

City University of Hong Kong
Course Syllabus

offered by Department of Architecture and Civil Engineering
with effect from Semester A 2021/22

Part I Course Overview

Course Title:	Methods of Analysis in Civil Engineering and Engineering Mechanics
Course Code:	CA5244
Course Duration:	1 Semester (Some courses offered in Summer Term may start a few weeks earlier than the normal University schedule. Please check the teaching schedules with CLs before registering for the courses.)
Credit Units:	3
Level:	P5
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

The course will introduce the broader scientific and professional fields of civil engineering, its contributions to the society and the interactions between civil engineers and other disciplines of science and engineering. Additionally, the course will provide a solid background to master students in selected topics of civil engineering including basic mechanics principles and methods of analysis which can apply in different disciplines of civil engineering science such as structural engineering, geotechnical engineering, mechanics of solids/fluids.

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.	Understand fundamental concepts and theories of engineering mechanics and engineering physics/mathematics applied in different disciplines of civil engineering		✓	✓	
2.	Apply methods of analysis to solve relatively simple engineering systems and express mathematically physical phenomena of significance to civil engineering.		✓	✓	
3.	Understand modelling concepts and equilibrium of forces in various civil engineering problems.		✓	✓	
4.	Apply methods of analysis to solve various problems in relation to civil infrastructures and geotechnical engineering systems.		✓	✓	
		100%			

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	
Lectures	Explain fundamental concepts and theories in engineering mechanics and engineering physics/mathematics and methods of analysis of selected topics in civil engineering.	✓	✓	✓	✓	
Tutorials	Solving problems and application of theory in selected topics taught during the lectures.	✓	✓	✓	✓	

Semester Hours:	3 hours per week
Lecture/Tutorial/Laboratory Mix:	Lecture (0); Tutorial (0); Laboratory (0)
	3 hours per week including lectures and tutorials

4. Assessment Tasks/Activities

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

Assessment Tasks / Activities	CILO No.				Weighting	Remarks
	1	2	3	4		
Continuous Assessment: 50%						
Assignment(s)	✓	✓	✓	✓	30%	
Mid-term Test	✓	✓	✓	✓	20%	
Examination: 50% (duration: 3 hour(s))						
Examination	✓	✓	✓	✓	50%	
					100%	

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%

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-)	Fair (C+, C, C-)	Marginal (D)/ Pass (P) on P/F basis	Failure (F)
Assignment(s)	ABILITY to APPLY fundamental concepts and theories in engineering mechanics, engineering physics/mathematics to solve various civil engineering problems.	High	Significant	Moderate	Basic	Not even reaching marginal levels
Mid-term Test	ABILITY to APPLY fundamental concepts and theories in engineering mechanics, engineering physics/mathematics to solve various civil engineering problems.	High	Significant	Moderate	Basic	Not even reaching marginal levels
Examination	ABILITY to APPLY fundamental concepts and theories in engineering mechanics, engineering physics/mathematics to solve various civil engineering problems.	High	Significant	Moderate	Basic	Below standard

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.)

Engineering mechanics, engineering mathematics and physics, engineering systems, engineering structures, equilibrium of forces, modelling in civil engineering, infrastructures.

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.	Nil
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2.2 Additional Readings

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

1.	Anil K. Chopra. Dynamics of structures: theory and applications to earthquake engineering. Upper Saddle River, NJ : Prentice Hall, 2001; Second edition.
2.	Hibbeler R.C. (2009). Structural analysis. Pearson/Prentice Hall, Seventh edition.
3.	Kolymbas D. (2005). Tunnelling and tunnel mechanics, Springer.
4	Singh B. and Goel R.K. (2011). Engineering rock mass classification: Tunneling, foundations and landslides, Elsevier.
5	Chapman D., Metje N. and Stark A. (2010). Introduction to tunnel construction, Taylor & Francis Group (CRC Press).