

CA4424: STRATEGIC BIM MANAGEMENT IN SMART CONSTRUCTION

Effective Term

Semester A 2025/26

Part I Course Overview

Course Title

Strategic BIM Management in Smart Construction

Subject Code

CA - Civil and Architectural Engineering

Course Number

4424

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 and CA3321 Construction Contracts II (for BSc in Surveying students); OR CA3686 Construction Contract and Management

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

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

The course aims to introduce the theory of BIM management in construction projects and equip the students with the practical knowledge and techniques to perform multidisciplinary collaboration in the BIM environment..

Course Intended Learning Outcomes (CILOs)

CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	explain the concept of BIM management and its practical skills in the project lifecycle	x		
2	design a project execution plan for BIM implementation		x	
3	describe the role of BIM specialists and the process of multidisciplinary collaboration for BIM execution		x	
4	explain BIM design integration under the common data environment	x		
5	identify the contractual and financial issues of BIM			x
6	apply the potential BIM applications in the context of facilities management			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	Lectures	Students will engage in formal lectures to gain knowledge for achieving the CILOs	1, 2, 3, 4, 5, 6
2	Tutorials	Students will engage in tutorial activities to extend their learning by involving in class discussions and exercises	1, 2, 3, 4, 5, 6

3	Assignments	Students will participate in assignment projects, propose solutions to problems, and present their findings for critical discussion	1, 2, 3, 4, 5, 6	
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Assessment Tasks / Activities (ATs)

ATs	CILO No.	Weighting (%)	Remarks ("- " for nil entry)	Allow Use of GenAI?	
1	Assignment	1, 2, 3, 4, 5, 6	30		Yes
2	Mid-term test	1, 2, 3, 4, 5, 6	20		No

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

3

Minimum Continuous Assessment Passing Requirement (%)

30

Minimum Examination Passing Requirement (%)

30

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

- 1.1 Capacity to critically analyse the BIM project cases from a professional perspective
- 1.2 Ability to sort out effective solutions to practical problems in BIM projects

Excellent (A+, A, A-)

Exceptional

Good (B+, B, B-)

High

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not reaching marginal level

Assessment Task

Mid-term test

Criterion

2.1 Capacity to demonstrate an understanding of BIM management and practical skills in managing BIM projects

2.2 Ability to apply professional practices to accomplish the BIM project tasks in the contexts of construction contracts and project finance

Excellent (A+, A, A-)

Exceptional

Good (B+, B, B-)

High

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not reaching marginal level

Assessment Task

Examination

Criterion

3.1 Capacity to demonstrate technical knowledge in BIM and the evidence of reasoned advice about BIM management

3.2 Ability to sort out effective solutions to practical problems in BIM projects

Excellent (A+, A, A-)

Exceptional

Good (B+, B, B-)

High

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not reaching marginal level

Part III Other Information

Keyword Syllabus

Building information modelling (BIM); BIM execution plan; BIM management; BIM manager; Level of development (LOD); Common Data Environment (CDE); Construction operations building information exchange (COBie); Industry foundation

classes (IFC); International standards for BIM (ISO19650); Multidisciplinary collaboration; BIM standards and specifications; Cost estimating; Dispute resolution; Contract administration; Facilities management

Reading List

Compulsory Readings

Title	
1	Nil

Additional Readings

Title	
1	Dougherty, J. M. (2015) Claims, Disputes and Litigation involving BIM, Routledge, Oxon. [KF902.D68]
2	Pittard, S. and Sell, P. (2016) BIM and Quantity Surveying, Routledge, Oxon. [TH438.13.B55]
3	BSI (2019) BS EN ISO19650-1&2:2018 and PD19650-0:2019, BSI, UK.
4	Construction Industry Council (2021) CIC Building Information Modelling Standards - General, CIC, Hong Kong. [https://www.bim.cic.hk/en/resources/publications]
5	Shepherd, D. (2015) The BIM Management Handbook, Riba, Newcastle.
6	Hardin, B. and McCool, D. (2015) BIM and Construction Management: Proven Tools, Methods, and Workflows, Wiley, Indiana.
7	Mahdjoubi, L., Brebbia, C. A. and Laing, R. (2015) Building Information Modelling (BIM) in Design, Construction and Operations, WIT Press, Southampton.
8	Epstein, E. (2012) Implementing Successful Building Information Modeling, Artech House, Boston. [TH438.13.E68]
9	Teicholz, P. (2013) BIM for Facility Managers, John Wiley & Sons, New Jersey.
10	Construction Industry Council (2014) Roadmap for Building Information Modelling Strategic Implementation in Hong Kong's Construction Industry, Version 1, CIC, Hong Kong. [http://www.cic.hk/cic_data/pdf/about_cic/publications]
11	Construction Industry Council (2021) CIC Building Information Modelling Standards - Underground Utilities, CIC, Hong Kong. [https://www.bim.cic.hk/en/resources/publications]
12	Construction Industry Council (2021) CIC Building Information Modelling Standards - Mechanical, Electrical and Plumbing, CIC, Hong Kong. [https://www.bim.cic.hk/en/resources/publications]
13	Construction Industry Council (2021) Production of BIM Object Guide - General Requirements, CIC, Hong Kong. [https://www.bim.cic.hk/en/resources/publications]