# CA4320: COST MANAGEMENT OF BUILDING AND ENGINEERING WORKS

**Effective Term**
Semester A 2024/25

## Part I Course Overview

**Course Title**
Cost Management of Building and Engineering Works

**Subject Code**
CA - Civil and Architectural Engineering
**Course Number**
4320

**Academic Unit**
Architecture and Civil Engineering (CA)

**College/School**
College of Engineering (EG)

**Course Duration**
One Semester

**Credit Units**
3

**Level**
B1, B2, B3, B4 - Bachelor's Degree

**Medium of Instruction**
English

**Medium of Assessment**
English

**Prerequisites**
Nil

**Precursors**
CA3314 Surveying Studio

Students must have attempted (including class attendance, coursework submission, and examination) the precursor course(s) so identified.

**Equivalent Courses**
BC4316 / CA4316 Cost Management of Engineering Works in Construction

**Exclusive Courses**
Nil

# Part II Course Details

**Abstract**

The course aims to introduce cost management practices in building and engineering contexts and discover the applications of 5D BIM in construction.

**Course Intended Learning Outcomes (CILOs)**

| | CILOs | Weighting (if app.) | DEC-A1 | DEC-A2 | DEC-A3 |
|---|---|---|---|---|---|
| 1 | apply cost management practices for building and engineering works in construction | | x | | |
| 2 | identify the opportunities of using 5D BIM in construction cost management | | | x | |
| 3 | demonstrate skills for assessing works order in accordance with the schedule of rates for term contract | | x | | |
| 4 | discuss various methods of measurement in the context of engineering works | | | x | |
| 5 | demonstrate skills for producing bills of quantities for engineering works in construction | | | | x |

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 real-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.

**Learning and Teaching Activities (LTAs)**

| | LTAs | Brief Description | CILO No. | Hours/week (if applicable) |
|---|---|---|---|---|
| 1 | Lecture | Students will engage in formal lectures to gain knowledge for achieving the CILOs | 1, 2, 3, 4, 5 | |
| 2 | Tutorial | Students will engage in tutorial activities to extend their learning by involving in class discussions and exercises | 1, 2, 3, 4, 5 | |
| 3 | Project | Students will participate in assignment projects to provide professional advice on cost management for building and engineering works | 1, 2, 3, 4, 5 | |

**Assessment Tasks / Activities (ATs)**

| | ATs | CILO No. | Weighting (%) | Remarks (e.g. Parameter for GenAI use) |
|---|---|---|---|---|
| 1 | Assignment | 1, 2, 3, 4, 5 | 30 | |
| 2 | Mid-term test | 1, 2, 3, 4, 5 | 20 | |

**Continuous Assessment (%)**

50

**Examination (%)**

50

**Examination Duration (Hours)**

3

**Additional Information for ATs**

To pass a course, a student must obtain minimum marks of 30% in both coursework and examination components, and an overall mark of at least 40%

**Assessment Rubrics (AR)**

**Assessment Task**

Assignment

**Criterion**

1. Capacity to explore real-life projects and critically analyse the cases from a professional perspective
2. Ability to apply professional practices to accomplish cost and contract management tasks in the context of building and engineering

**Excellent (A+, A, A-)**

Exceptional

**Good (B+, B, B-)**

High

**Fair (C+, C, C-)**

Moderate

**Marginal (D)**

Basic

**Failure (F)**

Not reaching marginal level

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**Assessment Task**

Mid-term test

**Criterion**

1. Capacity to demonstrate the professional competency in analysing contractual and financial disputes
2. Ability to sort out effective solutions to the practical problems in construction cost and contract management

**Excellent (A+, A, A-)**

Exceptional

**Good (B+, B, B-)**
High

**Fair (C+, C, C-)**
Moderate

**Marginal (D)**
Basic

**Failure (F)**
Not reaching marginal level

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**Assessment Task**
Examination

**Criterion**
1. Capacity to demonstrate the professional competency in analysing contractual and financial disputes
2. Ability to apply professional practices to accomplish cost and contract management tasks in the context of building and engineering

**Excellent (A+, A, A-)**
Exceptional

**Good (B+, B, B-)**
High

**Fair (C+, C, C-)**
Moderate

**Marginal (D)**
Basic

**Failure (F)**
Not reaching marginal level

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# Part III Other Information

**Keyword Syllabus**
Term contract; Civil engineering measurement; Building services measurement; Bills of quantities; Schedule of rates; 5D BIM

**Reading List**

**Compulsory Readings**

| | Title |
|---|---|
| 1 | Nil |

**Additional Readings**

| | Title |
|---|---|
| 1 | Greenhalgh, B. 2013, Introduction to Estimating for Construction, Routledge, New York. [TH435.G665 2013] |
| 2 | Ramus, J. 2006, Contract Practice for Surveyors, 4th edition, Butterworth-Heinemann, Oxford. [KD1641.R245 2006] |

| | |
|---|---|
| 3 | Kirkham, R.J. 2007, Ferry and Brandon's Cost Planning of Buildings, 8th edition, Blackwell Science, Oxford. [TH435.F36 2007] |
| 4 | Hills, M.J. 1995, Building Contract Procedures in Hong Kong, Longman, Hong Kong. [KNR85.4.B84 H55 1995] |
| 5 | Smith, A.J. 1995, Estimating, Tendering and Bidding for Construction: Theory and Practice, Macmillan, London. [TH435.S625 1995] |
| 6 | Seeley, I.H. and Murray, G.P. 2001, Civil Engineering Quantities, 6th edition, Palgrave, Basingstoke. [TA183.S45 2001] |
| 7 | Civil Engineering Department, Government of HKSAR 1999, Standard Method of Measurement for Civil Engineering Works, 1992 edition, Government Printer, Hong Kong. [TA153.G686 1999] |
| 8 | Hong Kong Institute of Surveyors 2005, Hong Kong Standard Method of Measurement of Building Works, 4th edition, Hong Kong. [TH425.H853 2005] |
| 9 | Institution of Civil Engineers 1991, CESMM3: Civil Engineering Standard Method of Measurement, 3rd edition, Thomas Telford, London. [TA180.I57 1991] |
| 10 | Architectural Services Department, Government of HKSAR 2010, Schedule of Rates for Term Contract for Building Works, Government Printer, Hong Kong. [Call No. is unavailable] |
| 11 | Architectural Services Department, Government of HKSAR 2007, Model Bills of Quantities, Government Printer, Hong Kong. [Call No. is unavailable] |
| 12 | Murray, G.P. 1997, Measurement of Building Services, Macmillan, Basingstoke. [TH6021.M87 1997] |
| 13 | Tweeds (ed.) 1995, Taking Off Quantities: Civil Engineering, E. & F.N. Spon, London. [TA183.T35 1995] |