

CA4526: INTEGRATED BUILDING PROJECT DEVELOPMENT (CIVIL ENGINEERING)

Effective Term

Semester A 2024/25

Part I Course Overview

Course Title

Integrated Building Project Development (Civil Engineering)

Subject Code

CA - Civil and Architectural Engineering

Course Number

4526

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

Nil

Equivalent Courses

CA4522 Integrated Building Project Development (Construction Engineering and Management), CA4523 Integrated Building Project Development (Civil and Structural Engineering)

Exclusive Courses

Nil

Part II Course Details

Abstract

The aim of the integrated building project development is to give students the opportunity to demonstrate their ability to develop a building project, as initiated by a client, from its preliminary design phase to construction planning through teamwork with students of other disciplines. In undertaking the course, the student will be able to demonstrate his/her capability of interpreting the client's requirements and transforming them into feasible solution. The student will also develop and demonstrate his/her abilities to apply skills and techniques in civil and structural engineering and contribute to the accomplishment of the requirements of the project client. In addition, students should be able to communicate with his/her teammates, to comprehend how problems of different disciplines are resolved, and to report and present his/her work as a part of the integrated building project outcome.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Develop criteria based on the client's requirements and develop a conceptual solution based on the criteria;				x
2	Define the key issues of own discipline and comprehend other members' disciplines;		x		
3	Prepare site formation, storm water drainage plan and preliminary structural design, etc. related to the civil infrastructure and comprehend with other disciplines;		x		
4	Produce schematic diagrams and structural layouts of the civil infrastructure;			x	
5	Create practical solution(s) through teamwork with members of other disciplines.				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 and team meetings	Students from various disciplines will form groups to carry out the project. A supervisor will be assigned to each group to facilitate lectures and team meetings on a weekly base.	1, 2, 3, 4, 5	3 hours/week

Assessment Tasks / Activities (ATs)

ATs		CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Oral presentations / written submissions / group discussions	1, 2, 3, 4, 5	100	

Continuous Assessment (%)

100

Examination (%)

0

Assessment Rubrics (AR)**Assessment Task**

Oral presentations / written submissions / group discussions

Criterion

Oral presentation

1.1 ABILITY to COLLABRATE to form a teamwork

1.2 ABILITY to ORGANIZE the presentation

1.3 ABILITY to clearly PRESENT the contents (including the use of English, eye contact, voice, and the use of technology)

Written submission

2.1 ABILITY to COLLABRATE as a team

2.2 ABILITY to ORGANIZE the submission

2.3 ABILITY to USE students' discipline specific knowledge in the project

2.4 ABILITY to graphically PRESENT the solutions

2.5 ABILITY to CONCLUDE the findings

Group discussion

3.1 ABILITY to COMMUNICATE and ORGANIZE

3.2 ABILITY to have INDEPENDENT and CRITICAL THINKING

3.3 ABILITY to have CREATIVE ideas

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

Teamwork, interpretation of client's brief, problem identification, feasible solution generation, fulfilment of requirements, key details production, report production and presentation.

Reading List**Compulsory Readings**

Title	
1	Nil

Additional Readings

Title	
1	Roy Meador, Guidelines for preparing proposals, 2nd edition, Lewis Publishers, 1991
2	Ros Jay, How to write proposals and reports that get results, Pitman, 1994
3	Simon Mort, Professional report writing, Gower, 1992
4	Smith, B.S. & Coull, A. 1991, Tall Building Structures: Analysis and Design, John Wiley & Sons, New York.
5	Taranath, B.S. 2012, Structural Analysis and Design of Tall Buildings: Steel and Composite Construction, CRC Press, Boca Raton, FL.
6	Paulay, T. & Priestley, M. J. N. 1992, Seismic Design of Reinforced Concrete and Masonry Buildings, John Wiley & Sons, New York.
7	Bhatt, P., MacGinley, T.J. and Choo, B.S. 2006, Reinforced Concrete - Design theory and examples, Taylor & Francis, New York.
8	Mosley, B., Bungey, J., Hulse, R. and Mosley, W.H. 2007, Reinforced Concrete Design to Eurocode 2, 6th Edition, Palgrave MacMillan, New York.
9	Building (Construction) Regulations 1990, Chapter 123B Building Ordinance, Hong Kong.
10	Buildings Department 2004, Code of Practice for Structural Use of Concrete, the Government of the Hong Kong Special Administrative Region.
11	The Hong Kong Institution of Engineers 2006, Concrete Code Handbook: An explanatory handbook to the Code of Practice for Structural Use of Concrete 2004, Structural Division of the Hong Kong Institution of Engineers.
12	Buildings Department 2004, Code of Practice for Foundations, the Government of the Hong Kong Special Administrative Region.
13	Buildings Department 2004, Code of Practice on Wind Effects in Hong Kong, the Government of the Hong Kong Special Administrative Region.
14	Reynolds, C. E., Steedman, J. C. and Threlfall, A. J. 2008, Reynolds's Reinforced Concrete Designer's Handbook, 11th edition, Taylor & Francis, London.
15	Reynolds, C. E. and Steedman, J. C. 2003, Examples of the Design of Reinforced Concrete Buildings to BS8110, 4th edition, E. & F.N. Spon, London.
16	Institution of Structural Engineers 2002, Manual for the design of reinforced concrete building structures, London, UK.

17	Ambrose, J. 1997, Simplified Design of Concrete Structures, John Wiley & Sons, New York.
18	BS8110-1:1997, Structural use of concrete-Part 1 : Code of practice for design and construction
19	BS8110-2:1985, Structural use of concrete-Part 2 : Code of practice for special circumstances
20	BS8110-3:1985, Structural use of concrete-Part 3: Design charts for singly reinforced beams, doubly reinforced beams and rectangular columns.
21	Buildings Department, Practice Notes for AP&RSE, the Government of the Hong Kong Special Administrative Region.
22	Buildings Department 1996, Fire Resisting Construction, the Government of the Hong Kong Special Administrative Region.
23	Buildings Department 2005, Code of Practice for Structural Use of Steel, the Government of the Hong Kong Special Administrative Region.