste management in the travel and hospitality industry 6. Environmental management systems (EMSs) 7. Motivations and barriers to EMSs 8. Employee perceptions on EMSs 9. Environmental reporting in the travel and hospitality industry 10. Environmental audit in the travel and hospitality industry 11. Green marketing in the travel and hospitality industry 12. Environmental technologies in the travel and hospitality industry
Teaching/Learning Methodology	**I. Lectures** will be used to explain a series of concepts, theories, principles, facts and events. Significant relationships and derivative problems will also be highlighted. Examples will be discussed during lectures to illustrate the problem, the solution and the technical processes. Students will also be exposed to the environmental management systems of a hotel/Hotel ICON. **II. Peer Learning** will be used to complement and enhance the effectiveness of the lecture by allowing a sharing of freshly acquired knowledge, ideas and experience amongst students, particularly for some complex quantitative topics in environmental management**.**

III. Interactive videos allow students to have more understandings about environmental problems and mitigating technique in different conditions and understand the key problems and measures**.**

IV. Tutorials will be used to supplement the lecture. Tutorials aim to guide students to explore further concepts, theories and principle as well as reinforce students' understanding of important and technical areas.

V. Problem-based case studies will be adopted to explore an authentic problem that serves as the initial framework for learning while students actively seek solutions through several key self-learning stages.

VI. Web surfing provides student opportunity to pay attention to up-to-date development of environment-related issues and technology.

VII. Field trips provides student chance in learning real life information or facilities related to sustainability.

VIII. Group project will involve asking students to form small teams for working on a project that relates to environmental management in travel and hospitality sector. The project requires students to seek for innovative approach and features in the environmental campaign, analyze the feasibility of applying the identified innovation in the industry make appropriate recommendations for adjustment or adaptation. Students will then be required to submit a written report in the assigned areas and a 25-minute presentation to the class.

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	g
1.Gourp tutorial exercise discussions	10%	√	√	√	√	√	√	√
2. Mid-term test	20%	√	√	√				
3. Group project	30%	√	√	√	√	√	√	√
4. Final examination	40%	√	√	√	√	√		√
Total	100 %							

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

Tutorial exercises and discussions: Students will work on exercises and discussions on problems related to the topic discussed in lecture to demonstrate their understanding of the conceptions and ability to apply the concepts in mitigating environmental problems.

Test: Test will be used to assess students' understanding of the concept they

<table>
<tr><td></td><td colspan="2">learned in class, tutorial exercises, and assigned readings.

Mini-group project: Group project comprising a written project and a group presentation. Both written and presentation skills will be assessed.

Examination: Examination will be used to assess the students' understanding of the knowledge and application ability in answering environmental management in travel and hospitality sector.</td></tr>
<tr><td rowspan="7">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorial</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Reading assigned reading</td><td>30 Hrs.</td></tr>
<tr><td>▪ Preparation for tutorial, assignments, mid-term test and examination</td><td>60 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>129 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="2"><u>Reference Books:</u>
• Webster, K., 2016. Environmental Management in the Hospitality Industry: A Guides for Students and Managers. South-Western Cengage Learning, UK.
• Legrand, W., Sloan, P., Chen J.S., 2016. Sustainability in the Hospitality Industry: Principles of Sustainable Operations. Butterworth-Heinemann/Elsevier, Oxford.
• Ruldoph, D., 2012. Aviation and the Environment. Orange Apple. Delhi.
• Upham, P., 2003. Towards Sustainable Aviation. Earthscan, Sterling.

<u>Suggested Readings and other relevant Sources</u>
• Chan, E.S.W., Hawkins, R., 2012. Application of EMSs in a hotel context: A case study. International Journal of Hospitality Management 31 (2), 405-418.
• Chan, E.S.W., 2008. Barriers to EMS in the hotel industry. International Journal of Hospitality Management 27 (2), 187-196.
• Chan, E.S.W., 2013. Managing green marketing: Hong Kong hotel managers' perspective. International Journal of Hospitality Management 34, 442-461.
• Chan, E.S.W., 2013. Gap analysis of green hotel marketing. International Journal of Contemporary Hospitality Management 25 (7), 1017-1048.</td></tr>
</table>

- Chan, E.S.W., Okumus, F., Chan, W., 2020. What hinders hotels' adoption of environmental technologies: A quantitative study. International Journal of Hospitality Management 84, 102324.
- Chan, E.S.W., Okumus, F., Chan, W., 2018. Barriers to environmental technology adoption in hotels. Journal of Hospitality & Tourism Research. 42 (5), 829-852.
- Chan, E.S.W., Okumus, F., Chan, W., 2017. The application of environmental technologies in hotels. Journal of Hospitality Marketing & Management 26 (1), 23-47.
- Chan, E.S.W., Hon, A.H.Y., Okumus, F., Chan, W., 2017. An empirical study of environmental practices and employee ecological behaviour in the hotel industry. Journal of Hospitality & Tourism Research, 41 (5), 585-608.
- Chan, E.S.W., Hawkins, R., 2010. Attitude towards EMSs in an international hotel: An exploratory case study. Int'l Journal of Hospitality Management 29 (4), 641-651.
- Chan, E.S.W., Wong, S.C.K., 2006. Motivations for ISO 14001 in the hotel industry. Tourism Management 27 (3), 481-492.
- Chan, W.W., 2008. Environmental measures for hotels' environmental management systems ISO 14001. International Journal of Contemporary Hospitality Management 21 (5), 542-560.
- Chan W., Jiang B. W., Liu L., 2013. Comparative studies of solar collectors in southern China hotels, Journal of China Tourism Research 9 (3), 292-304.
- Chan W., 2009 Environmental measures for hotels' environmental management systems - ISO 14001. International Journal of Contemporary Hospitality Management 21 (5), 542-560.
- Chan, W.W., 2005. Predicting and saving the consumption of electricity in sub-tropical hotels. International Journal of Contemporary Hospitality Management 17 (3), 228-237.
- Chan, W.W., Lam, J.C., 2003. Energy saving supporting tourism sustainability: a case study of hotel swimming pool heat pump. Journal of Sustainable Tourism 11 (1), 74-83.
- Lo, J. Y., Chan, W., Zhang, C. X., 2014. Tools for benchmarking and recognizing hotels' green effort—environmental assessment methods and eco-labels. Journal of China Tourism Research 10 (2), 165-185.
- Mak, B.L., Chan, W.W, Wong K., Zheng C., 2007. Comparative studies of standalone environmental reports – European and Asian airlines. Transportation Research Part D 12, 45-52.
- Mak, B.L., Chan, W.W., 2007. A study of environmental reporting: International Japanese Airlines. Asia Pacific Journal of Tourism Research (6), 618-628.

Subjects offered by
Department of Logistics and Maritime Studies

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT3027
Subject Title	Air Flight Operations Management
Credit Value	3
Level	3
Normal Duration	1-semester
Pre-requisite	Nil
Objectives	To enable students to develop a wide understanding of the work flow processes and protocols of an international Airport / Airline Flight Operations Centre.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: (a) Gain a basic knowledge of commercial aviation dispatch procedures, work rules, local and international regulations; (b) Learn about the duties and responsibilities of the flight operations officer (dispatcher) and other positions within the Air Operation Center; (c) Able to communicate with the terms and language used in the Airline's operation department; (d) Comprehend common practices and rules governing international airline flight operation; (e) Appreciate the interaction of Airline’s flight operation; (f) Identify problems and solutions in Airline’s flight operation. Studying this subject will help students in development of their global outlook, critical thinking and social responsibility.
Subject Synopsis/ Indicative Syllabus	1. Form of the Earth; Communications, and basic navigation; 2. Aviation Meteorology; 3. Basic aerodynamics and aircraft performance; 4. Air law, Rules of the Air, and governing agencies; 5. Aviation Weather Reports, Weather Charts, and Weather Minima;6. Radio and Navigation Aids 6. Flight Dispatch documentation and Crew briefing8. Standard flight planning procedures and protocols; 7. Introduction to ETOPS/EDTO

<table>
<tr><td></td><td>8. Future Air Navigation System (CNS/ATM)</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Students are engaged in tutorial/workshop sessions, putting new skills and knowledge to work and measuring and evaluating the results. The course content is broad, giving students an excellent understanding of what is expected from Airline Operation Center personnel.</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>Coursework</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>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>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorial</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Coursework / Team Project</td><td>45 Hrs.</td></tr>
<tr><td>▪ Reading</td><td>42 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>

1. Weather Reports, Forecasts & Flight Planning; Terry T. Lankford; 3rd Edition; McGraw-Hill.
2. Airport Operations; Norman Ashford, H.P. Martin Stanton, Cliffon A. Moore; 3rd Edition; McGraw-Hill.
3. Flight Without Formulae; A.C. Kernode; 5th Edition; Pitman Publishing Limited.
4. Aviation Weather; Peter F. Lester; 3rd Edition; Jeppesen.

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

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT3106
Subject Title	Quality Management
Credit Value	3
Level	3
Normal Duration	1-semester
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject examines quality management as an integration of the customer-oriented aspects of the quality of product / service, process and people in organizations.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. outline the concepts and dimensions of product and service quality in a competitive and value / supply chain context b. analyse the design and implementation of a quality management system for ensuring conformance and continuous improvement of quality c. evaluate the quality culture development process with reference to human resource management practice and leadership in organisations
Subject Synopsis/ Indicative Syllabus	▪ Concepts of quality and a study framework for quality management ▪ Dimensions and attributes of competitive product and service quality ▪ Service quality management and improvement ▪ Quality Function Deployment techniques for product / service design ▪ Supplier quality audit and control ▪ The voice of the customer and the market ▪ The tools of quality ▪ Six sigma and lean tools ▪ Quality management standards and awards ▪ Quality culture and organisational citizenship behaviour ▪ Leadership and human resource management for quality performance
Teaching/Learning Methodology	Lectures are used to introduce to students the concepts and applications of quality management. In tutorials, students are required to participate in discussing selected topics in detail and exploring context-specific issues. They will also be guided to search for new information on the topics.

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			
Group presentation in tutorial	25%	✓	✓	✓			
Mid-term Quiz	25%	✓	✓				
Final Exam	50%	✓	✓	✓			
Total	100 %						

Coursework (50%): group presentation in tutorial and quiz.

- Group presentation and discussion to further illustrate the contents presented in lectures
- Mid-term Quiz: short questions and multiple choice questions on the concepts and operational functions of quality management

Final Exam (50%): 3-hour closed-book exam testing students' analytical and integrative thinking and knowledge in quality management.

Student Study Effort Expected

Class contact:	
▪ Lectures	26 Hrs.
▪ Tutorials	13 Hrs.
Other student study effort:	
▪ Self studies and group work	87 Hrs.
Total student study effort	126 Hrs.

Reading List and References

Textbook

Foster, S. T. (2013) Managing Quality: Integrating the Supply Chain, Fifth Edition, Pearson Education.

Reference Journals

International Journal of Operations and Production Management

International Journal of Production Economics

International Journal of Production Research

International Journal of Quality and Reliability Management

Journal of Operations Management

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT3800
Subject Title	Airline Operations and Revenue Management
Credit Value	3
Level	3
Normal Duration	1-semester
Pre-requisite	Nil
Objectives	Airlines operate in a highly competitive environment, whilst the industry overall is severely hampered by the Covid-19 pandemic and very limited financing sources. Airlines, within their limited operational capability, therefore need to make the best use of all possible revenue sources and fully optimize operations and costs in order to ensure stable financial conditions and profitability. The use of leasing of aircraft as well as forms of financing can be of significant benefit to airlines – but also bears risks. This subject provides students with the fundamental skills in airline operations and revenue management including aircraft delivery finance option evaluation. It helps them to understand the complexity but also the significance of airline operation businesses, as well as the optimization of the financial structure of the airlines' fleet and the different, effective and creative ways of achieving this. These skills and the knowledge of the methods discussed in this subject are essential for the success of aviation business today.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. understand the challenges of airline operation and revenue generation generation as well as fleet financing in today's Covid-19 pandemic impacted and competitive airline market environment. b. apply the fundamental methods of airline revenue management, airline operations and fleet financing. c. contribute to the solution of airline operation and fleet financing related problems and develop a sensitivity to the issues involved in such business practices. d. understand the content of a fleet/aircraft investment paper. e. foster intellectual and personal development, self-confidence and the ability to find solutions in this complex environment without

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<tr><td></td><td>supervision and develop realism and practicality as a foundation for good business judgment.
f. develop approaches to defining, analysing and solving operations and revenue management as well as fleet financing related problems, to enable a sustained improvement of the airline's profitability.
g. develop the ability to communicate effectively and fluently in both written and spoken form.

Studying this subject will also help develop students' global outlook, critical and creative thinking, social and national responsibility, cultural appreciation, life-long learning, and entrepreneurship and leadership.</td></tr>
<tr><td>Subject Synopsis/ Indicative Syllabus</td><td>• Long-term and medium-term fleet planning (incl. phase-in/phase-out) leading to financial fleet management.
• Strategies for different airlines: LCC vs full-service airlines, government-owned vs private airlines.
• Principles of revenue management: class of reservation management, overbooking, innovative pricing strategies including dynamic pricing.
• Risk management: fuel price, currency exchange rate, interest rate.
• Principles of financial fleet management: buy or lease, when and how to do this, writing an investment paper
• Aircraft procurement process and requirements
• Aircraft leasing options: Financial leasing, Operating leasing, Direct Leases versus Sale and Leaseback scenarios
• Wet and short-term leasing as a tool for capacity management.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A combination of lectures, guest lectures (face-to-face or online), seminars/ conference attendance, case studies, group discussions and students-directed learning activities will be included in this 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="7">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><td>g</td></tr>
<tr><td>Continuous Assessment</td><td>50%</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Class participation</td><td>10%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
</table>
</td></tr>
</table>

	Quiz	10%	✓	✓	✓	✓	✓	✓	✓
	Midterm test	30%	✓	✓	✓	✓	✓	✓	✓
	Final Exam	50%	✓	✓	✓	✓	✓	✓	✓
	Total	100 %							

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

Student Study Effort Expected	Class contact:	
	▪ Lecture	26 Hrs.
	▪ Tutorial	13 Hrs.
	Other student study effort:	
	▪ Self study	87 Hrs.
	Total student study effort	126 Hrs.

Reading List and References

- Bazargan, Massoud (2010) *Airline Operations and Scheduling (2nd Edition)*, Ashgate: Aldershot, UK.
- Doganis, Rigas(2010) *Flying Off Course (4th Edition)*, London: Routledge.
- Morrell, P.S. (2021) *Airline Finance (5th Edition)*. London: Routledge.
- Talluri, Kalyan T., Van Ryzin, Garrett J. (2005) *The Theory and Practice of Revenue Management*, Springer.
- Vitaly S. Guzhva, Sunder Raghavan, Damon J. D'Agostino (2018): Aircraft Leasing and Financing: Tools for Success in International Aircraft Acquisition and Management
- Wu, Cheng Lung (2010) *Airline Operations and Delay Management*, Ashgate: Aldershot, UK.

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT4012
Subject Title	Airport Management
Credit Value	3
Level	4
Normal Duration	1-semester
Pre-requisite	Nil
Objectives	Airport businesses have undergone fundamental changes in their business environments in the last couple of decades. The liberalization of air transport markets, the subsequent huge growth of air traffic, the development of new airline business models, the ever growing importance of non-aeronautical businesses, privatization strategies, airport expansion plans, new and innovative methods of economic airport regulation, new technological developments and big data analytics contributed to the development of an exciting industry with tremendous business opportunities but also substantial social responsibilities. This subject handles all these issues. It explains general facts of the air transport industry, and how airport businesses and technologies have developed over time, why airports are often subject to heavy economic regulation and how regulation influences airport businesses. The purpose is to help the students to develop a profound understanding of the most important drivers of airport businesses today, and to offer ways to successfully address the challenges arising from historic and current technological developments.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. develop a deep understanding of the "big picture" that describes airport management environments; b. contribute to the solution of business problems in privately and publicly owned airports **(BBA Outcome 14)**; c. critically assess regulatory policies from the standpoints of airports, airlines and governments; d. understand the applications and implications of the latest technologies to practices and decisions pertaining to airport management
Subject Synopsis/ Indicative Syllabus	• Data and technology: Data sharing, and interoperable solutions contribute to the effective and efficient airport operation. This part explores how data can be leveraged for flexibility, resilience, efficiency and revenue generation at airports. • Natural monopoly: Here students will be provided with a data set and econometric methods to analyze airport cost structures. This helps to understand why airports are often considered as "natural monopolies." • Competition: Airports are often considered as natural monopolies, while they still compete in various dimensions. This part covers

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competitive strategies based on new technological developments and big data analysis, competition for transfer passengers and the role of the evolving airport and airline businesses for airport market power. The role of competition for pricing will be illustrated with the help student interactive games.

• Public supply: Many airports are owned and operated by government agencies. This is different from many other industries that are mainly driven by private companies. This part discusses some benefits of the public supply of transport infrastructure.

• Privatization and “non-aeronautical services:” Nowadays private involvement in airport ownership in operation has substantially increased. Furthermore, many airports earn a large share of their revenues from the supply of services that are not primarily related to airport infrastructure (so called non-aeronautical services. The pricing of airport infrastructure in the presence of non-aeronautical services will be illustrated with the help of pricing games.

• Regulation: Private involvement often comes together with some form of airport infrastructure charges regulation. The benefits and drawbacks of different forms of regulation are discussed in detail in this class. Regulation forms discussed in class include cost-based regulation, price-cap regulation.

• Revenue sharing: Many companies are involved in the supply chain which enables services such as airline flights and air cargo operations. The role of collaborative pricing will be illustrated with the help student interactive games.

• Congestion: The future growth in air traffic will be associated with shortages in infrastructure supply, which then leads to a drop of service quality in terms of airline punctuality. How so-called “airport slots” to control flight delays is explained in this part.
</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A combination of lectures, guest talks by industry experts (online and face-to-face), company visits, real case studies and students-directed learning activities will be included in this 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="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. Coursework</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. 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>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

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>
</table>

Student Study Effort Expected	Class contact:	
	▪ Lecture	26 Hrs.
	▪ Tutorial	13 Hrs.
	Other student study effort:	
	▪ Self Study	87 Hrs.
	Total student study effort	126 Hrs.
Reading List and References	**Useful references:** Airport Council International, 2021. The power of data in the aviation eco system. Webinar available on YouTube. Czerny, A.I., 2021. Airport regulation. International Encyclopedia of Transportation. Elsevier. OAG. The future of travel. Blog. Article collection. Available at: https://www.oag.com/insights/ Wiltshire, J., 2018. Airport competition: Reality or myth? *Journal of Air Transport Management* 67, 241-248. Thelle, M.H. and la Cour Sonne, M., 2018. Airport competition in Europe. *Journal of Air Transport Management* 67, 232-240.	

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT4017
Subject Title	Information Systems for Logistics Management
Credit Value	3
Level	4
Normal Duration	1-semester
Pre-requisite	Nil
Objectives	This subject is a high-level subject that seeks to build upon the knowledge students have obtained in an introductory subject of information technology. The role of this subject is to provide, via a case-based teaching and learning approach, a chance for students to develop a deeper understanding of information systems development and application in real business organisations. Students will be challenged to demonstrate their abilities to apply modern information technologies (such as Artificial Intelligence, Big Data, and High-performance Computing) and to improve the business operations, particularly the logistics management**.** The emphasis is on analysis and overall design of information systems so that optimisation of logistics-related business processes within organisational strategy can be achieved.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. Understand the importance of Information System (IS) for logistics and supply chain management, strategies and important considerations in design, implement, and adopt IS for logistics enterprises. b. Understand the current trend and modern technologies in the development and application of IS in the logistics-related operations. c. Apply the software engineering model to design, implement, and manage the information systems in order to improve the efficiency of the logistics-related operations; d. Use existing commercial optimisation, statistical, and simulation software to improve the operation efficiency in logistics. Studying this subject will help develop students' creative thinking, and intrigue their interest in life-long learning to keep abreast of modern information technology.

Subject Synopsis/ Indicative Syllabus	**Introduction to Information Systems in Logistics Management** Basics concepts about information, information systems, logistics management, and their relationships. **Information Technology Infrastructure** Nature and definition of Information Technology (IT); Key components, Evolutions and Trends of IT infrastructure; Information system security; Super computing infrastructure. **Data System and Business Intelligence** Basic concepts of database and database management system; Types of database; Relational database; Applications of database management; Concepts and applications of business intelligence and big data analytics; the business values of database management system and business intelligence; Internet of Things Applications for logistics management **Decision Support Systems** Decision making in logistics management; Operations Research and artificial intelligence foundation of Decision Support Systems (DSS) and its applications in logistics management; opportunities, challenge, and guidelines to manage DSS; **Enterprise Resource Planning System** Overview of transaction processing oriented application for product life-cycle management requirement, in particular for ERP and CRM systems. **E-Commerce Applications** Information technologies behind E-Commerce; Classifications of E-Commerce; the value of E-Commerce to logistics management; the applications of E-Commerce in logistics management **System Investigation and Analysis** Introduction to system development life cycle concept, understanding the system analysis and user requirement specification, and change control procedures. Evaluation of various project development approaches for waterfall model, V-model, Spiral model, prototyping and rapid application development concepts. **System Design, Implementation and Maintenance** Introduction to site preparation, test plan and user acceptance test requirement. Evaluation of various data conversion and system migration approaches for parallel run, pilot run, phase-in (piece-meal approach), and direct cut-over (big bang approach). Also to be familiar with the system review, error correction and maintenance procedures. **Hands-on Topics on Logistics Information Systems** Basic skills in data analytics, artificial intelligence, database management system, and enterprise resource planning system; basic skills to develop a spreadsheet based decision support system.

<table>
<tr><td>Teaching/Learning Methodology</td><td>Lectures will be used to introduce to students the concepts, principles, theories, application issues and descriptive cases for the topics. Different teaching materials will be used to cover the most updated development and applications of information technology in the logistics industry. Case studies will be used in lectures to enable students learning context-specific knowledge through discussion. Computer laboratories will be used to provide students with hands-on practice through design and development of information systems.</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 hand-on experience in software design and development will be evaluated through a term project, which requires student to participate and apply the various information technology project management and system development skills in the project deliverable or its prototypes.</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorial</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Term project</td><td>87 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><u>Recommended Textbook</u>

Management Information Systems: Managing the Digital Firm, 14th Edition, by Laudon, K.C., and Laudon, J.P. (2014), Pearson/Prentice Hall.

<u>Indicative Readings</u>

Principles of Information Systems, 13th Edition, by Stair, R.M. and Reynolds, G. (2016), Cengage Learning.</td></tr>
</table>

The Hong Kong Polytechnic University

Subject Description Form

Subject Code	LGT4800
Subject Title	Airline Strategy and Management
Credit Value	3
Level	4
Normal Duration	1-semester
Pre-requisite	Nil
Objectives	Airlines operate in highly complex and competitive market environments in which successful businesses depend crucially on the understanding of how rival airlines, partner airlines, airports, rival rail operating companies and even governments interact strategically. This understanding then helps to anticipate their behavior and can be used to develop own strategies that can ensure the successful and sustainable operations. The main purpose of this subject to sharpen the students' capability to think strategically and to use this skill to evaluate and develop own successful airline strategies.
Subject Learning Outcomes	Upon completion of the subject, students will be able to: a. understand economic concepts and theories behind airline business and develop approaches to analyzing and formulating airline strategies**.** b. develop awareness to various issues involved in airline business practice. c. understand the means by which airlines create values. **(BBA outcome 6)** d. demonstrate an understanding on the applications of data science in airline business.
Subject Synopsis/ Indicative Syllabus	• Airline industry and business environment: - major external influential factors and constrains - operating performance: yield, unit cost, load factor, traffic, output - Porter's five forces • Airline business models - deregulation and liberalization and changes in airline business models - Porter's competitive strategy - full-service airlines vs. low-cost airlines, low-cost subsidiaries • Air travel demand

<table>
<tr><td></td><td>
- definition of markets
- drivers for airline demand
- demand elasticities

• Revenue-maximizing pricing strategies
- market segmentation and price discrimination
- basics of revenue management

• Airline cost structures and optimal output
- fixed vs. variable costs, marginal cost, economies of scale and density, productivity
- profit-maximizing output
- frequency versus aircraft size

• Network strategies
- hub-and-spoke vs. point-to-point
- hubbing strategies

• Airline competition and cooperation
- frequency and market share
- strategies to deal with new entrants
- market structure and competition, entry barriers
- competition policy
- global alliances, code-sharing, mergers and acquisitions

• Application of data science in airline management
</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>A combination of lectures, tutorials, case studies, group discussions and students-directed learning activities will be included in this subject.</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 colspan="4">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th></tr>
<tr><th>a</th><th>b</th><th>c</th><th>d</th></tr>
<tr><td>Coursework</td><td>50%</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></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:
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorial</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self study</td><td>87 Hrs.</td></tr>
</table>
</td></tr>
</table>

	Total student study effort	126 Hrs.
Reading List and References	**Recommended Textbooks** • Cook, G. N. and Billig, B. (2017). *Airline Operations and Management*, 1st ed., Florence: Routledge. • Holloway, Stephen (2016) *Straight and Level: Practical Airline Economics (3rd Edition)*, Ashgate: Aldershot, UK. **Useful References** • Delfmann, W., Baum, H., Auerbach, S. and Albers, S. (2017). *Strategic Management in the Aviation Industry*, Ashgate. • Doganis, R. (2019) *Flying Off Course – Airline Economics and Marketing (5th Edition)*, Routledge, London. • Wensveen, John G. (2016). *Air Transportation: A Management Perspective*, Ashgate. • Chung, S.-H., Ma, H.-L., Hansen, M. and Choi, T.-M. (2020) Data science and analytics in aviation, *Transportation Research Part E: Logistics and Transportation Review*, 134, 101837.	

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	ISE3010
Subject Title	Integrated Aviation Systems Project
Credit Value	4 Training Credits
Level	3
Pre-requisite / Co-requisite/ Exclusion	NIL
Objectives	This subject aims at developing students' practical understanding of common technological systems and processes found in aviation industry. Through undertaking hands-on projects, students will also be able to integrate their academic knowledge with practical skills about key engineering tasks including: problem identification, design, fabrication, and evaluation.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) recognize the constraints imposed on common aviation systems by technical, economic, environmental and safety factors; b) identify technical problems and improvement opportunities in a given aviation system by applying academic knowledge; c) design a technical system or process to meet desired needs in aviation industry; d) effectively work individually on their own initiative, and as members of a team; e) show a commitment to quality, timeliness, life-long learning and continuous improvement.
Subject Synopsis/ Indicative Syllabus	<u>Airframe fabrication</u> • Technical, economic, environmental and safety characteristics of common metal and composites airframe structures; • Working principle and operation of metal and composites fabrication processes: bending, drilling, riveting, wet-layup, pre-preg layup and

autoclave curing;

- Practical appreciation of airframe inspection and repair techniques.

Logistics automation

- Automation systems and the operation of key elements: Actuators, Sensors, Programmable Controller;
- Working principle and operation of Radio Frequent Identification (RFID) system for object tacking and identification;
- Integration of system components for typical logistics equipment such as conveyor systems, AS/RS (Automatic storage and retrieval systems), etc.;
- Enabling information technologies for logistics systems such as computer networking, Middleware, etc.
- Appreciation of robotic technologies: Collaborative robot, SLAM and AMR.

Learning Methodology

Workshop-based hands-on activities will be arranged for students to appreciate the principles and operations of common aircraft technologies and systems. The activities also help students to acquire essential practical skills for them to carry out project tasks. Short lectures, demonstrations, and tutorials will be mixed with hands-on activities to deliver technical contents.

Group-based integrative-project will be used to enable students to integrate practical skill sets through fabricating and optimising physical products. Examples of physical products are: Airframe structures, ground equipment, aircraft maintenance tools, jigs and gauges, *etc*. The project will also encourage students to seek, learn and apply information that is pertinent to the work they are undertaking.

Technical handouts will be available on-line for students to familiarise with the technical contents before lesson.

Assessment Methods in Alignment with Intended Learning Outcomes

Assessment Methods	Weighting (%)	Intended Learning Outcomes Assessed				
		a	b	c	d	e
1. Workshop assignments	45	✓	✓	✓	✓	✓
2. Quizzes	15	✓	✓			

	3. Performance of final product	20		✓	✓	✓	
	4. Training report	20		✓	✓	✓	✓
	Total	100					

Workshop assignments in the form of system configuration or fabrication tasks will be used to assess how well students understand the working principle, capabilities, and operation of the aviation systems and processes. Students' skill-level will be evaluated by the artifacts they produced, while their engineering judgment and critical thinking be evaluated by individually filled task worksheets.

Quizzes will be used to assess broadly the students' understanding of declarative knowledge covered by the subject.

Performance of final product, evaluated by product trials, QC checks, and supervisors' inspection, will be used to assess how well the students exercise their engineering judgments, and how efficient they working as a team.

Individual training report will be used to assess holistically how well the students consolidate technical contents, reflect on their engineering decisions, and critically review their teamwork performance. The students also elaborate on their professional attitude and commitment in their writing.

Student Study Effort Expected

Class Contact	
▪ Lectures, tutorials, and hands-on practices	20 Hrs.
▪ Project	100 Hrs.
Other Study Effort	0 Hrs.
Total Study Effort	**120 Hrs.**

Reading List and References

Reference Publications:

1. Forenz, T. (2018). Aviation Maintenance Technician Certification Series:Materials and hardware. Module 06. US, Aircraft Technical Book Company.
2. Fietz, K. (2019). Aviation Maintenance Technician Certification Series: Maintenance practices. Module 07A. US, Aircraft Technical Book Company.

	3. Reza Farahani, Shabnam Rezapour, & Laleh Kardar (2011). Logistics Operations and Management. Elsevier 4. Mikell Groover (2014). Automation, Production Systems, and Computer-Integrated Manufacturing. Pearson

Appendix I

GENERAL UNIVERSITY REQUIREMENTS

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 their 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