THE HONG KONG POLYTECHNIC UNIVERSITY

DEPARTMENT OF BUILDING AND REAL ESTATE

Senior Year Intake into 4-year Degree Programme

BSc (Hons) in Building Engineering & Management

BSc (Hons) in Property Management

BSc (Hons) in Surveying

For Student Intake 2024-2025

September 2024

This Programme Requirement Document is subject to review and changes, which the programme offering University / Faculty / Department / School can, decide to make from time to time. Students will be informed of the changes as and when appropriate.

This document should be read in conjunction with the Academic Registry Handbook on Academic Regulations and Procedures.

Department of Building and Real Estate
Faculty of Construction and Environment

September 2024

Contents

BSc (Hons) in Building Engineering & Management

1. General Information

Summary of Programme Details:

Name of University:	The Hong Kong Polytechnic University
Faculty:	Construction and Environment (FCE)
Department:	Building and Real Estate (BRE)
Programme:	BSc (Hons) in Building Engineering and Management (BEM)
Mode of Attendance:	Full-time
Mode of Operation:	Credit-Based Programme
Mode of Finance:	UGC Funded
Duration:	Normally two years
Total Credits Requirements:	69 credits (plus 2 training credits)
Commencing:	September 2024
Level of Award:	BSc (Hons) in Building Engineering and Management

Contributing Departments / Centres

Host Department: Building and Real Estate (BRE)

Contributing Departments and Centre:

- Department of Applied Mathematics (AMA)
- English Language Centre (ELC)
- Chinese Language Centre (CLC)

Programme Planning Committee

Head of the Department
Associate Head (Teaching)
Undergraduate Scheme Chair
BEM Award Co-ordinator

2. Programme Aims, Objectives and Outcomes

Programme Aims

The BEM programme aims to produce graduates who can develop into highly competent and professional building engineers for Hong Kong, China and the international market. It aims to equip students with the knowledge and ability in the planning and management of construction projects and facilities so that they will be able to contribute effectively to project and facilities management teams engaged in complex building projects.

Programme Outcomes

Programme outcomes refer to the intellectual abilities, knowledge, skills and attributes that an all-rounded preferred graduate from BEM programme should possess.

To ensure fulfilment of the goal of developing all-round students with professional competence, it is required that outcome statements encompass the following two categories of learning outcomes:

Professional/Academic Knowledge and Competence

Upon successful completion of the programme, the graduate is expected to have acquired the ability:-

(i) To possess knowledge of building engineering principles, processes and methods for the successful completion of all types of construction projects.
(ii) To use the techniques, skills and engineering principles for different types of construction.
(iii) To apply construction management knowledge and skills in personnel, financial and operational practices and communication aspects required for efficient building production.
(iv) To identify, structure and analyse diverse problems arising from the changing social, economic, environmental and technological pressures.
(v) To solve identified construction problems with appropriate solutions.
(vi) To evaluate alternative strategic options.
(vii) To select appropriate construction materials, practices and methods in compliance with sustainable development.
(viii) To exercise professional judgement in the consideration of alternatives in complex situations.

Attributes for All-roundedness

As all undergraduate programmes are under the BRE Degree scheme, the attributes for all-roundedness listed are the same under the scheme.

Upon successful completion of the programme, the students are expected to possess the following attributes for all-roundedness:-

(i) To possess skills to identify, analyse and solve problems.
(ii) To have an understanding of professional, social and ethical responsibilities.
(iii) To communicate effectively.
(iv) To reflect on knowledge gap for life time learning.
(v) To contribute as team member and to lead effectively.
(vi) To identify contemporary issues.

Note: PolyU aspires to develop all its students as all-round graduates with professional competence, and has identified a set of highly valued graduate attributes can be developed through the curricular activities of this programme, some (including the all-rounded attributes of 'to reflect on knowledge gap for life time learning' and 'to identify contemporary issues' contained therein in the curriculum mappings of the Majors in BSc (Hons) in Building Engineering & Management) are primarily addressed through co-curricular activities offered by faculties, departments, and various teaching and learning support units of the University. Students are encouraged to make full use of such opportunities to develop these attributes.

Graduate attributes and institutional learning outcomes for undergraduate degree programmes

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 with novel ideas *(entrepreneurship)*.

Critical thinker:

Graduates 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.

Innovative problem solver:

Graduates should be able to identify and define problems in both professional and day-to-day contexts, and produce innovative solutions to solve problems.

Effective communicator:

Graduates should be able to comprehend and communicate effectively in English and Chinese, where appropriately, orally and in writing, in professional and day-to-day contexts.

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 goals.

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)*; and demonstrate ethical reasoning in professional and day-to-day contexts *(ethical reasoning)*.

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)*.

BSc (Hons) in Property Management

1. General Information

Summary of Programme Details:

Name of University:	The Hong Kong Polytechnic University
Faculty:	Construction and Environment (FCE)
Department:	Building and Real Estate (BRE)
Programme:	BSc (Hons) in Property Management (PMT)
Mode of Attendance:	Full-time
Mode of Operation:	Credit-Based Programme
Mode of Finance:	UGC Funded
Duration:	Normally two years
Total Credits Requirements:	72 credits (plus 2 training credits)
Commencing:	September 2024
Level of Award:	BSc (Hons) in Property Management

Contributing Departments / Centres

Host Department: Building and Real Estate (BRE)

Contributing Departments and Centre:

- Applied Social Sciences (APSS)
- English Language Centre (ELC)
- Chinese Language Centre (CLC)

Programme Planning Committee

Head of the Department
Associate Head (Teaching)
Undergraduate Scheme Chair
PMT Award Co-ordinator

2. Programme Aims, Objectives and Outcomes

Programme Aims

The PMT Programme aims to provide students with a broad-based and inter-disciplinary education in the context of property and housing management as well as facilities and corporate asset management and to develop them as all-rounders who can understand and work with the interplay between social, economic, political, legal, technological and commercial issues and problems incidental to the property and real estate asset management. Students are equipped with the ability to identify the issues and to solve the strategic and operational problems in property management. It is intended to prepare students for a professional career in property and real estate asset management in Hong Kong and the region with the essential knowledge and prerequisite skills for the profession.

Programme Outcomes

Programme outcomes refer to the intellectual abilities, knowledge, skills and attributes that an all-rounded preferred graduate from PMT programme should possess.

To ensure fulfilment of the goal of developing all-round students with professional competence, it is required that outcome statements encompass the following two categories of learning outcomes:

Professional/Academic Knowledge and Competencies

Upon successful completion of the programme, the students are expected to attain the following abilities:-

(i) To apply professional and vocational knowledge in property management, including its operational logistics and multi-disciplinary facets.
(ii) To identify and solve problems in property management practices.
(iii) To communicate effectively with social skills as a competent property manager.
(iv) To practise as a professional property manager in compliance with the legal and ethical requirements of the profession.
(v) To appreciate the multi-disciplinary dimensions of property management practices and the interests of the stakeholders in the industry.
(vi) To explore options for the property management practices with creative and critical mind-set.

Attributes for All-roundedness

As all undergraduate programmes are under the BRE Degree scheme, the attributes for all-roundedness listed are the same under the scheme.

Upon successful completion of the programme, the students are expected to possess the following attributes for all-roundedness:-

(i) To possess skills to identify, analyse and solve problems.
(ii) To have an understanding of professional, social and ethical responsibilities.
(iii) To communicate effectively.
(iv) To reflect on knowledge gap for life time learning.
(v) To contribute as team member and to lead effectively.
(vi) To identify contemporary issues.

Note: PolyU aspires to develop all its students as all-round graduates with professional competence, and has identified a set of highly valued graduate attributes that can be developed through the curricular activities of this programme, some (including the all-rounded attributes such as 'to reflect on knowledge gap for life time learning and to identify contemporary issues' contained therein in the curriculum mappings of the Majors in BSc (Hons) in Building Engineering & Management, BSc (Hons) in Property Management and BSc (Hons) in Surveying) are primarily addressed through co-curricular activities offered by faculties, departments, and various teaching and learning support units of the University. Students are encouraged to make full use of such opportunities to develop these attributes.

Graduate attributes and institutional learning outcomes for undergraduate degree programmes

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 with novel ideas *(entrepreneurship)*.

Critical thinker:

Graduates 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.

Innovative problem solver:

Graduates should be able to identify and define problems in both professional and day-to-day contexts, and produce innovative solutions to solve problems.

Effective communicator:

Graduates should be able to comprehend and communicate effectively in English and Chinese, where appropriately, orally and in writing, in professional and day-to-day contexts.

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 goals.

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)*; and demonstrate ethical reasoning in professional and day-to-day contexts *(ethical reasoning)*.

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)*.

BSc (Hons) in Surveying

1. General Information

Summary of Programme Details:

Name of University:	The Hong Kong Polytechnic University
Faculty:	Construction and Environment (FCE)
Department:	Building and Real Estate (BRE)
Programme:	BSc (Hons) in Surveying (SUV)
Mode of Attendance:	Full-time
Mode of Operation:	Credit-Based Programme
Mode of Finance:	UGC Funded
Duration:	Normally two years
Total Credits Requirements:	72 credits (plus 2 training credits)
Commencing:	September 2024
Level of Award:	BSc (Hons) in Surveying

Contributing Departments / Centres

Host Department: Building and Real Estate (BRE)

Contributing Departments and Centre:

- English Language Centre (ELC)
- Chinese Language Centre (CLC)

Programme Planning Committee

Head of the Department
Associate Head (Teaching)
Undergraduate Scheme Chair
SUV Award Co-ordinator
SUV Deputy Award Co-ordinator

2. Programme Aims, Objectives and Outcomes

Programme Aims

The Programme aims to prepare students with fundamental knowledge and skills in the inter-disciplinary professions of land, property and construction for their immediate employability and lifelong learning. The Programme underpins surveying studies with the disciplines of economics, law; sustainability, management and technology. Graduates will first enter the professions of building surveying, quantity surveying, planning & development, property and facility management or general practice surveying as graduate trainees, with full potentials to readily become full-fledged professional surveyors and take leading and strategic roles in the profession and business of land, property and construction and contribute to the community through their chosen professional services.

Programme Outcomes

Programme outcomes refer to the intellectual abilities, knowledge, skills and attributes that an all-round preferred graduate from surveying programme should possess.

To ensure fulfilment of the goal of developing all-round students with professional competence, it is required that outcome statements encompass the following two categories of learning outcomes:

Professional/Academic Knowledge and Competencies

Upon successful completion of the programme, the students are expected to attain the following abilities:-

(i) To comprehend and identify issue and problems concerning land, property and construction at project level.

(ii) To comprehend and identify issue and problems concerning land, property and construction at corporate level.

(iii) To comprehend and identify issue and problems concerning land, property and construction at industry level.

(iv) To comprehend and identify issues and problems concerning land, property and construction at macro social-economic and political level.

(v) To advise clients through rendering surveying services.

(vi) To identify, formulate and solve problems related to the surveying profession and real estate industry.

(vii) To analyse and interpret data of the industry

(viii) To formulate and implement strategies, policies and solutions for sustainable development and construction.

Attributes for All-roundedness

As all undergraduate programmes are under the BRE Degree scheme, the attributes for all-roundedness listed are the same under the scheme.

Upon successful completion of the programme, the students are expected to possess the following attributes for all-roundedness:-

(i) To possess skills to identify, analyse and solve problems.
(ii) To have an understanding of professional, social and ethical responsibilities.
(iii) To communicate effectively.
(iv) To reflect on knowledge gap for life time learning.
(v) To contribute as team member and to lead effectively.
(vi) To identify contemporary issues.

Note: PolyU aspires to develop all its students as all-round graduates with professional competence, and has identified a set of highly valued graduate attributes that can be developed through the curricular activities of this programme, some (including the all-rounded attributes such as 'to reflect on knowledge gap for life time learning and to identify contemporary issues' contained therein in the curriculum mappings of the Majors in BSc (Hons) in Building Engineering & Management, BSc (Hons) in Property Management and BSc (Hons) in Surveying) are primarily addressed through co-curricular activities offered by faculties, departments, and various teaching and learning support units of the University. Students are encouraged to make full use of such opportunities to develop these attributes.

Graduate attributes and institutional learning outcomes for undergraduate degree programmes

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 with novel ideas *(entrepreneurship)*.

Critical thinker:

Graduates 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.

Innovative problem solver:

Graduates should be able to identify and define problems in both professional and day-to-day contexts, and produce innovative solutions to solve problems.

Effective communicator:

Graduates should be able to comprehend and communicate effectively in English and Chinese, where appropriately, orally and in writing, in professional and day-to-day contexts.

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 goals.

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)*; and demonstrate ethical reasoning in professional and day-to-day contexts *(ethical reasoning)*.

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)*.

3. General Entrance Requirements

Normal Applicants

The basic entrance requirement is a Higher Diploma or Associate Degree in Construction related discipline or equivalent from a recognized institution.

Selection

Selection of applicants for admission is based on academic qualifications and other relevant qualifications. Short-listed applicants may be required to attend an interview. The purpose of the interview is to assess the applicants':-

- Command of spoken English;
- Depth and breadth of general knowledge, and
- Motivation for entering the programme.

The final selection of students will be based on a balance of academic attainment, motivation, and the interview report, if any.

In all cases, the final decision as to the suitability of any applicant will be the sole discretion of the Head of Department.

4. Intended Learning Outcomes, Curriculum Mapping, Programme Curriculum and Progression Pattern of Programmes

BSc (Hons) in Building Engineering & Management

Subject Descriptions

'Level' codes reflect the intellectual demand on the students. The levels of the subjects are coded according to a common coding system of the Hong Kong Polytechnic University.

Level		Explanation
2	=	Standard comparable to Year 2 of a 4-year degree Major
3	=	Standard comparable to Year 3 of a 4-year degree Major
4	=	Standard comparable to the final year of a 4-year degree Major

The University adopts a university-wide standard for subject level weighting for calculating the award GPA, and to use the weighting of 2 for Level 2 subjects; and a weighting of 3 for Level 3 and 4 subjects.

The Programme Curriculum and Examination Schedule for each academic level are detailed in Programme Curriculum Table from Stage 3 to Stage 4.

Subjects are referred by subject codes. The alphabets refer to the responsible departments whilst the three-digit reference numbers, the first digit (i.e. 2, 3 or 4) indicates the level of the subjects.

The **typical progression patterns of BSc (Hons) in Building Engineering & Management** illustrate the semesters in which these subjects are recommended to be taken, if the programme of the Major is to be completed in the minimum time.

NOTE

***Programme Curriculum displays the Discipline-specific Requirements (DSR) for the Major in Building Engineering & Management only.**

Details of the General University Requirements (GUR) can be found from their respective websites provided by the University.

Intended Learning Outcomes of BEM programme

To ensure fulfilment of the goal of developing all-round students with professional competence stipulated by the University, it is required that outcome statements encompass the following two categories of learning outcomes:-

A. Professional/Academic Knowledge and Competence

Upon successful completion of the programme, the graduate is expected to action the following abilities:-

(i) To possess knowledge of building engineering principles, processes and methods for the successful completion of all types of construction projects.
(ii) To use the techniques, skills and engineering principles for different types of construction.
(iii) To apply construction management knowledge and skills in personnel, financial and operational practices and communication aspects required for efficient building production.
(iv) To identify, structure and analyse diverse problems arising from the changing social, economic, environmental and technological pressures.
(v) To solve identified construction problems with appropriate solutions.
(vi) To evaluate alternative strategic options.
(vii) To select appropriate construction materials, practices and methods in compliance with sustainable development.
(viii) To exercise professional judgement in the consideration of alternatives in complex situations.

B. Attributes for All-roundedness

As all undergraduate programmes are under the BRE Scheme, the attributes for all-roundedness listed are the same under the scheme.

Upon successful completion of the programme, the students are expected to possess the following attributes for all-roundedness:-

(i) To possess skills to identify, analyse and solve problems.
(ii) To have an understanding of professional, social and ethical responsibilities.
(iii) To communicate effectively.
(iv) To reflect on knowledge gap for life time learning.
(v) To contribute as team member and to lead effectively.
(vi) To identify contemporary issues.

Relationship between the programme intended learning outcomes (PILOs) of the BEM and the Institutional learning outcomes of PolyU

ILOs of BEM Programme (Category A)	Institutional Learning Outcomes						
	Competent professional	Critical thinker	Effective communicator	Innovative problem solver	Lifelong learner	Ethical leader	Socially responsible global citizen
(i)	X	X	X	X		X	X
（ii）	X	X	X	X	X	X	
(iii)	X	X	X	X		X	
(iv)	X	X		X	X	X	X
(v)	X	X		X		X	
(vi)	X	X	X	X	X	X	
(vii)	X			X	X	X	X
(viii)	X	X	X	X	X	X	
ILOs of BEM Programme (Category B)	Competent professional	Critical thinker	Effective communicator	Innovative problem solver	Lifelong learner	Ethical leader	Socially responsible global citizen
(i)	X	X	X	X			
(ii)	X	X	X	X	X	X	X
(iii)	X	X	X	X	X	X	
(iv)	X			X	X		X
(v)	X	X	X	X		X	
(vi)	X	X	X	X		X	X

Curriculum Mapping: BSc (Hons) in Building Engineering & Management

This curriculum map gives a holistic view of the degree to which each intended learning outcome will be taught and assessed in your programme.

The following indicators (I, R, A) to show the treatment of the programme outcome in a subject:

I	(Introduced)	That the learning leading to the particular intended outcome is introduced in that subject.
R	(Reinforced)	That the learning leading to the particular intended outcome is reinforced in that subject.
A	(Assessed)	That the performance which demonstrates the particular intended outcome is assessed in that subject

Level 2 Subjects

		Subject Codes														
	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE204	AMA290													
A1	To possess knowledge of building engineering principles, processes and methods for the successful completion of all types of construction projects	I														
A2	To use the techniques, skills and engineering principles for different types of construction	IRA	IA													
A3	To apply construction management knowledge and skills in personnel, financial and operational practices and communication aspects required for efficient building production															
A4	To identify, structure and analyse diverse problems arising from the changing social, economic, environmental and technological pressures															
A5	To solve identified construction problems with appropriate solutions	RA														
A6	To evaluate alternative strategic options	IR														

	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE204	AMA290													
A7	To select appropriate construction materials, practices and methods in compliance with sustainable development															
A8	To exercise professional judgement in the consideration of alternatives in complex situations	I														
	All-rounded Attributes															
B1	To possess skills to identify, analyse and solve problems		IA													
B2	To have an understanding of professional, social and ethical responsibilities															
B3	To communicate effectively	I	I													
B4	To reflect on knowledge gap for life time learning															
B5	To contribute as team member and to lead effectively	I														
B6	To identify contemporary issues															

Level 3 Subjects

		Subject Codes															
	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE302	BRE326	BRE345	BRE350	BRE370	BRE364	BRE365	BRE366	CLC3231P	ELC3421						
A1	To possess knowledge of building engineering principles, processes and methods for the successful completion of all types of construction projects	IR			RA	RA		RA									
A2	To use the techniques, skills and engineering principles for different types of construction	IRA		IA		RA											
A3	To apply construction management knowledge and skills in personnel, financial and operational practices and communication aspects required for efficient building production		I		RA	I	RA	RA									
A4	To identify, structure and analyse diverse problems arising from the changing social, economic, environmental and technological pressures					IR		RA	RA								
A5	To solve identified construction problems with appropriate solutions	IRA	IA	IA	RA	RA	RA		RA								
A6	To evaluate alternative strategic options	R	IA		RA	R		RA	RA								

	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE302	BRE326	BRE345	BRE350	BRE370	BRE364	BRE365	BRE366	CLC3231P	ELC3421						
A7	To select appropriate construction materials, practices and methods in compliance with sustainable development	I	IA			IRA		RA									
A8	To exercise professional judgement in the consideration of alternatives in complex situations	IR						R	RA								
	All-rounded Attributes																
B1	To possess skills to identify, analyse and solve problems		I	IA	A	IR	RA	RA	A								
B2	To have an understanding of professional, social and ethical responsibilities	I				I		IA									
B3	To communicate effectively		I	IA	A		RA	RA	A	IRA	IRA						
B4	To reflect on knowledge gap for life time learning						R	I	IRA								
B5	To contribute as team member and to lead effectively	R	I		A	R		RA									
B6	To identify contemporary issues		I			IRA	R	R	A								

Level 4 Subjects

		Subject Codes															
	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE426	BRE4281	BRE4393	BRE453	BRE461	BRE462	BRE466	BRE470								
A1	To possess knowledge of building engineering principles, processes and methods for the successful completion of all types of construction projects	IR			RA	RA	RA		IR								
A2	To use the techniques, skills and engineering principles for different types of construction	IRA	R		RA	RA	RA	A	RA								
A3	To apply construction management knowledge and skills in personnel, financial and operational practices and communication aspects required for efficient building production		RA				R		A								
A4	To identify, structure and analyse diverse problems arising from the changing social, economic, environmental and technological pressures		RA			RA	RA	RA									
A5	To solve identified construction problems with appropriate solutions	IRA		RA	RA		R	RA	R								
A6	To evaluate alternative strategic options			RA		RA	R	RA									
A7	To select appropriate construction materials, practices and methods in compliance with sustainable development			IRA		RA	RA	R									

	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE426	BRE4281	BRE4393	BRE453	BRE461	BRE462	BRE466	BRE470								
A8	To exercise professional judgement in the consideration of alternatives in complex situations	I	R				R	RA									
	All-rounded Attributes																
B1	To possess skills to identify, analyse and solve problems	I		A	RA	RA	RA	A	IA								
B2	To have an understanding of professional, social and ethical responsibilities				R	RA											
B3	To communicate effectively		RA	A			RA	A	A								
B4	To reflect on knowledge gap for life time learning		R				R	IRA	I								
B5	To contribute as team member and to lead effectively	RA				R	R		A								
B6	To identify contemporary issues		R		R	R	RA	A	R								

PROGRAMME CURRICULUM OF THE PROGRAMMES

Programme Curriculum of Major* in Building Engineering & Management - Stage 3 of the 4-Year programme

Programme Curriculum shows the 62-credit Discipline-Specific Requirements (DSR) for the Major in Building Engineering & Management only. Details of the 9-credit General University Requirements (GUR) can be found from their respective websites provided by the University.

Stage 3		**Curriculum**								**Assessment Methods**	
		Timetabled Contact Hours per Week			**No. of Teaching Weeks**	**Total Hours**	**Teaching Dept.**	**Subject Weighting for Final Assessment Grade (FAG)**			
Subject Code	**Subject Title**	**Lecture**	**Tutorial/ Seminar**	**Lab. (Pract.)/ Project Work/ Guided Study**				**Subject Weighting**	**Credit Value**	**CW/ CA**	**Exam.**
CLC3231P	Chinese Communication for Construction and Land Use		3		13	39	CLC	3.0	3	100%	-
ELC3421	English for Construction and Environmental Professionals		3		13	39	ELC	3.0	3	100%	-
BRE204	Structure I	2	1	-	13	39	BRE	2.0	3	30%	70%
BRE302	Structure II	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE326	Maintenance Technology & Management	2	1	-	13	39	BRE	3.0	3	30%	70%
BRE345	Measurement, Documentation & Estimating	2	1	-	13	39	BRE	3.0	3	60%	40%
BRE350	Project Management & Procurement	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE370	Intermediate Construction Technology & Materials	2	1	-	13	39	BRE	3.0	3	40%	60%
BRE364	Construction Contract Law & Administration						BRE	3.0	3	40%	60%
BRE365	International Study*	-	-	0.8			BRE	3.0	1	100%	-
BRE366	Analytical Skills & Methods	2 (for 8 weeks)	1 (for 8 weeks)	-	8	24	BRE	3.0	2	100%	-
AMA290	Engineering Mathematics	2	1	-	13	39	AMA	2.0	3	40%	60%
BRE299	Work-Integrated Education (WIE)						BRE/ Employers / IC	2.0	2 training credits	100%	-

NOTE: 1. Students must meet the Language and Communication Requirements (LCR); otherwise the students are required to take additional LCR subjects.

2. Students must complete and pass the 6 credits CAR subjects to meet the requirements for 9 credits GUR, and all the subjects listed in Level 2, Level 3, and Level 4 in Stages 3 and 4 prior to their graduation.

3. Students must complete the Work-Integrated Education (WIE) with satisfactory results before they can graduate.

   * International Study Tour is to take place in the Summer Semester. Students need to commence preparation, organization and liaison work of their study tour from Semester 1 of Stage 3.

T/S = Tutorial/Seminar
Lab. (Pract.) = Laboratory (Practical)
PW = Project Work
CW = Coursework
GS = Guided Study
CA = Continuous Assessment

Programme Curriculum of Major* in Building Engineering & Management for Stage 4

Stage 4		Curriculum								Assessment Methods	
		Timetabled Contact Hours per Week			No. of Teaching Weeks	Total Hours	Teaching Dept.	Subject Weighting for Final Assessment Grade (FAG)			
Subject Code	**Subject Title**	**Lecture**	**Tutorial/ Seminar**	**Lab. (Pract.)/ Project Work/ Guided Study**				**Subject Weighting**	**Credit Value**	**CW/CA**	**Exam.**
BRE4393	Temporary Work Design	2	1	-	13	39	BRE	3.0	3	100%	-
BRE426	Geotechnical & Foundation Engineering	2	1	-	13	39	BRE	3.0	3	30%	70%
BRE4281	Construction Engineering Management	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE453	Building Services II	2	1	-	13	39	BRE	3.0	3	40%	60%
BRE461	Environmental Impact & Assessment	2	1	-	13	39	BRE	3.0	3	60%	40%
BRE462	Advanced Construction Technology	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE466	Capstone Project[#]			1.0 (for 10 weeks)	10	184 (PW/GS)	BRE	3.0	6	100%	-
BRE470	Information Technology and Building Information Modelling for Construction	2	1		13	39	BRE	3.0	3	50%	50%

NOTE: Student must complete and pass all subjects listed in Level 4 prior to their graduation.

[#] BRE466 is a **6-credit** core subject spanning across from year 4 Semester 1 to Semester 2

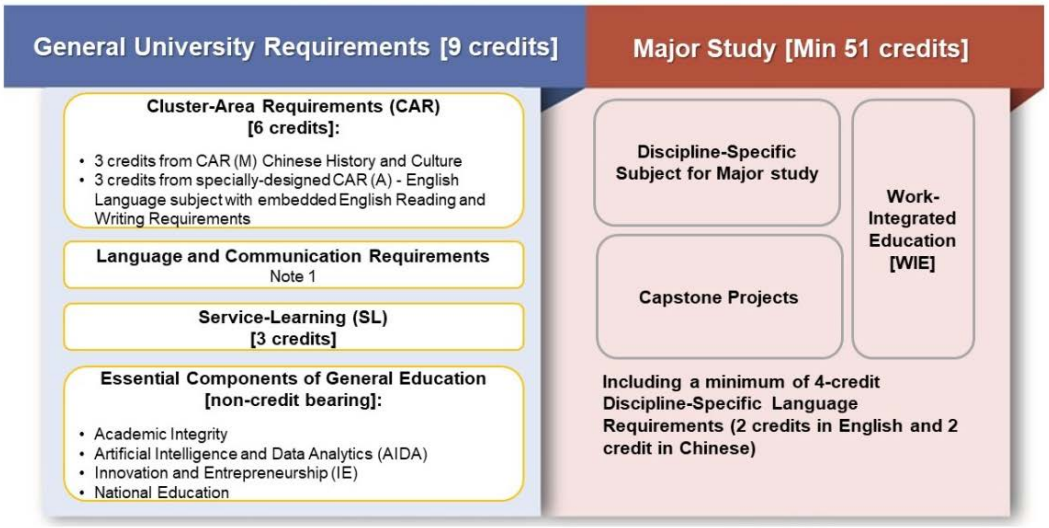
T/S = Tutorial/Seminar
Lab. (Pract.) = Laboratory (Practical)
PW = Project Work
CW = Coursework
GS = Guided Study
CA = Continuous Assessment

General University Requirements (GUR) and Curriculum Framework for Senior Year Programmes

Areas	Credits
Cluster-Area Requirements (CAR) • 3 credits from CAR (M) "Chinese History and Culture" • 3 credits from specially designed CAR (A) English Language Subject with embedded English Reading and Writing Requirements • Students are required to fulfil the English and Chinese Reading & Writing Requirements	6
Service-Learning (SL)	**3**
(New) Essential Components of General Education E-modules on: 1. Academic Integrity 2. Artificial Intelligence and Data Analytics 3. Innovation and Entrepreneurship 4. National Education	Non-credit-bearing
Language and Communication Requirements (LCR) • Having met the equivalent standard of the Undergraduate Degree Language and communication Requirement (LCR)	
Total	**9**

No further credit transfer will be given to the required GUR unless the student is admitted on qualifications more advanced than Associate Degree/Higher Diploma and has also completed comparable components in their earlier studies.
*Students not meeting the equivalent standard of the Undergraduate Degree LCR will be required to take additional LCR subjects. These students will have to take in an assessment test to ascertain the LCR subjects required.
*The admission of students to UGC-funded Articulation Degree programmes and Senior Year intakes on the basis of qualification(s) more advanced than Associate Degree/Higher Diploma is subject to the conditions stipulated by UGC governing the UGC-funded Senior Year places

Curriculum framework for Senior Year intakes from 2022/23:



PROGRESSION PATTERN

BSc (Hons) in Building Engineering and Management

Total credits for the curriculum framework for the senior year intake is 69 credits (plus 2 training credits), including 9 credits for General University Requirements, and 60 credits for Discipline-Specific Requirements. Unless otherwise specified, subjects are compulsory and carry 3 credits.

Subject Code	Subject Title
Stage 3 (Year 1) [September 2024]	
Semester 1	
CLC3231P	Chinese Communications for Construction and Land Use
ELC3421	English for Construction and Environment
BRE204	Structure I
BRE350	Project Management and Procurement
BRE370	Materials Intermediate Construction Technology & Materials
BRE365	International Study (1 Credit) **
BRE366	Analytical Skills & Methods (2 credits)
GUR	CAR subject 1 * (CAR M)
Semester 2	
AMA290	Engineering Mathematics
BRE302	Structure II
BRE326	Maintenance Technology & Management
BRE345	Measurement, Documentation & Estimating
BRE364	Construction Contract Law & Administration
BRE365	International Study (1 Credit), cont'd **
GUR	CAR subject 2 * (CAR A -English Language)
Summer Semester	
BRE299	Work-Integrated Education (2 training credits)
BRE365	International Study (1 Credit), cont'd **
Stage 4 (Year 2) [September 2025]	
Semester 1	
BRE4393	Temporary Work Design
BRE365	International Study (1 Credit), cont'd **
BRE453	Building Services II
BRE461	Environmental Impact & Assessment
BRE466	Capstone Project (6 credits in 2 semesters) from Year 2 S1 to Year 2 S2)
BRE470	Information Technology and Building Information Modelling for Construction
GUR	Servicing Learning

Semester 2

BRE426	Geotechnical & Foundation Engineering
BRE4281	Construction Engineering Management
BRE4393	Temporary Work Design (cont'd)
BRE466	Capstone Project
BRE462	Advanced Construction Technology

Notes:

1. Senior year intake students need to take (non-credit-bearing) Essential Components of General Education and should be completed in the first year of study.
2. * Senior year intake students need to take 2 CAR subjects (6 credits) with 3 credits from the subjects offered in cluster CAR (M) - Chinese History and Culture, and another 3 credits from the subjects in cluster CAR (A) - English Language Subject with embedded English Reading and Writing Requirements. CAR (A) should be completed in the first year of study.
3. Service-Learning Subject (SL) is a compulsory subject in senior year curriculum and the credits are not transferrable.
4. ** Planning for study tour, field study or comparative study shall be commenced from Semester 1 of year 1. The study tour or field study is expected to be arranged and completed by the end of Year 1 and assessment to be finalized by Semester 1 of year 2.
5. All BRE Level 3 and Level 4 subjects of a particular Major or discipline offered in Semester two are available as electives to students of another Major or discipline within the Department, subject to subject offering schedule, fulfilment of pre-requisite and/or co-requisite requirements and time-tabling constraints. (Note: not applicable for SYB)
6. *** The Department reserves the rights to review/revise the subjects to be offered and the time of offer.

BSc (Hons) in Property Management

Subject Descriptions

'Level' codes reflect the intellectual demand on the students. The levels of subjects are coded according to a common coding system of the Hong Kong Polytechnic University.

Level		Explanation
1	=	Standard comparable to Year 1 of a 4-year degree Major
2	=	Standard comparable to Year 2 of a 4-year degree Major
3	=	Standard comparable to Year 3 of a 4-year degree Major
4	=	Standard comparable to the final year of a 4-year degree Major
5-6	=	Standard at postgraduate level

The University adopts a university-wide standard for subject level weighting for calculating the award GPA, and to use the weighting of 2 for Level 1 and 2 subjects; and a weighting of 3 for Level 3 and 4 subjects.

The Programme Curriculum and Assessment Methods for each academic level are detailed in Programme Curriculum Table from Stage 1 to Stage 4.

Subjects are referred by subject codes. The alphabets refer to the responsible departments whilst the three-digit reference numbers, the first digit (i.e. 1, 2, 3 or 4) indicates the level of the subjects.

The **typical progression patterns of BSc (Hons) in Property Management** illustrate the semesters in which these subjects are recommended to be taken, if the programme of the Major is to be completed in the minimum time.

'Electives' are those subjects which are optional. These give students some choices in composing their study programme.

NOTE

***Programme Curriculum displays the Discipline-specific Requirements (DSR) for the Major in Property Management only.**

Details of the General University Requirements (GUR) can be referred to their respective websites provided by the University.

Intended Learning Outcomes of PMT programme

To ensure fulfilment of the goal of developing all-round students with professional competence stipulated by the University, it is required that outcome statements encompass the following two categories of learning outcomes:-

A. Professional/Academic Knowledge and Competence

Upon successful completion of the programme, the graduate is expected to action the following abilities:-

(i) To apply professional and vocational knowledge in property management, including its operational logistics and multi-disciplinary facets.
(ii) To identify and solve problems in property management practices.
(iii) To communicate effectively with social skills as a competent property manager.
(iv) To practice as a professional property manager in compliance with the legal and ethical requirements of the profession.
(v) To appreciate the multidisciplinary dimensions of property management practices and the interests of the stakeholders in the industry.
(vi) To explore options for the property management practices with creative and critical mind-set.

B. Attributes for All-roundedness

As all undergraduate programmes are under the BRE Scheme, the attributes for all-roundedness listed are the same under the scheme.

Upon successful completion of the programme, the students are expected to possess the following attributes for all-roundedness:-

(i) To possess skills to identify, analyse and solve problems.
(ii) To have an understanding of professional, social and ethical responsibilities.
(iii) To communicate effectively.
(iv) To reflect on knowledge gap for life time learning.
(v) To contribute as team member and to lead effectively.
(vi) To identify contemporary issues.

Relationship between the programme intended learning outcomes (PILOs) of the PMT and the Institutional learning outcomes of PolyU

ILOs of BEM Programme (Category A)	Institutional Learning Outcomes						
	Competent professional	Critical thinker	Effective communicator	Innovative problem solver	Lifelong learner	Ethical leader	Socially responsible global citizen
(i)	X	X		X		X	
（ii）	X	X		X	X		
(iii)	X	X	X	X			
(iv)	X	X		X	X	X	X
(v)	X	X	X	X		X	X
(vi)	X	X	X	X	X		
ILOs of BEM Programme (Category B)	Competent professional	Critical thinker	Effective communicator	Innovative problem solver	Lifelong learner	Ethical leader	Socially responsible global citizen
(i)	X	X	X	X			
(ii)	X	X	X	X	X	X	X
(iii)	X	X	X	X	X	X	
(iv)	X			X	X		X
(v)	X	X	X	X		X	
(vi)	X	X	X	X		X	X

Curriculum Mapping: BSc (Hons) in Property Management

This curriculum map gives a holistic view of the degree to which each intended learning outcome will be taught and assessed in your programme.

The following indicators (I, R, A) to show the treatment of the programme outcome in a subject:

I	(Introduced)	That the learning leading to the particular intended outcome is introduced in that subject.
R	(Reinforced)	That the learning leading to the particular intended outcome is reinforced in that subject.
A	(Assessed)	That the performance which demonstrates the particular intended outcome is assessed in that subject

Level 3 Subjects

			Subject Codes															
	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE315	BRE326	BRE337	BRE371	BRE349	BRE350	BRE362	BRE365	BRE366	BRE397	ELC3421	CLC3231P					
A1	To apply professional and vocational knowledge in property management, including its operational logistics and multi-disciplinary facets	I	IA	I		I	IR	IA	RA	RA	IRA							
A2	To identify and solve problems in property management practices	R	IA	R	I	IRA	IRA		RA	A	IR							
A3	To communicate effectively with social skills as a competent property manager			R	I		IRA				R							
A4	To practise as a professional property manager in compliance with the legal and ethical requirements of the profession	A	I	A	I						R							
A5	To appreciate the multi-disciplinary dimensions of property management practices and the interests of the stakeholders in the industry		I	R			IR	RA	RA	R	R							

	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE315	BRE326	BRE337	BRE371	BRE349	BRE350	BRE362	BRE365	BRE366	BRE397	ELC3421	CLC3231P					
A6	To explore options for the property management practices with creative and critical mindset			I				IA	IA	RA								
	All-rounded Attributes																	
B1	To possess skills to identify, analyse and solve problems		I	A	R	RA	A	RA	RA	A	IRA							
B2	To have an understanding of professional, social and ethical responsibilities	R		R					IA		R							
B3	To communicate effectively	R	I	R	I	RA	A	RA	RA	A	R	IRA	IRA					
B4	To reflect on knowledge gap for life time learning			I					I	IRA								
B5	To contribute as team member and to lead effectively		I			RA	A		RA		R							
B6	To identify contemporary issues		I			I		IA	R	A	IR							

Level 4 Subjects

		Subject Codes																
	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE427	BRE4291	BRE431	BRE471	BRE437	BRE463	BRE465	BRE466	BRE470 (E)*								
A1	To apply professional and vocational knowledge in property management, including its operational logistics and multi-disciplinary facets				A		A		RA									
A2	To identify and solve problems in property management practices				A		R	A	A	RA								
A3	To communicate effectively with social skills as a competent property manager		R	I	R		R											
A4	To practise as a professional property manager in compliance with the legal and ethical requirements of the profession		A				R											
A5	To appreciate the multi-disciplinary dimensions of property management practices and the interests of the stakeholders in the industry			RA		I	A	A	R	IA								
A6	To explore options for the property management practices with creative and critical mindset					I	A		RA	RA								

	All-rounded Attributes	BRE427	BRE4291	BRE431	BRE471	BRE437	BRE463	BRE465	BRE466	BRE470 (E)*								
B1	To possess skills to identify, analyse and solve problems		A	RA	A	A	A	A	A	IA								
B2	To have an understanding of professional, social and ethical responsibilities	R	R				A	IR										
B3	To communicate effectively	R	R	R	R	R	A	RA	A	A								
B4	To reflect on knowledge gap for life time learning						R	R	IRA									
B5	To contribute as team member and to lead effectively						A	R		A								
B6	To identify contemporary issues						R	IR	A	R								

*(E) = Elective

Programme Curriculum of Major* in Property Management - Stage 3 of the 4-Year Programme

Programme Curriculum shows the 63-credit Discipline-Specific Requirements (DSR) for the Major in Property Management only. Details of the 9-credit General University Requirements (GUR) can be found from their respective websites provided by the University.

Stage 3		**Curriculum**								**Assessment Methods**	
		Timetabled Contact Hours per Week			**No. of Teaching Weeks**	**Total Hours**	**Teaching Dept.**	**Subject Weighting for Final Assessment Grade (FAG)**			
Subject Code	**Subject Title**	**Lecture**	**Tutorial/ Seminar**	**Lab. (Pract.)/ Project Work/ Guided Study**				**Subject Weighting**	**Credit Value**	**CW/CA**	**Exam.**
CLC3231P	Chinese Communication for Construction and Land Use		3		13	39	CLC	3.0	3	100%	-
ELC3421	English for Construction and Environmental Professionals		3		13	39	ELC	3.0	3	100%	-
BRE315	Property Valuation	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE326	Maintenance Technology & Management	2	1	-	13	39	BRE	3.0	3	30%	70%
BRE337	Property Law	2	1	-	13	39	BRE	3.0	3	30%	70%
BRE371	Introduction to Property Management	2	1	-	13	39	BRE	3.0	3	30%	70%
BRE350	Project Management & Procurement	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE362	Urban Economics & Property Investment	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE365	International Study**	-	-	0.8	13	39	BRE	3.0	1	100%	-
BRE366	Analytical Skills & Methods	2 (for 8 weeks)	1 (for 8 weeks)	-	8	24	BRE	3.0	2	100%	-
BRE397	Property Management Accounting	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE471	Advanced Property Management	2	1	-	13	39	BRE	3.0	3	30%	70%

NOTE: Students must complete and pass the 9credit GUR subjects and all the subjects listed in Level 3 and Level 4 in Stage 3 prior to their graduation.

** International Study Tour is to take place in the Summer Semester. Students need to commence preparation, organization and liaison work of their study tour from Semester 1 of Stage 3.

T/S = Tutorial/Seminar
Lab. (Pract.) = Laboratory (Practical)
PW = Project Work
CW = Coursework
GS = Guided Study
CA = Continuous Assessment

Programme Curriculum of Major* in Property Management for Stage 4

Stage 4		Curriculum								Assessment Methods	
		Timetabled Contact Hours per Week			No. of Teaching Weeks	Total Hours	Teaching Dept.	Subject Weighting for Final Assessment Grade (FAG)			
Subject Code	**Subject Title**	**Lecture**	**Tutorial/ Seminar**	**Lab. (Pract.)/ Project Work/ Guided Study**				**Subject Weighting**	**Credit Value**	**CW/CA**	**Exam.**
BRE427	Applied Property Investment	2	1	-	13	39	BRE	3.0	3	30%	70%
BRE4291	Real Estate Marketing	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE431	Housing Studies	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE437	Facility Management	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE463	Business Valuation & Accounts	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE465	Asset Management	2	1	-	13	39	BRE	3.0	3	50%	50%
BRE466	Capstone Project[#]	-	-	1.0 (for 10 weeks)	35	184 (PW/GS)	BRE	3.0	6	100%	-
Elective[##]	subject 1				13	39	BRE	3.0	3		
Elective[##]	subject 2				13	39	BRE	3.0	3		

NOTE: Student must complete and pass all subjects listed in Level 4 and two out of the four electives of their choice prior to their graduation.

[#] BRE466 is a **6-credit** core subject spanning across from Semester 1 of Stage 4 to Semester 2 of Stage 4.

[##] All BRE Level 3 and Level 4 subjects of a particular Major or discipline are offered in the Semester 2 as electives to students in their Stage 3 and 4 of another Major or discipline within the Department, subject to subject offering, the fulfilment of any pre-requisite or co-requisite requirements and time-table constraints

PMT students can also opt the following subjects offered by the Department of APSS, in addition to or in lieu of BRE electives:

APSS118 Self Understanding and Communication Skills
APSS4533 Health and Society

T/S = Tutorial/Seminar
Lab. (Pract.) = Laboratory (Practical)
PW = Project Work
CW = Coursework
GS = Guided Study
CA = Continuous Assessment
E = Elective
Students who have either HD or Associate Degree qualifications are deemed to satisfy the University's requirement on LCR subjects.

PROGRESSION PATTERN

BSc (Hons) in Property Management

Total credits for the curriculum framework for the senior year intake is 72 credits (plus 2 training credits), including 9 credits for General University Requirements, and 60 credits for Discipline-Specific Requirements. Unless otherwise specified, subjects are compulsory and carry 3 credits.

Subject Code	Subject Title
Stage 3 (Year 1) [September 2024]	
Semester 1	
ELC 3421	English for Construction and Environment
BRE315	Property Valuation
BRE371	Introduction to Property Management
BRE350	Project Management and Procurement
BRE365	International Study (1 Credit) **
BRE366	Analytical Skills & Methods (2 credits)
BRE397	Property Management Accounting
GUR	CAR subject 1 * (CAR M)
Semester 2	
CLC3231P	Chinese Communication for Construction and Land Use
BRE326	Maintenance Technology & Management
BRE337	Property Law
BRE362	Urban Economics & Property Investment
BRE365	International Study (1 Credit), cont'd **
BRE471	Advanced Property Management
GUR	CAR subject 2 * (CAR A – English Language)
Summer Semester	
BRE299	Work-Integrated Education (2 training credits)
BRE365	International Study (1 Credit), cont'd **

<u>Stage 4</u> (Year 2) [September 2025]

Semester 1

BRE365	International Study (1 Credit), cont'd **
BRE427	Applied Property Investment
BRE4291	Real Estate Marketing
BRE463	Business Valuation & Accounting
BRE465	Asset Management
BRE466	Capstone Project (6 credits in 2 semesters from Year 2: S1 to Year 2: S2)
GUR	Servicing Learning

Semester 2

BRE431	Housing Studies
BRE437	Facility Management
BRE466	Capstone Project
Electives#	Subject 1
Electives #	Subject 2

Notes:

1. Senior year intake students need to take (non-credit-bearing) Essential Components of General Education) and should be completed in the first year of study.
2. Senior year intake students need to take 2 CAR subjects (6 credits) with 3 credits from the subjects offered in cluster CAR (M) - Chinese History and Culture, and another 3 credits from the subjects in cluster CAR (A) - English Language Subject with embedded English Reading and Writing Requirements. CAR (A) should be completed in the first year of study.
3. Service-Learning Subject (SL) is a compulsory subject in senior year curriculum and the credits are not transferrable.
4. ** Planning for study tour, field study or comparative study shall be commenced from Semester 1 of year 1. The study tour or field study is expected to be arranged and completed by the end of Year 1 and assessment to be finalized by Semester 1 of year 2.
5. All BRE Level 3 and Level 4 subjects of a particular Major or discipline offered in Semester two are available as electives to students of another Major or discipline within the Department, subject to subject offering schedule, fulfilment of pre-requisite and/or co-requisite requirements and time-tabling constraints. (Note: not applicable for SYB)
6. *** The Department reserves the rights to review/revise the subjects to be offered and the time of offer.

BSc (Hons) in Surveying

Subject Descriptions

'Level' codes reflect the intellectual demand on the students. The levels of the subjects are coded according to a common coding system of the Hong Kong Polytechnic University.

Level		Explanation
2	=	Standard comparable to Year 2 of a 4-year degree Major
3	=	Standard comparable to Year 3 of a 4-year degree Major
4	=	Standard comparable to the final year of a 4-year degree Major

The University adopts a university-wide standard for subject level weighting for calculating the award GPA, and to use the weighting of 2 for Level 2 subjects; and a weighting of 3 for Level 3 and 4 subjects.

The Programme Curriculum and Examination Schedule for each academic level are detailed in Programme Curriculum Table from Stage 3 to Stage 4.

Subjects are referred by subject codes. The alphabets refer to the responsible departments whilst the three-digit reference numbers, the first digit (i.e. 2, 3 or 4) indicates the level of the subjects.

The **typical progression patterns of BSc (Hons) in Surveying** illustrate the semesters in which these subjects are recommended to be taken, if the programme of the Major is to be completed in the minimum time.

NOTE

***Programme Curriculum displays the Discipline-specific Requirements (DSR) for the Major in Surveying only.**

Details of the General University Requirements (GUR) can be found from their respective websites provided by the University.

Intended Learning Outcomes of Surveying programme

To ensure fulfilment of the goal of developing all-round students with professional competence stipulated by the University, it is required that outcome statements encompass the following two categories of learning outcomes:-

A. Professional/Academic knowledge and competencies

Upon successful completion of the programme, the students and expected to attain the following abilities:-

(i) To comprehend and identify issue and problems concerning land, property and construction at project level.
(ii) To comprehend and identify issue and problems concerning land, property and construction at corporate level.
(iii) To comprehend and identify issue and problems concerning land, property and construction at industry level.
(iv) To comprehend and identify issues and problems concerning land, property and construction at marco social-economic and political level.
(v) To advise clients through rendering surveying services.
(vi) To identify, formulate and solve problems related to the surveying profession and real estate industry.
(vii) To analyse and interpret data of the industry.
(viii) To formulate and implement strategies, policies and solutions for sustainable development and construction.

B. Attributes for All-roundedness

As all undergraduate programmes are under the BRE Scheme, the attributes for all-roundedness listed are the same under the scheme.

Upon successful completion of the programme, the students are expected to possess the following attributes for all-roundedness:-

(i) To possess skills to identify, analyse and solve problems.
(ii) To have an understanding of professional, social and ethical responsibilities.
(iii) To communicate effectively.
(iv) To reflect on knowledge gap for life time learning.
(v) To contribute as team member and to lead effectively.
(vi) To identify contemporary issues.

Relationship between the programme intended learning outcomes (PILOs) of the SUR and the Institutional learning outcomes of PolyU

ILOs of BEM Programme (Category A)	Institutional Learning Outcomes						
	Competent professional	Critical thinker	Effective communicator	Innovative problem solver	Lifelong learner	Ethical leader	Socially responsible global citizen
(i)	X	X		X		X	
（ii）	X	X		X			
(iii)	X	X		X	X	X	
(iv)	X	X		X		X	X
(v)	X	X	X	X			
(vi)	X	X	X	X	X		
(vii)	X	X	X				
(viii)	X	X	X	X	X	X	X
ILOs of BEM Programme (Category B)	Competent professional	Critical thinker	Effective communicator	Innovative problem solver	Lifelong learner	Ethical leader	Socially responsible global citizen
(i)	X	X	X	X			
(ii)	X	X	X	X	X	X	X
(iii)	X	X	X	X	X	X	
(iv)	X			X	X		X
(v)	X	X	X	X		X	
(vi)	X	X	X	X		X	X

Curriculum Mapping: BSc (Hons) in Surveying

This curriculum map gives a holistic view of the degree to which each intended learning outcome will be taught and assessed in your programme.

The following indicators (I, R, A) to show the treatment of the programme outcome in a subject:

I	(Introduced)	That the learning leading to the particular intended outcome is introduced in that subject.
R	(Reinforced)	That the learning leading to the particular intended outcome is reinforced in that subject.
A	(Assessed)	That the performance which demonstrates the particular intended outcome is assessed in that subject

Level 2 Subjects

		Subject Codes														
	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE204 (DSE)														
A1	To comprehend and identify issues and problems concerning land, property and construction at project level	IA														
A2	To comprehend and identify issues and problems concerning land, property and construction at corporate level															
A3	To comprehend and identify issues and problems concerning land, property and construction at industry level															
A4	To comprehend and identify issues and problems concerning land, property and construction at macro socio-economic and political level															
A5	To advise clients through rendering surveying services	I														
A6	To identify, formulate and solve problems related to the surveying profession and real estate industry	IA														
A7	To analyse and interpret data of the industry															

	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE204 (DSE)														
A8	To formulate and implement strategies, policies and solutions for sustainable development and construction															
	All-rounded Attributes															
B1	To possess skills to identify, analyse and solve problems	IA														
B2	To have an understanding of professional, social and ethical responsibilities															
B3	To communicate effectively	IA														
B4	To reflect on knowledge gap for life time learning															
B5	To contribute as team member and to lead effectively	I														
B6	To identify contemporary issues															

Level 3 Subjects

		Subject Codes																		
	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE315 (DSE)	BRE326 (DSE)	BRE336	BRE337 (DSE)	BRE371 (DSE)	BRE345 (DSE)	BRE350	BRE370 (DSE)	BRE362	BRE363 (DSE)	BRE364 (DSE)	BRE365	BRE366	BRE397 (DSE)	BRE369	CLC3231P	ELC3421		
A1	To comprehend and identify issues and problems concerning land, property and construction at project level	IRA	IA	IRA	I		IA	RA	RA	RA	RA	RA	RA	RA	RA	RA				
A2	To comprehend and identify issues and problems concerning land, property and construction at corporate level			I	I	I			RA	IA	RA		RA	RA	R	RA				
A3	To comprehend and identify issues and problems concerning land, property and construction at industry level		IA	IRA	A				RA	IA	RA		IA	RA	R	IR				
A4	To comprehend and identify issues and problems concerning land, property and construction at macro socio-economic and political level		I	I	R	I			I	RA	R		IA	RA		IR				
A5	To advise clients through rendering surveying services	A	I	I	I		I	RA	R		RA	IA			R	IR				
A6	To identify, formulate and solve problems related to the surveying profession and real estate industry	A	IA	IRA	R				RA		RA		RA	A	R	IR				
A7	To analyse and interpret data of the industry	A					IR			IA	RA		IA	R		IR				

	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE315 (DSE)	BRE326 (DSE)	BRE336	BRE337 (DSE)	BRE371 (DSE)	BRE350	BRE349	BRE370 (DSE)	BRE362	BRE363 (DSE)	BRE364 (DSE)	BRE365	BRE366	BRE397 (DSE)	BRE369	CLC3231P	ELC3421		
A8	To formulate and implement strategies, policies and solutions for sustainable development and construction		I	RA	I				I	IA	R		RA			I				
	All-rounded Attributes																			
B1	To possess skills to identify, analyse and solve problems		I	R	A	R	A	RA	IR	RA	RA	RA	RA	A	IRA	RA				
B2	To have an understanding of professional, social and ethical responsibilities	R		RA	R				I		RA		IA		R	RA				
B3	To communicate effectively	R	I	RA	R	I	A	RA		RA	RA	RA	RA	A	R	RA	IRA	IRA		
B4	To reflect on knowledge gap for life time learning			RI	I						I	R	I	IRA		I				
B5	To contribute as team member and to lead effectively		I				A	RA			R		RA		R	I				
B6	To identify contemporary issues		I	RA				I	IRA	IA	RA	R	R	A	IR	I				

Level 4 Subjects

		Subject Codes																				
	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE415 (DSE)	BRE418 (DSE)	BRE427 (DSE)	BRE4291 (DSE)	BRE435 (DSE)	BRE436 (DSE)	BRE437 (DSE)	BRE439 (DSE)	BRE440 (DSE)	BRE442 (DSE)	BRE450 (DSE)	BRE453 (DSE)	BRE461 (DSE)	BRE462 (E)*	BRE463 (DSE)	BRE464 (DSE)	BRE465 (DSE)	BRE466	BRE469	BRE470 (DSE)	
A1	To comprehend and identify issues and problems concerning land, property and construction at project level	A		A		IRA	A		A	RA	RA	R	RA	RA	R	A	RA		RA	RA	RA	
A2	To comprehend and identify issues and problems concerning land, property and construction at corporate level					I		A	A	RA	IA			R		A	R	IA	RA	RA		
A3	To comprehend and identify issues and problems concerning land, property and construction at industry level	A		A		RA	A		R		RA	R		R	R	A	RA	IA	RA	RA		
A4	To comprehend and identify issues and problems concerning land, property and construction at macro socio-economic and political level		A		A	R		A			IA	R		R		R	RA		RA	RA		
A5	To advise clients through rendering surveying services			A	A	R			R		RA		RA			A	RA	A	A	RA	IR	
A6	To identify, formulate and solve problems related to the surveying profession and real estate industry	R		A	A	R	A				I					A	RA	A	A	RA	A	
A7	To analyse and interpret data of the industry	A	A			RA					RA	RA		RA		A	R	A		RA		

	Programme Outcomes List programme outcomes in this column in the same order as in the outcomes section for easy referencing	BRE415 (DSE)	BRE418 (DSE)	BRE427 (DSE)	BRE4291 (DSE)	BRE435 (DSE)	BRE436 (DSE)	BRE437 (DSE)	BRE439 (DSE)	BRE440 (DSE)	BRE442 (DSE)	BRE450 (DSE)	BRE453 (DSE)	BRE461 (DSE)	BRE462 (E)*	BRE463 (DSE)	BRE464 (DSE)	BRE465 (DSE)	BRE466	BRE469	BRE470 (DSE)	
A8	To formulate and implement strategies, policies and solutions for sustainable development and construction					RA				I		RA	RA	RA	RA	R	RA	I		R		
	All-rounded Attributes																					
B1	To possess skills to identify, analyse and solve problems	R			A	R	R	A	A	RA	RA	RA	RA	RA	RA	A	RA	A	A	RA	IA	
B2	To have an understanding of professional, social and ethical responsibilities	I		R	R	RA	R		R		IA	R	R	RA		A	RA	IR		RA		
B3	To communicate effectively	A	A	R	R	RA	R	R	R	RA	RA	RA			RA	A	RA	RA	A	RA	A	
B4	To reflect on knowledge gap for life time learning	I				R					I				R	R	R	R	IRA	R		
B5	To contribute as team member and to lead effectively	A				RA					I	R		R	R	A	RA	R		R	A	
B6	To identify contemporary issues	R				RA						R	R	IR	RA	R	RA	IR	A	R	R	

(DSE) = Discipline - Specific Elective Subject
*(E) = Elective

Curriculum Structure and Components

Areas	Credits
Cluster-Area Requirements (CAR) • 3 credits from CAR (M) "Chinese History and Culture" • 3 credits from specially designed CAR (A) "Human Nature, Relations and Development" – English language with English Reading and Writing Requirements • Students are required to fulfil the English and Chinese Reading & Writing Requirements	6
Service-Learning (SL)	3
(New) Essential Components of General Education E-modules on: 1. Academic Integrity 2. Artificial Intelligence and Data Analytics 3. Innovation and Entrepreneurship 4. National Education	Non-credit-bearing
Language and Communication Requirements (LCR) • Having met the equivalent standard of the Undergraduate Degree Language and communication Requirement (LCR) (Note 1)	
Total	9

<table>
<tr><td rowspan="4">Major Study
(DSR)

BSc (Hons) in Surveying (SUV)

[63 credits]</td><td colspan="5">Discipline-Specific Subjects for Surveying
[24 credits]

[Subjects common to all surveying students]
[Including 2 embedded language requirements in English (3 credits) and in Chinese (3 credits)]</td></tr>
<tr><td colspan="5">Discipline-Specific Electives for Surveying
[33 credits]

Surveying students are required to opt ONE Discipline from the 5 surveying disciplines:
Building Surveying (BS), General Practice Surveying (GP),
Planning & Development (PD), Property and Facility Management (PFM) and
Quantity Surveying (QS).</td></tr>
<tr><td>BS Discipline-Specific Elective Subjects
[33 credits]</td><td>GP Discipline-Specific Elective Subjects
[33 credits]</td><td>PD Discipline-Specific Elective Subjects
[33 credits]</td><td>PFM Discipline-Specific Elective Subjects
[33 credits]</td><td>QS Discipline-Specific Elective Subjects
[33 credits]</td></tr>
<tr><td colspan="5">Capstone Project
[6 credits]</td></tr>
<tr><td></td><td colspan="5">Work-Integrated Education (WIE)
[2 training credits]</td></tr>
</table>

Total credit requirement for graduation: 72 credits (plus 2 training credits)

NOTE:

1. Students not meeting the equivalent standard of the Undergraduate Degree LCR will be required to take additional LCR subjects. These students will have to take in an assessment test to ascertain the LCR subjects required.

Programme Curriculum of Major* in Surveying - Stage 3 of the 4-Year Programme

Programme Curriculum shows the 63-credit Discipline-Specific Requirements (DSR) for the Major in Surveying only. Details of the 9-credit General University Requirements (GUR) can be found from their respective websites provided by the University.

Discipline-Specific Requirements (DSR) for SUV

Subject Code	Subject Title	Teaching Dept.	Subject Weighting for Final Assessment Grade (FAG)		Assessment Methods	
			Subject Weighting	Credit Value	CW/CA	Exam
Stage 2 DSR Subjects of the 4-year full-time programme with embedded language requirements in English and in Chinese						
ELC3421	English for Construction and Environmental Professionals	ELC	3.0	3	100%	-
CLC3231P	Chinese Communication for Construction and Land Use	CLC	3.0	3	100%	-
Stage 3 DSR Subjects of the 4-year full-time programme						
BRE326	Maintenance Technology & Management	BRE	3.0	3	30%	70%
BRE336	Development Control Law	BRE	3.0	3	50%	50%
BRE350	Project Management & Procurement	BRE	3.0	3	50%	50%
BRE365	International Study[2]	BRE	3.0	1	100%	-
BRE366	Analytical Skills & Methods	BRE	3.0	2	100%	-
BRE369	Integrated Professional Workshop II	BRE	3.0	3	100%	-
BS/QS Discipline-Specific Elective subjects[1]						
BRE204	Structure I	BRE	2.0	3	30%	70%
BRE345	Measurement, Documentation & Estimating	BRE	3.0	3	60%	40%
BRE370	Intermediate Construction Technology & Materials	BRE	3.0	3	40%	60%
BRE363	Construction Economics	BRE	3.0	3	40%	60%
BRE364	Construction Contract Law & Administration	BRE	3.0	3	40%	60%
GP/PD/PFM Discipline-Specific Elective subjects[1]						
BRE315	Property Valuation	BRE	3.0	3	50%	50%
BRE337	Property Law	BRE	3.0	3	30%	70%
BRE371	Introduction to Property Management	BRE	3.0	3	30%	70%
BRE362	Urban Economics & Property Investment	BRE	3.0	3	50%	50%
BRE397	Property Management Accounting	BRE	3.0	3	50 %	50 %
	Work-Integrated Education (2 training credits)				Pass/ Fail	

Stage 4 DSR Subjects of the 4-year full-time programme						
BRE469	Integrated Professional Workshop III	BRE	3.0	3	100%	-
BRE466	Capstone Project[3]	BRE	3.0	6	100%	-
BS and QS Discipline-Specific Elective Subjects[1]						
BRE415	Dispute Resolution	BRE	3.0	3	100%	-
BRE453	Building Services II	BRE	3.0	3	40%	60%
BRE461	Environmental Impact & Assessment	BRE	3.0	3	60%	40%
BS Discipline-Specific Elective Subjects[1]						
BRE435	Design, Adaptation & Conversion	BRE	3.0	3	60%	40%
BRE437	Facility Management	BRE	3.0	3	50%	50%
BRE470	Information Technology and Building Information Modelling for Construction	BRE	3.0	3	100%	-
QS Discipline-Specific Elective Subjects[1]						
BRE439	Engineering Contract Procedure	BRE	3.0	3	50%	50%
BRE440	Cost & Value Management	BRE	3.0	3	50%	50%
BRE442	Forecasting & competition in the Built Environment	BRE	3.0	3	40%	60%
GP, PD and PFM Discipline-Specific Elective Subjects[1]						
BRE418	Real Estate Development	BRE	3.0	3	50%	50%
BRE427	Applied Property Investment	BRE	3.0	3	30%	70%
BRE4291	Real Estate Marketing	BRE	3.0	3	50%	50%
BRE463	Business Valuation and Accounts	BRE	3.0	3	50%	50%
BRE465	Asset Management	BRE	3.0	3	50%	50%
GP and PFM Discipline-Specific Elective Subjects[1]						
BRE436	Applied Property Valuation	BRE	3.0	3	50%	50%
PD Discipline-Specific Elective Subjects[1]						
BRE464	Urban Planning	BRE	3.0	3	100%	-

NOTE:

Students must complete and pass all the Discipline-Specific Subjects and all Discipline-Specific Elective Subjects of their chosen surveying discipline for graduation.

1. Surveying students are required to opt **ONE** Discipline from the 5 surveying disciplines: BS, GP, PD, PFM and QS.
2. International study tour is to take place in the Summer Semester of stage 3. Students need to commence their study tour preparation, organization and liaison work from Semester 1 of stage 3.
3. BRE466 is a **6-credit** core subject spanning across from year 4 Semester 1 to Semester 2

CW = Coursework CA = Continuous Assessment E = Elective

General University Requirements (GUR)

Areas	Credits
Cluster-Area Requirements (CAR) • 3 credits from CAR (M) "Chinese History and Culture" • 3 credits from specially designed CAR (A) "Human Nature, Relations and Development" – English language with English Reading and Writing Requirements • Students are required to fulfil the English and Chinese Reading & Writing Requirements	6
Service-Learning (SL)	3
(New) Essential Components of General Education E-modules on: 1. Academic Integrity 2. Artificial Intelligence and Data Analytics 3. Innovation and Entrepreneurship 4. National Education	Non-credit-bearing
Language and Communication Requirements (LCR) • Having met the equivalent standard of the Undergraduate Degree Language and communication Requirement (LCR) (Note 1)	
Total	9

Note 1 : Students not meeting the equivalent standard of the Undergraduate Degree LCR will be required to take additional LCR subjects. These students will have to take in an assessment test to ascertain the LCR subjects required.

*The admission of students to UGC-funded Articulation Degree programmes and Senior Year intakes on the basis of qualification(s) more advanced than Associate Degree/Higher Diploma is subject to the conditions stipulated by UGC governing the UGC-funded Senior Year places

PROGRESSION PATTERN

BSc (Hons) in Surveying

Total credits for the curriculum framework for the senior year intake is 72 credits (plus 2 training credits), including 9 credits for General University Requirements, and 63 credits for Discipline-Specific Requirements. Unless otherwise specified, subjects are compulsory and carry 3 credits.

Subject Code	Subject Title

Stage 3 (Year 1) [September 2024]

Semester 1

BRE336	Development Control Law
BRE350	Project Management & Procurement
BRE365	International Study (1 Credit), cont'd ***
BRE366	Analytical Skills & Methods (2 credits)
ELC3421	English for Construction and Environment

***BS/QS Discipline-specific Elective Subjects*

BRE204	Structure I
BRE370	Intermediate Construction Technology & Materials
BRE363	Construction Economics

***GP/PD/PFM Discipline-specific Elective Subjects*

BRE315	Property Valuation
BRE371	Introduction Property Management
BRE397	Property Management Accounting

Semester 2

BRE326	Maintenance Technology & Management
BRE365	International Study (1 Credit), cont'd ***
BRE369	Integrated Professional Workshop II
CLC3231P	Chinese Communication for Construction and Land Use
GUR	CAR Subject 1 (CAR A- English Language)

***BS/QS Discipline-specific Elective Subjects*

BRE345	Measurement, Documentation & Estimating
BRE364	Construction Contract Law & Administration

***GP/PD/PFM Discipline-specific Elective Subjects*

BRE337	Property Law
BRE362	Urban Economics & Property Investment

Summer Semester

BRE299	Work-Integrated Education (2 training credits)
BRE365	International Study (1 Credit), cont'd ***

Stage 4 (Year 2) [September 2025]

Semester 1

BRE365	International Study (1 Credit), cont'd ***
BRE466	Capstone Project (6 credits in 2 semesters from Year 2: S1 to Year 2: S2)
GUR	Servicing Learning

***BS Discipline-Specific Elective Subjects*

BRE415	Dispute Resolution
BRE453	Building Services II
BRE461	Environmental Impact & Assessment
BRE470	Information Technology & Building Information Modelling for Construction Management

***QS Discipline-Specific Elective Subjects*

BRE415	Dispute Resolution
BRE453	Building Services II
BRE461	Environmental Impact & Assessment

***GP, PD and PFM Discipline-Specific Elective Subjects*

BRE427	Applied Property Investment
BRE4291	Real Estate Marketing
BRE463	Business Valuation and Accounts
BRE465	Asset Management

Semester 2

BRE466	Capstone Project
BRE469	Integrated Professional Workshop III
GUR	CAR Subject 2 (CAR M)

***BS Discipline-Specific Elective Subjects*

BRE435	Design, Adaptation & Conversion
BRE437	Facility Management

***QS Discipline-Specific Elective Subjects*

BRE439	Engineering Contract Procedure
BRE440	Cost & Value Management
BRE442	Forecasting & Competition in the Built Environment

***GP and PFM Discipline-Specific Elective Subjects*

BRE418	Real Estate Development
BRE436	Applied Property Valuation

***PD Discipline-Specific Elective Subjects*

BRE418	Real Estate Development
BRE464	Urban Planning

Notes:

1. Senior year intake students need to take (non-credit-bearing) Essential Components of General Education) and should be completed in the first year of study.
2. Senior year intake students need to take 2 CAR subjects (6 credits) with 3 credits from the subjects offered in cluster CAR (M) - Chinese History and Culture, and another 3 credits from the subjects in cluster CAR (A) - English Language Subject with embedded English Reading and Writing Requirements. CAR (A) should be completed in the first year of study.
3. Service-Learning Subject (SL) is a compulsory subject in senior year curriculum and the credits are not transferrable.
4. ** Planning for study tour, field study or comparative study shall be commenced from Semester 1 of year 1. The study tour or field study is expected to be arranged and completed by the end of Year 1 and assessment to be finalized by Semester 1 of year 2.
5. All BRE Level 3 and Level 4 subjects of a particular Major or discipline offered in Semester two are available as electives to students of another Major or discipline within the Department, subject to subject offering schedule, fulfilment of pre-requisite and/or co-requisite requirements and time-tabling constraints. (Note: not applicable for SYB)
6. *** The Department reserves the rights to review/revise the subjects to be offered and the time of offer.

5. Assessment

Assessment plays an important role in enhancing students' learning. Assessment is the process of finding out and putting a value on a student's achievements in studying a programme. It is a means to measure the learning outcomes/goals of a subject/programme. With the movement from a norm-referenced to a criterion-referenced model of measurement in this University, students are assessed and measured of their performance against an explicit set of standards. Therefore, the prime objective of assessment is to enable students to demonstrate their abilities in attaining the intended learning outcomes and fulfilling the intended learning outcomes and requirements of a subject/programme. Assessment is also served as feedback both to students of their performance and learning in progress and attainment of the subject/programme and to the teaching faculty of their teaching.

Different assessment methods including formative and summative assessments are adopted as deemed appropriate to the subjects depending on the natures of the subject disciplines and the alignment of the intend learning outcomes of the courses. The assessment methods are contained therein in the subject specifications, which are distributed to all students in the beginning of the academic year. It is also reinforced by the subject lecturers by informing the students at the learning commencement on the assessment modes, standards and criteria.

With the move to criterion-referenced assessment, rubrics are developed to assess student performance with a scoring scale along a task-specific continuousness of criteria for some subjects. Students' work is evaluated against scoring standards/criteria. Rubrics must be specified for all major assessment items at the subject level, made available to students before the assessment, and used for grading the assessment. As a rule of thumb:

(i) For subjects without examinations, rubrics should be required for single assessment items with a weighting of 30% or above of the subject's overall assessment.

(ii) For subjects with examinations, rubrics should be required for single assessment items with a weighting of 20% or above of the subject's overall assessment.

In most other subjects, the student performance in each subject is assessed through a combination of coursework and examination. Weightings are allocated to coursework and examination of a subject, e.g. 30% and 70%, 40% and 60% or 50% and 50% respectively. Coursework includes assignments, case studies, seminar/tutorial presentation, role-playing, fieldwork, tests and other forms of learning activities. Grades will be assigned to reflect both individual contribution and group effort in the case it is not an individual piece of work. Examination is an end of unit/subject assessment. Grades are usually awarded to the written examinations. Marking schemes are provided to ensure assessment and grading on student performance are based on criteria and standards. The quality of examination papers and marking schemes is scrutinized by the external examiners and departmental academic advisor.

Other than projects and dissertation, where appropriate, some subjects can employ 100% continuous assessment. Usually, students are assessed in their performance attainment of technical skills over an extended period of time, for example, measurement, estimating & documentation, and engineering surveying.

In the case of group projects, both aggregating grades and assigning grades are given to group effort and individual contribution in a group. This is to ensure that there will be no 'non performer'. Moreover, peer interactive learning in project proposal/solutions, and different components of the project, presentations, reports and communication are included in the grading for the group effort.

Assessment Method

Students' performance in a subject is assessed by either of the following methods:-

(a) Coursework only: To pass a subject by this method, a student must attain a minimum Grade 'D' in coursework (tests, assignments, projects, laboratory work, field exercises, presentations and other forms of classroom participation).

(b) Examination and Coursework (the weighting of each component is stated in the Subject Portfolio): To pass a subject by this method a student must attain a minimum Grade 'D' in coursework and a minimum Grade 'D' in the examination.

(c) Continuous Assessment: Both **Project-based** and **Capstone Project** are of this type of assessment where students are assessed through a period of time with stages of work and progress together with the final products of works. The 'Guidance Notes for the Capstone projects' detailed the assessment and process.

Assessment methods and parameters are determined by the Subject Leader who will inform the students of the details at the beginning of each semester.

Grading (in accordance with C1-8 General Assessment Regulations of AR Handbook on Academic Regulations and Procedures)

At the end of each semester, students will be informed of the grade achieved for each subject normally.

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

Subject Grade	***Short Description***	***Elaboration on subject grading description***
A+ A A-	Excellent	Demonstrates excellent achievement of intended subject learning outcomes by being able to skilfully 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-	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-	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	Pass	Demonstrates marginal achievement of intended subject learning outcomes by being able to solve relatively simple problems. Can make basic comparisons, connections and judgements and express the ideas learnt in the subject, though there are frequent breakdowns in logic and clarity.
F	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.

Note:

- Marking rubrics aligned with these Grade Descriptors need not include all aspects of the grade descriptor.
- Marking rubrics aligned with these Grade Descriptors may include other aspects aligned with particular subject matter or field of study requirements but are not included in the grade descriptor.

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

The grade points assigned to subject grades attained by students are as follows:

Grade	New Grade Point	Short Description
A+	4.3	Excellent
A	4.0	
A-	3.7	
B+	3.3	Good
B	3.0	
B-	2.7	
C+	2.3	Satisfactory
C	2.0	
C-	1.7	
D+	1.3	Pass
D	1.0	
F	0.0	Failure

At the end of each semester/term, a Grade Point Average (GPA) will be computed based on the grade point of the subject overall grade as follows:-

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

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

In addition, the following subjects will be excluded from the GPA calculation:-

(i) Exempted subjects
(ii) Ungraded subjects
(iii) Incomplete subjects
(iv) Subjects for which credit transfer has been approved, but without any grade assigned[1]
(v) Subjects from which a student has been allowed to withdraw (i.e. those with the code 'W')

Subject which has been given an "S" code, i.e. absent from all assessment components, will be included in the GPA calculation and will be counted as "zero" grade point. 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 reference point of time. GPA is an indicator of overall performance, and ranges from 0.00 to 4.30 from 2020/21.

[1] 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.

The Weighted GPA will be used as a guide to help determine award classifications, and the level weighting to different subjects of all disciplines and programmes will need to be specified in the Programme Requirement Document.

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 W_n = weighting to be assigned according to the level of the subject

N = number of all subjects counted in GPA calculation as set out in Section 5, except those exclusions specified 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[1] 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 is ranges from 0.00 to 4.30 from 2020/21.

Any subjects passed after the graduation requirement has been met will not be taken into account of in the grade point calculation for award classification.

Progression/Academic Probation/De-registration

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 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 will be put on academic probation in the following semester. If a student is able to pull his 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 assessment result notification but not in transcript of studies.

[1] Requests for deviation from this University-wide standard require specific approval by the APRC.

A student will have 'progressing' status unless he falls within any one of the following categories which shall 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 the Programme Requirement 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 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 de-registered from the programme enrolled before the time frame specified above, if his academic performance is poor to the extent that the Board of Examiners deems that his chance of attaining a GPA of 1.70 at the end of the programme is slim or impossible.

The progression of students to the following academic year will not be affected by the GPA obtained in the Summer Term, unless Summer Term study is mandatory for all students of the programme and constitutes a requirement for graduation, and is so specified in the Programme Requirement Document.

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

Retaking of Subjects

Students may only retake a subject which they have failed (i.e. Grade F or S or U). Retaking of subjects is with the condition that the maximum study load of 21 credits per semester is not exceeded. 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 subjects.

The number of retakes of a subject should be restricted to two, i.e. a maximum of three attempts for each subject is allowed. Students need to submit a request to the Faculty/School Board for the second retake of a failed subject. 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. In case AAC does not approve further retakes 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.

Appeals

Appeals against the decision of the Subject Assessment Review Panel must be made within one calendar week after the public announcement of the examination results. A student should make the appeal to the Head of the BRE Department. The Department will inform the student of the appeal result and, if the appeal is successful, the Department will inform the Faculty.

6. Progression and Award

Progression

A student will have 'progressing' status unless he falls within the following categories, either of which may be regarded as grounds for deregistration from the programme:-

(i) the student has exceeded the maximum period of registration for that programme, as specified in the Programme Requirement Document (applicable to students admitted in or before 2019/20); or

(ii) the student has reached the final year of the normal period of registration for that programme, as specified in the Programme Requirement Document, unless approval has been given for extension (applicable to students admitted in or after 2020/21); or

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

(iv) 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

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

Graduation Requirements

A student will be eligible for award if all the following conditions are satisfied:-

(i) accumulation of the requisite number of credits for the particular award, as defined in the definitive programme document; and

(ii) satisfying the residential requirement for at least one third of the credits required for the award to be completed under the current enrolment at PolyU; and

(iii) satisfying the National Education (NE) requirement[1] (applicable to students admitted in or after 2022/23)

(iv) satisfying the Academic Integrity and Ethics (AIE) requirement (applicable to students admitted in or after 2024/2025); and

(iv) satisfying all requirements as defined in the definitive programme document and as specified by the University; and

(v) having a Grade Point Average (GPA) of 1.70 or above at the end of the programme.

A student is required to graduate as soon as all the conditions for award are satisfied.

[1] All students enrolling on offshore programmes (regardless of their nationality) will be waived from the NE requirement. NE requirement can also be waived for students who are non-HK residents enrolling on online programmes on a case-by-case basis, i.e. if they submit a request to ask for a waiver. Wavier should not be granted to students enrolling on online programme who are residing in HK or have the right of abode in HK.

Guidelines for Award Classification

The following are guidelines for the Boards of Examiners when determining award classifications. The BoE will exercise its judgement as to the award for each student and may use other relevant information.

Honours Degree	**Guidelines**
1st	The student's performance/attainment is outstanding, and identifies him as exceptionally able in the field covered by the programme in question.
2:i	The student has reached a standard of performance/attainment, which is more than satisfactory but less than outstanding.
2:ii	The student has reached a standard of performance/attainment judged to be satisfactory, and clearly higher than the "essential minimum" required for graduation.
3rd	The student has attained the "essential minimum" required for graduation at a standard ranging from just adequate to just satisfactory.

The following table indicates the ranges of award GPA for determining award classifications:

Honours classification	**All other programmes**	**Award GPA**
1st	Distinction	3.60 – 4.30
2:i	Credit	3.00 – 3.59
2:ii	Pass	2.40 – 2.99
3rd		1.70 – 2.39

A Pass-without-Honours degree award will be recommended only under exceptional circumstances, 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 has nonetheless covered the prescribed work of the programme in an adequate fashion, while failing to show sufficient evidence of the intellectual calibre expected of Honours degree graduates.

Subject Portfolio

Level 3 Subjects:

BRE302	Structure II
BRE315	Property Valuation
BRE326	Maintenance Technology & Management
BRE336	Development Control Law
BRE337	Property Law
BRE345	Measurement, Documentation & Estimating
BRE349	Building Services I
BRE350	Project Management and Procurement
BRE362	Urban Economics and Property Investment
BRE363	Construction Economics
BRE364	Construction Contract Law and Administration
BRE365	International Study
BRE366	Analytical Skills and Methods
BRE369	Integrated Professional Workshop II
BRE370	Intermediate Construction Technology & Materials
BRE371	Introduction Property Management
BRE397	Property Management Accounting

Subject Description Form

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

Subject Code	BRE302
Subject Title	Structure II
Credit Value	3
Level	3
Pre-requisite / Co-requisite/ Exclusion	AMA290 & BRE204, or their equivalents
Objectives	Consolidate the knowledge gained in Structure I and to extend this knowledge to include structural principles as related to design/construction of structural elements in building works. At the end of this subject, the student is expected to be able to design building structural elements and appreciate the design of temporary steelworks.
Intended Learning Outcomes *(Note 1)*	Upon completion of the subject, students will be able to: a) Appreciate the structural design principles in limit state design and their applications to the design of permanent building structures according to the " Code of Practice for the Structural Use of Steel 2011" and the "Code of Practice for Structural Use of Concrete 2013", published by the Buildings Department of Hong Kong SAR. b) Design and analyze the basic types of steel structural members and connections. c) Design and analyze the basic types of Reinforced Concrete (RC) members. d) Improve on problem-solving skills, communication skills in written format, teamwork spirit in professional context.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	*Design Concept* Limit states design: ultimate limit states and serviceability limit states, load combination. *Structural principles applied to the use of structural steel design* Structural steel design to the *Code of Practice for the Structural Use of Steel 2011*. Tension members, beams (laterally restrained and unrestrained), columns, welded and bolted connections. *Structural principles applied to the use of reinforced concrete design* Reinforced concrete design to the *Code of Practice for Structural Use of Concrete 2013*: singly and doubly reinforced concrete beams, shear reinforcement, simply supported slabs, one-way continuous slab, compression members under axial loads and moment, average and local bond stresses.
Teaching/Learning Methodology *(Note 3)*	Interactive lectures will enable students to understand the basic design concepts and learn how to design basic structural members with due consideration to their service conditions; Tutorial will enable students to consolidate the structural design concept through design problem-solving assignments and discussions; Laboratory works will enable students to identify, through a loading test, the

structural behavior of a full-scale simply supported steel beam subjected to bending;

Demonstrations at the Industrial Center will enable students to appreciate the quality control and nondestructive tests on the structural steel welding.

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	
1. Assignments	35	x	x	x	x	x	
2. Mid-term Exam	15	x	x				
3. Final exam	50	x	x	x	x		
Total	100 %						

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

The students will be assessed through their independently completed assignments, which contribute to 35%, a fair percent for exercise/learning/assessment; mid-term and final exams will contribute to 65%, which is used to assess the learning results of individual student; the lab report will be prepared and assessed in small groups, which is counted as a part of the assignments.

Student Study Effort Required

Class contact:	
▪ LEC	26 Hrs.
▪ TUT/LAB	13 Hrs.
Other student study effort:	
▪ Self-study/Assignments	96 Hrs.
▪	Hrs.
Total student study effort	135 Hrs.

Reading List and References

Recommended:

MacGinley, T.J. and Ang, T.C. (2004). *Structural Steelwork: design to limit state theory*, 3rd Edition, Elsevier Butterworth-Heinemann, Jordan Hill, Oxford.

Nethercot, D.A. (2001). *Limit states design of structural steelwork*, 3rd edition, Spon Press. Available in NetLibrary through PolyU Library.

Currie B., Sharp R.A. (1990). *Structural Design*, Stanley Thornes, Surrey, UK.

MacGinley, T.J. and Choo, B.S. (1990). *Reinforced concrete: design theory and examples*, E & FN Spon, London. Available in NetLibrary through PolyU Library.

Moseley W.H., Bungey J.H., Hulse R. (1997). *Reinforced Concrete Design*, 5th

	Edition, Macmillan. **Supplementary:** *Structural Use of Concrete - BS 8110: Part 1,* 1997, British Standards Institution. *Code of Practice for the Structural Use of Steel,* Buildings Department, Government of HKSAR, 2011. *Code of Practice for Structural Use of Concrete,* Buildings Department, Government of HKSAR, 2013. *Steelwork Design Guide to BS 5950: Parts 1 and 2.* The Steel Construction Institute and The British Constructional Steelwork Association Limited, UK.

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.

Subject Description Form

Subject Code	BRE315
Subject Title	Property Valuation
Credit Value	3
Level	3
Pre-requisite	Nil
Objectives	This subject is intended to: 1. Understand the nature of the market and property values. 2. Examine the theories of current valuation methods. 3. Solve valuation problems.
Intended Learning Outcomes	Students will demonstrate their ability to: a. Identify the various frameworks, including physical, economic and legal, that affect property value. b. Evaluate the choices of the various valuation approaches and methods in the valuation of different types of property for different types of value estimate. c. Apply current valuation methods to solve valuation problems. d. Identify the use of valuation in the management and decision making process in real estate development, investment and management.
Subject Synopsis/ Indicative Syllabus	**Brief Syllabus Content:** Value and valuation; concepts; economic principles; valuation tables; role of valuer. Real property market data sources: information; market trends and cycles. Valuation process; valuation report writing. Methods of valuation; comparative, investment, residual, cash flow; cost and profits methods. Valuation of freehold and leasehold interests; capital and rental values; theories of yield; deferred and varying incomes; extension and renewal of leases.
Teaching/Learning Methodology	Lectures will be used to provide students with a good understanding of the basic valuation concepts and theories, and will be supplemented with self-learning packages. Wherever possible, case studies will be used to illustrate how principles can be applied into practice. Tutorials will be used by the lecturer and students to discuss valuation problems and assignments while seminars provide suitable forums for presentation by the students. Students are also required to prepare a 'real life' valuation report. Outside speakers will be invited to give talks on current valuation practice in Hong Kong as well as other countries.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Coursework	50%	√	√	√	√		
2. Examination	50%	√	√	√	√		
Total	100%						

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

Students will be assessed through both coursework and examination.

Coursework will consist of valuation report and problem solving assignments in the form of quiz. Both examination and coursework assess learning outcome a to d.

Student Study Effort Expected

Class contact:	
- Lectures	26 Hrs.
- Seminars / Tutorials	13 Hrs.
Other student study effort:	
- Self-studies and group work	90 Hrs.
Total student study effort	129 Hrs.

Reading List and References

Recommended:

Appraisal Institute (2001) *The Appraisal of Real Estate*, Chicago, Ill.: Appraisal Institute.

Baum, A.E. and Mackmin, D. (2011) *The Income Approach to Property Valuation*, Estate Gazette.

Davidson, A.W. (2013) *Parry's Valuation and Investment Tables*, Estate Gazette.

Isaac, David and O'Leary, John (2013) *Property Valuation Techniques*, Palgrave Macmillan.

Li Ling-hin (2000) *Property Valuation in Hong Kong: Theories and Legal Application*, PACE.

Millington, A.F. (2000) *An Introduction to Valuation*, Estates Gazette.

Poon, T.N.T. and Chan E.H.W. (1998) *Real Estate Development in Hong Kong*, PACE Publishing Limited

Scarrett, Douglas (2016) *Property Valuation in the Five Methods*, E. & F.N. Spon.

Subject Description Form

<table>
<tr><td>Subject Code</td><td>BRE326</td></tr>
<tr><td>Subject Title</td><td>Maintenance Technology & Management</td></tr>
<tr><td>Credit Value</td><td>3</td></tr>
<tr><td>Level</td><td>3</td></tr>
<tr><td>Pre-requisite / Co-requisite/ Exclusion</td><td>BRE265 or equivalent</td></tr>
<tr><td>Objectives</td><td>1. To strengthen students' building technology knowledge with particular focus on the repair and maintenance disciplines;
2. To give students a basic knowledge on how to manage the maintenance works efficiently and effectively.</td></tr>
<tr><td>Intended Learning Outcomes</td><td>Upon completion of the subject, students will be able to:
<table>
<tr><th>Item</th><th>Intended Professional Learning Outcomes</th></tr>
<tr><td>1.</td><td>identify the causes of common defects and material deterioration.</td></tr>
<tr><td>2.</td><td>diagnose building defects and propose remedial actions.</td></tr>
<tr><td>3.</td><td>monitor and supervise the quality of maintenance work.</td></tr>
<tr><td>4.</td><td>understand the principles and execution of maintenance planning and management.</td></tr>
<tr><td>5.</td><td>evaluate maintenance needs and execute the work effectively.</td></tr>
</table></td></tr>
<tr><td>Subject Synopsis/ Indicative Syllabus</td><td><u>Maintenance Technology :</u>
Deterioration of common building materials – mechanisms and protection
Typical deteriorating factors for reinforced concrete in Hong Kong
Common defects of building elements
Health and environmental issues in building maintenance
Testing and diagnosis of building defects, remedies and prevention

<u>Maintenance Management & Planning :</u>
Types of maintenance, classifications and selection criteria
Maintenance planning and scheduling: budgeting, resources allocation and timing of maintenance
Alternative methods on executing of maintenance works: direct labour and contract out
Contract procurement for maintenance works
Safety and environmental considerations for maintenance works
Relationship between design and maintenance; feedback on design
Life cycle costing concept on selection of alternatives</td></tr>
</table>

Teaching/Learning Methodology

Interactive Lectures will enable students to:

1. understand the deterioration mechanisms of common building materials and causes of building defects (A1)
2. be able diagnose the causes of building defects and to rectify the defects (A2, A3)
3. analyse and compare alternatives in the process of building repair (A4,A5)
4. apply the theories and concepts to upkeep the healthy condition of the building stocks (A3,A4)

Tutorial will enable students to:

1. consolidate the knowledge on technological and managerial concepts used in the building repair industry through problem-solving assignments, case study and discussions. (A1, A2, A3, A4, A5, B1, B2, B3 & B4)

Laboratory will enable students to:

1. identify the appropriate tests to diagnose defects (A1, A2, B1)

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		1	2	3	4	5	
1. Coursework	30 %	✓	✓	✓	✓	✓	
2. Examination	70 %	✓	✓	✓	✓	✓	
Total	100 %						

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

Students could demonstrate their understanding on the subject through the preparation of coursework and presentation. Problem-based learning and case study approach will be used.

Students' overall understanding of the subject will be assessed in the examination, on both the theoretical knowledge and practical application.

Student Study Effort Expected

Class contact:	
▪ Lecture	26 Hrs.
▪ Tutorial	13 Hrs.
Other student study effort:	
▪ Self-development	60 Hrs.
▪ Coursework preparation	21 Hrs.
Total student study effort	120 Hrs.

Reading List and

Recommended:

Briffett, C., (1995), *Building Maintenance Technology in Tropical Climates*,

References	Singapore University Press Buildings Department, HKSAR, (2002), *Building Maintenance Guidebook,* HKSAR The Chartered Institute of Building, (1990), *Maintenance Management: a Guide to Good Practice,* CIOB Chanter, B & Swallow, P., (2007), *Building Maintenance Management,2nd ed,* Blackwell Hinks, J. & Cook, G., (2001), *The Technology of Building Defects,* E. & F.N. Spon Lee, H.S. & Yuen, C.S., (1993), *Building Maintenance Technology*, Macmillan Lee, R., (2001), Lee's *Building Maintenance Management*, 4th ed., BSP Professional Books **Supplementary:** Addleson, L., (1992), *Building Failures: A Guide to Diagnosis, Remedy and Prevention*, 3rd ed., Oxford Chudley, R., (1981), *The Maintenance and Adaption of Buildings,* Longman Hull, B., (1988), *Non-destructive Testing*, MacMillan Miles, D., & Syagga, P., (1987), *Building Maintenance – A Management Manual,* Intermediate Technology Publications Ransom, W.H., (1987), *Building Failures – Diagnosis and Avoidance*, 2nd ed., E. & F.N. Spon Royal Institution of Chartered Surveyors, (2000), *Building, Maintenance: Strategy, Planning and Procurement"*, RICS Books. Seeley, I.H., (1987), *Building Maintenance,* 2nd ed., MacMillan

Subject Description Form

Subject Code	BRE336
Subject Title	Development Control Law
Credit Value	3
Level	3
Pre-requisite / Co-requisite/ Exclusion	NIL
Objectives	Build up practical knowledge on property development control law and current measures imposed by government affecting the development and use of property.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Comprehend the importance of the planning, building law and other aspects of legislation together with other non-statutory requirements on properties for evaluation of impacts on property development and redevelopment. b) Review and apply relevant legal principles laid down in legal cases to different aspects of development control mechanisms. c) Apply their learnt knowledge on the integrated approach to legal control of new development and existing properties in the course of development and re-development process. d) Conduct a most appropriate planning on design and construction of property amongst other choices on the basis of latest legislative issues. e) Analyze and interpret the liabilities of professionals in the course of property development and re-development. f) Communicate effectively with other players of development or re-development teams.
Subject Synopsis/ Indicative Syllabus	*Town Planning Ordinance:* Planning law affecting property development; function of the Town Planning Board, the Appeal Board and Land Development Corporation; zoning plans and development control administration; enforcement, appeal and enquiries process. *Buildings Ordinance:* Development and building control through administrative measures, regulations and codes of practice on new building works and existing building works; control and enforcement of Minor works and Unauthorized Building Works; role of Authorized Person, Registered Structural Engineer and Registered Contractor. *Government Lease and Conditions:* Land tenure system, Lease conditions; control and enforcement; modification and renewal. *Professional Liabilities:* Professional licensing and liabilities in pre-construction, construction and post-construction stages. *Other Related Laws:* Environmental control laws; law relating to dilapidation and occupation of building; and Practice Notes for building professionals and registered contractors.

Teaching/Learning Methodology

The basic concept of law and critical procedures related to development control will be explained in lectures. Tutorial and seminars will be arranged for discussion in specific topic set for the students in order to facilitate two-way communication and to understand the students' difficulties and needs. Case study projects will be assigned to small group of 4-5 students to encourage students to take initiation to research and explore options, to tackle problem and to benefit from peer group learning. The project shall emphasis on the application of knowledge and to understand the integration of the subject material with other subjects in a development project. Experience practitioners will be invited to deliver lectures and seminars for updated input on the current practice.

Assessment Methods in Alignment with Intended Learning Outcomes

The coursework in the form of continuous assessment will account for 50% and the written examination will account for 50%. The marking will emphasis assessing on both the process and submitted product. Students are encouraged to explore options of property development within the constraint of development control law through project work and tutorial assignments. Questions will be asked during presentation to ensure the students have achieved the intended learning outcomes.

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
		a	b	c	d	e	f
1. Project	40	√	√	√	√	√	√
2. Tutorial participation and discussion	10	√	√	√	√	√	√
3. Examination	50	√	√	√		√	
Total	100 %						

Student Study Effort Expected

Class contact:	
▪ Lecture	26 Hrs.
▪ Tutorial	13 Hrs.
Other student study effort:	
▪ Project work	90 Hrs.
▪ Tutorial participation and discussion	30 Hrs.
Total student study effort	159 Hrs.

Reading List and References

Bacon, N. (1996). *Conveyancing 2nd Edition*, Hong Kong: FT Law & Tax Asia Pacific.

Buildings and Lands Department (1991), *Building Control in Hong Kong*, HK Government Printer.

Chan, E.H.W. and E.H.K. Yung (2004) Is the Development Control Legal Framework Conductive to a Sustainable Dense Urban Development in Hong Kong? *Habitat International*, 28(3) 409-426

	H.K. Government (latest edition). *Buildings Ordinance and Regulations*, HK Government Printer. H.K. Government (latest edition). Town *Planning Ordinance and Regulations*, HK Government Printer. H.K. Government *Town Planning in Hong Kong*, HK Government Printer. Built Environment at the crossroads (1996). *The 1996 Fourth World Congress of Building Officials, Hong Kong*, WOBO, HK**.** Hong Kong e-legislation: https://www.elegislation.gov.hk/ Lai, L.W.C. , Ho, D. C.H. and Leung, H.F. (2017) Change in use of land : a practical guide to development in Hong Kong, 3rd Edition, Hong Kong University Press. Litton., J. & Kate, Olley, K. (2018) Planning Law in Hong Kong. LexisNexis. Nissim, R. (2016) Land Administration and Practice in Hong Kong, 4th Edition, Hong Kong University Press. Practice Notes for Authorized Persons, Registered Structural Engineers and Registered Contractors, latest edition, Buildings Department. Tong, A. (2013) Building and Development Control Legislation in Hong Kong, PACE Publishing: Hong Kong.

Subject Description Form

Subject Code	BRE337
Subject Title	Property Law
Credit Value	3
Level	3
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	The subject is intended to: 1. Further develop and apply knowledge and reasoning skills. 2. Evaluate and apply property law to factual situations. 3. Examine law relating to property transactions, land use control and compensation.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: Use and understand the legal terms relating to the subject and be able to make use of such terms to communicate effectively. a. Identify and evaluate the key concepts and principles of Hong Kong land law and Conveyancing. b. Compare and contrast the different property concepts. c. Apply knowledge and reasoning skills to solve legal problems relating to ownership and land use control. d. Explore and evaluate problem-solving solutions in the context of land use and development. e. Possess the ability to evaluate property law with reference to contemporary issues.
Subject Synopsis/ Indicative Syllabus	The sequence of learning in this module is organized around two themes, and three topics. The two themes are: 1. Acquisition, transfer and extinction of interests in land in Hong Kong. 2. The control of land use (including both private and public control). The topics are: 1. Vendor/purchaser transactions. 2. The relationship between owners and managers of multi-storey buildings. 3. The relationship of landlord and tenant.

Teaching/Learning Methodology

The teaching methods:

1. Interactive lecturing.

2. The themes and topics are developed through problem-solving activities designed to develop the higher order cognitive skills of analysis, argument and critical judgment. Where appropriate, role plays are used to develop skills and enhance awareness of the role of law in property decisions in Hong Kong.

With the methods, the intended learning outcomes afore-mentioned are achieved.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Coursework	30%	√	√	√	√	√	
2. Written Examination	70%	√	√	√	√	√	
Total	100%						

The course work:
The students are required to select a judgment, which is related to the subjects being taught, and to present the judgment by analyzing the judgment into issues, the related law, the application of the law to the facts as found by the judge and the to summarize the effect of the judgment.

Prior to the presentation, the students are required to submit to the lecturer all materials relating to the presentation.

Towards the end of the presentation, questions are put to the students by the lecturer and the students are required to answer the questions immediately.

The examination:
As regard the examination, students are required to answer both essay type and problem type questions. The questions are relating to what they have learnt.

As a result, whether the intended learning outcomes have been achieved can be assessed from the performance of the students.

Student Study Effort Expected

Class contact:	
▪ Lecture	26 Hrs.
▪ Tutorial	13 Hrs.
Other student study effort:	
▪ Self studying. Preparation for tutorial classes, course work and examination.	127 Hrs.
Total student study effort	166 Hrs.

Reading List and References	**Recommeded** (the latest editions of the following books should be used): Murphy, W.T., & Robert, S. (2004). Understanding Property Law. (4th ed). Sweet & Maxwell. S.H.Goo., & Alice S.C.Lee. (2015). Land Law in Hong Kong. (4th ed). LexisNexis. Sihombing, J., & Wilkinson, M. (2014). A Student's Guide to Hong Kong Conveyancing. (7th ed). LexisNexis Nield, S. (1997) Hong Kong Land Law. (2nd). Addison Wesley Longman China Limited. Merry M. (2016) Building Management in Hong Kong. (3rd ed). LexisNexis Merry, M. (2016) Hong Kong Tenancy Law, (6th ed). LexisNexis John, Litton., & Kate, Olley. (2018) Planning Law in Hong Kong. LexisNexis. Richard, E. Smith. (2006) Planning Control: Development, Permission and Enforcement. RICS Boooks. **Supplementary**: Authorized Hong Kong Law Report and Digest, Sweet & Maxwell. Government Publications. Halsbury Laws of Hong Kong, Butterworths. Hong Kong Cases, Butterworths. **Useful websites** Polytechnic University library database: Westlaw Department of Legal Justice HK: http://www.doj.gov.hk/eng/legal/index.htm Hong Kong Legal Information: http://www.hklii.org/ Hong Kong e-legislation: https://www.elegislation.gov.hk/

Subject Description Form

Subject Code	BRE345
Subject Title	Measurement, Documentation & Estimating
Credit Value	3
Level	3
Pre-requisite	BRE261
Objectives	This subject is intended to: 1. Enable students to understand the construction process and sequence of building works. 2. Enable students to appreciate the building measurement rules as stipulated in standard method of measurement. 3. Enable students to develop the skills required for measuring, quantifying, and pricing construction work. 4. Enable students to develop the understanding of tendering procedures with reference to producing and checking tender documentation.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) Describe the construction process and sequence of new building works. (b) Measure the new building works in accordance with the standard method of measurement. (c) Synthesise and analyse the composition of unit rate and tender price. (d) Prepare, examine, and compare documentation to be used in procurement of building works.
Subject Synopsis/ Indicative Syllabus	*Building measurement for building works:* Organisation and systems of measurement including divisions of building works and building trades; mensuration used in measurement; measurement techniques for building works; comparative studies of measurement procedures; measurement using computers; composition of bills of quantities; composition of tender documents; and appreciation of forward trends. *Tender documentation for building works:* Communication between client, designer, and contractor; types of tender documentation and their application; use of bills of quantities, drawings and specifications, preambles, preliminaries, queries; methods of project delivery; types of building contract; procedure of tendering. *Cost estimating for building works:* Factors influencing the pricing of new building works; evaluation of unit rate based on resources (labour, plant, and material); enquiries for cost rates; and calculation of unit rates for pricing tenders.
Teaching/Learning Methodology	Theories and rationales will be delivered in lecture periods. In-class exercises will be given in lecture periods. Practical knowledges and experiences will be shared and delivered in tutorial periods. E-learning materials and e-discussion forums will be provided. Building measurement software trainings will be delivered in the workshops.

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. Coursework 1: Individual assignment (taking off exercise, preparing bills of quantities)	15%	√	√				
2. Coursework 2: Individual assignment (taking off exercise, preparing bills of quantities, pricing bills of quantities)	15%	√	√	√			
3. Coursework 3: Group project (documentation and estimating problems)	20%			√	√		
4. Examination	40%	√	√	√	√		
5. Effort	10%	√	√	√	√		
Total	100%						

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

Coursework 1, Coursework 2

Coursework 1 and Coursework 2: Students are given assignments (taking off exercise) for measuring the building works using the provided construction drawings. Coursework 1 and Coursework 2 are to assess students' ability:

(i) To identify and familiarise with the building components through reading construction drawings.

(ii) To understand the construction activities and sequence.

(iii) To gather the necessary work and cost information.

(iv) To develop the bills of quantities in standardised format.

Upon completion of Coursework 1 and Coursework 2, students will be able to achieve learning outcomes (a), (b) and (c).

Coursework 3

Coursework 3: Students are given a group project to solve the tender documentation and cost estimating problems. This coursework is to assess students' ability:

(i) To organize themselves and fellow group members because a surveyor or an engineer work with others as a team to accomplish the estimating and tendering tasks.

(ii) To use technical terminologies for work quantification, cost estimation and tender documentations.

(iii) To solve a problem or task that is given (e.g., by your employer).

(iv) To demonstrate presentation, communication and writing skills.

<table>
<tr><td></td><td colspan="2">Through the problem-solving exercises relating to documentation and estimating activities (Coursework 3), students will be able to achieve learning outcomes (c) and (d).

Examination is used to assess students' understanding of building measurement, cost estimating, and tender documentation concepts and practices learned in the lectures and tutorials. Students will be able to achieve learning outcomes (a), (b), (c), and (d).

Through students' effort in solving the problem exercises given in lectures and tutorials, the students will be able to achieve learning outcomes (a), (b), (c), and (d).</td></tr>
<tr><td rowspan="6">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Seminars / Tutorials</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Student study effort</td><td>120 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>159 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="2">Ashworth, A. and Hogg, K. (2007). Willis's practice and procedure for the quantity surveyor—12th edition. Blackwell, Oxford.

Buchan, R., Fleming, F.W., and Grant, F.E. (2003). Estimating for builders and surveyors—2nd edition. Butterworth-Heinemann, Oxford.

Chan, C.T.W. (2020). Estimating and measurement for simple building works in Hong Kong. Routledge.

Holroyd, T.M. (2000). Principles of estimating. Thomas Telford, London.

Packer, A.D. (1996). Building measurement. Addison Welsey Longman, Essex.

Picken, D.H. and Drew, D.S. (1996). Building measurement in Hong Kong: Worked Examples. Longman Asia Ltd., Hong Kong.

The Hong Kong Institute of Surveyors (2021). Hong Kong standard method of measurement of building works—5th revised edition (HKSMM4R). The Hong Kong Institute of Surveyors, Hong Kong.</td></tr>
</table>

Subject Description Form

Subject Code	BRE349
Subject Title	Building Services I
Credit Value	3
Level	3
Pre-requisite	BRE2031
Objectives	This subject is intended to: 1. Provide students with an overview of the various building services engineering systems in modern buildings, 2. Understand the basic design intent of various building services systems and their integration with the building fabric and architectural features.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: 1. Possess a knowledge of the system configuration and operation of various building services systems. 2. Relate how different building services systems can help to control and improve the indoor environment. 3. Identify the relationships between the design of building services systems and the overall building design. 4. Appreciate the cost and value relationship on the selection of appropriate building services systems. 5. Relate issues on environmental impact to the design of building services systems and overall building design.
Subject Synopsis/ Indicative Syllabus	Plumbing & Drainage Water supply and drainage system for high rise buildings. Simple design on pipe sizing for plumbing and drainage pipes. Sewage treatment process and fresh water recycling Electricity: Assessment of electricity demand. Lightning protection. Safety and Earthing provisions for electricity distribution within buildings. HVAC: Principles of air-conditioning process. Assessment on the efficiency of air-conditioning and air mixing processes. Large scale air conditioning system configurations and operations. Internal transportation: The configuration and operation of lifts and escalators. Assessment on the quality of services of lift operation. Fire Services: Active prevention, detection and suppression systems for Fire Services. Passive approaches to Fire Services. Integration of fire services system to other building services systems.

Teaching/Learning Methodology

The learning and teaching approaches for the subject comprises lectures, tutorials and laboratories.

Lectures aims at delivering the basic core of concepts and knowledge of respective topics whilst further design and operation arrangements will be elaborated and discussed in the tutorials. Presentation by students on selected topics will also be arranged at tutorials. Laboratories are included to allow students to relate theories and concepts to real situations.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		1	2	3	4	5	
1. Laboratory Report	6%	√	√			√	
2. Oral Presentation	14%	√	√	√	√	√	
3. Test	20%	√	√	√	√	√	
4. Examination	60%	√	√	√		√	
Total	100%						

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

Assessment for the subject comprises end-of-semester written examination, laboratpry report, oral presentation, and in-class test.

The overall split between continuous assessment and examinations has been set at 40%60%. Students must pass both continuous assessment elements and the end-of-term examination in order to pass the subject.

Laboratories allow students to relate theories to actual practices and operations.
Written examination aims to assess students' ability to apply concepts learned for solving problems on building services design and operation.

Oral presentations on specific topics on building services serve to assess students' understanding on selected topics.

The test aims to determine the understandings of students on fundamental knowledge and key words on building services

For the presentation coursework, Students are encouraged to use Artificial Intelligence (AI) tools to assist in the development of the topic areas, identify related contents to be included and to conduct initial evaluation on different options and solutions.
Students will be required to document the adoption of AI tools in the coursework as an integral part of the submission for assessment.

Student Study Effort Expected	Class contact:	
	▪ Lecture	26 Hrs.
	▪ Tutorial	13 Hrs.
	Other student study effort:	
	▪ Laboratory	6 Hrs.
	▪ Self-Learning	75 Hrs.
	Total student study effort	120 Hrs.
Reading List and References	**Recommended:** Hall F. & Greeno R. (2017) *Building Services Handbook*, 9th ed., Routledge. Burberry P. (1997) *Environment & Services*, 8th ed., Longman Scientific & Technical. Chadderton D.V. (2013) *Building Services Engineering*, 6th ed., Taylor & Francis. Wang S. K. (2001) *Air Conditioning and Refrigeration*, 2nd ed., McGraw Hill. CIBSE (2020) *Guide D – Vertical Transportation*, CIBSE **Supplementary:** HKSAR (2015), *Code of Practice for the Electricity (Wiring) Regulations*. HKSAR (2016), *Code of Practice for Fire Safety in Buildings 2011 (2015 edition)*. HKSAR (2012), *Code of Practice for Minimum fire Services Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment*. HKSAR, *Building Ordinance and Regulations* CAP.123. NFPA (1997) *Fire Protection Handbook*, 18th Edition. BRE (various) *Digests and Current Papers*. Building Research Establishment, Garston, Watford, U.K. Various Standards and Codes published by British Standard Institution (BSI).	

Subject Description Form

Subject code	BRE350
Subject title	Project Management and Procurement
Credit value	3
Level	3
Pre-requisite	None
Objectives	This subject is intended to: Project procurement • Enable students to appreciate project procurement in context of available form of contracts (e.g., standard form of building contract, general condition of contract, and new engineering contract). • Enable student to understand traditional project delivery options of design-bid-build, design-built, design-build-operate, and design-build-finance-operate, along with alternate options such as new-engineering-contract and public-private-partnership. • Enable students to appreciate procurement process and bidding strategies at pre-contract stage, tendering stage, tender evaluation stage, contract award stage, and explain the tendering methods and procedures, including the use of bidding theory, analysis of tender performance, and selection of tenders. Project management • To become conversant with commonly applied terminology, methods, and practices in connection with project management. • To master the fundamental knowledge and techniques for project planning and control including Work Breakdown Structure, Project Cost Breakdown, Project Team Organization, Project Network Diagramming. • To master and apply mainstream analytical methods for bid price analysis, project schedule analysis (critical path method), schedule risk analysis (PERT) and cost control analysis (earned value management). • To appreciate the role of 3D BIM in communicating design information and facilitating project management. • To understand the critical components of quality and safety management in project management.
Intended learning outcomes	Upon completion of the subject, students will be able to: Project procurement (a) Understand key terminologies of project procurement in context of contractual and tendering responsibilities. (b) Articulate knowledge on construction procurement practice, including tendering systems, tendering strategies, tendering process, tender evaluation, and tendering report. Project management (a) To be able to understand and apply analytical methods for unit-rate bidding, critical path scheduling and earned value analysis for cost control.

<table>
<tr><td></td><td>(b) To be able to implement project planning application frameworks of Work Breakdown Structure, Project Cost Breakdown, Project Team Organization, Project Network Diagramming, Resource Leveling.
(c) To acquire fundamental concepts and lay the knowledge basis to pursue project management studies at advanced levels.</td></tr>
<tr><td>Subject synopsis / indicative syllabus</td><td><u>Project management</u>
• Introduction of Project Management in the construction context.
• Scope/Stakeholders/Communication management
• Time management.
• Cost management.
• Quality management.
• Safety management.
<u>Project procurement</u>
• Principles of procurement practices.
• Spirit of contracts in procurement.
• Tendering procedure and practice (employers' perspectives).
• Tendering documents.
• Tendering strategies (tenderers' perspectives).</td></tr>
<tr><td>Teaching / learning methodology</td><td>• Conceptual models and analytical methods will be delivered in lectures.
• Practice problems will be solved in tutorial classes.
• Practical knowhow and experiences will be shared in classes.
• E-learning materials and e-discussion forums will be provided.
• Basic software use (MS Excel/Project) will be instrumental but not mandatory; guidance on spreadsheet application will be provided to those in need of help.
• Guest lecture will be arranged to share the most updated project management and procurement practice in Hong Kong construction industry.</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. Coursework 1</td><td>25%</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. Coursework 2</td><td>25%</td><td></td><td></td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>3. Examination</td><td>50%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="6"></td></tr>
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</td></tr>
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<table>
<tr><td></td><td colspan="2">Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
• Coursework 1: Students are given individual or group assignments relevant to project procurement. Upon completion of Coursework 1, students will be able to achieve learning outcomes (a) and (b).
• Coursework 2: Students are given individual or group assignments relevant to project management. Upon completion of Coursework 2, students will be able to achieve learning outcomes (c) and (d).
• For Coursework 1 and 2: Students will be assessed by individual written assignment.
• Examination is used to assess students' understanding of concepts and practices learned in the lectures and tutorials. Students will be able to achieve learning outcomes (a), (b), (c), and (d).
• Through students' effort in solving the problem exercises given in lectures and tutorials, the students will be able to achieve learning outcomes (a), (b), (c), and (d).</td></tr>
<tr><td rowspan="6">Student study effort expected</td><td>Class contact:</td><td></td></tr>
<tr><td>• Lectures</td><td>26 Hrs.</td></tr>
<tr><td>• Tutorials</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>• Independent study</td><td>96 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>135 Hrs.</td></tr>
<tr><td>Reading list and references</td><td colspan="2"><u>Project management</u>
• Computer-based Construction Project Management (2001) Prentice Hall (by T. Hegazy, U of Waterloo)
• Project Management Institute. (2017). A guide to the project management body of knowledge. Newtown Square, Project Management Institute, Newtown Square, Pennsylvania, United States.
• Tang, S.L., Ahmed, S.M., Aoieong, R.T., and Poon, S.W. (2008). Construction quality management. Hong Kong University Press, Hong Kong.
• Tang, S.L., Poon, S.W., Ahmed, S.M., and Wong, K.W. (2008). Modern construction project management. Hong Kong University Press, Hong Kong.
<u>Construction procurement</u>
• Chan, A.P.C., and Yung, E.H.K. (2000). Procurement selection model for Hong Kong, 1st Edition, Department of Building and Real Estate, The Hong Kong Polytechnic University.
• Morledge, R. (2013). Developing a construction procurement strategy and selecting an appropriate route, 1st Edition, Royal Institution of Chartered Surveyors, United Kingdom.
• Greenhalgh, B., Squires, G., and Mahamadu, A.M. (2022). Construction procurement: complex property development. Routledge, United Kingdom.</td></tr>
</table>

	• Hong Kong Institute of Architects, the Hong Kong Institute of Construction Managers, and the Hong Kong Institute of Surveyors. (2005). *Agreement and schedule of conditions of building contract for use in the Hong Kong Special Administrative Region, Standard form of building contract private edition, With quantities*. Hong Kong. • Hong Kong Institute of Architects, the Hong Kong Institute of Construction Managers, and the Hong Kong Institute of Surveyors. (2006). *Agreement and schedule of conditions of building contract for use in the Hong Kong Special Administrative Region, Standard form of building contract private edition, Without quantities*. Hong Kong. • Morledge, R. (2013). *Developing a construction procurement strategy and selecting an appropriate route*. Royal Institution of Chartered Surveyors, United Kingdom. • Masterman, D.J., Masterman, J., and Masterman, J.W. (2003). *An introduction to building procurement systems*. CRC Press, Florida, United States. • Naoum, S.G., and Egbu, C. (2016). Modern selection criteria for procurement methods in construction: A state-of-the-art literature review and a survey. *International journal of managing projects in business*, 9(2), 309–336. • Oo, B.L., and Tang, O.S. (2023). Information feedback in construction contract bidding: Perceptions of Hong Kong contractors. *International journal of construction management*, 23(6), 1044–1052.

Subject Description Form

Subject Code	BRE362
Subject Title	Urban Economics and Property Investment
Credit Value	3
Level	3
Pre-requisite	BRE217
Objectives	1. Equip students with the financial principles and the appraisal techniques applied to land development and property investment decisions. 2. Enable students to understand the economic role of real estate played in the urban economy.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: <u>Intended Professional Learning Outcomes</u> a. use relevant economic principles to analyze the relationship between urban economy and the real estate market, b. use investment theories to assess a landed property as an investment asset with regard to its economic value, c. draw upon the implications of financial planning in making decisions on property investment and finance, d. utilize skills to synthesize coherent arguments and policy implications to support decision-making processes in urban real estate development/redevelopment. <u>Intended Generic Learning Outcomes</u> e. possess skills to identify, analyze and solve problems on contemporary issues, f. communicate effectively in both oral and written reporting.
Subject Synopsis/ Indicative Syllabus	<u>Economic value of land and real property</u> Nature of land economics and analysis of a real estate market. Theories of urbanization, land use pattern and land rent. Economic value of land and real property and the investment appraisal. A portfolio approach to real estate investment and the availability of real estate finance. <u>Real estate market and the urban economy</u> The role of real estate in a wider economy. The competitive structure and efficiency of a real estate market. Justification of government intervention in land and property markets. Cost and benefit analysis of real estate development and redevelopment. Tools and techniques available for real estate analysis.
Teaching/Learning Methodology	The main theory and concepts are delivered through lectures, with application and discussion being covered in seminars and tutorials. The syllabus covers 2 main sections: (i) Economic value of land and real property, and (ii) Real estate market and the urban economy. The fundamental knowledge and relevant theories on the economic value of real estate and its role in the urban economy will be delivered in mass lectures and the key issues to be highlighted. Supplementary learning materials and case studies will also be given to enhance the students' understanding of the topic. Subsequent workshops and seminars will be organised to give hands-on practice on the alternative investment

appraisal techniques and interpretation of the results. Seminar topics go in parallel with that of lectures so that the framework and techniques introduced in the lecturers can be further illustrated, exemplified, and discussed in-depth.

Apart from face-to-face lectures and seminar discussions, teaching materials including the teaching notes and lecture powerpoints will also be uploaded to the electronic teaching platform for students' easy reference.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	f
1. Presentation and Tutorial Discussions	30%	√	√	√	√	√	√
2. Written Assignment	20%	√	√	√	√	√	√
3. Examination	50%	√	√	√	√		
Total	100 %						

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

<u>Coursework</u>

The coursework elements comprise an individual oral presentation and a written group report on contemporary issues.

Presentation and communication skills will be assessed through the individual verbal presentation and participation in discussion in the tutorials which will count for 30% of the total marks. The assessment criteria include their oral communication skills, familiarity with the topic, quality of the visual aids and their performance in the Q&A session.

Their understanding on the contemporary issues will be assessed through the group reports which will count for 20% of the total marks. Assessment criteria of the written report include communication skills, identification of the problem issue, information collection, data analysis and the conclusions drawn.

<u>Examination</u>

Multiple choice and essay questions are contained in the 2-hr exam paper. Students must attempt the multiple choice questions which are used to assess their understanding on the fundamental economic and investment theories, principles and the appraisal techniques. Essay-type questions are used to test whether the students can articulate the relationship covering real estate development and its economic value through discussion and argument.

Student Study Effort Required	Class contact:	
	▪ Lectures	26 Hrs.

	▪ Seminars/Tutorials	13 Hrs.
	Other student study effort:	
	▪ Independent study	90 Hrs.
	Total student study effort	129 Hrs.

Reading List and References

Recommended

Choy, Lennon H.T., Ho, Winky K.O. & Mak, Stephen W.K., (2012) "Housing attributes and Hong Kong real estate prices: a quantile regression analysis," *Construction Management.*

DiPasquale, D. and Wheaton, W. C. (1996) The Markets for Real Estate Asset and Space: A Conceptual Framework, *Journal of the American Real Estate and Urban Economics Association*, 1992, Vol. 20, pp 181-197.

Geltner, Miller, Clayton and EichHortz (2014) *Commercial Real Estate: Analysis and Investments*, Chapter 2, OnCourse Learning.

Bengs, C., & Ronka, K. (1994) Competition restrictions in housing production. *Economic Modeling, 11*(2), pp. 125-133.

Lai, N. and Ko, W. (1999) Land-supply restrictions, developer strategies and housing policies: The case in Hong Kong, *International Real Estate Review*, Vol. 2, No. 1, pp. 143-159.

Landis, J. D. (1986). Land regulation and the price of new housing: Lessons from three California cities. *Journal of the American Planning Association*, Winter 1986, pp. 9-21.

Tse, R. Y. C., Hui, E. C. M., & Chan, C. H. K. (2001). On the competitive land market: evidence from Hong Kong. *Review of Urban and Regional Development Studies, 13*(1), pp. 46-61.

Leung B.; Hui, E. and Seabrooke, B. (2007), Pricing of Presale Properties with Asymmetric Information Problems, *Journal of Real Estate Portfolio Management*; Apr-Jun 2007; 13, No. 2.

Whitehead, C.M.E. (1983) The rationale for government intervention, Urban Land Policy: Issues and Opportunities, p.108 –129.

Hui, Eddie C.M.; Leung, Barbara Y.P. and Yu, Ka Hung (2014) The impact of different land-supplying channels on the supply of housing, *the Journal of Land Use Policy*, Vol. 39, pp. 244-253.

Leung, Y.P.B. and Ma, A.S.C. (2013) Exploration of the presale market in China from an institutional perspective, *International Journal of Strategic Property Management.*, 17(3), pp. 248-262.

Zhang, X.L.; Hu, J; Skitmore, M. and Leung, Y.P.B. (2013) Inner-city urban redevelopment in China metropolises and the emergence of gentrification: the case of Yuexiu, Guangzhou, *Journal of Urban Planning and Development*, 05014004, 13 June 2013.

Leung, Y.P.B.; Hui, C.M.E.; Tan, J.H., Chen, L. and Xu, W.B. (2011) SWOT dimensional analysis for strategic planning – The case of overseas real estate developers in Guangzhou, *International Journal of Strategic Property Management.*, 15(2), pp. 105-122.

Leung, Y.P.B.; Hui, C.M.E. and Seabrooke, B. (2007) Pricing of presale properties with asymmetric information problem, *Journal of Real Estate Portfolio Management*, 13(2), pp. 139-152.

Leung, Y.P.B.; Hui, C.M.E. and Seabrooke, B. (2007) Risks transfer of presale properties and the construction of forward property price index,

	Pacific Rim Property Research Journal, 13(2). Brealey, R.A. and Myers, S.C. (2004) *Principles of Corporate Finance*, McGraw Hill. Brown, G.R. and Matysiak, G.A. (2000) *Real Estate Investment: A Capital Market Approach*, Prentice Hall. Harvey, J. (2000) *Urban Land Economics: The Economics of Real Property*, London: MacMillan. Hui, C.M., Chan, P.C., Wong, K.W., Wong K.C. & Leung, Y.P. (2000) *The Supply of Land for Housing in Hong Kong*, Research Monograph, The Hong Kong Polytechnic University O'Sullivan, A. (2009) *Urban Economics*, 7th edition, London: Irwin. Pirounakis, N.G. (2013) Real Estate Economics – A Point-to-point handbook, Routledge, 2013. Lumby, Steve (1994) *Investment Appraisal and Financial Decisions*, 5th edition, Chapman & Hall.

Subject Description Form

Subject Code	BRE363
Subject Title	Construction Economics
Credit Value	3
Level	3
Pre-requisite	Nil
Objectives	1. Enable students to understand the factors affecting construction cost 2. Enable students to contribute to the economic efficiency of construction throughout a project life cycle in conjunction with its stakeholders
Intended Learning Outcomes	a. Analyse the factors affecting construction cost at an industry and project level. b. Compile and use cost data effectively for forecasting and controlling purpose c. Compare cost of alternative designs d. Evaluate life cycle cost of construction e. Communicate principles and cost data effectively. f. Identify contemporary issues related to construction economics
Subject Synopsis/ Indicative Syllabus	Demand and supply for construction Factors affecting construction cost at industry and project level Productivity and its measurement Types of client and the client's brief Real estate developers and their costs The roles of construction and property professionals Compilation and use of cost data Building cost and tender price indices Design economics Cost planning and cost analysis An introduction to cost modeling Life cycle costing Cost control measures

Teaching/Learning Methodology

The principles and concepts are delivered through lectures (each at 2 hrs per week), with application and discussion being covered in seminars and tutorials (each at 1 hrs per week in small groups), for a total period of 13 weeks.

The syllabus on construction economics will take students through the macro and micro factors affecting construction cost, both from the client and contractor's perspectives. Seminar topics (some of which are case-based) and reports demand students' individual research and data analysis, as well as presentation.

Apart from face-to-face lectures and discussion, students can download teaching materials from an electronic teaching platform.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	f
1.Seminars/reports	40 %	√	√	√	√	√	√
2. Examination	60 %	√	√	√	√	√	
Total	100 %						

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

Learning outcomes	Oral Seminar Presentation	Written Seminar Report	Examination
1. to possess skills to identify, analyze and		√	√
2. to have an understanding of professional, social and ethical responsibilities	√	√	
3. to communicate effectively	√	√	√
4. to contribute as team member and to lead effectively	√	√	
5. to identify contemporary issues	√	√	
6. Analyse the factors affecting construction cost at an industry and project level.	√	√	√
7. Compile and use cost data effectively for forecasting and controlling purpose	√	√	√
8. Compare cost of alternative designs	√	√	√
9. Evaluate life cycle cost of construction	√	√	√

	The assessment criteria adopted in tutorial/seminars ("plus" grade for enhanced performance possible for each grade except F; students may work on one or more topics, hence averaging coursework grades may apply) 1. Seminar (oral presentation) – individual assessment (20%) • Oral presentation skills: A for excellent, B for good, C for clear, D for reading from script, F for mumbling • Familiarity with the topic: A for excellent, B for good, C for adequate, D for poor, F for no knowledge • Quality of visuals: A for excellent, B for good, C for adequate, D for barely sufficient, F for poor • Answer during discussion: A for excellent, B for good, C for adequate, D for barely sufficient, F for poor 2. Seminar (Group report) – overall (group) assessment (20%) • Written communication skills: A for excellent, B for good, C for clear, D for barely sufficient, F for poor • Data/information collection: A for excellent, B for good, C for adequate, D for barely sufficient, F for poor • Data interpretation & analysis: A for excellent, B for good, C for adequate, D for barely sufficient, F for poor • Identification of problem/issue: A for excellent, B for good, C for adequate, D for barely sufficient, F for poor • Conclusion: A for excellent, B for convincing, C for adequate, D for barely sufficient, F for poor	
Student Study Effort Required	Class contact:	
	▪ Lectures	26 Hrs.
	▪ Seminars/Tutorials	13 Hrs.
	Other student study effort:	
	▪ Independent study	81 Hrs.
	Total student study effort	120 Hrs.
Reading List and References	Gruneberg, S. and Francis, N. (2019) *The Economics of Construction*, Agenda Publishing Ltd. Ferry, D. & Brandon, P.S., (2007) *Cost planning of Buildings*, 7th Edition, Oxford, Blackwell Publications Ive, G.J. and Gruneberg, S. (2000) *The economics of the modern construction sector*, Basingstoke: Macmillan Myers, D. (2017) *Construction Economics: a new approach*, Abingdon, Oxon: Routledge, 4th edition (online version available) Ashworth A., (2010*) Cost Studies of Buildings*, Harlow, England: Pearson **Supplementary:** Smith, J. (1998) *Building Cost Planning for the Design Team*, Deakin University Press Seeley, I. (1996) *Building Economics*, MacMillan Pilcher, R. (1994) *Project Cost Control in Construction*, Blackwell Scientific Publication Chris, M. (2009) Finance and control for construction, Taylor & Francis Samuelson, P.A. and Nordhaus, W.D. (2010). *Economics*, 19th edition. McGraw-Hill International Edition. *Hong Kong Statistics* (current issues), Hong Kong SAR Government	

	Websites of major QS practices Journal articles (e.g., *Construction Management and Economics*: update issues)

Subject Description Form

Subject Code	BRE364
Subject Title	Construction Contract Law and Administration
Credit Value	3
Level	3
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject is intended to: 1. Introduce aspects of law that have particular relevance to construction contracts. 2. Provide a practical knowledge of modern development in construction contract law and application of laws and procedures relating to construction contracts and their administration.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Relate and apply the legal principles and modern development of contract law to construction contract administration. b. Familiarize and review the features of some common local and international standard of forms of construction contracts. c. Analyze the contractual issues and evaluate the contractual position of different parties in various contractual situations. d. Communicate effectively with legitimate reasoning. e. Develop the ability to engage in life-long learning on construction contract law.
Subject Synopsis/ Indicative Syllabus	1. *Construction contracts*: modern development of law in contract; legal interpretation and application in construction contract. 2. *Legal basis for Standard form of contract*: characteristics of various standard forms of local and international building contracts and sub-contract. 3. *Duties and responsibilities of the contract administrators and the parties to the contract*: implications of contract clauses; legal implication in the procedures for instructions, variations, payments and certification. 4. *Construction claims*: evaluation and presentation of claims; contractual and common law remedies.
Teaching/Learning Methodology	Lectures and tutorials will be run throughout the semester period. The lectures and tutorials will not only disseminate the relevant knowledge but also provide guidance for students to search materials for self-study. Tutorial projects will also be set requiring the student to evaluate and apply the relevant law principles and deduce solution for the cases. The projects require students to analyze, critically appraise and resolve administrative, organizational and managerial problems in the practice of construction contract administration. Key topics will be set for groups of 4-5 students to carry out legal research and

	prepare for presentation and discussion in tutorial class. The tutorial classes encourage peer group learning and provide an interactive learning environment to develop critically thinking and legal reasoning.

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	
Coursework	40%	√	√	√	√	√	
Examination	60%	√	√	√	√		
Total	100%						

Students will be assessed by:

(i) Examination: In the form of problem analysis and essay type question.
(ii) Coursework: In the form of presentation of project assignment, short quiz and critical discussion in class.

Student Study Effort Required

Class contact:	
▪ Lectures	26 Hrs.
▪ Tutorials	13 Hrs.
Other student study effort:	
▪ Student effort hours	81 Hrs.
Total student study effort	120 Hrs.

Reading List and References

Indicative Reading List:

Recommended:

Aqua Group, (1996) *Contract Administration for the Building Team, 8th Ed.* Oxford: Blackwell Science.

Chappell, D. (2003), *Understanding JCT Standard Building Contracts*, 7th Ed., E & FN Spon, London.

Chee, Simon (2016), *Construction Dispute Prevention and Resolution in Hong Kong*, Sweet & Maxwell and Hong Kong Construction Arbitration Centre, Limited

Chee, Simon (2013), (Thesis) *From right to Interest – Specialised Facilitative Mediation (Construction)*, City University of Hong Kong.

David Chappell. (1998) Powell. *Smith & Sims' Building Contract Claims*. 3rd Ed. Malden, Mass.: Blackwell Science.

Hong Kong Arbitration Ordinance Cap. 609

HKIA / HKIS / HKICM Standard Forms of Building Contracts (2005, 2006 Editions)

HKSAR Government Development Bureau. *Additional Conditions of Contract (ACC for NEC RSC 20 June 2017)*

HKSAR Government Development Bureau. *Circular Letter : 510/83/03 dated 15 October 2014*

	HKSAR Government Development Bureau. *General Conditions of Contract for Building Works,* (1999 Edition) HKSAR Government Development Bureau. *Practice Notes for NEC – ECC for Public Works Projects in Hong Kong,* June 2017 HKSAR Government Development Bureau. *Proposed Security of Payment Legislation for the Construction Industry - Consultation Document,* 1 June 2015 *Hong Kong Mediation Ordinance Cap 620* Murdoch, J. & Hughes, W. (2002) *Construction Contracts Law and Management*, 3rd Ed., Spon Press. *New Engineering Contract*, 3rd Edition (2005), 4th Edition (2017) Poon N.T. & Chan E.H. (1998) *Real Estate development in Hong Kong*, Pace Ltd. H.K. Thomas, R. (2001), *Construction Contract Claims*, 2nd Ed., Macmillan, U.K. Teresa, C. Wong, E and Soo, G., (2004) *Construction Law and Practice in Hong Kong*, Thomson, Sweet & Maxwell Asia. Uff, J. (2002) *Construction Law: Law and Practice Relating to the Construction Industry*, 8th Ed. Sweet & Maxwell, UK. Furst, S. (2001), *Keating on Building Contracts*, 7th Ed., Sweet & Maxwell, London. **Supplementary:** Powell-Smith, V. (2000) *Powell-Smith & Furmston's Building Contract Casebook*, Blackwell Science: Oxford. Wallace, Ian Norman Duncan. (1995), *Hudson's Building & Engineering Contracts: including the Duties and Liabilities of Architects, Engineers and Surveyors*, 11th Ed, London : Sweet & Maxwell. Ramus, J.W(1996) *Contract Practice for Quantity Surveyors.* 3rd ed., Oxford : Heinemann Newnes. Latham, M. (1994), *Constructing the Team*, HMSO. Ashworth, A., (2002) Willis's *Practice and Procedure for the Quantity Surveyor, 11th Ed.* Malden, M.A.: Blackwell Science.

Subject Description Form

Subject Code	BRE365
Subject Title	International Study
Credit Value	1
Level	3
Pre-requisite	BRE262 or BRE269
Objectives	*This subject is intended to:* • Widen students' horizons through in-depth investigation and research on construction and real estate industry of other cities / countries • Enhance students' problem solving skills on issues of Hong Kong construction industry by expanding their visions beyond local practices and conventions. • Provide an opportunity for students to initiate, organize, plan and execute a study project and to learn to work and contribute in a team
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Comprehend different aspects of the real estate and construction industries of selected city/country through research, guided study and/or study tour b) Conduct detail investigation and researches on selected topics of real estate and construction industries of a foreign city/country c) Compare and contrast different aspects of real estate and construction industries between Hong Kong and other cities/countries d) Analyze and appraise issues and solutions for Hong Kong construction and real estate industries at industry and/or regional levels with reference to practices in other cities / countries e) Work as a team and coordinate among team members to accomplish common project goals and present quality deliverables
Subject Synopsis/ Indicative Syllabus	Comparative study of real estate and construction industries between Hong Kong and a city/country selected by students followed by presentation and written report.

Teaching/Learning Methodology

Students in groups are required to conduct a comparative study to the real estate and construction industry of a city/country of their own choice and Hong Kong. Students are required to investigate into one or more of the following aspects: the formation and structure of the industry and roles of stakeholders in the industry, the outlook and performance of the industry in term of value added and/or productivity, the prospects and future development of the industry, and specific topics like practicing sustainability in the industry, innovative construction technology and management approaches, real estate finance, property and facility management, etc. where appropriate.

The study shall be conducted in the form of a compulsory study tour to the selected city/country. A presentation of the study and the findings of the study tour will be held and to be assessed by the tour supervisors. Students are also required to prepare a written report for assessment along with the presentation.

The subject lecturer will play a coordinator role and adopt “minimum-intervention” policy for the study tour, as it is believed the preparation and organization for the study tour can contribute to students’ learning on generic skills about team building and problem solving.

Each tour group will have two academic staff from the Department serving as tour supervisors (arranged by the tour groups) to provide guidance on the planning and execution of the tour, join the tour and in charge of the assessment of the subject.

At the planning stage, student groups are to be required to use generative AI tools (such as chatGPT) on the planning of the tour programme, e.g., identifying issues in selected destination, determination of the study/research topics, notable institutes / organizations / individuals to be visited, purposes of the visit, planning and scheduling of the tour, etc. It is expected students will make use of the recommendations from the generative AI tools by working with their tour supervisors on the development of the tour programme.

After the study tour, the student groups can make use of generative AI tools to help with their report writing, and presentation.

Assessment Methods in Alignment with Intended Learning Outcomes

Assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Oral Presentation	40 %	√	√	√	√	√	
2. Research Report	40 %	√	√	√	√	√	
3. Individual Assessment	20 %			√	√		
Total	100 %						

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

	This is a project based subject and it is believed presentation followed by written presentation can ensure students have learned and enriched themselves through the study tour and present their learning gain in a systematic manner for assessment. In addition to the group submissions (presentation and report), individual assessment based on contributions of individual participants towards the whole process of study tour project are included as part of the assessment. Personal reflective journal may also be used as the tool for individual assessment if appropriate. Tour groups are required to document the adoption on generative AI at different stages of the study tour, including, planning, implementation and presentation/report preparation and students will be required to indicate their views on using generative AI in this subject through personal reflection. The following declaration should be made in the preface of the report. "*I/We declare that Generative AI tools have been used to prepare the submitted work. The Generative AI tools used and the manner in which they were used are as follows*:" _____ The students are also required to submit Turnitin plagiarism check, including AI indicator, with their study tour report.	
Student Study Effort Required	Class contact:	
	▪ Introduction / Consultation	2 Hrs.
	▪ Oral Presentation	2 Hrs.
	Other student study effort:	
	▪ Preparation and organization of the study	18 Hrs.
	▪ Preparation of presentation and report	18 Hrs.
	Total student study effort	40 Hrs.
Reading List and References	There are no standard reading materials for the subject, Students are expected to conduct in-depth research study and materials like research study reports, statistical data from different sources are considered essential study materials. Case Studies are believed to aid and deepen learning impact.	

Subject Description Form

Subject Code	BRE366
Subject Title	Analytical Skills and Methods
Credit Value	2
Level	3
Pre-requisite / Co-requisite/ Exclusion	Pre-requisite: Level 2 core subjects Co-requisite / Exclusion: Nil
Objectives	To prepare students for undertaking a manageable piece of research leading to a dissertation.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Describe and appraise the key concepts, elements and requirements in research. b. Describe the meaning of plagiarism and demonstrate the proper ways to avoid it. c. Apply the knowledge of fundamental statistics in collecting, organizing, summarizing, presenting and analyzing data, as well as drawing valid conclusions. d. Conduct hypothesis testing and valid multiple regression analysis with its diagnostic tests. e. Produce a dissertation research proposal with researchable topic related to the fields of construction and real estate.
Subject Synopsis/ Indicative Syllabus	A. Concepts: Philosophy of sciences, theory, hypothesis, methodology, method, research objective, problem statement, classification of research, etc. B. Process: Literature search and review, referencing and plagiarism, work plan, authorship skills, data assembly, time management, writing up, etc. C. Qualitative research: Strategy, approaches, methods, analysis, examples, limitations, etc. *D.* Quantitative research methods: Descriptive and inferential statistics, normal distribution, basic quantitative statistical techniques, hypothesis testing and decision making, correlation and regression analysis, and application of computer softwares/programs to handle statistical problems and calculations, etc. *(Remarks: Students are expected to learn these statistical techniques in more details and many other relevant quantitative techniques by their own initiatives.)* E. Writing out a dissertation proposal.
Teaching/Learning Methodology	In the lectures, teachers will introduce the course materials, explain the key theories and concepts and showcase examples of the methodology, elements and possible loopholes in doing a piece of research. The essential concepts and principles of various key subject areas under the qualitative and quantitative research methods will be presented in the lectures, leading to the preparation of initial dissertation proposals for submission.

	Tutorials will be used for discussion, problem-solving, hands-on demonstration, consultation and library visits. Interactive multi-media self-accessed learning materials will be provided via the department's computer network (e.g. LEARN@PolyU blackboard subject websites). Coursework will be designed to assess the students' ability to demonstrate their understanding of the course materials and their abilities to achieve the intended learning outcomes.
Assessment Methods in Alignment with Intended Learning Outcomes	

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Continuous assessment	100%	√	√	√	√	√	
Total	100 %						

The subject "Analytical Skills and Methods" is a major component leading to the completion of Dissertation or Capstone Project. Students must complete and pass each of the five assessment components of the subject in order to obtain an overall Grade of the subject. There are four assessment components.

1. A term paper for qualitative research methods (40%)
2. One quiz on quantitative research methods (40%)
3. One library workshop (attendance plus test) (10%)
4. Personal Reflection Journal on students' learning experience and learning-to-learn process development (10%)
5. Initial Dissertation Proposal (0%, Pass/Fail Assessment)

Students must discuss their initial dissertation topics with their academic advisors and get their academic advisors' signature approval for the Initial Dissertation Proposal for getting a "Pass" grade for the assessment component.

BRE students who participate in the exchange programme can register the subject outside Hong Kong. They need to fulfill all coursework assignments/components, by learning the subject materials from LEARN@PolyU. They need to attend the face-to-face quiz (Component 2) upon their returning to BRE, if no on-line option is provided.

The subject will be assessed on a continuous basis and no examination is required. The approach to coursework assessment is guided by two principles. First, the need to assess the extent to which the students have achieved the learning outcomes with respect to grading criteria. Second, the assessment itself should contribute in some way towards reflection and learning of the importance of research methods in Dissertation or Capstone Project. The total coursework mark will be based on a portfolio comprising a series of in-class written tests, attendance to library workshop, online quizzes and discussion. These assessment tools attempt to test the level of students' knowledge and application of fundamental qualitative research concepts and statistical techniques, in manipulating data for presentation, analysis and decision-making.

Student Study Effort Required	Class contact:	
	• Lectures	10 Hrs.
	• Tutorials	5 Hrs.

	Other student study effort:	
	• Self learning and recommended reading	65 Hrs.
	Total student study effort	80 Hrs.

Reading List and References

Reference List:

Essential:

HKPolyU - Department of Building and Real Estate. *Dissertation Guide.* Continuously updated.

Recommended:

Bell, J. and Waters, S. (2014) *Doing Your Research Project: A Guide for First-time Researchers*, 6th Edition, Maidenhead: McGraw-Hill Education.

Blaikie, N (2010) *Designing Social Research: The Logic of Anticipation*. 2nd Edition, Cambridge: Polity Press.

Booth, W.C., Colomb, G.G. and Williams, J.M. (2003) *The Craft of Research*. 2nd ed. Chicago: The University of Chicago Press.

Chau, K.W., Raftery, J. and Walker, A. (1998) The Baby and the Bathwater: Research Methods in Construction Management. *Construction Management and Economics*, Vol. 16, No. 1, pp. 99-104.

Collis, J. and Hussey, R. (2013) *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*, 2nd edition. Basingstoke: Palgrave Macmillian, England.

Fellows, R. and Liu, A. (2015) *Research Methods for Construction*, 4th ed., John Wiley & Sons.

Harris, R. and Cundell, I. (1995) Changing the Property Mindset by Making Research Relevant. *Journal of Property Research*, 12, pp.75-78.

Holt, G. (1998) *A Guide to Successful Dissertation Study for Students of the Built Environment*, 2nd edition. The Built Environment Research Unit, University of Wolverhampton.

Kennedy, P. (2003) *A Guide to Econometrics*, 5th Edition, Cambridge: MIT Press.

Knight, A. and Ruddock, L. Ed. (2008) *Advanced Research Methods in the Built Environment.* Chichester: Wiley-Blackwell.

Kumar, R. (2014) *Research Methodology: A Step-by-Step Guide for Beginners*. London: Sage Publications.

Levin, R.I. and Rubin, D.S. (1998) *Statistics for Management*, 7th edition, New Jersey: Prentice-Hall.

Lizieri, C. (1995) Comment: Relevant Research and Quality Research: the Researcher's Role in the Property Market. *Journal of Property Research*, 12, pp.163-166.

Lucey, T. (2002) *Quantitative Techniques*, 6th edition, London: Continuum.

Mason, J. (2018) *Qualitative Researching*. 3rd edition, London: Sage.

Naoum, S.G. (2013) *Dissertation Research and Writing for Construction Students*, 3rd edition, London: Routledge.

Pindyck, R.S. and Rubinfeld, D.L. (1998) *Econometric Models and Economic Forecasts*, 4th Edition, Boston: McGraw-Hill International Editions.

Raftery, J., McGeorge, D. and Walters, M. (1997) Breaking Up Methodological Monopolies: A Multi-paradigm Approach to Construction Management Research. *Construction Management and Economics*, 15(3), pp. 291-297.

Render, B. and Stair, R.M. Jr (2006) *Quantitative Analysis for Management*, 12th Edition. Pearson Education, India.

Tan, W. (2018) *Research Methods: A Practical Guide for Students and Researchers*. World Scientific, Singapore.

References on Probability and Statistics:

1. Berenson, M.L., Levine, D.M. and Szabat, K.A. (2015). *Basic Business Statistics – Concepts and Applications*, 13th Edition, Pearson Education, Boston, USA.
2. Bland, J.A. (1985). *Statistics for Construction Students*, Construction Press.
3. Devore, J.L. (2016). *Probability and Statistics for Engineering and the Sciences*, 9th Edition, Cengage Learning, Boston, USA.
4. Hogg, R.V., McKean, J.W. and Craig, A.T. (2013). *Introduction to Mathematical Statistics*, 7th Edition, Boston, USA.
5. Lapin, L.L. (1990). *Probability and Statistics for Modern Engineering*, 2nd Edition, PWS-Kent Publishing Company, Massachusetts, USA.
6. Levin, R.I. and Rubin, D.S. (1998). *Statistics for Management*, 7th Edition, Prentice-Hall, New Jersey, USA.
7. Lucey, T. (2002). *Quantitative Techniques*, 6th Edition, Continuum, London, UK.
8. Mendenhall, W., Beaver, R.J. and Beaver, B.M. (2013). *Introduction to Probability and Statistics*, 14th Edition, Pacific Grove, California, USA.
9. Mendenhall, W., Reinmuth, J.E. and Beaver, R. (1993). *Statistics for Management and Economics*, 7th Edition, Boston: Duxbury Press, USA.
10. Scheaffer, R.L., Mulekar, M.S. and McClave, J.T. (2011). *Probability and Statistics for Engineers*, 5th Edition, Brooks/Cole, Boston, USA.

Subject Description Form

Subject Code	BRE369
Subject Title	Integrated Professional Workshop II
Credit Value	3
Level	3
Pre-requisite	BRE269
Objectives	This subject is intended to: 1. Encourage the critical investigation, analysis and synthesis in solving problems in a multi-disciplinary surveying professional context. 2. Provide a platform for the students in different surveying disciplines to comprehend the essential knowledge of their partnering surveying disciplines. 3. Promote the students' understanding of the interdisciplinary nature of the surveying professions and enhance knowledge integration across different surveying disciplines. 4. Cultivate social responsibility, professional ethics and the awareness of trends and opportunities in the surveying professions. 5. Facilitate the students to develop lifelong learning skills for professional and personal development.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Understand how to integrate subject content and apply it to practical scenarios. b. Be aware of the value of teamwork as an approach to tackle a project and solve problems. c. Apply knowledge and skills of different surveying professions to solve problems in a multi-disciplinary professional context. d. Be aware of issues, policies and trends relating to the broader professional practice and the society. e. Identify needs for self-learning and use lifelong learning skills for learning autonomously.
Subject Synopsis/ Indicative Syllabus	BRE269, BRE369 and BRE469 are integrated with different levels of complexities. They are provided as a means to let the surveying students to learn and apply knowledge covering the five surveying disciplines (BS, GP, PDD, FPM and QS). Students will be equipped with the essential core knowledge of surveying disciplines, other than the one they shall choose to specialize in. The course will be delivered through a mix of seminars, project work and student-centered learning.

Multi-discipline Seminars

A series of seminars will be set to bridge across the professional knowledge of students in different surveying disciplines so as to give them an all-round training in the surveying profession. They will be given problem-based assignments and asked to attend seminars so as to equip themselves with the knowledge base and professional skills to identify and solve the problems. Qualified surveyors from various surveying practices will also be invited to deliver up-front professional knowledge to the students.

Multi-discipline Project work

A series of construction and property related project scenarios will be set to integrate the knowledge of different surveying disciplines. The project will be designed to link as many of the individual subjects as possible into a common theme. They will study and undertake project work as a surveyor trainee under supervision in different surveying disciplines. The projects will also provide a team work opportunity for the students to simulate the actual work environment in a multi-disciplinary professional or industrial setting. The projects will be delivered by a team of lecturers drawn from different surveying disciplines so as to ensure the students can have an all-round training in the surveying professions.

Student-centered learning

A set of assignments will be delivered to the students to undergo research on specific subject areas that enhance their learning abilities in different surveying disciplines. In addition to seminars, students are expected to undertake guided study through web-based self-learning. They will be required and encouraged to take extra efforts to study subjects beyond their chosen surveying disciplines to acquire the minimum core competence of the five surveying disciplines.

Teaching/Learning Methodology

This subject comprises two components: (a) BRE project component; and (b) Industrial Centre (IC) training.

The project component "P" adopts a holistic approach. Students will form interdisciplinary team to share, integrate and apply knowledge. The seminars and student centred learning component "S" is designed for students to acquire the core competence for surveying disciplines in addition to their own choice of discipline.

The core competence areas related to different surveying disciplines are listed in the first column. Students are grouped accordingly to their choice of progression pattern. The second column "QS" shows that a QS student will attend seminars to acquire the core competence of GP, PDD and PFM. Similar interpretations will apply in the cases of BS, GP and PDD students.

	Student Group Base on the choice of discipline			
QS				
Construction economics	P	P	P/S	P/S
Contract documentation, measurement & estimating	P	P	P/S	P/S
Construction contract law & administration	P	P	P/S	P/S
Construction technology & structure	P	P	P/S	P/S
Cost & value management	P	P/S	P/S	P/S
Dispute resolution	P	P/S	P/S	P/S
BS				
Maintenance technology & management	P	P	P	P
Building ordinance and related legal aspects	P	P	P	P
Construction technology & structure	P	P	P/S	P/S
Building economics and contract administration	P	P	P/S	P/S
Facility management	P/S	P	P/S	P/S
Design, adaptation and conversion	P/S	P	P/S	P/S
GP				
Property valuation	P/S	P/S	P	P
Property investment and finance	P/S	P/S	P	P/S
Property management and accountancy	P/S	P/S	P	P
Legal Studies: Sales and lettings of land and buildings	P/S	PS	P	P
Urban economics and real estate development	P/S	P/S	P	P/S
Business appraisal and asset management	P/S	P/S	P	P/S

Planning and development (PDD)					
Urban planning	P/S	P/S	P/S	P
Property investment and finance	P/S	P/S	P	P
Property development appraisal	P/S	P/S	P/S	P
Business appraisal and accountancy	P/S	P/S	P	P
Urban economics and real estate development	P/S	P/S	P	P
Transportation and environmental impact and assessment	P/S	P/S	P/S	P/S
Property and facility management (PFM)				
Property asset management	P/S	P/S	P	P
Corporate real estate	P/S	P/S	P	P
Project management	P	P	P	P
Property management	P/S	P	P	P

Note:
P: Professional Projects
S: Seminars / Student centre-learning activities

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
Coursework	80%	√	√	√	√	√	
IC training (BIM training)	20%	√		√	√	√	
Total	100%						

Students must complete and pass all the assessment components of the subject in order to obtain an overall Grade of the subject.

Student Study Effort Required

Class contact:	
▪ Lectures / Seminars / Project Presentation	18 Hrs.
▪ Workshops / Laboratory (BIM Training)	21 Hrs.
Other student study effort:	
▪ Student effort hours	81 Hrs.
Total student study effort	120 Hrs.

Reading List and References

To be assigned by participating lecturers of various subjects under the BRE Scheme.

Subject Description Form

Subject Code	BRE370
Subject Title	Intermediate Construction Technology & Materials
Credit Value	3
Level	3
Pre-requisite	BRE261 or equivalent
Objectives	1. To identify and understand the range of building materials and advanced technologies that is available and appropriate for the construction of high-rise buildings. 2. To facilitate an understanding of the centrality of technological decision making in the context of the planning and execution of construction projects. 3. To provide the necessary skills facilitating evaluation of technical solutions and alternatives for construction operations.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: 1. possess knowledge of processes and methods for the planning and execution of construction projects. 2. possess knowledge of identifying appropriate construction materials for different applications. 3. apply the knowledge and methods for different types of construction. 4. solve identified technological problems in construction projects.
Subject Synopsis/ Indicative Syllabus	The overall process of a construction project. - Construction materials: non-ferrous metals, structural use of timber, glazing materials, behaviour of construction materials at fire - Sub-structure construction: deep foundations including pile foundations and caissons, basement's construction. - Super-structure construction: structural materials, reinforcement concrete structures, steel structures, introduction to composite building systems. - System formworks & falsework - Precast Concrete - Claddings and curtain walls - Environmental and safety issues in construction process. - Construction equipment economy - Machine productivity - Earthwork
Teaching/Learning Methodology	Interactive Lectures will enable students to: 1. understand the working processes of high-rise buildings from sub-structure to super-structure. 2. analyse and compare alternatives on structural design of buildings and construction processes. 3. apply the theories and concepts in compliance with environmental and safety constraints. Tutorials will enable students to consolidate the knowledge and application of technological knowhow throughout the building production process via problem-solving assignments, case study and discussions.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		1	2	3	4		
1. Coursework	20%	✓	✓	✓	✓		
2. Mid-term Test	20%		✓	✓	✓		
3. Examination	60 %	✓	✓	✓	✓		
Total	100 %						

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

Students could demonstrate their understandings on the subject through the preparation of coursework and/or presentation. Problem-based learning and case study approaches will be used.

Mid-Term Test with multiple choice and short questions is for assessing students' general understandings of the subject content.

Students' overall understanding of the subject will be assessed in the examination on both the theoretical knowledge and practical application.

Students must pass both the continuous assessment elements (Coursework and Mid-term) and the end-of-term examination in order to pass the subject.

Student Study Effort Expected

Class contact:	
▪ Lecture	26 Hrs.
▪ Tutorial	13 Hrs.
Other student study effort:	
▪ Self-development	60 Hrs.
▪ Coursework preparation	21 Hrs.
Total student study effort	120 Hrs.

Reading List and References

Recommended :

Chew, Y.L.M. (2012) *Construction Technology for Tall Buildings*. 4th edition Singapore: Singapore University Press.

Chudley, R. (2006) *Advanced Construction Technology* (Rev. ed.) 4th edition, Longman.

Foster J.S. & Greeno R., (2007) *Structure & Fabric – Part II*, 7th edition, Mitchell, Pearson Prentice Hall.

	Supplementary: Allen E. (2009) *Fundamentals of Building Construction: Materials and Methods*. 5th Edition, John Wiley & Sons, New York. Blanc, A. (1994) *Internal Components*, Mitchell, Longman. BRE (British Research and Establishment) Digests. Brookes A.J. & Meijs M. (2008), *Cladding of Buildings*, 4th Edition, Taylor & Francis. Council on Tall Buildings and Urban Habitat (1995), *Architecture of Tall Buildings*, America: McGraw Hill. Chudley, R. (2012) *Advanced Construction Technology*. *Harlow, Pearson* Illingworth, J.R. (2000) *Construction Methods and Planning*. 2nd Edition. London: E&FN Spon. Mamlouk, M.S. (2011) *Materials for civil and construction engineers.* 3rd Edition. Prentice Hall McEvoy, M. (1994) *External Components*. Mitchell, Longman. Nunnally, S.W. (2011) *Construction Methods and Management*. 8th Edition. Prentice Watts A., (2007), *Facades – Technical Review*, RIBA Publishing Wong, W.M.R. (1998) *15 Most Outstanding Projects in Hong Kong*. Hong Kong: China Trend Building Press Ltd. Ascher K. (2011), *The Heights – Anatomy of a Skyscraper*, Penguin.

Subject Description Form

Subject Code	BRE371
Subject Title	Introduction to Property Management
Credit Value	3
Level	3
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	*This subject is intended to:* 1. Introduce to the students the principles and practice of property management. 2. Focus on the application of the principles to the property management services. 3. Give the students a basic knowledge for managing buildings in the private and public sectors. 4. Help them to develop management skills in practice.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Review the fundamentals of property management. b. Identify the business and work environment in property management services in Hong Kong. c. Apply the principles and practice necessary for efficient planning and administration of property management. d. Synthesize their knowledge to solve problems in property management.
Subject Synopsis/ Indicative Syllabus	*Managing Marketing of Property Management Services* An introduction to the nature of property management and the market for property management services. An analysis of existing services; types of buildings and estates; internal organization of property management business; marketing of property management services. *Managing Common Areas of Owner's Property* Pre-management planning before take-over of premises: Organizational principles and establishment of a new management office; testing of building services; identifying defects of premises. Provision of services after take-over of premises: Staff management; financial management; security services; fire services installations; water and electricity supply; cleansing services; air-conditioning and so on. Environmental and conservation issues in property management: energy saving; control of illegal structures and estate modernization. *Managing Leased Property* Leasing and tenancy arrangements: Contractual and statutory lease conditions; tenancy renewals; tenant mix rent reviews; Landlord and Tenant (Consolidation) Ordinance. *Managing Owner and Tenant Relations*

<table>
<tr><td></td><td>Formation of Owners' Incorporation: Deed of Mutual Covenant; Building Management Ordinance; consultation channels with landlords and tenants.

Managing Risk and Liability

Statutory and professional liability in property management: Insurance; negligence; nuisance; employer's liability and contractor's liability.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The principles of property management will be introduced in lectures. Application of the principles to solve property management problems will be taught in case studies, role play and management games. Discussion will be facilitated in tutorial by small group studies, which provide opportunities for students to deliver their discussion results and thinking. Lectures, seminars, laboratory as well as tutorials will form a basic skeleton for learning the subject.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (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>1. Coursework</td><td>30 %</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>3. Examination</td><td>70 %</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Students will be assessed through both coursework and examination.

Coursework will consist of 1 term paper and problem solving assignments.

Both examination and coursework assess learning outcome a to d.</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>▪ Seminar/Tutorial</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self-study</td><td>81 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>120 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>Recommended:

Dunlap N. (2018) Principle of Real Estate Management, Institute of Real Estate Management, Chicago, IL, Seventeenth edition.

Kyle, R. C. (1995) Property Management. Chicago: Real Estate Education Co.</td></tr>
</table>

	Loo, F.K. (1992) *A Guide to Effective Management in Hong Kong*. The Hong Kong University Press. **Essential**: "Chapter 626 of the Laws of Hong Kong". Hong Kong e-Legilsation. Retrieved 15 April 2020. "Deed of Mutual Covenant and Owners' Corporation". The Community Legal Information Centre operated by the Law & Technology Centre of the University of Hong Kong. Retrieved 15 April 2020. "Licensing Regime Consultation". Property Management Services Authority. Retrieved 15 April 2020. **Supplementary:** Bachner, P.J. (1991) *The Guide to Practical Property Management*. Mc Graw-Hill, Inc. Cushman, RF. & Rodin, N.I. (1985) *Property Management Handbook: A Practical Guide to Real Estate Management*. U.S.A.: John Wiley & Sons Inc. Edmington, G. (1997) *Property Management: A Customer Focussed Approach*. England: Macmillan. Downs, A. (1991*) Principles of Real Estate Management*, Institute of Real Estate Management. Scarett, D. (1983) *Property Management.* London: E. & F.N. Spon Ltd.

Subject Description Form

<table>
<tr><td>Subject Code</td><td>BRE397</td></tr>
<tr><td>Subject Title</td><td>Property Management Accounting</td></tr>
<tr><td>Credit Value</td><td>3</td></tr>
<tr><td>Level</td><td>3</td></tr>
<tr><td>Pre-requisite / Co-requisite/ Exclusion</td><td>Nil</td></tr>
<tr><td>Objectives</td><td>1. To introduce to students the basic principles of accounting that are relevant to the property managers

2. To focus on the various applications of the accounting principles that related to the real estate industry</td></tr>
<tr><td>Intended Learning Outcomes</td><td>Upon completion of the subject, students will be able to:
a. Evaluate the concepts, tools and techniques of property management accounting.

b. Apply fundamental accounting concepts and principles in solving property management problems.

c. Formulate and evaluate the financial planning and control system in a property management company.</td></tr>
<tr><td>Subject Synopsis/ Indicative Syllabus</td><td>Introduction to accounting and finance, measuring and reporting financial position and performance, measuring and reporting cash flows, analyzing and interpreting financial statements, budgeting and managing working capital.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The principles of financial accounting and management accounting will be introduced in lectures. Application of the principles to solve problems in relate to the real estate industry will be learnt through case studies, problem-solving exercises, presentation etc. Discussion will be facilitated in small tutorial groups.</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. Coursework</td><td>50 %</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>2. Examinations</td><td>50 %</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>

Explanation of the appropriateness of the assessment methods in assessing the</td></tr>
</table>

<table>
<tr><td></td><td colspan="2">intended learning outcomes:
Students will be assessed through both coursework and examination.

Both examination and coursework assess learning outcome a to c.</td></tr>
<tr><td rowspan="7">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorials</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self-studies</td><td>90 Hrs.</td></tr>
<tr><td>▪</td><td>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">Recommended:

Chan, F.K.C. and Cheng, C.K.C. (2013) AAT Paper 1, Accounting and Computerized Accounts, Pearson.

Atrill, Peter (2015) Accounting and Finance for Non-specialists, 9th edition, Pearson Education Limited

Brealey, Myers and Allen (2017) Fundamentals of Corporate Finance, 12th edition, Irwin/McGraw Hill

Subramanyam, K.R. (2014) Financial Statement Analysis, 11 edition, McGraw-Hill

Wood F (2008) Vol. 1 & 2 Frank Wood's business accounting London: Pitman 2003 2nd rev.Edition</td></tr>
</table>

Level 4 Subjects:

BRE415	Dispute Resolution
BRE418	Real Estate Development
BRE426	Geotechnical and Foundation Engineering
BRE427	Applied Property Investment
BRE4281	Construction Engineering Management
BRE4291	Real Estate Marketing
BRE431	Housing Studies
BRE435	Design, Adaptation and Conversion
BRE436	Applied Property Valuation
BRE437	Facility Management
BRE439	Engineering Contract Procedure
BRE4393	Temporary Work Design
BRE440	Cost and Value Management
BRE442	Forecasting & Competition in the Built Environment
BRE453	Building Services II
BRE461	Environmental Impact and Assessment
BRE462	Advanced Construction Technology
BRE463	Business Valuation and Accounts
BRE464	Urban Planning (Workshops)
BRE465	Asset Management
BRE466	Capstone Project
BRE469	Integrated Professional Workshop III
BRE470	Information Technology and Building Information Modelling for Construction
BRE471	Advanced Property Management

Subject Description Form

Subject Code	BRE415
Subject Title	Dispute Resolution
Credit Value	3
Level	4
Pre-requisite	BRE206
Objectives	Provide an understanding of the aspects of law and procedures relating to the resolution of dispute in the construction industry and develop students' ability to appropriately apply theoretical aspects of dispute resolution to practical solutions.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Explain the evolution of dispute resolution in an international context. b. Identify the relevant laws, regulations and procedures and apply them to the resolution of disputes in Hong Kong's construction industry. c. Analyse the process of arbitration, mediation, litigation and adjudication in construction context; d. Evaluate the implications involved, in terms of contractual and business relations, when making decisions about the choice of method to be used to settle construction related disputes. e. Propose solutions to complex construction dispute cases both orally and in writing. f. Communicate effectively
Subject Synopsis/ Indicative Syllabus	Litigation as a means of settling construction disputes. Origins of arbitration and of alternative dispute resolution (ADR) Different forms of ADR. Dispute resolution processes in Hong Kong standard construction contracts. Application of laws relating to litigation, arbitration and ADR. Law of civil evidence.
Teaching/Learning Methodology	The course is conducted by way of problem-based learning around theoretical knowledge transfer in lectures and students' performance individually or in groups in tutorial classes that forms the basis for dynamic learning. Before and during lectures and tutorials, students are given problem scenarios around which the lecturing materials are built. During the tutorials, the problems are discussed and feedback will then be given. The problem scenarios are designed with the purpose of achieving the intended learning outcomes. By preparing, attending and involving in the discussion,

presentation and debate during the lectures and tutorials, the outcomes are achieved.

The knowledge acquired by the students then forms the fundamental knowledge of the students about the subject. The assessment methods, which stated below, then give the students the opportunity to widen the scope of their knowledge over the subject and to apply the knowledge in real situation.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	f
1. Oral presentation and written report relating to the practical, procedural or legal aspects of topics which have not been covered by first assignment. After the presentation, questions are put to the students by the lecturer/tutor to test the students' abilities in applying the knowledge they acquired.	50%	√	√	√	√	√	√
2. Oral presentation and written report relating to the theoretical aspects of the topics covered by the syllabus. After the presentation, questions are put to the students by the lecturer/tutor to test the students' abilities in applying the knowledge they acquired.	50%	√	√	√	√	√	√
Total	100%						

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

Assessments for this module will be by two Coursework Assignments. There will be no assessment by examination.

	The assessments are designed to contribute to learning, and to determine the extent to which a student has achieved the ILO and hence the programme outcome. For the first assignment, problem scenarios are designed by the lecturer. The students are required to form groups to complete the assignment by selecting one of the problem scenarios and to present their answers. In addition, each of the groups is required to submit a written report relating to the presentation. For the second assignment, each group is required to select any topic covering by the syllabus and the topic cannot be those already been dealt with in the first assignment by any of the problem scenarios. The students are then required to make a presentation relating to the topics they have selected and to submit a written report relating to the presentation. Both of the assignment are designed to test the students' abilities to: 1. organize themselves with minimal instructions 2. organize through negotiation with other members of the same group without direction from the tutors or lecturer 3. work in a team environment 4. coordinate or negotiate selection of topics with other groups 5. complete the task through the use of initiative and ingenuity, *i.e.*, creativity and cleverness 6. use effectively the resources available to the students in the library and on-line 7. test the students' knowledge and the ability to apply the concepts that they have learnt as well as the students reasoning ability and their abilities in making critical judgment. In that way, whether the students have acquired the abilities as statement in the ILO above can be assessed.	
Student Study Effort Expected	Class contact:	
	▪ Lecture	26 Hrs.
	▪ Tutorial	13 Hrs.
	Other student study effort:	
	▪ Self studying. Preparation for discussion of the problems to which the lectures relate and doing the course works.	120 Hrs.
	Total student study effort	159 Hrs.
Reading List and References	**Reading List and References:** Fisher, R.; Patton, B. M.; & Ury, W. L. (1992) *Getting to Yes: Negotiating an Agreement without Giving In*, 2nd ed. London: Random House. Goldberg, S. B. (1999), *Dispute Resolution: Negotiation, Mediation and other Processes*. Aspen Law & Business Chee, Simon (2016), *Construction Dispute Prevention and Resolution in Hong Kong*, Sweet & Maxwell and Hong Kong Construction Arbitration Centre, Limited Chee, Simon (2013), *(Thesis) From right to Interest – Specialised Facilitative Mediation (Construction)*, City University of Hong Kong. Hills, M.J. (2001), *Building Contract Procedures in Hong Kong*. Longman Hong Kong Education	

	Hong Kong Arbitration Ordinance Cap. 609 *Hong Kong Mediation Ordinance Cap 620* *HKIA / HKIS / HKICM Standard Forms of Building Contracts* (2005, 2006 Editions) *General Conditions of Contract for Building Works, HKSAR Government* (1999 Edition) Judiciary. *Civil Justice Reform – Final Report, Chief Justice's Working Party on Civil Justice Reform*, HKSAR Government, 2004 Judiciary. Practice Direction 6.1 Construction and Arbitration List (Feb 2009) Kaplan, N. (1994), *Hong Kong & China Arbitration: Cases and Materials*, Butterworths Asia.Ma, Geoffrey, General Editor-in-Chief., (3rd Ed., 2014) *Arbitration in Hong Kong: A Practical Guide*, Hong Kong: Sweet & Maxwell. *Proposed Security of Payment Legislation for the Construction Industry - Consultation Document*, HKSAR Government Development Bureau, 1 June 2015 Morgan, R. (1997). *The Arbitration Ordinance of Hong Kong: A Commentary with 1997 Supplement*. Butterworths Asia. Riches, John & Dancaster, Christopher. *Construction Adjudication*, John Wiley & Son, Second Ed. 2008 Tapper, R. (1990). *Cross on Evidence*, Butterworths Uff, J. (1996), *Construction Law & Practice Relating to the Construction Industry*, Sweet & Maxwell. **Supplementary:** Chan, E. H. (1997). *Amicable Dispute Resolution in the PRC and its Implication for Foreign-related Construction Disputes*. Construction Economics and Management, Nov. 1997, Vol.15, No. 6, pp.539-548. Fenn, P.; O'Shea, M. & Davies, E. (eds.)(1998). *Dispute Resolution and Conflict Management in Construction: An International Review*. E. & FN Spon. Hills, M.J. (1992), *A Case for an Alternative Approach to the Resolution of Disputes Under JCT 80 Standard Form of Building Contract, MSc dissertation (Supervisor: Dr. R.F. Fellows)*, University of Bath Kaplan, N. (1983), *Hong Kong Arbitration Cases and Materials*, Butterworths Asia Langan, P. St. J. (1983), *Civil Procedures*, Sweet & Maxwell Merkin, R. (1996), *Arbitration Act 1996: An Annotated Guide*, Lloyds of London Press Relevant Ordinances and Regulations of the Hong Kong Government **Others:** 1. Those being stated in the syllabus of the course. 2. Other suggested reading: : the latest edition of the following books 2.1. Building Contract Procedures in Hong Kong 2.2. Hong Kong Civil Procedures, i.e. the White Book. 2.3. Hong Kong International Arbitration Centre Rules of Arbitration

	2.4. Hong Kong Construction Arbitration Centre Construction Arbitration Rules, Construction Mediation Rules and Construction Adjudication Rules 2015 2.5. Brookers' Arbitration Law and Practice 2.6. Arbitration in Hong Kong – A Practical Guide. 2.7. The related ordinances of the Hong Kong Special Administrative Region.

Subject Description Form

Subject Code	BRE418
Subject Title	Real Estate Development
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject is intended to provide an integrated and consolidated intellectual framework for students to comprehend and analyze the current factors and key issues in affecting production and consumption of the built environment in society.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: 1. Describe and evaluate the existing research literature on land and property development. 2. Describe and evaluate the complex and dynamic process of real estate development, with special reference to the local context. 3. Distinguish and explain the significance of all the key social, political, economic, physical and regulatory factors affecting the performance of the property development industry. 4. Appraise the theoretical models and concepts in analyzing the current issues in property development. 5. Synthesize knowledge from various disciplines and apply them in solving practical problems in real estate development. 6. Communicate and present ideas in a clear and articulate manner using appropriate academic conventions
Subject Synopsis/ Indicative Syllabus	*Real Estate Development Model and Process:* Key steps of real estate development process; strengths and weaknesses of various development models; factors influencing real estate development; transformation of urban built environment. *Public Sector Regulations and Development Potential:* Concepts of project feasibility; approaches in development control analysis; political vs technical considerations in Government Regulations; land development potential assessment. *Current Issues in Real Estate Development:* Globalization of real estate; land system and institutions; property-led urban regeneration, state, market and community in real estate development.
Teaching/Learning Methodology	Lectures - The lectures provide an explanation and evaluation of the important theories, models and concepts in the course contents. Tutorial Sessions - Tutorials are organized for students to intensively evaluate the relevance of the research literature and/or work on particular problems in real estate development. Students are required to present and communicate their ideas and/or

	discuss their recommendations at the tutorials. Tutorials may be conducted on-line, if appropriate. Coursework may comprise short quizzes, tutorial assignments and projects. Final examination normally comprises essay type questions.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		1	2	3	4	5	6
1. Coursework	50%	√	√	√	√	√	√
2. Final Examination	50%	√	√	√	√	√	√
Total	100%						

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

Assessment consists of both coursework and final examination. Coursework covers all the learning units in this subject. It assesses the students' abilities to identify the theoretical concepts and apply them to the analysis of practical cases. The Final Examination covers essay-type questions and allows students to further synthesize the knowledge and apply to practical scenarios and specific situations. Both examination and coursework assess learning outcomes 1-6.

Student Study Effort Expected

Class contact:	
▪ Lecture	26 Hrs.
▪ Tutorial	13 Hrs.
Other student study effort:	
▪ Coursework assignments	52 Hrs.
▪ Independent Self-study	82 Hrs.
Total student study effort	173 Hrs.

Reading List and References

Adams, C.D., Russell, L. & Taylor-Russell, C.S. (1993). Development constraints, market processes and the supply of industrial land. *Journal of Property Research*, 1993(10), 49-61.Brown, P. H. (2015). *How Real Estate Developers Think: Design Profit and Community.* USA: University of Pennsylvania Press.

Brueggeman, W. B. (1995). The impending recovery in ten major office markets: A strategic assessment of suburban versus CBD conditions. *Real Estate Finance*, 12(1), p.32-39.

Charney, I. (2007). Intra-metropolitan preferences of property developers in greater Toronto's office market. *Geoforum*, 38(6), 1179-1189.

Coakley, J. (1994). The integration of property and financial markets, *Environment and Planning A*, 26, 697-713.

Daniels, P. W., & Bryson, J. R. (2002). Manufacturing services and servicing manufacturing: knowledge-based cities and changing forms of production. *Urban Studies*, 39(5-6), 977-991.

De Magalhaes, C. (1998). Economic instability, structural change, and the property markets: the late-1980s office boom in Sao Paulo. *Environment and Planning A*, 30(11), 2005-2024.

Gospodini, A. (2006). Portraying, classifying and understanding the emerging landscapes in the post-industrial city. *Cities*, 23(5), 311-330.

Henneberry, J. (1988). Conflict in the industrial property market. *Town Planning Review*, 59(3), 241-262.

Knox, P. L. (1991). The restless urban landscape: economic and sociological change and the transformation of Metropolitan Washington, D.C. *Annals of the Association of American Geographers*. 81(2), p.181-209.

Mueller, G. R. (1995). Understanding real estate's physical and financial market cycles. *Real Estate Finance*, 12(3), p.47-52.

Tang, B.S. and Yiu, C.Y. (2010) Space and scale: a study of development intensity and housing price in Hong Kong. *Landscape and Urban Planning*. 96 (3), 172-182.

Wong, S.W., Tang, B.S. and Liu, J.L. (2018).Village Redevelopment and Desegregation as a Strategy for Metropolitan Development in Southern China: Some Lessons from Guangzhou City. *International Journal of Urban and Regional Research*, 42(6), 1064-1079.

Wu, F. (1998). The new structure of building provision and the transformation of the urban landscape in metropolitan Guangzhou, PRC. *Urban Studies*, 35(2), p.259-283.

Subject Description Form

Subject Code	BRE426
Subject Title	Geotechnical and Foundation Engineering
Credit Value	3
Level	4
Pre-requisite	CSE20290 & BRE302
Objectives	a) Provide students with knowledge of the basic principles of geotechnical engineering and the relation and implications to foundation choices and designs and the ground works needed to be carried out.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Apply the understanding of soil properties, mechanics principles and theories to the behaviour of soils under different kinds of pressures and the effects of water. b) Relate the importance of safety and geotechnical considerations in designing/undertaking site formation and earth-retaining works. c) Describe the basics concepts of soil mechanics and its application to analyze soil retaining structures. d) Illustrate an understanding of modern soil improvement techniques and retaining slopes, soil and excavation techniques. e) Appraise foundation design concepts in the choice of appropriate foundation and design simple foundations.
Subject Synopsis/ Indicative Syllabus	*Soil Mechanics and Geology:* Shear strength of soil, lateral earth pressure. Site investigation for deep and complex foundation/basement design and construction, interpretation of borehole log (field and laboratory tests). *Site Formation:* Techniques of excavation and de-watering. *Stability of Slopes and Earth Retaining Structure:* Slope stability, drainage of slopes, ground anchor, slope protection methods. Active and passive lateral earth pressures, analysis and design of soil retaining structures in particular gravity retaining walls, cantilever and anchored sheet pile walls, diaphragm walls, braced or strutted excavation, failure of retaining structure. *Foundation Design and Geotechnical Problems:* Ground & soil stabilisation improvement: compaction and pre-compaction, grouting and chemical stabilization, vibratory methods, soil reinforcement and the use of geosynthetics for drainage. Stresses in subsoil, load bearing capacity and settlement of foundations, rate/magnitude of settlement; factors to be considered in foundation design; pile foundation method and construction process of percussion and bored piles, pile capacity and pile driving formula, plant and equipment for piling, pile testing and Code of Practice.

Teaching/Learning Methodology

Interactive Lectures will enable students to:

1. Appreciate basic concepts of soils mechanics.
2. Relate geotechnical considerations regarding construction works.
3. Apply the soil mechanics concept to analyse slope stability, retaining wall structure and design simple foundations.

Tutorial will enable students to:

1. Consolidate the geotechnical and foundation engineering concepts through problem-solving assignments and discussions.

Laboratory will enable students to:

1. Identify and appreciate the shear strength and permeability of soils.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)				
		a	b	c	d	e
1. Problem-solving assignment	12 %	√	√	√	√	√
2. Laboratory report	3 %	√				
3. Mid-term test	15 %	√	√			
4. Final examination	70 %	√	√	√	√	√
Total	100 %					

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

The problem –solving assignments are used to assess students' ability to solve geotechnical and foundation engineering problems with good numerical accuracy based on the theories and concepts studied in the lectures.

The laboratory report is used to assess students' ability to observe and verify the shear strength and the permeability of soils and to present the experimental results in a logical and clear format.

The mid-term test and the final examination are used to assess students' i) understanding of the geotechnical and foundation engineering theories and concepts learned in the lectures and ii) ability to solve geotechnical and foundation engineering problems with good numerical accuracy.

Student Study Effort Expected

Class contact:	
▪ Lecture	26 Hrs.
▪ Tutorial and Laboratory	13 Hrs.
Other student study effort:	
▪ Assignment, lab report	96 Hrs.
▪	Hrs.
Total student study effort	135 Hrs.

Reading List and References	**Recommended Text** Das, B M "Introduction to Geotechnical Engineering". ISE. 2nd edition, 2008, Thomson. **References** Bowles J E "Foundation analysis and design" McGraw Hill. "Code of Practice for Foundations" (2017), Buildings Department, HKSAR Government. Tomlinson M.J. "Foundation design and construction", 2001 Prentice Hall. Tomlinson M.J. "Pile design and construction practice", 1994 E & FN Spon. *****Liu C and Evett J B "Soils and Foundations", 2014 Boston : Pearson. *****Coduto, D. P., Yeung, M.-C., & Kitch, W. A. (2011). *Geotechnical engineering: Principles and practices*. Upper Sadddle River: Pearson. Geotechnical Engineering Office Geoguides 1, 2 and 3; CED Hong Kong Government, Government Publication Centre. Pile design and construction, GEO Publication No. 1/96 CED Hong Kong Government. ** Good reference books*

Subject Description Form

Subject Code	BRE427
Subject Title	Applied Property Investment
Credit Value	3
Level	4
Pre-requisite	BRE315
Objectives	This subject is intended to:- a. Give to the students an appreciation of the scope of real property investment. b. Enable them to apply the techniques available to select suitable investment vehicles for different types of investor under different market conditions. c. Enable the students to apply the techniques in business valuation to solve practical problems.
Intended Learning Outcomes	Upon completion of the subject, students will be able to:- 1. Identify and analyse of the investment environment for real estate in Hong Kong, PRC and Overseas. 2. Recognise the scope of real estate investment in Hong Kong. 3. Use their knowledge to solve practical problems in real estate investment business and business valuation.
Subject Synopsis/ Indicative Syllabus	Rationale of property investment: major investors in real property in the public and private sectors; principal types of real property investment and their characteristics; causes for historical property market cycles, present market trends and projections; direct and indirect investment; securitization such as REIT (real estate investment trust) in the property market; property investment in the People's Republic of China and overseas. The investment decision: sources and manipulation of information; analysis of direct real property investments; comparative investment analysis; returns on investment; risk and uncertainty. Investment psychology. Analysis of indirect property investment (business valuation): Open market and notional market; Approaches to value determination: Going Concern approach and Liquation Value approach; Valuation techniques: asset-based techniques, Income approach and market approach; Market capitalization and discount rates; Goodwill valuation.
Teaching/Learning Methodology	Emphasis is made on the application of the investment principles and techniques developed over the past two years to solve actual problems in property investment. Students' awareness on the investment market, particularly the real estate investment market, will be enhanced. It will be learnt through case studies, problem-solving exercises, presentation etc. Discussion will be facilitated in small tutorial groups. Lectures, seminars, projects and tutorials will form the basic skeleton for learning the subject.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Coursework	30%	√	√	√			
2. Examination	70%	√	√	√			
Total	100%						

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

Examination and coursework will constitute 70% and 30% of the overall mark for the subject respectively. The coursework mark will be based on the assignments and presentations. Both examination and coursework assess learning outcomes 1 to 3.

Student Study Effort Expected

Class contact:	
▪ Lecture	26 Hrs.
Other student study effort:	
▪ Seminar/ Tutorial	13 Hrs.
Total student study effort	39 Hrs.

Reading List and References

Recommended:

Andrew Baum (1995), Property Investment Appraisal, 2nd edition.

Brown R. Gerald (2000), Real Estate Investment: a capital market approach.

Reilly F. and Brown K. (2000), Investment Analysis and Portfolio Management, 6th edition.

Hersh Sefrin (2000), Beyond Greed and Fear: understanding behavioural finance and the psychology of investing.

Nofsinger John R. (2002), The Psychology of Investing 1st edition.

Stowe, Robinson, Pinto and McLeavey (2002), Analysis of Equity Investments: Valuation AIMR.

Krishna G. Palepu, Paul M. Healy, and Victor L. Bernard (2000) Business Analysis and Valuation using Financial Statements, 2nd edition, South-Western College Publishing.

James R. English (2001), Applied Equity Analysis: Stock Valuation Techniques for Wall Street Professionals, McGraw-Hill, New York.

Supplementary:

	Graham and Dodd (1962), Security Analysis: principles and technique, 4th edition. Graham (1973), The Intelligent Investor: a book of practical counsel. Michael E. Porter (1998), Competitive Strategy: The Core Concepts, Free Press, New York. Howard Schilit (2002), Financial Shenanigans, 2nd edition, McGraw-Hill, New York. Robert J. Shiller (2000), Irrational Exuberance, Broadway Books, New York.

Subject Description Form

Subject Code	BRE4281
Subject Title	Construction Engineering Management
Credit Value	3
Level	4
Pre-requisite	BRE350
Objectives	This subject is intended to develop the students' ability to apply decision making theories and operational research techniques in the management of construction projects.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. identify and diagnose management problems accurately and effectively across a wide range of construction engineering activities, including management practices, human resources and plant management, operations, and strategic management. b. formulate construction engineering management problems into analytical models. c. find out and plan sound solutions from various analytical models by using quantitative (operational research) techniques.
Subject Synopsis/ Indicative Syllabus	Construction productivity measurement and analysis Decision theory and applications Inventory control theory and applications Monte Carlo simulation and applications Fast track construction systems Risk management for construction projects Value management for construction projects Linear programming techniques and applications Green labelling schemes for buildings and construction International construction management practices
Teaching/Learning Methodology	Student learning will be facilitated through a combination of self-study and class contact sessions. The self-study will include guided reading, library searching skills, problem solving, reflection and textual & graphical communication as individuals and as part of a group. Some assignments will involve the training and development of problem analysis and presentation of results. Class contact will include lectures for providing an overall framework to topic areas and for those areas where textbooks do not provide adequate coverage. Small group sessions will be used for a combination of student-led seminars, role plays and workshop exercises for skills development and the raising of ethical awareness.

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. Continuous assessment	50%	√	√	√			
2. Examination (2 hours)	50%	√	√	√			
Total	100 %						

The subject will be assessed on both a continuous basis and a close-book written examination. Coursework (50%) and examination (50%) will constitute equal parts of the overall marks of the subject (100%). The coursework mark will be based on a portfolio comprising role play, seminar discussion, group verbal presentation, group written report and individual tutorial participation. Marks will be allocated on group and individual basis. To complete the whole subject successfully, students have to achieve a pass in both the coursework component and the examination component.

The individual in-class problem-based assignments and group assignment presentations attempt to test the level of students' knowledge and application of various decision making theories and operational research techniques to construction projects, and then to determine the best option or the most optimal solution for implementation with strong justifications or sound recommendations.

Typical coursework assessment criteria include:

- logical structure;
- clarity and depth of thought;
- quality of written presentation;
- knowledge and information;
- problem analysis skills;
- oral and visual presentation skills;
- participation and leadership.

The examination questions attempt to test students' knowledge and understanding of various decision making theories and operational research techniques to construction projects, and then to suggest the most desirable strategies with justified arguments.

Student Study Effort Expected

Class contact:	
▪ Lectures	26 Hrs.
▪ Tutorials / Seminars	13 Hrs.
Other student study effort:	
▪ Self learning and recommended reading	80 Hrs.
Total student study effort	119 Hrs.

Reading List and References

Recommended:

Chan, D.W.M. and Chan, A.P.C. (2002) "Public Housing Construction in Hong Kong:

A Review of its Design and Construction Innovations". *Architectural Science Review*, 45(4), December, 349-359.

Chan, D.W.M., Chan, A.P.C., Lam, P.T.I., Yeung, J.F.Y. and Chan, J.H.L. (2011) "Risk Ranking and Analysis in Target Cost Contracts: Empirical Evidence from the Construction Industry". *International Journal of Project Management*, 29(6), August, 751-763.

Chan, D.W.M., Chan, A.P.C., Lam, P.T.I. and Lau, E.W.K. (2015) "Predicting Construction Durations and Enhancing Construction Productivity: A Taxonomic Review". *Innovation in Construction – Creating Impacts through Innovation*, Research Journal of Construction Industry Council, Hong Kong, Issue 2, November, 31-44, ISSN 2312-8291 (URL: http://www.cic.hk/cic_data/files/inno_construction_issue2_nov_2015/mobile/index.html#p=1)

Chan D.W.M. and Kumaraswamy M.M. (1995) "A Study of the Factors Affecting Construction Durations in Hong Kong". *Construction Management and Economics*, 13(4), July, 319-333.

Chan D.W.M. and Kumaraswamy M.M. (1995) "Effects of Technology and Site Productivity on Construction Times of Building Projects in Hong Kong". *Proceedings of the 16th Annual ASEM Conference*, American Society for Engineering Management, 21-23 September 1995, Washington DC, USA, 309-316.

Chan, D.W.M. and Kumaraswamy, M.M. (2002) "Compressing Construction Durations: Lessons Learned from Hong Kong Building Projects". *International Journal of Project Management*, 20(1), 23-35.

Dai J.K., Goodrum P.M. and Maloney W.F. (2007) "Analysis of Craft Workers' and Foremen's Perceptions of the Factors Affecting Construction Labour Productivity". *Construction Management and Economics*, 25(11), November, 1137-1150.

Harris F., McCaffer, R. and Edum-Fotwe, F. (2013) *Modern Construction Managemen*t, 7th Edition, Wiley-Blackwell, West Sussex.

Kumaraswamy M.M. and Chan D.W.M. (1995) "Determinants of Construction Duration". *Construction Management and Economics*, 13(3), May, 209-217.

Olomolaiye P.O., Jayawardane A.K.W. and Harris F.C. (1998) *Construction Productivity Management*, Longman, Essex, England: Chartered Institute of Building.

Render, B. and Stair, R.M. Jr (2006) *Quantitative Analysis for Management*. 12th Edition, Pearson Education, India.

Shen G.Q.P. and Yu A.T.W. (2016) Value Management in Construction and Real Estate: Methodology and Applications. New York: Routledge.

Shen L.Y., Lu W.S., Li H. and Shen Q.P. (2003) "Computer-aided decision support system for assessing contractor's competitiveness", *Automation in Construction*, 12(5), 577-587.

Shen L.Y., Li Q.M. and Li H. (2002) 'Alternative concession model for BOT-contract project', *Journal of Construction Engineering and Management, ASCE*, 128(4), 326-331.

Shen L.Y, Wu M. and Wang J.Y. (2002) 'A model for assessing the feasibility of construction project in contributing to the attainment of sustainable development', *Journal of Construction Research*, 3(2), 255-271.

	Shen L.Y., Wu W.C. and Ng S.K. (2001) 'Risk Analysis for Construction Joint Ventures in China' *Journal of Construction Engineering and Management*, ASCE, 127(1), 76-82. Shen L.Y., Drew D. and Zhang Z.H. (1999) 'An Optimal Bidding Model for Price-Time Bi-parameter Construction Contracts' *Journal of Construction Engineering and Management*, ASCE, 125(3), 204-209. Fisher N. and Shen L.Y. (1992) *Information Management within a Contractor - a Model for the Flow of Data* Thomas Telford Publications, U.K., ISBN 0-7277-1666-2 (This book is based on the research studies 'information management system for construction companies'), pp. 260. Shen L.Y. (1999) 'Risk Management', *Building in Value: Pre-design Issues*, (Ed., Best & De Valence) Arnold Publishers, ISBN: 0340741600, 248-267. Tang S.L., Ahmad I.U., Ahmed S.M. and Lu M. (2004) *Quantitative Techniques for Decision Making in Construction*, Hong Kong University Press: Hong Kong. Xu Yelin, Yeung J.F.Y., Chan A.P.C., Chan D.W.M., Wang Shouqing and Ke Yongjian (2010) 'Developing a Risk Assessment Model for PPP Projects in China - A Fuzzy Synthetic Evaluation Approach' *Automation in Construction*, 19(7), 929-943. **Journals:** *Hong Kong Engineer: The Journal of The Hong Kong Institution of Engineers*, Printers' Circle Ltd *Construction Management and Economics*, Routledge, Taylor & Francis *Engineering, Construction and Architectural Management*, Emerald *Facilities*, Emerald *Journal of Construction Engineering and Management*, ASCE *Journal of Facilities Management*, Emerald *Journal of Management in Engineering*, ASCE *International Journal of Construction Management*, Routledge, Taylor & Francis *International Journal of Project Management*, Elsevier *Building and Environment*, Elsevier *Building Research and Information*, Routledge, Taylor & Francis *Built Environment Project and Asset Management*, Emerald *Automation in Construction*, Elsevier

Subject Description Form

Subject Code	BRE4291
Subject Title	Real Estate Marketing
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject is intended to equip with students: a) Ability to examine and apply marketing theories in the real estate industry, and b) Capability to comprehend practices and regulations in relation to real estate marketing.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Apply marketing theory in the real estate industry; b) Understand key literature pertaining to the field of study; c) Evaluate the practices and marketing strategies in both primary and secondary markets; d) Comprehend the impacts to the industry by the introduction of regulatory controls.
Subject Synopsis/ Indicative Syllabus	1. Introduction and simple marketing concepts 2. Marketing theory and applications in the real estate market a) Target Marketing and Market Segmentation b) Product Strategies c) Pricing Strategies d) Placing Strategies e) Promotion Strategies 3. Salient elements of the regulatory controls a) Estate Agents Ordinance b) Estate Agents Authority c) Licensing d) Practice regulations e) Code of conducts 4. Other topics include applications of game theory in real estate marketing, estate agency industry in China etc.
Teaching/Learning Methodology	This subject adopts Criterion-Referenced Assessment (CRA). Format of assessment: ◦ Coursework (50%) • In-class assessment - comprehension of key literature • Identifications of Salient Product features • Preparation of Marketing Plan ◦ Examination (50%) • 2-hr exam essay type questions

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.In-class assessment	10 %		√				
2. Product features	10 %			√			
3. Marketing Plan	30 %	√		√	√		
4. Examination	50 %	√	√	√	√		
Total	100 %						

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

The students will assure the instructors of their timely comprehensions of the key literature through the weekly in-class assessments. The design of the coursework will emphasize on testing the students' understandings on the applications of marketing theory and regulatory controls in the industry. Rooms are also allowed for the students to demonstrate their critical thinking ability and creativity in the coursework. All the intended learning outcomes will be evaluated in the final examination.

Student Study Effort Expected

Class contact:	
▪ Lectures	26 Hrs.
▪ Tutorials	13 Hrs.
Other student study effort:	
▪ Reading	39 Hrs.
▪ Coursework	36 Hrs.
Total student study effort	114 Hrs.

Reading List and References

Armstrong, G and P. Kolter. 2008. *Marketing: An introduction* (9th ed.) Prentice Hall.

Choy, H.T. 1998. Real Estate Marketing. In Real Estate Development ed. Poon and Chan, PACE

Estate Agency Ordinance Cap.511, Laws of Hong Kong.

Bajtelsmit, Vickie and Elaine Worzala. 1997. Adversarial brokerage in residential real estate transactions: The impact of separate buyer representation. Journal of Real Estate Research. 14(1/2):65-75.

Worzala E. et. al. 2002. E-commerce and retail property in the UK and USA. *Journal of property investment and finance*. 20(2):142-58.

	Raftery, J. and G. Runeson. 1997. Money illusion in consumer perception of housing transactions. Journal of Property Valuation & Investion. 16(2): 175-84. Tang, B.S., S.W. Wong and S.C. Liu. 2006. Property agents, housing markets and housing services in transitional urban China. Housing Studies. 21(6):801-25. Estate Agents Authority website (standard forms, code of ethics and practice circulars etc.) Choy, Lennon and Edwin Chan. 2002. Extending Estate Agents Ordinance to non-domestic properties. Working paper series. Department of Building and Real Estate, The Hong Kong Polytechnic University.

Subject Description Form

Subject Code	BRE431
Subject Title	Housing Studies
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	*This subject is intended to:* 1. Understand housing theories and their applications; examine housing policies, programmes, instruments and organizational arrangements in Hong Kong, the China Mainland and other countries. 2. Consider the implications of housing development in the social-economic context.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Apply housing theories and models. b. Analyse housing policies, programmes, instruments and organisational arrangements in countries at different levels of economic development. c. Draw out the implications of housing development in Hong Kong and in major cities in the China Mainland.
Subject Synopsis/ Indicative Syllabus	*Housing Theories & Policies* Economic models and techniques underlying housing market analysis and their limitations. The broad scale and contents of housing policies in different countries and regions, and the economic rationales for public sector intervention, social and political aspects of housing policies. *Housing Organisation* The roles and function of housing suppliers and facilitators, including government, housing authorities, housing associations and other related bodies. *Housing Programmes and Instruments* Effective use of various housing programmes including rental housing and housing for sale, and also to understand the housing instruments such as rent rebate and rent certificates. *Housing Development* Development of housing in Hong Kong and the China Mainland.

Teaching/Learning Methodology

Lectures will be used to introduce theories and models, and seminars will be used for the discussion and understanding of influence of housing policies on socio-economic development. Case studies and comparisons will be used.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Coursework	50 %	√	√	√			
2. Examination	50 %	√	√	√			
Total	100 %						

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

The coursework and examination assess learning outcomes (a) (b) and (c).

Student Study Effort Expected

Class contact:	
▪ Lecture	26 Hrs.
▪ Seminar/Tutorial	13 Hrs.
Other student study effort:	
▪ Independent study	120 Hrs.
Total student study effort	159 Hrs.

Reading List and References

Recommended:

Balchin, (1995), *Housing Policy*, London: Routledge.

Castells, Kwok and Goh (1990) *The Shek Kip Mei Syndrome: Economic Development and Public Housing in Hong Kong and Singapore*, London: Pion Limited

Hong Kong Housing Authority (1996), *Housing for Millions: The Challenge Ahead*, Housing Conference Report 20-23 May 1996.

Wong, R.Y.C, (1998), *On Privatizing Public Housing*, Hong Kong: City University of Hong Kong Press.

Supplementary:

DiPasquale, and Somerville, C.T. (1995) "Do House Price Indexes Based on Transacting Units Represent the Entire Stock? Evidence from the American Housing Survey." *Journal of Housing Economics* 4, 3.

Hong Kong Housing Authority, (1996-1999) *Hong Kong Housing Authority Annual Reports*, various issues.

	Hui C.M., Wong K.W., Yeung C.W., Howes R., Kong S.P., (1999) *A Study of Welfare Housing Development in Southern China – Guangzhou and Shenzhen*, Research Monograph, *The Hong Kong Polytechnic University*. Hui, C,M., Chan, P.C., Wong, K.W., Wong, K.C, & Leung, Y.P. (2000), *The Supply of Land for Housing in Hong Kong*, Research Monograph, The Hong Kong Polytechnic University. Institute of Housing (1991), *Housing Finance*, The Institute of Housing (Services) Ltd. Miles, David (1994), *Housing Financial Markets and the Wider Economy*, New York: Wiley. Wong, K.W., Yeung, C.W. and Howes, R. (1995), *A Comparative Study of Affordable Housing Development in the United Kingdom, Hong Kong and the People's Republic of China*, Research Monograph, The Hong Kong Polytechnic University. Wong K.W., Yeung C.W., Hui C.M., Howes R., and Kong S.P., (1998) *A Study of Welfare Housing Development in Major Cities in China*, Research Monograph, The Hong Kong Polytechnic University. Wong K.W., Hui C,M., Li S.R., Howes R., and Wu M., (2001) *A Study of Manufactured Affordable Housing in Chongqing*, Research Monograph. The Hong Kong Polytechnic University. Yeung, Y.M. and Wong, T.K.Y. (ed) (2004) *Fifty Years of Public Housing in Hong Kong - A Golden Jubilee Review and Appraisal*, The Chinese University Press.

Subject Description Form

Subject Code	BRE435
Subject Title	Design, Adaptation and Conversion
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	BRE361
Objectives	To equip students with basic knowledge on regulations and statutory requirements related to town planning and buildings; and develop skills necessary in building conversion projects.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Identify problems and constraints in the course of design for conversion and adaptation work. b. Understand the concepts of economic and physical obsolescence for buildings for evaluation of their impacts on process of conversion work. c. Comply with the local statutory requirements in the course of adaptation and conversion to existing buildings. d. Relevance and clarity of sketches and drawings. e. Communication skills
Subject Synopsis/ Indicative Syllabus	● The design and structural considerations and implications that affect the conversion, improvement and adaptation work on existing buildings in relation to users requirements. ● The physical and economical considerations that determine the viability and feasibility of conversion or adaptation of existing buildings. ● Relevant legislation controlling the conversion and adaptation work of existing buildings including those of architectural and historical nature. ● The special considerations of planning the project management and contract administration for conversion and adaptation work. ● Special considerations for the conversion and adaptation work of buildings of architectural and historical interest.
Teaching/Learning Methodology	The subject involves both theoretical and practical approaches in local context relating to project work and tutorial assignments, such as lectures, seminars, case studies, site visits, criticism of presentations and projects by peer groups and practicing professionals and etc.

Assessment Methods in Alignment with Intended Learning Outcomes

The focus of assessment is on understanding of local statutory requirements, practical skills associated with solving the problems of adapting buildings. Coursework and projects will be integrated in the assessment and to achieve key learning outcomes. The subject will be assessed by group project work (60% weighting) and examination (40% weighting).

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)				
		a	b	c	d	e
1. Group Project	60%	√	√	√		
2. Examination	40%	√	√	√	√	√
Total	100 %					

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

(a) Appropriate report structure.
(b) Participation and contribution.
(c) Relevant focus and depth.
(d) Analysis, synthesis and technical competence of design and construction.
(e) Logic of explanation
(f) Relevance and clarity of sketches and drawings.
(g) Communication skills

Student Study Effort Expected

Class contact:	
▪ Lecture	26 Hrs.
▪ Tutorial	13 Hrs.
Other student study effort:	
▪ Project work	80 Hrs.
▪ Project and exam preparation	43 Hrs.
Total student study effort	162 Hrs.

Reading List and References

- Hong Kong Government, *Chapter 123 Buildings Ordinance*, latest Edition, Government Printer.
- Hong Kong Government, *Code of Practices and Guidelines,* Buildings Department (URL: https://www.bd.gov.hk/english/documents/index_crlist.html)
- Mostedi, A. (2003). *Building Conversion & Renovation*. Barcelona, Carles Broto & Josep Ma Minguet.
- O'Kelly, E., & Dean, C. (2007). *Conversions*. London: Laurence King.
- Frideman, D. and Oppenheimer, N. (1997). *The Design of Renovations*, London, W.W. Norton & Company.

Subject Description Form

Subject Code	BRE436
Subject Title	Applied Property Valuation
Credit Value	3
Level	4
Pre-requisite	BRE315
Objectives	1. To stimulate the students in tackling practical valuation issues. 2. To enhance the abilities of the students in the interpretation of relevant legislations and guidelines that related to property valuation. 3. To analyze valuation standards of selected overseas countries.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Explore the effects of land administrative measures and land tenure on property value. b. Apply current legislative measures which affect property value and valuation approaches in resumption, modification and taxation cases. c. Apply the techniques of valuation to appraise, analyze and solve complex valuation problems in both private and public sectors. d. Explore the sources of international valuation standards and their importance. e. Possess knowledge of contemporary issues.
Subject Synopsis/ Indicative Syllabus	Land administrative measures and land tenure in Hong Kong. Valuation of development land. Valuation for lease modification and lease exchange Valuation for resumption purposes. Valuation for taxation purposes Asset Valuation
Teaching/Learning Methodology	This subject is aimed at developing the students' ability to appraise and solve advanced statutory valuation problems. Lectures will be used to highlight the various valuation approaches and the current statutory provisions affecting development and value of property. Case studies will be employed as illustrations, wherever possible. Tutorials will be used by the lecturer and students to discuss valuation problems while seminars provide suitable forums for presentation by the students. Senior professionals may also be invited f to give talks on specific valuation topics and share their experience with the students.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Coursework	50 %	✓	✓	✓	✓	✓	
2. Examinations	50 %	✓	✓	✓	✓	✓	
Total	100 %						

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

Students will be assessed through both coursework and examination. Assessment for coursework will be based on assignments and presentations.

Both examination and coursework assess learning outcome a to e.

Student Study Effort Expected

Class contact:	
▪ Lectures	26 Hrs.
▪ Tutorials	13 Hrs.
Other student study effort:	
▪ Self-studies	120 Hrs.
▪	Hrs.
Total student study effort	159 Hrs.

Reading List and References

Reading List:

Recommended:

Cruden, G.N., (2009) *Land Compensation and Valuation Law in Hong Kong*, Butterworths

HKIS, (1999) *Hong Kong Guidance Notes on the Valuation of Assets*

Baum, A., & Sams, G., (1997) *Statutory Valuations*, Routledge

Butler, D. & Richmond, D., (1990) *Advanced Valuation*, MacMillan

Poon, N.T., & Chan, H.W., (1998) *Real Estate Development in Hong Kong*, PACE

Supplementary:

	Nissim, R., (2008) Land Administration & Practice in Hong Kong, HKU Press Rees, W.H. (ed), (1992) *Valuation: Principles into Practice*, Estates Gazette Hong Kong SAR Government: Building Ordinance (Cap 123) Land (Miscellaneous Provisions) Ordinance (Cap 28) Land Resumption Ordinance (Cap 124) Government Leases Ordinance (Cap 40) Government Rights (Re-entry and Vesting Remedies) Ordinance (Cap 126) Estate Duty Ordinance (Cap 111) Hong Kong Airport (Control of Obstruction) Ordinance (Cap 301) Landlord and Tenant (Consolidation) Ordinance (Cap 7) Lands Tribunal Ordinance (Cap 17) Mass Transit Railway (Land Resumption and Related Provisions) Ordinance (Cap 276) Rating Ordinance (Cap 116) Stamp Duty Ordinance (Cap 117) Roads (Works, Use and Compensation) Ordinance (Cap 370) Railways Ordinance (Cap 519) Land (Compulsory Sale For Redevelopment) Ordinance (Cap 545)

Subject Description Form

Subject Code	BRE437
Subject Title	Facilities Management
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	Introducing the concept of facilities management and its application in various organizations. The development of facility management, the challenges and opportunities for facility manager will be examined. Contemporary issues in the role and responsibilities of FM in organization, value creation through facilities, facilities audit, space planning and relocation decision making, performance measurement and benchmarking, ISO standards, emergency preparedness,.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Articulate management concepts within a variety of facility contexts. b. Assess the performance of a real estate facility across a wide range of performance criteria. c. Relate facilities management functions and practice to the effectiveness of core and non-core operations of business organisations. d. Analyse the role of a facility manager, and apply key competences of a manager on problem solving and decision making.
Subject Synopsis/ Indicative Syllabus	Basic concepts of facility management – an integrated approach The changing and evolving workplace – space utilization, requirements and culture The development of facility management in Hong Kong Facility audit and building performance assessment – criteria of assessment, HK-BEAM, IBI, Balanced Scorecard etc. FM ISO integrated standards Factory relocation and decision making modeling Sustainable facility management- optimizing financial, environmental & social factors Emergency preparedness, assessment and planning
Teaching/Learning Methodology	Topics will be introduced by lectures with guidance to various reference materials. Case studies and assignments will be used to create an 'action learning' environment in which the students will critically evaluate practices and procedures for the achievement of quality. Small group discussion will enhance the information flow and

evaluation process.

- Lectures and seminars
- In-class tutorials
- Independent study
  - Assignment
  - Self-study

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.Assignment 1	20 %	√	√		√		
2. Case study + presentation	30 %	√		√	√		
3. Examination	50 %	√	√		√		
Total	100 %						

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

Assignment (20%) and case study with presentation (30%) assess the students' ability to apply the theoretical concepts. Presentation assesses the students' ability to communicate their ideas and project.

Examination (50%) tests the students' ability to articulate the relationships through discussions and arguments, whilst application is tested via scenario-based questions.

Student Study Effort Expected

Class contact:	
▪ Lectures	26 Hrs.
▪ Tutorials	13 Hrs.
Other student study effort:	
▪ Coursework assignment	24 Hrs.
▪ Independent self-study	100 Hrs.
Total student study effort	163 Hrs.

Reading List and References

Recommended:

Finch, E. (2011) *Facilities Change Management*, Hoboken : John Wiley & Sons.

Hodges, C & Sekula, M (2013) *Sustainable facility management : the facility manager's guide to optimizing building performance*, Alexandria, Va. : Vision Spots

	Publishing. Langston, C & Rima Lauge-Kristensen (2002), Strategic management of built facilities, Oxford : Butterworth-Heinemann. Teicholz, E (2012), *Technology for facility managers the impact of cutting-edge technology on facility management*, Hoboken, NJ : John Wiley & Sons, Inc. Then, Danny Shiem-Shin & Tan Teng Hee (2013), *Facilities management and the business of managing assets*, Abingdon England : Routledge. **Journals for references:** *Facilities* *Facility Management Journal* *IFMA News* *Property Management*

Subject Description Form

Subject Code	BRE439
Subject Title	Engineering Contract Procedures
Credit Value	3
Level	4
Pre-requisite / Co-requisite / Exclusion	Nil
Objectives	To learn and apply general knowledge and applicable techniques in making critical decisions commonly associated with engineering contract procedures (project planning and control, claims, standard method of measurement, general condition of contract). To develop an understanding of the technological, practical, procedural, contractual and economic characteristics of engineering work including building services in building projects and civil engineering work.
Intended Learning Outcomes	1. Upon completion of the subject, students will be able to: 2. Possess the knowledge of the technological practices of engineering work including basic mechanics of material, explain more how the system/technology work. 3. Understand the practices of procurement and contractual arrangements of engineering work. 4. Understanding the Standard Method of Measurement including measurement unit, item coverage, preamble 5. Understanding the term and work mechanism is under Condition of Contract 6. Understanding the role of Drawings and Specification and Standard 7. Understanding the Construction Data Management in market 8. Understanding the contract interfacing management 9. Produce and evaluate the measurement and documentation of engineering work. 10. Appraise and apply the principle and practices of contractual procedures and administration in engineering work. 11. Communicate effectively with contractual negotiation skills.
Subject Synopsis/ Indicative Syllabus	1. Technological and cost appraisal of building services work and civil engineering work. 2. Procurement systems and contractual arrangements for building services and civil engineering projects. 3. Documentation, measurement and valuation of building services and civil engineering work. 4. Contract administration and procedure in building services and civil engineering projects. 5. Application of Government standard forms and new engineering contracts. 12. Interpreting the implication and impact of total float and analysis of project time delay. 13. Interpreting the implication and impact of resource availability on the project network model and project time extension. 14. Interpreting the implication and impact of non-finish-to-start relationships (commonly known as smart relationships) in project network diagrams upon project plan and schedule. 15. Analysing the breakdown and implications of resource rate schedules (i.e. hourly rates for various labour trades and major equipment submitted by a contractor as part of unit rate contract).

16. Interpreting the implication and impact of potential earthwork quantity changes on project cost performance based on commonly used contract conditions.

Teaching/Learning Methodology

The course addresses general knowledge and applicable techniques in support of critical decisions commonly associated with engineering contract procedures (project planning and control, delay analysis, change orders, claims). In addition, the course places engineering contract procedures in the perspective of Hong Kong's current practices. Industry professionals experienced with contract administration and construction laws will serve as Visiting Lecturer to introduce commonly applied contract forms for building services on Hong Kong's public housing and infrastructure projects. Important terms will be elaborated by referring to specific contract terms and real-world application cases.

Contract documentation and administration will form the main thrust of the course, to be underpinned on a comprehensive engineering work technologies and practices. Interactive lectures on the various technologies, practice and economic aspects will be conducted with a view of providing the background knowledge necessary for developing competence in documentation, procurement and administration in the field of engineering work. Interactive lecture and case studies will be utilized. Professional practitioners will be invited to facilitate problem-based learning on different contract strategies in different projects. Tutorial sections will be provided to practice knowledge and techniques learned, conduct case studies and guided discussions.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Coursework	50%	√	√	√	√	√	
2. Examination	50%	√	√	√	√	√	
Total	100%						

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

Examination and coursework will constitute the 50% and 50% of the overall mark for the subject respectively. The coursework mark will be based on the assignments by producing documentation, seminar presentations and discussions. At least two assignments with equal contribution will be set.

The assessment by examination will be based on a 2 hour examination. The coursework will be evaluated on; (i) a basic understanding of engineering work practices, economics of engineering work development, and its impact on the economy; (ii) a working knowledge of the contract documentation and administration of typical engineering work; (iii) a critical appraisal of alternative contract strategies, procedures and administration in engineering work.

A student may intend to apply Generative AI to facilitate homework such as literature review or essay writing style. To make the submission acceptable for grading, one needs to declare in the submission what tool and to what extent GenAI is applied and write down a clear statement reflecting on the usefulness and limitations. If the student does not apply AI tools in completing the homework, one needs to explicitly declare in the submission.

Student Study Effort Expected	Class contact:	
	▪ Lectures	26 Hrs.
	▪ Tutorials / Seminars	13 Hrs.
	Other student study effort:	
	▪ Self learning and recommended reading	120 Hrs.
	Total student study effort	159 Hrs.

Reading List and References

Recommended:

Construction Industry Council (CIC): Frequently Asked Questions on NEC3 Collaborative Contracts (Version 1 – September 2015). http://www.cic.hk/eng/main/aboutcic/publications/reference_materials/index.html

Wong K.D. (2008) *Target Cost Contracting in Hong Kong* – Chapter 12 of the book by PACE Publishing Ltd, namely "*Contractual and Regulatory Innovations in Building and Real Estate*" edited by Edwin Chan and Edward Yiu, Page 69 to 74, June 2008.

Wong K.D. (1998) "*Real Estate Development in Hong Kong"* Chapter 12 *Procurement & Tendering* and Chapter 13 *Contractual Arrangement and Construction Management*, a book by PACE Publishing Limited 1998 ISBN 962-7723-09-6.

Alhyari, O., & Hyari, K. H. (2022). Handling Unbalanced Pricing in Bidding Regulations for Public Construction Projects. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, 14(3). https://doi.org/10.1061/(asce)la.1943-4170.0000547

Lu, M., Liu, J. and Ji, W.Y. (2017) "Formalizing a Path-Float Based Approach to Determine and Interpret Total Float in Project Scheduling Analysis", International Journal of Construction Management, Taylor & Francis · July 2016 DOI:10.1080/15623599.2016.1207366.

Lu, M. and Lam, Hoi-Ching (2009) "Transform schemes applied on non-finish-to-start logical relationships in project network diagrams." Journal of Construction Engineering and Management, ASCE. 135(9), 863-873.

Lu, M. and Li, H. (2003), "Resource-activity critical path method for planning construction operations", Journal of Construction Engineering and Management, ASCE, 129(4), 412-420.

HKIA/HKIS Standard Form of Building Contract 2005 Edition.

HKSAR Government General Conditions of Contract for Civil Engineering Works 1999 Editions.

HKSAR Government General Conditions of Contract for Electrical and Mechanical Engineering Works 1999 Editions.

HKSAR Government General Conditions of Contract for Design and Build Contracts 1999 Editions.

	HKSMM4 (2005) *Hong Kong Standard Method of Measurement for Building Services*. Macmillan (1997) Measurement of Building Services PolyU Call Number TH6021.M87 1997. Prentice Hall (1998) Construction Contract Administration PolyU Call Number KF902. L5 1998. Prentice Hall (2011) Engineering and Construction Law and Contracts PolyU Call Number K891. B8 Y38 2011. **Supplementary:** Government of Hong Kong, (1992) *SMM for Civil Engineering Works*, Hong Kong Government Printer. ICE *Civil Engineering Standard Method of Measurement 4* Third Edition, Thomas Telford, London 2012. ICE *Civil Engineering Standard Method of Measurement 4* Examples 2014. New Engineering Contract http://www.neccontract.com Wong and Tse (1998) "*A Study of Quantity Surveying Practices in the Building Services Sector of Hong Kong*" Asia Pacific Building and Construction Management Journal, Page 9 - Page 15 Volume Four December 1998 ISSN 1024-9540. Wong K.D. (2006) **"***The application of a computerized financial control system for the decision support of target cost contracts***"**, ITcon Vol. 11, Special Issue Decision Support Systems for Infrastructure Management, Page 257-268, http://www.itcon.org/2006/19 Wong A K D (2006).

Subject Description Form

Subject Code	BRE4393
Subject Title	Temporary Work Design
Credit Value	3
Level	4
Pre-requisite	BRE302 & BRE361
Objectives	Bring students' attention to the vertical integration of the subject areas learned in Level 2 such as Structure, Construction Technology, Engineering Mathematics along with the working experience gained in Industrial Centre to the subject areas of Level 3 Structure II & Construction Technology & Materials II through design project whilst the inter-relation of the horizontal integration between subjects are also important in solving a problem-based project work. Integrate and apply knowledge gained from individual subject areas in technology, management, economics and legal aspects.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Design falsework and formwork for building construction b) Appraise alternative solutions to falsework and formwork design c) Recognize the inter-relationship and interdependence of various areas in construction related to temporary works, such as cost, time, safety, and quality assurance d) Comprehend the design and construction operations, technology & structure, management, economics and legal impacts of the construction industry both locally and in other countries through guided learning and case study. e) Understand the implications of temporary design and construction in professional and social contexts; develop and improve communications skills and teamwork spirits in term project, and international/comparative study.
Subject Synopsis/ Indicative Syllabus	• Introduction, basic concepts of formwork and falsework. • Bamboo scaffolding: design and safety • Metal scaffolding: components, loads, foundations, and design • shoring design • Formwork materials, formwork types, and quality of finishes • Project handout and briefing • Design of slab forms • Design of wall forms • Design of beam forms • Design of column forms • Selection of horizontal formwork systems • Selection of vertical formwork systems
Teaching/Learning Methodology	Structured lecture/tutorial sessions are carried out at different stages during the progress of project to provide learning support to students in achieving the intended learning outcomes. Lecture/tutorial sessions of 2.0 hours per week are intended for teaching of key concepts, principles, and methods in temporary works design/application. The students are provided with useful resources on Blackboard for self study. A structured design project based on real life situation is to be used for term project and consists of the several components for applied learning:

	1. Understand the structural elements of building components, 2. Prepare design of falsework systems to facilitate the construction of the structural elements. 3. Evaluate the different systems of formwork and falsework and to appraise alternation solutions. 4. Propose a suitable structural form for the formwork of various building components, and to prepare the subsequent design drawings, structural calculations and specifications 5. Produce plan and proposal for the falsework/formwork to facilitate building construction 6. Appreciate the multi-objective nature of building construction related to temporary works

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
Temporary Works Design Report	80% (Group project)	√	√	√	√	√	
Temporary Works Design, debate assignment on selection of materials and types of formwork and falsework	10%	√	√	√	√	√	
Quizzes and class attendance	10%	√	√		√		
Total	100 %						

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
The subject is mainly project-based, the students will work in groups to complete the design report for a 2000-design school building project, which requires efforts from each team member to demonstrate that the group understands the problem and present the solutions in a professional report. The student in each group will also be individually assessed in contributions, contents, and quality of presentation based on the design report.

In the debate assignment, the school building project of 2000-design is used for study on solutions to temporary works. The students are divided into 2~3 larger groups to represent different options/solutions in each of the tasks (1) Selection of formwork materials; (2) Selection of formwork types; (3) selection of falsework/scaffoldings for working platform, shoring/supporting of formwork, etc. Student groups are required to present their proposal and defend their solutions, and then question the other groups which hold different views and propose different solutions. The groups are required to seek assistance from chatGPT through interactive queries, and make their professional judgement and provide supplementary information based on cited reference sources.

	The students will take 4-5 quizzes in the form of multiple choice questions to assess their understanding of basic design principles, practice, and knowledge in temporary works, the students are required to attend all the lectures. **1. <u>Report assessment (80%):</u>** Report presentation (20%) 1. Report presentation: logical and coherent organization, clarity, citations and appendices, 10% 2. Command of written English: succinct writing, grammar and spelling, 10% Report contents (80%) 1. Project introduction, 5% 2. Introduction to temporary works design: materials, types, and selection, 10% 3. Falsework and scaffolding design (including Bamboo scaffolding), 10%* 4. Formwork design: columns (introduction, calculations, sketches and drawings) , 10%* 5. Formwork design: walls (introduction, calculations, sketches and drawings) , 10%* 6. Formwork design: Beams (introduction, calculations, sketches and drawings) , 10%* 7. Formwork design: slabs (introduction, calculations, sketches and drawings) , 10%* 8. Construction management issues in temporary works, sustainability, organization, environment, time, cost, safety, quality, 10% 9. Conclusions, 5% <u>Assessment criteria</u> *Report presentation (20%)* A+, A, A- (Excellent): 1. Excellent design drawings. 2. Excellent use of English language in the report. 3. Excellent use of tables, charts, figures, sketches in the report. 4. Excellent citation and references (including AI generated contents). 5. The report is organized in logical and professional format. B+, B, B- (Good): 1. Good design drawings, with occasional errors in details. 2. Good use of English language in the report, with few typos, grammatical errors. 3. Proper use of tables, charts, figures, sketches in the report. 4. Good citation and references (including AI generated contents). 5. Overall the report is organized in logical and professional format. C+, C, C- (Satisfactory): 1. Satisfactory design drawings, with some non-critical errors in design and drawing details.

	2. Proper use of English language in the report, with some typos, grammatical errors. 3. Proper use of tables, charts, figures, sketches, with some formatting errors, in the report. 4. Satisfactory citation and references (including AI generated contents). 5. The report is overall organized in logical and professional format, with some parts of contexts misrepresented. D+, D (Pass): 1. Barely adequate design drawings, with many non-critical errors in design and drawing details. 2. Barely satisfactory use of English language in the report, with typos, grammatical errors, which may prevent understanding of some contents. 3. Use of tables, charts, figures, sketches is marginal, with many formatting and contents errors, in the report. 4. Barely adequate citation and references (including AI generated contents). 5. The report is barely organized in logical and professional format, with some parts of contexts misrepresented, or difficult to understand. F (Fail): 1. Inadequate design drawings, difficult to understand the design and drawing details. 2. Poor use of English language in the report, with typos, grammatical errors, which prevents clear understanding of the report. 3. Managed to use tables, charts, figures, sketches for presentation in the report, with improper use and format. 4. Inadequate citation and references (including AI generated contents). 5. The report is poorly organized, sometimes misrepresented, and difficult to understand. *Report contents (80%):* A+, A, A- (Excellent): 1. All the contents and topics required for temporary works design are completed. 2. The design for each part of the temporary works is excellent, with proper assumptions, design calculation, design analysis and design drawings. 3. Clear statement of design assumptions. 4. No significant errors in design calculations. B+, B, B- (Good): 1. All the contents and topics required for temporary works design are completed, with very few missing contents, or occasionally inadequate presentation. 2. The design for each part of the temporary works is good, with proper assumptions, design calculation, design analysis and design drawings. Occasional inconsistence in design and drawings. 3. Good statement of design assumptions. 4. Few noncritical errors in design calculations, some inaccuracies in design calculations may appear.

C+, C, C- (Satisfactory):

1. All the contents and topics required for temporary works design are completed, with some noncritical contents missing or inadequately presented.
2. The design for each part of the temporary works is satisfactory, with proper assumptions, design calculations, design analysis and design drawings. some errors in design and drawings. Some design errors.
3. Satisfactory statement of design assumptions.
4. Some errors in design calculations, but not critical and not affecting the overall design.

D+, D (Pass):

1. All the contents and topics required for temporary works design are completed, with some contents missing or inadequately presented
2. The design for each part of the temporary works is barely satisfactory, with largely proper assumptions, design calculations, design analysis and design drawings. some errors in design and drawings. design errors are often serious in some items.
3. Barely satisfactory statement of design assumptions
4. Many errors in design calculations, may be critical but not affecting overall design.

F (Fail):

1. Not all the contents and topics required for temporary works design are completed, with many contents or chapters missing and inadequately presented.
2. The design for each part of the temporary works is inadequate, with usually inadequate assumptions, design calculations, design analysis and design drawings. Extensive errors in design and drawings. design errors are usually serious.
3. Inadequate statement of design assumptions.
4. Extensive errors in design calculations, may be critical and affecting the validity of the overall design.

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+.

2. <u>In-class debate assignments (10%):</u>

A+, A, A- (Excellent):

1. Make very good use of chatGPT or other Gen-AI tools with interactive queries designed with a professional manner

	2. Make strong persuasive points to defend his/her solutions. 3. Make very good citations of reference sources (including AI generated contents), use of facts, data, cases, etc. to the statements, claims, etc. 4. Excellent presentation/debate skills. B+, B, B- (Good): 1. Make good use of chatGPT or other Gen-AI tools with interactive queries designed with a professional manner. Some improvements can be made to make better use of the AI tool for designing an engineering solution. 2. Make good persuasive points to defend his/her solutions. 3. Make proper citations of reference sources (including AI generated contents), use of facts, data, cases, etc. to support the statements, claims, etc. 4. Relatively good presentation/debate skills. C+, C, C- (Satisfactory): 1. Make use of chatGPT or other Gen-AI tools with interactive queries designed with a professional manner. Many improvements should be made to make good use of the AI tool for designing an engineering solution. 2. Make fairly persuasive points to defend his/her solutions. 3. Demonstrate ability in citing reference sources (including AI generated contents), to a satisfactory level, in using facts, data, cases, etc. to support the statements, claims, etc. 4. Demonstrate satisfactory presentation/debate skills in a professional context. D+, D (Pass): 1. Can barely use chatGPT or other Gen-AI tools with interactive queries designed with a professional manner. Major improvements should be made to make good use of the AI tool for designing an engineering solution. 2. Make persuasive points to defend his/her solutions. 3. Demonstrate minimum ability in citing reference sources (including AI generated contents), in using facts, data, cases, etc. to support the statements, claims, etc. 4. Demonstrate minimum satisfactory presentation/debate skills in a professional context. F (Fail): 1. Clear difficulty in using chatGPT or other Gen-AI tools with interactive queries designed with a professional manner. 2. Make some points to defend his/her solutions but not persuasive. 3. Demonstrate poor ability in citing reference sources (including AI generated contents), in using facts, data, cases, etc. to support the statements, claims, etc. 4. Fail to demonstrate basic presentation/debate skills in a professional context. **3. <u>Quizzes and class attendance (10%)</u>**

	A+, A, A- (Excellent): A+: Over 95% of the questions are answered correctly A: 90% - 95% of the questions are answered correctly A-: 85% - 90% of the questions are answered correctly B+, B, B- (Good): B+: 80% - 85% of the questions are answered correctly B: 75% - 80% of the questions are answered correctly B-: 70% - 75% of the questions are answered correctly C+, C, C- (Satisfactory): C+: 65%- 70% of the questions are answered correctly C: 60%- 65% of the questions are answered correctly C: 55%- 60% of the questions are answered correctly D+,D (Pass): D+: 50% - 55% of the questions are answered correctly D: 45% - 50% of the questions are answered correctly F (Fail): F: Under 45% of the questions are answered correctly The grade will be lowered by at least one letter grade if the student is absent from the lectures for up to 3 weeks; a failure grade will be given if the student is absent from the lectures for up to 6 weeks.	
Student Study Effort Expected	Class contact:	
	▪ LEC	26Hrs.
	▪ Tutorial/Project Consultation	13 Hrs.
	Other student study effort:	
	▪ SELF-STUDY/REPORT WRITING	90 Hrs.
	▪	Hrs.
	Total student study effort	129 Hrs.
Reading List and References	**Reading List:** No standard textbook is recommended, since students have to refer to various literatures in order to achieve the requirement of the design project. Reference will be made to current articles in journals, local newspaper, would press, proceedings dealing with topics of current importance. **Recommended:** The Concrete Society (2012), *Formwork A guide to good practice*, 3rd Edition, the Concrete Society, London. Illingworth J.R. (1987). *Temporary Works: Their Role in Construction*, Thomas Telford, London. Labour Department (2017). Code of Practice for Bamboo Scaffolding Safety. Available from: http://www.labour.gov.hk/eng/public/os/B/Bamboo.pdf	

	Buildings Department (2001). Guidelines on the Design and Construction of Bamboo Scaffolds. Available from: http://www.bd.gov.hk/english/documents/code/GDCBS.pdf Wong, Francis K.W. (1998). Bamboo Scaffolding Safety Management for the Building Industry in Hong Kong. Labour Department (2013). *Code of Practice for Metal Scaffolding Safety*. Available from: http://www.labour.gov.hk/eng/public/os/B/mss.pdf Chudley, R. (1999). *Advanced Construction Technology*, 3rd ed. revised by Roger Grano, Longman. Illingworth, J.R. (2000). *Construction Methods and Planning*, 2nd ed., E & FN Spon.

Subject Description Form

Subject Code	BRE440
Subject Title	Cost and Value Management
Credit Value	3
Level	4
Pre-requisite	Nil
Objectives	*This subject is intended to:* • Focus on both theories and applications of value management in different phases of a development, • Develop an appreciation for what can be accomplished using the techniques of VM and applied creativity, and • Identify management and technical issues that can be solved or addressed using the techniques of VM and critical thinking.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Understand the development of Value management in different regions b. Comprehend and identify issue and problems concerning the function and value of land, property and construction c. Formulate and implement strategies, policies and solutions for sustainable development and construction d. Possess skills to identify, analyse and solve problems e. Communicate effectively
Subject Synopsis/ Indicative Syllabus	Notion of value: value, function and cost. Value management basics: historical development; project selection (types, values, and timing); alternative workshop approaches (e.g. the 40-hour job plan, the Charette, the VM audit, and the contractor's change proposal). Value management methodology: - VM job plan (information, analysis, creativity, evaluation, development, proposal); function analysis, group dynamics, creativity, and problem-solving skills Life cycle costing for construction projects Comparison of value management and traditional cost management techniques. Case studies of the practice of value management in Hong Kong and overseas.
Teaching/Learning Methodology	▪ Interactive lectures with discussions and Q&A to test students understanding before starting a new topic ▪ Use of videos or cases to introduce concepts and pose discussions during tutorials ▪ In-class questions to test students understand on this subject ▪ Small team projects to simulate real-life work settings ▪ Sharing, discussions, and presenting the answers of tutorial questions in tutorials ▪ Use workshop settings to facilitate students understanding of value management concepts ▪ Introduce both local and overseas real-life case studies to facilitate understanding and appreciation of real-life practices

	The generative AI tools (genAI) is not allowed for (1) functions identification and function analysis; (2) generating creativity ideas during Value Management workshop but encouraged for (1) search for typical examples or cases of value management (2) helping improve structure, grammar, writing, presentation slides, etc.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
Workshop project report	25 %	√	√	√	√	√	
Tutorial question	25 %	√	√		√	√	
Examination	50 %	√	√	√	√	√	
Total	100 %						

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

The team project brief resembled real-life scenario but modified to suite students' level. The project asked the students to design and facilitate a value management workshop for a project and they also need to bid for the project from the perspective of a professional service firm. Finally, students were asked to identify, analyse and solve problems that they encountered in that particular project. Since they are acting as professional advisor for the client/owner, they need to possess skills that they can communicate effectively to their client. At the conclusion of this subject, all students had achieved the intended subject learning outcomes assessed through the quiz, team project and examinations.

Student Study Effort Expected

Class contact:	
▪ Lectures	26 Hrs.
▪ Seminars	13 Hrs.
Other student study effort:	
▪ Self study materials	20 Hrs.
▪ Assignments/Workshop Preparation	56 Hrs.
Total student study effort	115 Hrs.

Reading List and References	Akiyama, K. (1991), *Function Analysis: Systematic Improvement of Quality and Performance*, Productivity Press. Ashworth, A. and Perera, S. (2015), *Cost Studies of Buildings*, Routledge. Connaughton, J.N. (1996), *Value Management in Construction: A Client's Guide*, Construction Industry Research and Information Association. Dell'Isola, A.J. (1997), *Value Engineering: Practical Applications - for Design, Construction, Maintenance & Operations*, R.S. Means Company. Fong, P.S.W. et al (1998), *Applications of Value Management in the Construction Industry in Hong Kong*, Dept. of Building & Real Estate, The Hong Kong Polytechnic University. Fowler, T.C. (1990), *Value Analysis in Design*, Van Nostrand Reinhold.

	Hayden, G.W. (1996), *Value Engineering of Building Services*, Building Services Research and Information Association. Institution of Civil Engineers (1996), *Creating Value in Engineering*, Thomas Telford. Kelly, J., Male, S. and Graham, D. (2015), *Value Management of Construction Projects*, John Wiley & Sons. Kirk, S. J. and Dell'Isola, A. J. (1995), *Life Cycle Costing for Design Professionals*, McGraw-Hill. Norton, B.R. (1995), *Value Management in Construction: A Practical Guide*, Macmillan. Palmer, A. (1992), *A Comparison of US Value Engineering with British Cost Control Procedures*, Value and the Client, Surveyors Publications. Park, R.J. (1999), *Value Engineering: A Plan for Invention*, St. Lucie Press. SAVE International. (2020). *VM Guide: A Guide to the Value Methodology Body of Knowledge*. SAVE International. Shen Q.P. and Liu G.W. (2003) Critical success factors for value management studies in construction, *Journal of Construction Engineering and Management, American Society of Civil Engineers (ASCE)*, 129(5), 485-491. Shen, G. Q., & Ann, T. W. (2015). *Value management in construction and real estate: Methodology and applications*. Routledge. *Various materials provided in the designated e-learning management system.*

Subject Description Form

Subject Code	BRE442
Subject Title	Forecasting & Competition in the Built Environment
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject is intended to help students acquire knowledge and skills to forecast and compete for work in the built environment.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: 1. Select and employ appropriate techniques in price forecasting and strategies for improving survival and profitability. 2. Recognize the usefulness and limitations of competition and forecasting models. 3. Integrate risk management techniques with competition and forecasting models. 4. Analyze competitive performance and forecasting accuracy. 5. Draw conclusions and make recommendations on improving competitive performance and forecasting accuracy.
Subject Synopsis/ Indicative Syllabus	*Forecasting* • Microeconomic foundation and the efficient market hypothesis • Time series analyses and process of forecasting • Forecasting methods: theory and practice • Price estimation • Risk management in pre and post contract stages *Competition* • Introduction on the competitive built environment • Competitor analysis and competitiveness measurement • Bidding models: theory and practice • Tender assessment • Strategies for improving competitive advantage

<table>
<tr><td>Teaching/Learning Methodology</td><td>Lectures introduce the concepts and approaches in practice followed by discussion on background reading and forecasting and competition analyses in the tutorials based on case studies.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td><td></td></tr>
<tr><td>Tutorial tasks</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="5"></td></tr>
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<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorials</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Student effort hours</td><td>81 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>120 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and References</td><td>Indicative Reading List:

Adrian J. Smith (1995). Estimating, tendering and bidding for construction. Macmillan.

Ashworth A. (1994) Cost Studies of Buildings, Longman; Harlow.

Beeston, D.T. (1983). Statistical methods for building price data, E&FN Spon

Brook M. (2004) Estimating and Tendering for Construction Work, Butterworth Heineman, Oxford.

Cartlidge D. (2004) Procurement of Built Assets, Elsevier Oxford.

Chapman, C., & Ward, S. (1996). Project risk management: processes, techniques and insights. John Wiley.

Clements, M. P., & Hendry, D. F. (Eds.). (2002). A companion to economic forecasting. Oxford: Blackwell.

Ferry D. and Brandon P.S. (1999) Cost Planning of Buildings, Blackwell Science, Oxford.

Friedman, L. (1956). A competitive-bidding strategy. Operations research, 4(1), 104-112.</td></tr>
</table>

Granger, C. W. J., & Newbold, P. (2014). *Forecasting economic time series*. Academic Press.

Hillebrandt, P.M. (2000). *Economic theory and the construction industry* (3rd ed.). Macmillan Press, Basingstoke.

Milgrom, P. (1989). Auctions and bidding: A primer. *Journal of Economic Perspectives*, 3(3), 3-22.

Milgrom, P. R. (1987). *Auction theory. In Advances in economic theory: Fifth world congress* (Vol. 1, p. 32). Cambridge: Cambridge University Press.

Milgrom, P. R., & Weber, R. J. (1982). A theory of auctions and competitive bidding. *Econometrica: Journal of the Econometric Society*, 1089-1122.

O'malley, P. (2012). *Risk, uncertainty and government*. Routledge.

Park W.R. & Chapin W.B. (1992) *Construction Bidding: Pricing for Profit*. John Wiley & Sons, New York.

Seeley I. (1996) *Building Economics*, Macmillan, Basingstoke.

Shmueli, G., & Lichtendahl Jr, K. C. (2016). *Practical time series forecasting with r: A hands-on guid*e. Axelrod Schnall Publishers.

Subject Description Form

Subject Code	BRE453
Subject Title	Building Services II
Credit Value	3
Level	4
Pre-requisite /	BRE349
Objectives	1. Provide further knowledge of building services engineering systems, including the ventilation and air conditioning system, acoustics and vibration control systems, and information systems; 2. Understand the importance of the quality of installation and proper co-ordination on the overall performance and maintainability of buildings; 3. Provide students an understanding that sustainability can be achieved by environmental-friendly design of building services systems.
Intended Learning Outcomes	*Students will demonstrate their ability to:-* a. Understand the principles and various attributes of ventilation and air conditioning systems; b. Have an understanding of the importance of energy conservation in buildings for environmental protection, and the use of renewable resources in buildings for sustainability; c. Perform analyses on acoustic and vibration control of building services systems; d. Have an understanding of the concepts of green buildings, intelligent building, building automation, and information system of buildings; e. Properly co-ordinate the installation, commissioning and maintenance of various building services systems; and perform life-cycle cost analysis for selection of appropriate building services systems.
Subject Synopsis/ Indicative Syllabus	Integrated design: factors affecting selection of services/systems. Provision of space in the building to accommodate building services. Structural integrity of building services equipment. Sound and vibration attenuation features. Provisions for safe operation and maintenance. Building services engineering system for intelligent buildings: introduction to information transmission systems, communication and protection system, call systems, public address system and Building automation/management systems. The concepts and importance of sustainability in building services systems design, and operation; selection of environmentally friendly products and materials used in building services systems. Cooling load estimation for HVAC system. Indoor air quality monitoring

	Co-ordination and management of design and installation of various building services systems during the design and construction stages in particular the builder's works; and testing and commissioning of building services systems. Building services design for safety – Passive measures on fire safety & introduction to alternative approaches on fire safety design.
Teaching/Learning Methodology	The subject can be divided into three main parts; introduction to complex building services systems; management, co-ordination, installation and maintenance of the building services systems; and introduction to sustainable buildings and environmental-friendly design of building services systems. A "case oriented" approach is to be adopted for teaching the subject; A number of up-to-date case studies on building services systems of high-rise buildings are used to illustrate the current state-of-the-art on the design and operation of complex building service systems. Where applicable, practitioners from the industries will be invited to present lecture on the management of the building services installations and on operation and maintenance of building services systems. The subject will be delivered through lectures, laboratories (where applicable) and small groups tutorials. The lectures and laboratories aim at introducing theories, concepts and practices whereas tutorials are for in-depth small group discussions.
Assessment Methods in Alignment with Intended Learning Outcomes	

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Coursework	40	√	√	√	√	√	
2. Examination	60	√	√	√	√	√	
Total	100						

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

Examination and coursework contributes 60% and 40% of the overall grade for the subject respectively. Student must pass both the examination and coursework components in order to achieve an overall pass for the subject.

The coursework may comprises a combination of exercises at tutorials, group presentations, and in-class test. Both the coursework and examination assessment methods are intended to ensure the students achieve the learning objectives set, and to assist in students' learning through constructive feedback.

Students are encouraged to use Artificial Intelligence (AI) tools to assist in the development of the topic areas, identify related contents to be included and to conduct initial evaluation on different options and solutions for the presentation coursework. Students will be required to document the adoption of AI tools in the coursework as an integral part of the submission for assessment.

Student Study Effort Expected	Class contact:	
	▪ Lectures	26 Hrs.
	▪ Tutorials	13 Hrs.
	Other student study effort:	
	▪ Independent study including assignments and project works	81 Hrs.
	Total student study effort	120 Hrs.
Reading List and References	**Reading List:** **Recommended:** Grondzik, Walter T; Alison G. Kwok, (2019) *Mechanical and Electrical Equipment for Buildings*, 13th Edition, Wiley Chadderton D.V. (2013) *Building Services Engineering*, 6th ed., Taylor & Francis. Greeno R. (2013) *Building Service, Technology and Design,* Routledge. CIBSE (1994) *Building Services Maintenance Management*, CIBSE CIBSE (2016). *Air Conditioning and Refrigeration*, CIBSE **Supplementary:** Various publications at Hong Kong Green Building Council Atkin B. (1993) *Intelligent Buildings: Application of IT and Building Automation to High Technology Construction Projects*, Unicom Seminars, England	

Subject Description Form

Subject Code	BRE461
Subject Title	Environmental Impact and Assessment
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	To provide students with an overview and understanding of the environmental issues and the principles and current practices of environmental impact assessment (EIA). Particular emphasis will be given to environmental impact assessment related to Hong Kong.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Enhance the awareness of the environmental issues and realize the importance of sustainable development; b. Gain an in-depth understanding of the concepts, processes and methodologies of environmental impact assessment; c. Contribute significantly in conducting environmental impact assessment in a team; d. Apply the environmental assessment in city and land use planning and management.
Subject Synopsis/ Indicative Syllabus	Environmental objectives & sustainable development: environmental issues in global, regional, and local context, such as ozone depletion, acid rain, global warming, extreme weathers etc; international agreements, Kyoto Protocol; Environmental legislations: regulations and ordinances for air pollution control, waste disposal, water pollution control, noise control, ozone layer protection, and hazardous chemicals control etc. Environmental protection administrative system in H.K.: administrative system for environmental assessment in HK; procedures to conduct environmental impact assessment; Environmental impact studies and impact prediction: Methods for assessing direct and indirect environmental impacts; identification, prediction and assessment of environmental impact; performance benchmarks and targets; Types of environmental impact assessment and environmental impact statement: Strategic environmental impact assessment; life-cycle environmental impact assessment; Ecological, socioeconomic, visual, and risk impact assessment; Role of environmental impact statement, statement scope& content, report writing skills;

<table>
<tr><td></td><td>Application of environmental assessment in city and land use planning: Interaction between environmental impact assessment and city/land use planning; mitigation and control measures;

Environmental planning and management: decision making, planning and management of construction projects with due consideration given to the environmental, social, and economical factors;

Environmental auditing: environmental impact assessment, review, monitoring and audit.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The subject teaching will adopt a range of methods including: (1) lectures; (2) tutorial sessions; (3) group discussions and presentations; (3) reading materials and video presentations; (4) seminars (where applicable) by invited speakers from professional environmental consultants; and (5) group project (case study).

The lectures aim at introducing the basic concepts and principles. Reading materials and video presentations as well as seminars by invited speakers aim at provide students the current practices of environmental impact assessment. Group discussion/presentations and group project will encourage students to review what they have learned in class and apply the principles in practices.</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>1.Continuous assessment</td><td>30%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>2. Midterm</td><td>30%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>3. Examination</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:

Examination and continuous assessment will constitute 70% and 30% of the overall work of the subject, respectively. The continuous assessment will be based on the coursework, assignments projects, presentations, peer-group critiques and in-class tests. Students are expected to demonstrate their understanding of the concepts and methodologies of Environmental Impact Assessment through the assignments, group projects and presentations. Students' overall understanding of the subject will be assessed in the examination, on both the principles and practical applications.</td></tr>
</table>

Student Study Effort Required	Class contact:	
	▪ Lectures	26 Hrs.
	▪ Tutorials	13 Hrs.
	Other student study effort:	
	▪ Project work	70 Hrs.
	▪	
	Total student study effort	109 Hrs.
Reading List and References	Barbara Carroll, Trevor Turpin, Adam Boyden, Alison Carroll, and Ruth Thomas, *Environmental impact assessment handbook: a practical guide for planners, developers and communities*, London: Thomas Telford, c2009. Kevin S. Hanna, *Environmental impact assessment: practice and participation*, 2nd Edition, Don Mills, Ont. Oxford University Press, 2009. Neil Craik, *The international law of environmental impact assessment: process, substance and integration*, Cambridge; New York: Cambridge University Press, 2008. John Glasson, Riki Therivel and Andrew Chadwick, *Introduction to environmental impact assessment*, 3rd Edition, London; New York: Routledge, 2005. Stephen Tromans and Karl Fuller, *Environmental impact assessment: law and practice*, London: LexisNexis, c2003. Environmental Assessment and Noise Division, Environmental Protection Department, *The operation of Environmental Impact Assessment Ordinance in Hong Kong, April 1998--December 2001*. (Cir Coll Large Bk - TD194.68.H6 O73 2002)	

Subject Description Form

Subject Code	BRE462
Subject Title	Advanced Construction Technology
Credit Value	3
Level	4
Pre-requisite	BRE370
Objectives	1. Introduce and discuss selected topics on advanced construction technology in building construction 2. Foster guided learning and critical investigation on the cutting edge technologies in building construction 3. Appreciate the future trends, difficulties and challenges on building construction
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) grasp the selected construction technologies and conduct analysis on their application scenarios; keep students abreast with the up-to-date technologies in tall buildings construction; b) compare alternative solutions in building construction technologies (contemporary versus conventional; sustainable versus Non-sustainable; automated versus manual); c) further enhance their communication skills through drawings, oral and written presentation in a team environment; d) foster their life-long learning through independent thinking, self-study and critical reviews, in-depth investigations on some construction planning and management issues.
Subject Synopsis/ Indicative Syllabus	1. High performance concrete including high strength concrete, self-compacting concrete and concrete for 3D printing. 2. Demolition: Code of Practice and Building Regulations for demolition works. 3. Advanced Construction Technology, including Very Tall Building Construction, Modular Integrated Construction and construction 3D-printing. 4. Site layout planning: Basic principles in site layout planning, with due consideration to access, storage, accommodations, services, plants, health and safety, and related statutory requirements. 5. Visualization, sensing and tracking applications in construction process monitoring and management control. 6. Alternation and Addition Works (A & A works): Structural & Condition survey / appraisal, conversion, preservation, fulfillment of statutory requirements, project management for A & A works.

Teaching/Learning Methodology

Lectures

Lectures are designed to help the students gain basic knowledge and understanding on each selected topic.

Case studies: In-class reading and discussions

Case studies on each topic are intended to illustrate the theories and regulatory requirements. Reading materials are provided for in-class reading and discussions in the tutorial session. In case study, representative construction technologies used for buildings / projects in Hong Kong and other metropolitan areas will be highlighted. Guest speakers may be invited if appropriate.

Group Projects

There are three group projects on different focuses;

1) a presentation on topics about project case study or advanced construction technology
2) a report on site layout planning study or alternation and addition works
3) an essay report on topics about Digital Construction

Written Examination

Written examination is employed to assess student on problem solving skills individually. Questions for the examination are usually designed as case-based and/or problem-based.

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. Group Project 1 (Tutorial Task & Presentation)	15%	√	√	√	√		
2. Group Project 2 (Site Planning)	15%	√	√	√	√		
3. Group Project 3 (Essay on Digital Construction)	20%	√	√		√		
4. Examination	50%	√	√		√		
Total	100%						

Students must pass both the continuous assessment and the end-of-semester examination in order to pass the subject.

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

Group projects will require students to have good understandings on related construction technologies. Extensive reading and/or critical review are required. Project report will require the students to demonstrate their collective work as a team with contributions from each team member through effective communications.

Students are encouraged to use Artificial Intelligence (AI) tools to assist in the development of the topic areas, identify related contents to be included and to conduct initial evaluation on different options and solutions. Students will be required to document the adoption of AI tools in the coursework as an integral part of the

	submission for assessment. Written examination is used to demonstrate students' ability in analyzing issues and problems and to suggest solutions on an individual basis.	
Student Study Effort Required	Class contact:	
	▪ Lecture	26 Hrs.
	▪ Tutorial	13 Hrs.
	Other student study effort:	
	▪ Reading and writing assignments	40 Hrs.
	▪ Group project	40 Hrs.
	Total student study effort	119 Hrs.
Reading List and References	Buildings Department (2016). Code of Practice for Precast Concrete Construction, Buildings Department, Hong Kong SAR Government Buildings Department (2004), Code of Practice for Demolition of Buildings, Buildings Department, Hong Kong SAR Government Caldarone M. (2009). High Strength Concrete: a Practical Guide. Taylor & Francis. Raton B. (2003). The Civil Engineering Handbook, 2nd edition, CRC Press. Chudley R. and Greeno R. (2012). Advanced Construction Technology, 5th edition, Pearson. Chudley R. and Greeno R. (2016). Building Construction Handbook, 11th Edition. Routledge. Chew M. Y. L. (2017). Construction Technology for Tall Buildings, 5th edition, World Scientific. Parker D., Wood A. (2013). The Tall Buildings Reference Book, Routledge (ebook). Cooke, R (2007), Building in the 21st Century, Blackwell. Watt D. (2007), Building Pathology: Principles and Practice, 2nd edition, Blackwell. Macdonald S (ed.) (2003), Concrete: Building Pathology, Blackwell Science. Crotty (2012), The impact of Building Information Modelling: Transforming Practices, Spon. Development Bureau, (2018), Constriction 2.0 – Time to Change, Development Bureau, Hong Kong SAR Government.	

Subject Description Form

Subject Code	BRE463
Subject Title	Business Valuation and Accounts
Credit Value	3
Level	4
Pre-requisite	BRE337 & BRE397
Objectives	To provide students a review on the business valuation concepts; To develop knowledge in the financial and legal aspect of mergers and acquisition; and To familiarize participants with a broad spectrum of appraisal approaches and to integrate them in comprehensive project appraisals.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. calculate values of organizations b. identify and calculate the value of intangible assets c. identify and evaluate the financial and strategic implications of proposals for mergers, acquisitions, demergers and divestments; d. discuss and illustrate the impact of law and regulations on business merger and acquisition;
Subject Synopsis/ Indicative Syllabus	❑ Introduction of Investing and Valuation ❑ Cash Accounting, Accrual Accounting, and Discounted Cash Flow Valuation ❑ Accrual Accounting and Valuation: Pricing Book Values / Pricing Earnings ❑ The Analysis of the Cash Flow Statement, Balance Sheet and Income Statement ❑ The Analysis of Profitability and Sustainable Earnings ❑ The Value of Operations and the Evaluation of Enterprise ❑ Full-Information Forecasting, Valuation, and Business Strategy Analysis ❑ Listing rules and related laws
Teaching/Learning Methodology	In the first part of the subject, lectures and directed reading will be used to outline the techniques and approaches determined by international standards and practice. Visiting speakers from relevant areas will be invited to share their practical experience with the students. Coursework will be used to test understanding and application of the relevant methodologies and ability to undertake a critical appraisal of each method.

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. Coursework	50 %	✓	✓	✓	✓		
2. Final examination	50 %	✓	✓	✓	✓		
Total	100 %						

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

Coursework includes group presentations and individual assignments.

The final examination assesses students' ability in solving and rationalizing problems gained from the subject.

Student Study Effort Required

Class contact:	
▪ Lecture	26 Hrs.
▪ Tutorial	13 Hrs.
Other student study effort:	
▪ Student centered self-study	120 Hrs.
Total student study effort	159 Hrs.

Reading List and References

Financial Statement Analysis and Security Valuation, By Stephen Penman, Third Edition, McGraw-Hill, Irwin

Investment Valuation: Tools & Techniques for Determining the Value of Any Asset, By Aswath Damodaran, Second Edition, John Wiley & Sons, Inc

Valuation: Measuring and Managing the Value of Companies, By Tim Koller, Marc Goedhart, and David Wessells (McKinsey & Company Inc), 4th Edition, John Wiley & Sons, Inc

Subject Description Form

Subject Code	BRE464
Subject Title	Urban Planning (Workshops)
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	The subject aims at providing the students with: 1. A general understanding of the theories of urban and regional planning 2. Quantitative methods of assessing the quality of urban spaces in different aspects (environmental and social) 3. Understanding on the planning system in Hong Kong
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Understand the theories of urban and regional planning. b. Conduct environmental assessment for urban spaces with simulation tools c. Understand the human factors needed to be considered urban planning and urban design. d. Develop the necessary skills in formulating proposals for urban design and urban redevelopment projects. e. Nurture professional knowledge and social responsibility, obtain problem solving skills and critical thinking through the application of advanced information. technology and generative AI tools.
Subject Synopsis/ Indicative Syllabus	Nature of urban planning and sustainability. Urban and Regional Planning theories. Urbanization and social changes. Town planning system in Hong Kong. Planning Application. Problems associated with urban renewal. Public participation in urban planning.

Teaching/Learning Methodology

The subject is mainly conducted in the format of a series of urban planning workshops, which emphasizes on the participation of the students. Assessment is by means of coursework comprising of term paper, a urban design project and presentations in class. The students would form groups and are assigned to conduct a project on the planning and design of urban spaces. Seminars on current planning issues in Hong Kong will be conducted to provide students with the most updated knowledge in the field. In addition, planning issues in major cities will also be covered to widen students' perspective on urban problems in the international context. Professionals in the field will be invited to deliver guest seminars to the students to provide students with up-to-date knowledge in the planning and development profession.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Group Project	70%	√	√	√	√	√	
2. Term Paper	30%	√		√		√	
Total	100%						

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

Students will be divided into teams to conduct one urban design project. The learning outcomes are assessed by means of group presentations and final report.

Students would discuss current planning issues in the term paper. They will comment on AI chatbots generated opinions and provide their own arguments with evidence.

Student Study Effort Required

Class contact:	
▪ workshops Group discussion/consultations	39 Hrs.
Other student study effort:	
▪ Readings	60 Hrs
▪ Self-study	60 Hrs.
Total student study effort	159 Hrs.

Reading List and References

Town Planning Board Annual Reports.

Birch, Eugenie Ladner (2009) *The Urban and Regional Planning Reader*, Routledge.

Levy, John M. (2009) *Contemporary Urban Planning*, Pearson/Prentice Hall.

Lai, Lawrence Wai-Chung (2000) *Town Planning Practice*, Hong Kong University Press.

Lai, Lawrence Wai-Chung (1996) Zoning and Property Rights: A Hong Kong Case Study, Hong Kong University Press.

Nissim, Roger (2008) *Land Administration and Practice in Hong Kong*, Hong Kong University Press.

Subject Description Form

Subject Code	BRE465
Subject Title	Asset Management
Credit Value	3
Level	4
Pre-requisite / Co-requisite / Exclusion	Nil
Objectives	To introduce the students to asset management industry where real estate as the investment asset; and to provide an insight into real-life environment in which asset managers work.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Relate investment theory and value creation to the practices of asset management firms. b. Identify different type of asset management model and investment objectives. b. Understand of analytical techniques and asset allocation strategies. c. Understand and appreciate regulatory and legal framework; the importance of corporate governance and corporate social responsibility.
Subject Synopsis/ Indicative Syllabus	*Strategic Asset Management* Model for determining Portfolio; Portfolio Optimisation; model for value creation. *Asset management industry and regulatory institutions*: the business nature and organization structure of asset management firms; the nature and size of risks in the business, who bears them and how they are financed; the alternative forms of investor protection and their associated costs and benefits.
Teaching/Learning Methodology	Lectures will be used to introduce theories and models, and seminars will be used for the discussion and understanding of the principle of asset management and its corporate environment.

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. Coursework	50%		√	√			
2. Examination	50%	√	√	√			
Total	100%						

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

The design of the coursework emphasise on the testing the students' understandings in relating investment theories to asset management practices and regulatory controls in the industry. All intended learning outcomes will be evaluated in the examination.

Student Study Effort Required

Class contact:	
▪ Lectures	26 Hrs.
▪ Tutorials	13 Hrs.
Other student study effort:	
▪ Readings / Coursework	80 Hrs.
Total student study effort	119 Hrs.

Reading List and References

Recommended:

Acharya, S. (2002), *Asset Management: Equities Demystified*, John Wiley & Sons, Ltd. England.

Baum, A., and Hartzell, D. (2011). Global Property Investment Strategies, Structures, Decisions. Chichester, West Sussex, Hoboken, NJ: Wiley-Blackwell.

Bosak, A., Mayer, B. and Vögel, H. (2007). *Real Estate Asset Management*. Vienna, Austria: Europe Real Estate Asset Management.

Gibson, R (2000). *Asset Allocation: Balancing Financial Risk*, McGraw Hill, New York.

Hughes, D. (2002). *Asset Management in Theory and Practice*, Financial World Publishing, U.K.

Supplemented:

Brown, K. and Reilly, F. (2009). *Analysis of Investment and Management of Portfolios (9th Edition)*, South-Western Cengage Learning, Canada.

Journal of Asset Management.
Journal of Portfolio Management.
Journal of Real Estate Portfolio Management.

Subject Description Form

Subject Code	BRE466
Subject Title	Capstone Project
Credit Value	6
Level	4
Pre-requisite	BRE366
Objectives	The aim of the Capstone Project is to provide students with the opportunity of demonstrating research competence by providing them with a vehicle through which they can reveal a full understanding and evaluation of an issue or a topic that they choose to investigate. The Project is in the form of a final year Dissertation, or any other format to be decided by the Scheme Committee from time to time. In the case of a Dissertation, the issue or the topic should be based on their programme, award or major, in studies relevant to the construction and real estate industry and of particular concern to Hong Kong and its neighbouring environments. The study might include an extensive literature review; the discovery, development or enhancement of a research model; the development of a measurement instrument, such as a questionnaire; or the comparison of statistical models for the evaluation of existing data. Where appropriate, students might join a departmental research group where they would be able to assist staff by working in a particular field of study. In cases other than the Dissertation, the format of the Project will be announced prior to its commencement.
Intended Learning Outcomes	Upon completion of the subject, students will be able to complete a capstone project. They should be able to: <u>Generally</u> a) display a culminating set of personal, academic and professional experiences/learning; b) synthesize, integrate and/or apply previous knowledge instead of solely acquiring new knowledge/skills; c) apply general education principles; d) engage in an interdisciplinary inquiry of at least two or more disciplines; <u>Specifically in the case of a final year Dissertation</u> e) produce a research proposal related to a topic in the field of construction and real estate; f) apply an appropriate research methodology to the chosen topic; g) conduct a critical and comprehensive literature review; h) analyse data and evaluate findings; i) communicate their ideas in a clear, concise and precise manner; and j) produce a dissertation that is based on their research and written in good English.
Subject Synopsis/ Indicative Syllabus	In the case of a final year Dissertation: (i) **Property Management and Surveying students** will identify a topic in the field of construction and real estate to study in depth in the final year. The Dissertations are grouped into a number of study areas

	within the research theme of the Department such as real estate investment and finance, land and construction economics, construction management and construction technology and science, and property and facilities management. (ii) **BEM students** will be advised to identify a topic in the field of Building Engineering and Management. The topic should be engineering-oriented or engineering related area in construction. The Dissertations are grouped into a number of study areas within the research themes of the Department such as construction technology and science, production engineering, production and contract management, engineering economics, construction quality in engineering works, application of information technology in the building industry, engineering materials, etc. Occasionally, if a student proposes a topic which is not within the context of engineering orientation, consideration and prior approval need to be sought from the BEM Programme Management Team.
Teaching/Learning Methodology	Academic leadership is provided by the Capstone Project Committee comprising Capstone Project Co-ordinators and Scheme Chair. The Committee is assisted by the supervisors who are BRE academic staff with research experience. In the case of final year Dissertation, each student will work under the guidance of a supervisor and, if necessary, a second supervisor may be appointed to assist in project supervision. The project supervision is timetabled for one hour per two weeks over the whole dissertation study period, but students are expected to devote about a day per week of their own time to carry out study and research work. Students are encouraged to formulate a testable hypothesis with theoretical model or justifications; carry out an empirical test on the hypothesis; and draw inference(s) on research and practical implications from the findings.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks in the case of final year Dissertation	% weighting					Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	f	g	h	i	j
1. Final Proposal	10 %	✓	✓			✓	✓	✓			
2. Progress and Efforts	10 %		✓				✓	✓	✓		
3. Reflective Journal	10%	✓	✓								
4. Completed Dissertation	70 %			✓	✓		✓	✓	✓	✓	✓
Total	100 %										

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

The assessment of each of the four tasks (Final Proposal, Progress and Efforts, Reflective journal and Completed Dissertations) will be made based on "Assessment Rubrics" that will be adopted and approved by the Dissertation Committee. The "Assessment Rubrics" will be made available for reference by both students and supervisors on the Dissertation Guide web-pages. The main criteria are underlined as listed below.

Final Proposal

The Final Proposal should include a problem statement, a preliminary literature review, the study's aim and objectives, an outline of the research methodology, means of data analysis, and a reference list.

(1) Problem Statement A concise and precise explanation of the problem that the research intends to address and an outline of the scope of study. This in effect provides the purpose of the study.

(2) Literature Review A summary of the relevant theories, research evidence, and descriptive materials bearing on the proposed research, including all information, published or otherwise, that aids in understanding and helps to explain the background to the research.

(3) Aim and Objectives Linking of the problem statement and literature review should be made through a precise statement of a research aim and a number of specific objectives. If a testable question (hypothesis) is to be used then this should be clearly stated. This section is a critical part of the research proposal because the aim and objectives need to be consistent with the purpose of the study.

(4) Research Methodology A statement describing the research design and data collection techniques must be provided. The description must be sufficiently detailed to permit an understanding of the proposed study without discussion with the student. If a questionnaire survey is to be conducted, a provisional questionnaire should be included. Sources of data and sampling technique should be identified along with any restrictions on confidentially and possible problems in data collection. The time

required for phases of the study should be specified.

(5) Data Analysis The way in which the data will be analyzed, including any statistical analysis, should be outlined. If a non-standard form of data analysis is to be used, justification should be given. If computer programs are to be used, they should be identified.

(6) Reference and Bibliographic List Students are recommended to use the Harvard referencing system. Alternatively, students can refer to the Student Handbook for other referencing systems, provided that consistency is adhered to.

Progress and Efforts

During the progress of the research, the student and Supervisor will meet for consultation. It is the responsibility of students to arrange meetings with their supervisors in order that they may report and discuss their progress. It is expected that students devote sufficient time to the Dissertation bearing in mind the requirements outlined in the subject syllabus.

Discussions with Supervisors are essential to explore the challenges faced by the student as they learn about the research topic through the research process. Thus, students are required to produce evidence of their work at their meetings with their Supervisors, so that the problems encountered can be shared and solved together.

Reflective Journal

A reflective journal is a means for students to express their ideas, personal thoughts, perspectives and experiences gained in the learning process of completing the capstone project. Through the self-reflection, it intends to enhance the development of deep and critical thinking skills when they relate their knowledge to real world issues. Students are expected to demonstrate the developmental learning process and their personal growth.

Assessment Pro-forma for "Proposal, Progress and efforts and Reflective Journal" (weighted 30% towards the overall grade)

Element	Criteria	Weighting
Final Proposal	Adequacy, structure, clarity, originality, length	10%
Progress Report	Consultations, diligence, enthusiasm, planning	10%
Reflective Journal	Comprehensiveness, criticality, demonstration of self-learning experience	10%
	Total	**30%**

Completed Dissertation

The Dissertation should include a declaration, an abstract, an introduction, aim and objectives, methodology, literature review, data collection, analysis, and conclusions.

For the purpose of criterion-based assessment, the assessment of the completed Dissertation is divided into six elements, i.e. presentation, aim and objectives, research methodology, literature review, data collection and analysis, conclusions and findings, with a corresponding weighting.

(1) Aim and Objectives A re-statement of the aim and objectives in the Final Proposal (may be included in the Introduction).

(2) Methodology A clear statement of the planned research methods, as well as reporting of any ways in which the original methodology was modified as a result of constraints imposed in actually conducting the research. Some writers included this in the Introduction.

(3) Literature Review The literature search should be fully described showing the keywords and scientific databases used. A strong emphasis should be placed on refereed journal papers which can provide evidence of existing knowledge of the selected topic, obtained through scientific methods. The review should not only describe relevant theories, previous research, and descriptive material that have a bearing on the study, but also evaluate its worth. Evidence of independent analysis of the available literature should also be demonstrated. A basis for the chosen research topic should be established.

(4) Data Collection This section should provide a clear and objective picture of the way in which the data was collected, including identification of any problems encountered and an explanation of the outcome obtained. The data should be summarized and presented in an appropriate form, such as tables and graphs, and not be evaluated or interpreted. Although some writers include analysis of the data in this section, others prefer to cover it separately.

(5) Analysis This section should include the analysis and interpretation of the results of the research. The discussion should explain the degree to which the research objectives were achieved, the possible reasons for non-attainment of some objectives, the ways in which the theories did or did not help to examine the problem, and an evaluation of the research results. In many reports, this section is the most important and often the longest in terms of words.

(6) Conclusions The conclusions or outcomes of the study should be presented in this section. Included should be the major results that the study has achieved, identification of unanswered questions and directions for further study, speculation about the importance of the findings to the body of knowledge in the construction and real estate fields and any other related items that the student wishes to emphasize.

Assessment Pro-forma for "Completed Dissertation" (weighted 70% towards the overall grade)

Element	Criteria	Weighting
Presentation	Syntax, clarity, conciseness, preciseness, structure, aesthetics, graphics, length	10%
Aim and Objectives	Appropriateness and accomplishment of stated aim and objectives, accuracy of application	5%
Research Methodology	Appropriateness, achievability, planning of research design, comprehensiveness, description	15%
Literature Review	Relevant parameters, adequate depth and breadth, accuracy, citations and references	15%
Data Collection and Analysis	Relevancy, accuracy, adequacy, coherence of data analysis, logicality of interpretation	15%

Conclusions and Findings	Validity, logicality, substantiveness, originality, degree of critique, new ideas or models	10%
	Total	**70%**

Academic integrity of assessment tasks

The materials submitted for all the assessment tasks must be the student's own work. The submitted work may not be accepted for the purpose of assessment if its authenticity is questionable. Submitting GenAI-generated materials as students' own work or part of their work is an act of academic dishonesty. Students who are found committing academic dishonesty will face disciplinary actions.

Students shall acknowledge PolyU's stance and follow the guidelines for using GenAI in this assessment: (https://www.polyu.edu.hk/ar/docdrive/polyu-students/Student-guide-on-the-use-GenAI.pdf).

Student Study Effort Required	Class contact:	
	▪ Guided study	10 Hrs.
	Other student study effort:	
	▪ Independent study	260 Hrs.
	Total student study effort	270 Hrs.
Reading List and References	**Essential:** HKPolyU Building and Real Estate Department. *Dissertation Guide*. Continuously updated. **Recommended:** Bell, J. (1993) *Doing Your Research Project*, Open University Press. Blaikie, N (2000) *Designing Social Research: The Logic of Anticipation*. Cambridge: Polity. Booth, W.C., Colomb, G.G. and Williams, J.M. (2003) *The Craft of Research*, 2nd ed. Chicago: The University of Chicago Press. Chau K.W., Raftery J. and Walker A. (1998) The Baby and the Bathwater: Research Methods in Construction Management. *Construction Management and Economics*, 16:1, 99-104 Ewing, Reid H., and Park, Keunhyun (2020) *Basic quantitative research methods for urban planners*, New York, NY : Routledge. Fellows R. and Liu A. (2015) *Research Methods for Construction*, New York: John Wiley & Sons, Incorporated. Harris R. and Cundell I. (1995) Changing the Property Mindset by Making Research Relevant. *Journal of Property Research*, 12, 75-78. Holt G. (1998) *A Guide to Successful Dissertation Study for Students of the Built Environment, 2nd edition*. The Built Environment Research Unit, University of Wolverhampton. Hussey, J. and Hussey, R. (2003) *Business Research: A Practical Guide for Undergraduate and Postgraduate Students, 2nd Edition*. Basingstoke: Palgrave Macmillian, England. Kennedy, P. (2003) *A Guide to Econometrics, 5th Edition*, USA: Blackwell Publishing. Knight, A. and Ruddock, L. Ed. (2008) *Advanced Research Methods in the Built Environment.* Chichester: Wiley-Blackwell.	

Kumar R. (1996) *Research Methodology: A Step-by-Step Guide for Beginners*. Addison Wesley Longman.

Levitt, R.E. (2007) CEM Research for the Next 50 Years: Maximizing Economic, Environmental, and Societal Value of the Built Environment. *Journal of Construction Engineering and Management*, 133:9, 619-28.

Levin R.I. and Rubin D.S. (1998) *Statistics for Management, 7th edition,* Prentice-Hall.

Lizieri C. (1995) Comment: Relevant Research and Quality Research: the Researcher's Role in the Property Market. *Journal of Property Research*, 12, 163-66.

Lucey T. (1992) *Quantitative Techniques ELBS.*

Mason, J (2002) *Qualitative Researching*. London: Sage.

Naoum S.G. (1999) *Dissertation Research and Writing for Construction Students*, Butterworth-Heinemann.

Pindyck, R.S. and Rubinfeld, D.L. (1998) *Econometric Models and Economic Forecasts, 4th Edition,* Boston: McGraw-Hill International Editions.

Raftery J., McGeorge D. and Walters M. (1997) Breaking Up Methodological Monopolies: A Multiparadigm Approach to Construction Management Research. *Construction Management and Economics*, 15:3, 291-97.

Render, B. and Stair, R.M. Jr (2000) *Quantitative Analysis for Management, 7th Edition*. Prentice Hall, New Jersey.

Tan, W. (2002) *Practical Research Methods*. Pearson Education Asia Pte Ltd., Singapore.

Walliman, N. (2018) *Research methods: the basics*, Abingdon, Oxon : Routledge; Second edition.

Subject Description Form

Subject Code	BRE469
Subject Title	Integrated Professional Workshop III
Credit Value	3
Level	4
Pre-requisite	BRE369
Objectives	*This subject is intended to:* • Encourage the critical investigation, analysis and synthesis in solving problems in a multi-disciplinary surveying professional context • Provide a platform for the students in different surveying disciplines to comprehend the essential knowledge of their partnering surveying disciplines • Promote the students' understanding of the interdisciplinary nature of the surveying professions and enhance knowledge integration across different surveying disciplines • Cultivate social responsibility, professional ethics and the awareness of trends and opportunities in the surveying professions. • Facilitate the students to develop lifelong learning skills for professional and personal development.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a) Understand how to integrate subject content and apply it to practical scenarios b) Be aware of the value of teamwork as an approach to tackle a project and solve problems c) Apply knowledge and skills of different surveying professions to solve problems in a multi-disciplinary professional context d) Be aware of issues, policies and trends relating to the broader professional practice and the society e) Identify needs for self-learning and use lifelong learning skills for learning autonomously
Subject Synopsis/ Indicative Syllabus	BRE269, BRE369 and BRE469 are integrated with different levels of complexities. They are provided as a means to let the surveying students to learn and apply knowledge covering the five surveying disciplines (BS, GP, PDD, FPM and QS). Students will be equipped with the essential core knowledge of surveying disciplines, other than the one they shall choose to specialize in. The course will be delivered through a mix of seminars, project work and student-centered learning. **Multi-discipline Seminars** A series of seminars will be set to bridge across the professional knowledge of students in different surveying disciplines so as to give them an all-round training in the surveying profession. They will be given problem-based assignments and asked to attend seminars so as to equip themselves with the knowledge base and professional

skills to identify and solve the problems. Practitioners in the surveying-related professions may be invited to deliver up-front professional knowledge to the students.

Multi-discipline Project work

A series of construction and property related project scenarios will be set to integrate the knowledge of different surveying disciplines. The project will be designed to link as many of the individual subjects as possible into a common theme. They will study and undertake project work as a surveyor trainee under supervision in the surveying profession. The projects will also provide a team work opportunity for the students to simulate the actual work environment in a multi-disciplinary professional or industrial setting. The projects will be delivered by a team of lecturers drawn from the surveying profession so as to ensure the students can have an all-round training in the surveying profession.

Student-centered learning

A set of assignments will be delivered to the students to undergo research on specific subject areas that enhance their learning abilities in different surveying disciplines. In addition to seminars, students are expected to undertake guided study through web-based self-learning. They will be required and encouraged to take extra efforts to study subjects beyond their chosen surveying disciplines to acquire the minimum core competence of the five surveying disciplines.

Teaching/Learning Methodology

The project component "P" adopts a holistic approach. Students will form interdisciplinary team to share, integrate and apply knowledge. The seminars and student centred learning component "S" is designed for students to acquire the core competence for surveying disciplines in addition to their own choice of discipline.

The core competence areas related to different surveying disciplines are listed in the first column. Students are grouped accordingly to their choice of progression pattern. The second column "QS" shows that a QS student will acquire the core competence of GP, PDD and PFM. Similar interpretations will apply in the cases of BS, GP and PDD students.

	Student Group Base on the choice of discipline			
QS				
Construction economics	P	P	P/S	P/S
Contract documentation, measurement & estimating	P	P	P/S	P/S
Construction contract law & administration	P	P	P/S	P/S
Construction technology & structure	P	P	P/S	P/S
Cost & value management	P	P/S	P/S	P/S
Dispute resolution	P	P/S	P/S	P/S
BS				
Maintenance technology & management	P	P	P	P
Building ordinance and related legal aspects	P	P	P	P
Construction technology & structure	P	P	P/S	P/S
Building economics and contract administration	P	P	P/S	P/S
Facility management	P/S	P	P/S	P/S
Design, adaptation and conversion	P/S	P	P/S	P/S
GP				
Property valuation	P/S	P/S	P	P
Property investment and finance	P/S	P/S	P	P/S
Property management and accountancy	P/S	P/S	P	P
Legal Studies: Sales and lettings of land and buildings	P/S	PS	P	P
Urban economics and real estate development	P/S	P/S	P	P/S
Business appraisal and asset management	P/S	P/S	P	P/S
Planning and development (PDD)				
Urban planning	P/S	P/S	P/S	P

Property investment and finance	P/S	P/S	P	P
Property development appraisal	P/S	P/S	P/S	P
Business appraisal and accountancy	P/S	P/S	P	P
Urban economics and real estate development	P/S	P/S	P	P
Transportation and environmental impact and assessment	P/S	P/S	P/S	P/S
Property and facility management (PFM)				
Property asset management	P/S	P/S	P	P
Corporate real estate	P/S	P/S	P	P
Project management	P	P	P	P
Property management	P/S	P	P	P

Note:
P: Professional Projects
S: Seminars / Student centre-learning activities

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
Coursework	100 %	√	√	√	√	√	
Total	100 %						

Student Study Effort Required	Class contact:	**Student Study Effort Required**
	▪ Lecture	2 Hrs.
	▪ Tutorials	13 Hrs.
	Other student study effort:	
	▪ Project	75 Hrs.
	▪ Independent Self-study	65 Hrs.
	Total student study effort	155 Hrs.

Reading List and References	To be assigned by participating lecturers of various subjects under the BRE Scheme.

Subject Description Form

Subject Code	BRE470
Subject Title	Information Technology and Building Information Modelling for Construction
Credit Value	3
Level	4
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject is intended to develop an understanding of the practical application of computer systems and packages in building life cycle process and the application of building information modelling (BIM) in construction.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. understand and demonstrate knowledge of building life cycle process. b. understand and demonstrate knowledge of the application of computer systems, BIM, Artificial Intelligence (AI), and Big Data analytics in various procurement stages of a building project. c. appraise commercially available and tailor-made computer packages and BIM application in building life cycle process.
Subject Synopsis/ Indicative Syllabus	The process of building life cycle. Identifying the benefits of construction IT/ BIM applications. Understanding core values of BIM, and its applicability in construction practice. The appraisal of IT/BIM systems in design, cost planning, procuring, project management and facility management. Understanding the fundamental theories behind AI and Big Data analytics, and existing tools. Exploring the use of AI and Big Data analytics in various construction applications. Exploring the extended use of BIM by combining it with AI and Big Data analytics.

<table>
<tr><td>Teaching/Learning Methodology</td><td>Lectures and tutorials will be run throughout the semester period. A lecture schedule outlining the topics to be covered will be distributed to students in the first lecture of the semester. During the tutorials, students will be required to assess and use various IT/BIM tools (e.g., Revit, Navisworks, AI/Big Data analytics packages) and to prepare group assignments.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (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. Individual Assignments (Tutorials)</td><td>20%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>2. Focus Study Report (Group project)</td><td>30%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>2. 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:

Coursework and examination will each constitute 50% of the overall assessment for the subject. The coursework mark will be based on the individual assignments and one group project (i.e., a focus study on potential applications of IT systems, BIM, AI, and Big Data analytics to solve existing practical problems during the life cycle of the building projects).

The examination will be based on a 2 hours examination gearing towards the materials covered in the lecture periods and background readings. Coursework by assignment and group projects will be set to assess the students' abilities and skills required in this subject.
</td></tr>
<tr><td>Student Study Effort Expected</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorials / Laboratory sessions</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self learning and recommended reading</td><td>90 Hrs.</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Total student study effort</td><td>129 Hrs.</td></tr>
</table>
</td></tr>
<tr><td>Reading List and</td><td>ASCE Journal of Computing in Civil Engineering (http://www.asce.org).</td></tr>
</table>

References	*Automation in Construction*. An International Research Journal. (http://*www.elsevier.com/locate/autocon).* Bryde, D., Broquetas, M. and Volm, J.M. (2013). *The Project Benefits of Building Information Modelling (BIM)*, International Journal of Project Management, Volume 31, Number 7, pp. 971-980. Construction Industry Council (2014/15), Roadmap / Standard for Building Information Modelling in Hong Kong's Construction Industry. Eastman, C., Eastman, C.M., Teicholz, P., Sacks, R. and Liston, K. (2011). BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors, John Wiley & Sons. Electronic Journal of Information Technology in Construction (http://*www.itcon.org).* Azhar, S. (2011). Building information modeling (BIM): Trends, benefits, risks, and challenges for the AEC industry. Leadership and management in engineering, 11(3), 241-252. Gu, N., & London, K. (2010). Understanding and facilitating BIM adoption in the AEC industry. Automation in construction, 19(8), 988-999. Darko, A., Chan, A. P., Adabre, M. A., Edwards, D. J., Hosseini, M. R., & Ameyaw, E. E. (2020). Artificial intelligence in the AEC industry: Scientometric analysis and visualization of research activities. Automation in Construction, 112, 103081. Bilal, M., Oyedele, L. O., Qadir, J., Munir, K., Ajayi, S. O., Akinade, O. O., ... & Pasha, M. (2016). Big Data in the construction industry: A review of present status, opportunities, and future trends. Advanced engineering informatics, 30(3), 500-521.

Subject Description Form

Subject Code	BRE471
Subject Title	Advanced Property Management
Credit Value	3
Level	4
Pre-requisite	BRE341 or BRE371 or its equivalent
Objectives	1. To stimulate the students in tackling practical property management issues. 2. To enhance the abilities of the students in the interpretation of relevant legislations and guidelines that related to property management. 3. To analyze property management standards of selected regions.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Evaluate the concepts, tools and techniques of property management operations. b. Apply current legislative measures which affect property management in maintenance, usage and taxation cases. c. Apply the techniques of property management to solve complex management problems in both private and public sectors. d. Explore the sources of conflicts between different types of stakeholders within the economic and social environment and their remedies. e. Possess knowledge of contemporary issues.
Subject Synopsis/ Indicative Syllabus	Legal framework of property management: Building Management Ordinance, Landlord and Tenant (Consolidation) Ordinance and Deed of Mutual Covenant. Financial framework of maintenance and capital expenditure for different types of building works, service and management charge implementation and analysis. Application of conflict management and human resources management to property management tasks and the development of property performance measurement systems. Wherever possible, case studies will be used to illustrate how management principles can be applied into property management practice.
Teaching/Learning Methodology	Teaching will utilize problem based learning approach. Lectures will provide basic concepts to enhance students in future research. Tutorial sessions will be used to underpin and develop the learning established in the lecture by workshops on practical issues and seminars on key themes. Outside speakers will be invited to give talks on current property management practices in Hong Kong as well as other countries.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Coursework	30 %	✓	✓	✓	✓	✓	
2. Examinations	70 %	✓	✓	✓	✓	✓	
Total	100 %						

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

Students will be assessed through both coursework and examination.
Coursework will consist of 1 term paper and problem solving assignments.

Both examination and coursework assess learning outcome a to e.

Student Study Effort Expected

Class contact:	
▪ Lectures	26 Hrs.
▪ Tutorials	13 Hrs.
Other student study effort:	
▪ Self-studies	81 Hrs.
▪	Hrs.
Total student study effort	120 Hrs.

Reading List and References

Reading List:

Recommended:

Buildings Department (2002), “Building Maintenance Guidebook”, Hong Kong SAR Government

Chiu, L.H.R. (2006), Professional Housing Management in Hong Kong, Hong Kong University Press

Dunlap N. (2018) Principle of Real Estate Management, Institute of Real Estate Management, Chicago, IL, Seventeenth edition.

Goo, S.H., and Lee, A., (2003) Land Law in Hong Kong, Butterworths

Malcolm Merry (2003), “Hong Kong Tenancy Law”, Butterworths

Mau, S.D., (2006), Hong Kong Legal Principles: Important Topics for Students and Professionals, Hong Kong University Press

Paul Kent, Malcolm Merry and Megan Walters (2002), “Building Management in Hong Kong”, Butterworths

	Robert C. Kyle (2000), “Property Management”, 6e, Dearborn Financial Publishing Sihombing, J., and Wilkinson, M., (2002) A Student’s Guide to Hong Kong Conveyancing, Butterworths **Essential:** "Chapter 626 of the Laws of Hong Kong". Hong Kong e-Legilsation. Retrieved 15 April 2020. “Deed of Mutual Covenant and Owners' Corporation". The Community Legal Information Centre operated by the Law & Technology Centre of the University of Hong Kong. Retrieved 15 April 2020. "Licensing Regime Consultation". Property Management Services Authority. Retrieved 15 April 2020. **Supplementary:** Geltner, D and Miller, N. G. (2001), “ Commercial Real Estate Analysis and Investment”, Prentice Hall Joseph W. DeCarlo, (1997), “Property Management”, Prentice Hall. Corgel, John B. (2001), “Real Estate Perspectives: An Introduction to Real Estate”, 4e, McGraw-Hill David Flux, (2005), “Hong Kong Taxation: Law & Practice (2008-09 Edition)”, The Chinese University Press

Service Teaching:

AMA1110	Basic Mathematics I – Calculus and Probability & Statistics
AMA290	Engineering Mathematics
APSS118	Self Understanding and Communication Skills
APSS4533	Health and Society
CLC3231P	Chinese Communication for Construction and Land Use
CSE20290	Introduction to Geotechnology
ELC3421	English for Construction and Environmental Professionals
LSGI2961	Engineering Surveying

Subject Description Form

Subject Code	AMA1110
Subject Title	Basic Mathematics I – Calculus and Probability & Statistics
Credit Value	3
Level	1
Pre-requisite	Nil
Objectives	This subject aims to introduce students to the basic concepts and applications of elementary calculus and statistics. Emphasis will be on the understanding of fundamental concepts and the use of mathematical techniques in handling practical problems in science and engineering.
Intended Learning Outcomes *(Note 1)*	Upon completion of the subject, students will be able to: (a) apply analytical reasoning to solve problems in science and engineering; (b) make use of the knowledge of mathematical/statistical techniques and adapt known solutions to various situations; (c) apply mathematical modeling in problem solving; (d) demonstrate abilities of logical and analytical thinking.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	Elementary calculus: Limit and continuity, derivatives and their geometric meaning, rules of differentiation including chain rule, Leibniz's rule and L'Hopital's rule, exponential and logarithmic functions, trigonometric functions and their inverses, hyperbolic and inverse hyperbolic functions, applications of differential calculus. Elementary Probability and Statistics: Descriptive statistics, random variables, probability and probability distributions, binomial, Poisson and normal distributions, applications. Population and random samples. Sampling distributions related to sample mean, sample proportions, and sample variances. Concepts of a point estimator and a confidence interval. Point and interval estimates of a mean and the difference between two means.
Teaching/Learning Methodology *(Note 3)*	Basic concepts and elementary techniques of differential and integral calculus, elementary statistics and linear algebra will be taught in lectures. These will be further enhanced in tutorials through practical problem solving.

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
1.Homework, quizzes and mid-term test	40%	✓	✓	✓	✓
2. Examination	60%	✓	✓	✓	✓
Total	100 %				

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

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

To pass this subject, students are required to obtain grade D or above in both the continuous assessment and the examination components.

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

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

Student Study Effort Expected

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

Reading List and References	Chung, K.C. *A Short Course in Calculus and Matrices*, McGraw Hill 2013 Hung, K.F., Kwan, Wilson, Pong, T.Y. *Foundation Mathematics & Statistics*, McGraw Hill 2013 Larson, R., Edwards, B. *Single Variable Calculus*, Brooks/Cole 2012 Walpole, R.E., Myers, R.H., Myers, S.L. Ye, K. *Probability and Statistics for Engineers and Scientists*, Prentice Hall, 2012

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.

Subject Description Form

Subject Code	AMA290
Subject Title	Engineering Mathematics
Credit Value	3
Level	2
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	The subject aims to introduce students with some fundamental mathematical concepts. The emphasis will be on application of mathematical methods to solving practical problems in the construction industry.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: 1. apply knowledge of Vector Calculus to solve problems in Engineering Mathematics; 2. apply knowledge of Linear Algebra to solve problems in Engineering Mathematics; 3. apply algorithms to solve for simple Linear Programming problems; 4. apply the idea of partial derivatives and Lagrange Multiplier to solve for constrained optimization problems.
Subject Synopsis/ Indicative Syllabus	*Linear Algebra:* Matrices and determinants; Vectors; Systems of linear equations; General properties of solutions; Elimination methods; Ill-conditioned systems; Eigenvalues and eigenvectors; Applications. *Functions of several variables:* Partial derivatives; Maxima, minima and saddle points; Lagrange multiplier; Application to error estimates. *Linear Programming:* Formulation; Graphical solution; Simplex method; Parametric modelling.
Teaching/Learning Methodology	The subject will be delivered mainly through lectures, tutorials and presentation. The lectures aim to provide the students with an integrated knowledge required

<table>
<tr><td></td><td>for the understanding and application of mathematical concepts and techniques. To develop students' ability for logical thinking and effective communication, tutorial and presentation sessions will be held.</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>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>a. Assignment and a Mid-term Test</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>b. 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>
Continuous Assessment comprises of assignments and a Mid-term Test. A written examination is held at the end of the semester.
Questions used in assignments, tests and examinations are set to test students' ability with regard to any one of the intended learning outcomes.
To pass this subject, students are required to obtain Grade D or above in <u>both</u> the Continuous Assessment and the Examination components.
</td></tr>
<tr><td>Student Study Effort Required</td><td>
<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture</td><td>26 Hrs.</td></tr>
<tr><td>▪ Tutorial and Student Presentation</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Assignment</td><td>20 Hrs.</td></tr>
<tr><td>▪ Self-study</td><td>58 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>117 Hrs.</td></tr>
</table>
</td></tr>
</table>

Reading List and References	Textbook:		
	Chan, C.K., Chan, C.W. & Hung, K.F.	Basic Engineering Mathematics	McGraw Hill 2013
	References:		
	Taha, H.A.	Operations Research - An Introduction 9th edition	Prentice Hall 2011

Subject Description Form

<table>
<tr><td>Subject Code</td><td>APSS118</td></tr>
<tr><td>Subject Title</td><td>Self Understanding and Communication Skills</td></tr>
<tr><td>Credit Value</td><td>3</td></tr>
<tr><td>Level</td><td>1</td></tr>
<tr><td>Pre-requisite / Co-requisite/ Exclusion</td><td>Nil</td></tr>
<tr><td>Assessment Methods</td><td>
<table>
<tr><td>100% Continuous Assessment</td><td>Individual Assessment</td><td>Group Assessment</td></tr>
<tr><td>1. Participation and Performance in Classroom</td><td>25 %</td><td>--</td></tr>
<tr><td>2. Practice Skills Test and Exercises</td><td>25 %</td><td>--</td></tr>
<tr><td>3. An Autobiography: “My Growing-up Experiences”</td><td>25 %</td><td>--</td></tr>
<tr><td>4. Term Essay: “Self Reflection Exercise”</td><td>25 %</td><td>--</td></tr>
</table>

The grade is calculated according to the percentage assigned;
Student must pass the all assessment component(s) if he/she is to pass the subject.

</td></tr>
<tr><td>Objectives</td><td>The subject aims to enable students to initiate a process of self-understanding and self-awareness, and to develop interpersonal communication skills essential to social work/ human service practitioners.</td></tr>
<tr><td>Intended Learning Outcomes</td><td>Upon completion of the subject, students will be able to:
a. reflect and gain insights into early life experiences so that direction for further personal growth can be developed;

b. increase self-understanding of personal strengths and weaknesses, value stance (particularly on social controversy such as homo-sexuality and intimacy issues), philosophy of life, career aspiration and life goals);

c. achieve self-acceptance, and develop positive “self-concept” based on multifaceted self-evaluations of various attributes, and overall life learning and growth experiences in an ever-changing modern society (i.e. dynamic linking and integration of individual, familial, socio-economic, political and contextual influences);

d. identify with the humanistic orientation in helping profession, and develop the core conditions and techniques in establishing relationships with the service users, and other caring or human service professionals;</td></tr>
</table>

	e. apply knowledge and skills of communication in daily life and human service setting.
Subject Synopsis/ Indicative Syllabus	1. Experiential Learning: As a contrast to the didactic learning approach used in lectures, students will learn from their experience through participation and interaction in small group. Instructional components will also be integrated with the experiential components to clarify concepts/ theories related to self-understanding and communication. 2. Process and Pattern of Human Communication: To understand the elements of communication process and enhance sensitivity in observing and using both verbal and non-verbal communication; 3. Value Clarification: By drawing upon students' own life and work experiences, they can understand better their own value stances and personal feelings, especially on social controversial issues (e.g. gender, homosexuality and intimacy issues). In this way, students are likely to be in a better position to understand and respect the persons with whom they are working; 4. Self-understanding: To initiate a process of multi-dimensional self-exploration by enabling students to reflect upon their past behaviors and experiences; to understand how social determinants (such as class, gender, age, culture, cohort, ethnicity and ideologies subscribed, sexual orientation, religion, etc) have been constituting oneself; to assess their own strengths and weaknesses; to acquire greater self-awareness and to develop a realistic and positive self-concept (including the ideal, dynamic, rational and social self, etc); 5. Relationship: To understand the core conditions of warmth, genuineness, empathy, concreteness, and to develop ability to self-disclose at appropriate times and situations in order to develop effective helping relationships; 6. Interpersonal Communication Skills: To understand and acquire the basic skills of communication, including effective attending behavior, listening and questioning techniques, encouragement, paraphrasing, reflection of feelings, summarization, refocusing, self-assertion and appropriate use of self.
Teaching/Learning Methodology	This subject adopts "the small-group learning approach" in order to maximize students' participation, interaction and learning effectiveness. The language of instruction is Chinese in order to facilitate culturally appropriate skills training. Interactive Lectures and Experiential Learning Interactive lectures are given to impart knowledge about the experiential learning perspective, self-concept and self-development, concepts and process of human communication, nature and core conditions of an effective caring and helping relationship. Using the experiential learning model, students will be guided to undertake simulation exercises, sharing, discussion and role plays. Skills Training Laboratory Students are guided to practice a host of communication skills by engaging in role plays and debriefing. The role plays will be recorded and critically reviewed to foster students' competence in providing constructive comments for skills improvement. Videos, case

illustrations and live demonstration conducted by the subject teachers will also be used.

Classroom Exercises and Home Assignments
Students are required to complete classroom exercises, and conduct sharing and discussion on specific topics related to self-understanding and communication (e.g. value clarification exercises and sharing of growing up experiences, etc). To further consolidate classroom learning, students are required to finish simple home assignments (e.g. "Defining and Accomplishing My Learning Goals in This Subject").

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)				
		a	b	c	d	e
1. Participation and Performance in Classroom Learning Activities	25 %	✓	✓	✓	✓	✓
2. Practice Skills Test and Exercises	25 %				✓	✓
3. An Autobiography: "My Growing Up Experiences"	25 %	✓	✓	✓		
4. Term Essay: "Self Reflection Exercise"	25 %		✓	✓	✓	✓
Total	100 %					

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

1. Participation and performance in classroom learning activities
   Students are assessed on their attendance, fulfillment of responsibility in learning, contribution to sharing and discussion, openness to new ideas and comments. It also assesses the students' ability in giving feedback to group members, teamwork, leadership and critical thinking;

2. Practice skills test and exercises
   Students need to show their knowledge and competence in applying a range of communication skills in a series of role plays, and in an integrative exercise (i.e. a test on communication skills) which will be recorded;

3. An Autobiography: "My Growing Up Experiences"
   Students are assessed on their ability in undertaking critical reflection on their growing up experiences, and readiness to pursue further personal growth and professional development;

4. Term essay: "Self Reflection Exercise"
   Students are assessed on their ability in reflecting, summarizing and articulating their learning experience in this subject, and transfer classroom learning to everyday life (e.g. social and work settings).

Student Study Effort Expected	Class contact:	
	▪ Interactive Lecture	39 Hrs.
	Other student study effort:	
	▪ Revision and Self-study	50 Hrs.
	▪ Viewing audio-visual materials on communication skills	31 Hrs.
	Total student study effort	120 Hrs.

Reading List and References

Essential References

Brammer, L.M. (2003). *The helping relationship: process and skills*. Boston: Allyn & Bacon.

Corey, G., Corey, M.S. & Muratori, M.C. (2018*). I never knew I had a choice: explorations in personal growth* (11th ed.). Boston, MA: Cengage Learning.

Hargie, O. (2019). *The handbook of communication skills* (4th ed.). London: Routledge.

Supplementary References

Egan, G. (2007). *Exercises in helping skills: A manual to accompany the skilled helper* (8th ed.). California: Brooks/ Cole.

Ivey, A.E., Ivey, M. B., & Zalaquett, C. P. (2016). *Essentials of intentional interviewing: Counseling in a multicultural world* (3rd ed.). Boston, MA: Cengage Learning.

Lloyd, S. R. (2002). *Developing positive assertiveness* (3rd ed.). Menlo Park, Calif.: Crisp Learning.

Morrison, P., & Burnard, P. (1997). *Caring and communicating: The interpersonal relationship in nursing* (2nd ed.). Basingstoke [England]: Palgrave.

Okun, B. F., & Kantrowitz, R. E. (2015). *Effective helping: interviewing and counselling techniques* (8th ed.). Cengage Learning.

Palladino, C. (1994). *Developing self-esteem: a guide for positive success* (Revised ed.). Menlo Park, CA: Crisp Publications.

Robbins, S.P., & Hunsaker, P.L. (2012). *Training in interpersonal skills: tips for managing people at work* (6th ed.). Pearson/ Prentice Hall.

李燕、李浦群（譯）（1998）。*人際溝通*。台北：揚智文。 胡新和、唐熱

鳳（譯）（1994）。*溝通技巧*。香港：商務印書館。

黃惠惠（1996）。*自我與人際溝通*。台北：張老師文化事業股份有限公司。

Subject Description Form

<table>
<tr><td>Subject Code</td><td>APSS4533</td></tr>
<tr><td>Subject Title</td><td>Health and Society</td></tr>
<tr><td>Credit Value</td><td>3</td></tr>
<tr><td>Level</td><td>4</td></tr>
<tr><td>Pre-requisite / Co-requisite/ Exclusion</td><td>Pre-requisite : APSS3230 Theories of Social Policy

Exclusion : APSS4522 Health Policy</td></tr>
<tr><td>Assessment Methods</td><td>
<table>
<tr><td>100% Continuous Assessment</td><td>Individual Assessment</td><td>Group Assessment</td></tr>
<tr><td>1. Presentation</td><td>40%</td><td>--</td></tr>
<tr><td>2. Final term paper</td><td>60%</td><td>--</td></tr>
</table>

The grade is calculated according to the percentage assigned;
The completion and submission of all component assignments are required for passing the subject; and
Student must pass the specific component(s) (standard of passing) if he/she is to pass the subject.

</td></tr>
<tr><td>Objectives</td><td>The subject aims to:

1. Introduce students about the relationship between health and a society’s social and cultural value system

2. Sensitize students about how the concepts of health and health structure of a society is to be correlated with political, social, cultural, and economic factors of a society

3. deepen students’ understanding of the social and cultural environment and its consequences for health beliefs, illness behaviours, and health care.</td></tr>
<tr><td>Intended Learning Outcomes</td><td>Upon completion of the subject, students will be able to:

a. Show a thorough understanding on the individual, social and cultural determinants of health

b. demonstrate an understanding of the social and cultural environment and its consequences for health beliefs, illness behaviors, and health care

c. use different sociological perspectives in the analysis of various issues associated with healthcare</td></tr>
</table>

Subject Synopsis/ Indicative Syllabus

1. The social construction of health, medical knowledge, and illness
2. Health inequality: health and disease in relation to social class and race
3. Health and disease in relation to gender: the diseased body and regulation of bodies
4. Medicalization and social control on health and bodies
5. Disease-associated stigma and discrimination
6. Complexity of health policy with other social policies
7. Choice of remedies and medical systems
8. Sick role
9. The social construction of health care as professionals
10. McDonaldization of health care

Teaching/Learning Methodology

A mixture of formal lectures and interactive presentations will be adopted in this subject. Active learning is emphasized. Students are expected to participate actively in class and in presentation. Students should plan and take responsibility for self-study, including the reading of books, articles, and reports relevant to the subject to prepare for the class and presentation.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c			
1. Presentation	40 %	✓	✓	✓			
2. Final term paper	60%	✓	✓	✓			
Total	100 %						

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

In this subject, students have to work in a final term paper and present their findings in the form of presentations. The presentation and final term paper topics are of students' choice, and should be related to socio-cultural aspects of health in Hong Kong. The assessment criteria include the appropriate application of theories and concepts, and critical thinking and analytical skills.

The assessment methods are appropriate in assessing the intended learning outcomes of this subject.

Student Study Effort Expected

Class contact:	
▪ Lectures	36 Hrs.
▪ Presentations	3 Hrs.
Other student study effort:	
▪ Post-lecture revision	15 Hrs.

	▪ Preparation for presentation	25 Hrs.
	▪ Preparation for final term paper	40 Hrs.
	Total student study effort	119 Hrs.
Reading List and References	<u>Essential</u> Baer, H.A, Susser, I., and Merril, S. (1997). Medical Anthropology and the World System: A Critical Perspective. Bergin and Garvey. Cockerham, W.C. (2013). Medical Sociology. Pearson Education. Gabe, J.; Bury, M., & Elston, M.N. (2004). *Key concepts in medical sociology*. London: Sage. Weitz, R. (2017). 7th Edition. The Sociology of Health, Illness, and Health Care – A Critical Approach. Boston, USA: Cengage Leaning. <u>Supplementary</u> Chan, C.Y.Z. (Ed.) (2009). *Health issues in Chinese contexts*. New York: Nova Science Publishers. Gauld, R., & Gould, D. (2002). *The Hong Kong health sector: Development and change*. Hong Kong: Chinese University Press. Kelleher, D., Gabe, J., & Williams, G. (Eds.) (2006). *Challenging medicine*. (2nd Ed.). London; New York: Routledge. Leung, G.M., & Bacon-Shone, J. (Eds.) (2006). *Hong Kong's health system: reflections, perspectives and visions.* Hong Kong: Hong Kong University Press. Mahon, A., Walshe, K., & Chambers, N. (Eds.) (2009). *A reader in health policy and management.* Maidenhead: McGraw Hill/Open University Press. McDonnell, O., Lohan, M., Hyde, A., & Porter, S. (2009). *Social theory, health & health care.* New York: Palgrave Macmillan.	

Subject Description Form

Subject Code	CLC3231P (2019-20 onward) CBS3231P (2018-19 and before)
Subject Title	Chinese Communication for Construction and Environment 建設及環境專業中文傳意
Credit Value	3
Level	3
Pre-requisite / Co-requisite/ Exclusion	According to the policy of the new 4-years curriculum, students should have normally completed the general requirement in language, i.e. the Language and Communication Requirement (LCR) before taking this subject.
Objectives	This subject aims to enhance students' Chinese competence to cope with the workplace communication requirements in relation to their professional training in construction and environment. Taken that the activity of writing is semantic, cognitive, and functional, the subject treats Chinese writing both as an end product and a process of advanced performance. By the end of the training, the students are expected to have mastered (1) accuracy in Chinese expressions, (2) effective applications of cognitive methods in presenting contents and thought relationships in writing, (3) a variety of appropriate written genres for academic and communicative purposes.
Intended Learning Outcomes	This is a Chinese language subject aiming at enhancing students' proficiency in written Chinese and Putonghua for communication in the professional context of construction and language use. Upon completion of the subject, students will be able to: (a) develop effective communication skills and strategies in both written Chinese and Putonghua required for workplace in professional context; (b) master the format, organization, language and style of expression of various genres of Chinese practical writing such as notice, letter, news release, publicity materials, reports and proposals; (c) read and write professional documents/articles/report for practical purposes; (d) give formal presentation and engage in formal discussion in Putonghua; Students will be required to read and write intensively for enhancing their proficiency level in written Chinese. The mastering of effective communication skills in both written Chinese and Putonghua will also facilitate their life-long learning in various disciplines.

<table>
<tr><td>Subject Synopsis/ Indicative Syllabus</td><td>1. Written Chinese of context dependent variation for practical purposes such as:
Letters of application, invitation, thanks, request, response to complaint;
Official notice, email corresponding, instruction, draft of speech,
Press release, introductory leaflet, poster information for publicity
2. Professional related literacy in Chinese such as:
Reading of academic essay, reports and proposals;
Writing of professional report and proposal
Professional related project to different intended readers.
3. Oral Communication such as:
Formal presentation with multimedia material to industrial clients and government officers.
Formal discussion</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The subject will be delivered in Putonghua, in highly interactive seminars. The subject will motivate the students' active participation by assigning group presentation /discussion in class. In a forum-like format, students are guided to:

(1) create Chinese documents for practical purposes;
(2) present to the class, their understanding of each genre designed for the syllabus for discussions and improvement;
(3) modify passages in a given genre/style into other genres/styles for addressing different audiences and purposes;
(4) give a power-point presentation in Putonghua in front of the whole class, then receive on spot feedback for discussion and improvement; then
(5) prepare a written report/proposal on the same topic; and
(6) engage in formal discussion in Putonghua on topics related to current issues and/or business operation; then
(7) produce a written document on the same topic using a chosen genre.</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. Practical Writings</td><td>45 %</td><td>√</td><td>√</td><td>√</td><td></td></tr>
<tr><td>2. One Group Assignment (Professional Report/Proposal)</td><td>20 %</td><td>√</td><td>√</td><td>√</td><td></td></tr>
<tr><td>3. Oral Presentation with multimedia material</td><td>20 %</td><td>√</td><td></td><td></td><td>√</td></tr>
<tr><td>4. Formal Discussion</td><td>15 %</td><td>√</td><td></td><td></td><td>√</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="4"></td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td></td><td colspan="2">Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Subject Assessment 100% coursework
• For the coursework, the students will be assessed by their final product of the assigned exercises and genres in the syllabus.
• Each assignment will be assessed in terms of criterion reference assessing. The overall achievement will be obtained by formative assessment.</td></tr>
<tr><td rowspan="6">Student Study Effort Required</td><td colspan="2">Class Contact</td></tr>
<tr><td>▪ Seminars</td><td>39 Hrs.</td></tr>
<tr><td colspan="2">Other Study Effort</td></tr>
<tr><td>▪ Outside class practice e.g. Researching, planning, writing, and preparing the project</td><td>45 Hrs.</td></tr>
<tr><td>▪ Self-study</td><td>48 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>132 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="2">(1) 路德慶主編（1982）《寫作教程》，華東師範大學出版社。
(2) 邵守義（1991）《演講全書》，吉林人民出版社。
(3) 陳建民（1994）《說話的藝術》，語文出版社。
(4) 李軍華（1996）《口才學》，華中理工大學出版社。
(5) 周錫韓（1996）《中文應用寫作教程》（第 1 版），三聯書店香港有限公司。
(6) 陳瑞端著（2000）《生活錯別字》，中華書局。
(7)《中文傳意. 基礎篇》（2001），香港城市大學出版社。
(8)《中文傳意. 寫作篇》（2001)，香港城市大學出版社。
(9) 于成鯤主編（2003）《現代應用文》，復旦大學出版社。
(10) 陶曉輝、苗邯軍主編（2010）《口頭表達能力訓練》，華中科技大學出版社。
(11) 胡開林（2011）《現代科技文寫作教程》，化學工業出版社。
(12) 于成鯤等主編（2011）《公務與事務文書寫作規範》，復旦大學出版社。
(13) 于成鯤等主編（2011）《科教文與社交文書寫作規範》，復旦大學出版社。
(14) 于成鯤等主編（2011）《現代服務業文書寫作規範》，復旦大學出版社。
(15) 于成鯤等主編（2011）《現代企業管理文書寫作規範》，復旦大學出版社。
(16)《中文應用寫作教程新編》（2013），復旦大學出版社。</td></tr>
</table>

	(17) 郭莉, 郝麗霞（2017）《經濟應用文寫作》（第 3 版）（高等學校應用型特色規劃教材）， 清華大學出版社。 (18) 劉金同等主編（2019）《應用文寫作教程 》（第 4 版）（高等學校應用型特色規劃教材），清華大學出版社。 (19) 吳仁麟、李慶芳（2023）《AI 時代的思考與寫作》（2023 年），佈克文化。 (20) Lawrence, M. S. 1975. *Writing as a thinking process*. The University of Michigan Press. (21) Beer, D. F. (ed.) 2003 *Writing and speaking in the technology professions (2nd edition)*. John Wiley & SonINC., Publication.

Subject Description Form

Subject Code	CSE20290
Subject Title	Introduction to Geotechnology
Credit Value	3
Level	2
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	1. Provide students with instruction on the fundamentals of geotechnology. 2. Provide an essential background for studies in soil mechanics, rock mechanics, foundation engineering and geotechnical designs.
Intended Learning Outcomes *(Note 1)*	Upon completion of the subject, students will be able to: a. Understand and classify the different nature and properties of different types of rocks. b. Understand basic soil and rock mechanics. c. Apply the knowledge to foundation designs and construction. d. Interpret the test results of the soil samplings.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	<u>Mineralogy and Petrology</u> (2 week) Physical properties of silicate and non-silicate minerals and their identification; classification of igneous, metamorphic and sedimentary rock and their identification. Hong Kong Rock. <u>Surface processes and Ground-water geology</u> (2 weeks) Weathering; erosion and deposition including river, marine, desert, glacier, karst; formation of engineering soil; hydrological cycle, aquifers and ground water table. <u>Structural geology</u> (1 weeks) Unconformities, fold, fault, joint, map reading and mapping skill. <u>Site investigations</u> (2 weeks) Plan for site investigation; direct and indirect methods for site investigation and sampling, logging of boreholes; insitu tests (e.g. SPT, CPT, PMT, DMT, VST); interpretation of test results. Methods of geophysical exploration. <u>Geology for engineering</u> (2 weeks) Geological applications to tunnels, transportation links, dams, reservoirs, catchments, coastline protection, slopes and foundation. <u>Soil mechanics</u> (2 weeks) Soil formation, Classification of soil, weight–volume relationship, void ratio, porosity, moisture content, specific gravity, unit weight, degree of saturation, consistency of soil and Atterberg limits; compressibility of soil; Darcy's law , permeability; basic concept of shear strength of soil. <u>Rock Mechanics</u> (2 weeks)

<table>
<tr><td></td><td>Rock Mass Classification, Uniaxial and triaxial compressive strength, Brazilian test, Point load index, Mohr-Coulomb model with tensile cutoff, and Hoek-and-Brown failure model.

<u>Laboratory and Fieldwork</u>
Identification of common minerals and rocks, Field and site visits to illustrate course topics, Mapping, Borehole logging.</td></tr>
<tr><td>Teaching/Learning Methodology

(Note 3)</td><td>Fundamental knowledge will be covered in lectures. Tutorial sessions will provide opportunities for identification of minerals & rocks, learning the mapping skill and bore log skill. The students need to complete the work sheets in tutorial sessions. Field studies will help students appreciate the basic principles and familiarize themselves with basic instruments.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes

(Note 4)</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="8">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><td></td><td></td></tr>
<tr><td>1. Continuous Assessment</td><td>30%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. Examination</td><td>70%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Students must attain at least grade D in both coursework and final examination (whenever applicable) in order to attain a passing grade in the overall result.

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

The students will be assessed with three components: the tutorial session, field trip session and assignment. Minerals test and rocks test will arrange after about one month of the tutorial session of identification of minerals and rocks, an examination at the end of the semester. The student will be required to attend tutorial sessions and submit individual reports. The tutorial session will strengthen geotechnology knowledge of students include identify minerals & rocks, mapping skill and bore log. The student will be required to attend field trip session and submit field trip report. These field trip sessions will be acquired the creative thinking. Students will have to exert engineering judgement to complete the tutorial and field trip sessions. The assignment, tutorial session and field trip session to together with the report writing are best to achieve intended learning outcomes a), b), c) and d). Minerals test, rocks test will emphasize on assessing student basic concept and current practices of minerals and rocks identification. It is appropriate to achieve intended learning outcome a). The examination will consolidate students learning in lectures. It is appropriate to achieve the intended learning a), b), c) and d).</td></tr>
<tr><td>Student Study</td><td>Class contact:</td><td></td></tr>
</table>

Effort Expected	▪ Lecture	26 Hrs.
	▪ Tutorial	8 Hrs.
	▪ Field work	5 Hrs
	Other student study effort:	
	▪ Reading and studying	39 Hrs.
	▪ Completion of Assignments	39 Hrs.
	Total student study effort	117 Hrs.
Reading List and References	Atherton, M. J. and Burnett, A. D., Hong Kong Rocks, Urban Council, 1986. Bell, F.G., Engineering Geology, Second Edition, Butterworth-Heinemann, 2007. Davis, G. H. and Reynolds, S. J., Structural Geology of Rocks and Regions, Second Edition, Wiley, 1996. Das, B. M., Principles of Geotechnical Engineering, Seventh Edition, International Thomson Publishing, 2010. Fletcher, C. J. N., Geology of Site Investigation Boreholes from Hong Kong, C. Fletcher, 2004. Goodman, R. E., Rock Mechanics, Second Edition, Wiley, 1989. Lisle, R. J., Geological Structures and Maps, Third Edition, Butterworth-Heinemann, 2004. Lutgens, F. K. and Tarbuck, E. J., Essentials of Geology, Eleventh Edition, Pearson Prentice Hall, 2012. Mottana, A., Crespi, R. and Liborio, G., Simon & Schuster's guide to Rocks and Minerals, Simon & Schuster, 1978. Raymond, L. A., Petrology: The Study of Igneous, Sedimentary & Metamorphic Rocks, Second Edition, McGraw Hill, 2002. Sewell, R. J., Campbell, S. D. G., Fletcher, C. J. N., Lai, K. W. and Kirk, P. A., The Pre-Quaternary Geology of Hong Kong, Printing Dept., 2000. West, T. R., Geology: Applied to Engineering, Prentice Hall, 1995.	

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	ELC3421
Subject Title	English for Construction and Environmental Professionals
Credit Value	3
Level	3
Pre-requisite	LCR English subjects
Objectives	This subject aims to enhance students' English language and communication skills within the context of construction and environmental fields. Students will learn strategies to express themselves clearly, appropriately and persuasively in both spoken and written forms, demonstrating their competence as entry-level professionals. Topics covered include language skills for workplace presentations, job application and interview techniques in the digital age, discipline-specific report writing, and professional reflection.
Intended Learning Outcomes *(Note 1)*	Upon completing the course, students will be able to: a. communicate ideas clearly and concisely in various written and spoken formats b. employ persuasive language and strategies, including multi-modal means, to influence audiences to adopt a viewpoint c. demonstrate critical analysis and reflection on the problem explored or ideas presented in both written and spoken outputs, and d. apply language and communication strategies appropriate to the target audience, purpose and professional context To achieve the above outcomes, students are expected to use language and writing style appropriate to the context, and the broader professional environment, critically select information, and present and support their knowledge, stance and opinion in a persuasive way.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	The syllabus is indicative. The balance of the components, and the corresponding weighting, will be based on the specific needs of the students. **1. Interview and Discussion in Technical Contexts** • analysing employers' needs and expectations • interacting with potential employers and professionals in face-to-face and virtual contexts • employing advanced language and communication strategies to convey meaning accurately, appropriately, and persuasively • using personal stories and achievements to impress audiences • establishing rapport and connection with the audience • analysing and discussing workplace issues with a range of participants such as co-workers, clients and staff of government departments

2. Professional presentation of technical content

- setting a clear presentation purpose
- critically selecting appropriate content/evidence
- adapting language and style appropriate to the purpose, context and intended audience
- employing advanced language and communication strategies to convey meaning accurately, appropriately, and persuasively;
- speaking with clarity (including clear pronunciation)
- speaking with fluency and confidence
- using effective verbal and non-verbal interactive strategies appropriately
- using visuals and text to support the spoken message
- handling questions professionally
- establishing rapport and connection with the audience

3. Professional report

- conducting a study to address an issue relating to construction and /or environment
- writing a problem statement, goals and objectives
- critically analysing the collected data
- analysing the structure and language of a technical report
- integrating evidence and discipline-specific knowledge convincingly
- organising content logically and coherently
- employing advanced language and communication strategies to convey meaning accurately, appropriately and persuasively
- producing a professional-looking and reader-friendly multimodal document

4. Professional reflection

- critically reflecting on team-work experience/ technical skills/communication skills/interpersonal skills/and leadership skills
- showing evidence of growth as a technical professional
- organising content logically and coherently
- employing advanced language and communication strategies to convey meaning accurately, appropriately and persuasively

Teaching/Learning Methodology

(Note 3)

The study method is primarily seminar-based. Students will engage in project-based learning using scenarios relevant to professionals in the construction and environmental industry. Activities include discussions, text analysis, student-led investigations, process writing, mini-presentations, role plays and video presentations. Core materials developed by the ELC will be blended with online activities and additional resources. Students will also be referred to the services and initiatives of the ELC's Centre for Independent Language Learning.

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
Assessment 1 a. AI-empowered interview b. Job interview & professional discussion	40% 5% 35%	✓	✓	✓	✓

Assessment 2 (in-class) Professional presentation	20%	✓	✓	✓	✓
Assessment 3 (Out-of-class) a. Professional report (group)	25%	✓	✓	✓	✓
Assessment 4 (Out-of-class) Professional reflection (individual)	15%	✓	✓	✓	✓
Total	100 %				

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

1. Interview and discussion in technical context

The use of digital tools and social media for recruitment has become increasingly prevalent. This assignment simulates a real-life scenario that enables students to develop essential job application and interview skills for the digital age. These skills include researching current employment trends, adopting appropriate persuasive strategies to influence opinions, and delivering clear, appropriate messages in both virtual and face-to-face interviews, as well as in professional discussions.

2. Professional presentation in technical context

The presentation assignment enables students to build confidence and skills in speaking influentially to an audience in the construction- and environmentally-related field. The assignment requires students 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.

3. Professional report

Writing professional reports is a common task for graduates in the construction field. This assignment offers students practical experience by identifying a construction-related problem, collecting relevant data, and writing up a technical report. Students are required to critically analyse the problem and collected data, and develop a clear, concise, well-structured report with feasible recommendations for intended audience.

4. Professional reflection

The reflection process helps students connect their technical and discipline-specific learning to the skills acquired during their studies. By applying their project work and technical experiences, students can reflect on skills like communication, team collaboration, technical proficiency, problem-solving skills, and leadership to showcase their growth within their discipline.

<table>
<tr><td rowspan="5">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Seminars</td><td>39 hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Classwork-related, assessment-related, and self-access work</td><td>78 hrs.</td></tr>
<tr><td>Total student study effort</td><td>117 hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="2">Required resources

Course materials prepared by the English Language Centre.

Recommended resources

You can update the links in the reading list - copy them from below:
Students are encouraged to use the range of services and initiatives provided by the ELC including our Speaking Assistance Programme, Writing Assistance Programme, workshops, and Open Online Courses

Becker, K. L. & Renger, R. (2017-03), Suggested Guidelines for Writing Reflective Case Narratives: Structure and Indicators. The American journal of Evaluation, 38(1), 138-150. DOI: 10.1177/1098214016664025
Beer, D. F. (2015). Writing and speaking in the technology professions: A practical guide (2nd ed.). Wiley. https://doi.org/10.1002/9781119134633
Hoevemever, V. A. & Falcone, Paul. (2017). High-Impact Interview Questions. AMACOM
Houp, K. W., Pearsall, T. E., Tebeaux, E. & Dragga, S. (2006). Reporting technical information (11th ed.). New York: Oxford University Press.
Kilgore, D., Sattler, B. & Turns, J. (2013). From fragmentation to continuity: engineering students making sense of experience through the development of a professional portfolio. Studies in Higher Education (Dorchester-on-Thames), 38(6), 807–826. https://doi.org/10.1080/03075079.2011.610501

Markel, M. (2016). Practical Strategies for Technical communication (2nd ed.). Boston – New York: Beford/St. Martin’s
Martin, C. (2014). What to say in every job interview: How to understand what managers are really asking and give the answers that land the job (1st ed.). New York: McGraw-Hill Education.
McWhir, C., Scudamore, C., & Scudamore, P. (2018). The ultimate job hunting book: Write a killer CV, discover hidden jobs, succeed at interview (Second ed., Teach yourself books). London: Hodder & Stoughton
Northey, M. & Jewinski, J. (2009). Making sense: A student’s guide to research and writing: Engineering and the technical sciences (3rd ed.). Don Mills, Ontario: Oxford University Press.
Serula, D. (2020). LinkedIn profile optimization for dummies (2nd ed., For dummies). Newark: Wiley.
Theobald, T. (2019). Develop your presentation skills: how to inspire and inform with clarity and confidence (4th ed.) Kogan Page.
Worsfold, D. (2019). From behind the desk to the front of the stage: how to enhance your presentation skills (1st ed.). Business Expert Press.</td></tr>
</table>

Subject Description Form

Subject Code	LSGI2961
Subject Title	Engineering Surveying
Credit Value	3
Level	2
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	Provide students with elementary concept and practice of modern surveying instruments and methods, and their applications for construction projects.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: Category A - Professional/academic knowledge and skills a. Able to master the elementary concept and methods of engineering surveying. b. Able to operate basic and modern surveying instruments. c. Able to collect, analyse and report basic survey data for the design and construction of civil and building infrastructures. Category B - Attributes for all-roundedness d. Students' communication skill and cooperative attitudes of work with others will be developed through group field practical.
Subject Synopsis/ Indicative Syllabus	**Syllabus Content:** *Fundamentals of Surveying* Geomatics and surveying. Survey reference systems. Measurement errors. *Distance Measurements* Tape measurement and corrections. Offset surveying by taping. Electromagnetic distance measurement and corrections. *Angular Measurements* Optical and electronic digital theodolites. Basic features of a typical theodolite. Operation, observation procedures and data reduction. *Height Measurements* Optical and digital levelling instruments. Basic features of a typical levelling instrument. Operation, observation procedures, and data reduction. *Position Determination* Height determination: ordinary and trigonometric levelling. Horizontal position determination*:* radiation and resection methods. *Satellite Surveying* Concept of satellite surveying. 3-D position determination by Global Navigation Satellite Systems (GNSS).

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

Horizontal and Vertical Control Surveys
Concept of control survey. Specifications. Monumentation. Traverse computation, quality check and adjustment. Height control establishment by ordinary levelling, quality check and adjustment. Establishment of horizontal and vertical controls by GPS.

Detail Survey
Detail surveying using modern survey instruments and GNSS.

Engineering Surveying
Road alignments: Horizontal alignment: straight, circular, transition curves. Vertical alignment: Parabolic curve. Super-elevation in road/railway design. Area and cross sections. Earthwork volume computation.
Setting out.

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

Teaching and learning will be basically lectures and reinforced by tutorials and field practical. In order to consolidate students learning, in-class exercise will be given in tutorials. Group discussion is encouraged for the possible solutions to the in-class exercise, followed by the concluding session at the end of the tutorial.

</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>1. Examination</td><td>60%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>2. Coursework</td><td>40%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>Pass both components</td><td>Yes</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
The coursework assessments include a practical test and a mini project to reinforce the concepts taught in lectures.

</td></tr>
<tr><td>Student Study Effort Expected</td><td>

<table>
<tr><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture (2 Hrs per session)</td><td>26 Hrs.</td></tr>
<tr><td>▪ Practical work (3 Hrs in Weeks 4-9; 6 Hrs in Weeks 10-13)</td><td>42 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self-study and practical on equipment operation</td><td>64 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>132 Hrs.</td></tr>
</table>

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

Reading List and References	**Recommended:** Schofield, W. (2007). *Engineering Surveying*, 6th ed. Butterworth-Heinemann. Uren, J. and Price, W. F. (2006). *Surveying for Engineers*, 4th ed. Palgrave Macmillan

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.