City University of Hong Kong
Course Syllabus

offered by Division of Building Science and Technology
with effect from Semester A 2018/19

Part I Course Overview

Course Title:	Building Cost Studies
Course Code:	BST22731
Course Duration:	1 semester
Credit Units:	3 credits
Level:	A2
Proposed Area: *(for GE courses only)*	☐ Arts and Humanities ☐ Study of Societies, Social and Business Organisations ☐ Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	Nil
Precursors: *(Course Code and Title)*	Nil
Equivalent Courses: *(Course Code and Title)*	Nil
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

(A 150-word description about the course)

This course aims to provide students with an understanding of the contemporary theories and practices of cost planning and control during the design, construction and maintenance stages of a construction project.

2. Course Intended Learning Outcomes (CILOs)

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

No.	CILOs[#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Assess the cost implications of design variables influencing the cost of a building.	20%			
2.	Explain the principles, preparations and uses of elemental cost analysis.	10%			
3.	Apply building cost and tender price indices in cost planning and other relevant purposes.	10%		✓	
4.	Apply various cost estimating and control theories and techniques to establish and control the budget of projects at design, construction and maintenance stages.	30%			✓
5.	Use cash flow forecast to discover the financial position of projects at different stage	10%			
6.	Apply the principles and techniques of life cycle costing to assess alternative design schemes.	20%		✓	
	** If weighting is assigned to CILOs, they should add up to 100%.*	100%			

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: *Accomplishments*
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4	5	6	
Independent Learning	Students are required to undertake independent learning of those directed supplementary reading materials before and after lecture. All assignments are designed to demand for critical analysis and problem solving.	✓	✓	✓	✓	✓	✓	-
Lecture Average class size – around 100 students	Lectures are used to provide a broad overview and explanation of key concepts and principles of each topic. Real-life examples are used to demonstrate those professional practices.	✓	✓	✓	✓	✓	✓	3 Hours/week

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.						Weighting*	Remarks
	1	2	3	4	5	6		
Continuous Assessment: 40%								
One professionally based project requiring students to prepare a cost estimate for a proposed building.	✓	✓	✓	✓			20%	
Two theoretically based projects requiring students to evaluate some critical issues related to the cost of a building. Students' communication skill will also be assessed.	✓	✓	✓	✓	✓		20%	
Examination: 60% (duration: 2.5 hours, if applicable)								
** The weightings should add up to 100%.*							100%	

Notes: (1) An extra 10% bonus mark (maximum) may be given based on the student's active participation in discussion and correctly answering questions. (2) A student must obtain a minimum mark of 35 in both coursework and examination components and an overall mark of 40 to pass the course.

5. Assessment Rubrics

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

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Adequate (C+, C, C-)	Marginal (D)	Failure (F)
1. Cost estimate of a building	Ability to prepare an accurate measurement and estimate of building components	High level of accuracy in measurement and cost estimate	Significant high level of accuracy in measurement and cost estimate with some errors	Reasonable level of accuracy in measurement and cost estimate with many errors	Acceptable level of accuracy in measurement and cost estimate with many errors	Unacceptable level of accuracy in measurement and cost estimate
2. Evaluation of critical issue in theory and/or practice	Ability to present an analytical and clear conclusion based on literature or theory showing the development of new concept.	Analytical and clear conclusions based on literature or theory and showing	Good development shown in summary of arguments based on literature or theory	Evidence of findings and conclusions based on literature or theory	Limited evidence of findings and conclusions supported by literature or theory	Unsubstantiated conclusion based on generalisation only or no conclusion at all
3. Easy type examination	Ability to address the question with comprehensive and in-depth knowledge of the topic	Address the question with comprehensive and in-depth knowledge of the topic	Address the question with reasonable detailed knowledge of the topic	Address the question with adequate knowledge of the topic	Address the question with basic knowledge of the topic	Lacks of knowledge relevant to the topic

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

1. Keyword Syllabus

(An indication of the key topics of the course.)

Design economics: Principles of pre-contract and post-contract cost planning and control, design variables including plan shape, building size, storey height, number of storeys, circulation space and other design variables influencing the cost of a building and other design variables influencing the cost of a building.
Cost data and indices: tender based cost analysis and building cost indices.
Elemental cost analysis: nature and uses of elemental cost analysis, standard form of cost analysis, and preparation of elemental cost analysis.
Pre-contract cost planning and control: principles of cost planning and control at various design stage, methods of approximate estimate such as unit method, superficial method, elemental and comparative cost planning method and approximate quantities. BIM-based cost planning and control.
Cost modelling: regression model, probabilistic model incorporating Monte Carlo simulation, and building information modelling.
Post-contract cost control: monitoring and reporting on financial position and cash flow forecasting.
Cost planning for building maintenance works: cost categories of maintenance and renewal works, cost planning and control procedures, reporting of maintenance cost plans.
Life cycle costing: life of building; life cycle cost data, discounting and non-discounting techniques, risk analysis by sensitivity analysis and Monte Carlo simulation.
Current issues affecting the cost of a building: life cycle assessment, green building assessment, buildability evaluation system, etc.

2. Reading List

2.1 Compulsory Readings

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

1. Smith, J., Jaggar, D., Lover, P. and Olatunji, O.A. (2016). *Building Cost Planning for the Design Team*, Routledge, Oxon, United Kingdom.
2. Benge, D.P. (2014). *NRM1 Cost Management Handbook*, Routledge, Oxon, United Kingdom.
3. Ostrowski, S.D.C. (2013). *Estimating and Cost Planning using the New Rules of Measurement*, Wiley Blackwell, Oxford.
4. Royal Institution of Chartered Surveyors (RICS) (2012). *RICS New Rules of Measurement 1: Order of Cost Estimating and Elemental Cost Planning*, RICS, London.
5. Royal Institution of Chartered Surveyors (RICS) (2015). *RICS New Rules of Measurement 3: Order of Cost Estimating and Cost Planning for Building Maintenance Works*, RICS, London.

2.2 Additional Readings

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

1. Kirkham, R. (2007). *Ferry and Brandon's Cost Planning of Buildings*, Blackwell Publishing, Oxford, UK.
2. Smith, J. and Jaggar, D. (2011). *Building Cost Planning for the Design Team*, Spon Press, London.
3. Ashworth, A. (2010). *Cost Studies of Buildings*, Pearson Education Limited, England.
4. Building Standards Institution (BSI) (2008). *Standardized Method of Life Cycle Costing for Construction Procurement*, BIS and BCIS, London.
5. Boussabaine, A. and Kirkham, R. (2004). *Whole Life-cycle Costing*, Blackwell Publishing Ltd., Oxford.
6. Seeley, I.H. (1996). *Building Economics: Appraisal and Control of Building Design Cost and Efficiency*, Macmillan Press Ltd., London.