

City University of Hong Kong
Course Syllabus

offered by Department of Architecture and Civil Engineering
with effect from Semester A 2024 / 2025

Part I Course Overview

Course Title:	Earthquake and Offshore Engineering
Course Code:	CA8011
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:	R8
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)	BC8011 Earthquake and Offshore Engineering
Exclusive Courses: (Course Code and Title)	Nil

Part II Course Details

1. Abstract

The course provides fundamental knowledge and design principles in earthquake and offshore engineering.

2. Course Intended Learning Outcomes (CILOs)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	apply fundamental principles of structural dynamics;	20%	✓		
2.	analyze dynamic response of structures;	20%		✓	
3.	analyze stationary random vibration in sea wave;	20%		✓	
4.	analyse time series and random vibration in earthquake;	20%		✓	
5.	apply theories to design.	20%	✓	✓	✓
		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 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.

3. Learning and Teaching Activities (LTAs)

LTA	Brief Description	CILO No.					Hours/week (if applicable)
		1	2	3	4	5	
Lecture	Knowledge transfer	✓	✓	✓	✓		2
Discussion	Knowledge application	✓				✓	1

Semester Hours:	3 hours per week
Lecture/Tutorial/Laboratory Mix:	Lecture (-); Tutorial (-); Laboratory (-)
	3 hours per week including lectures, tutorial and laboratory sessions

4. Assessment Tasks/Activities (ATs)

Assessment Tasks/Activities	CILO No.					Weighting	Remarks
	1	2	3	4	5		
Continuous Assessment: 100%							
Essay and Lab Project	✓	✓	✓	✓		60%	
Presentation	✓				✓	20%	
Mid-term test			✓	✓		20%	
Examination: 0%							
						100%	

5. Assessment Rubrics

Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
Essay and Lab Project	Understand and apply theories and knowledge in offshore engineering	High	Presentable	Comfortable	Just acceptable	Below marginal
Presentation	Test the presentation skill	High	Presentable	Comfortable	Just acceptable	Below marginal
Mid-term test	Ability to understand and apply theories and knowledge	High	Presentable	Comfortable	Just acceptable	Below marginal

Applicable to students admitted from Semester A 2022/23 to Summer Term 2024

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
Essay and Lab Project	Understand and apply theories and knowledge in offshore engineering	High	Presentable	Acceptable	Not even reaching marginal levels
Presentation	Test the presentation skill	High	Presentable	Acceptable	Not even reaching marginal levels
Mid-term test	Ability to understand and apply theories and knowledge	High	Presentable	Acceptable	Not even reaching marginal levels

Part III Other Information

1. Keyword Syllabus

Free vibration: one- and multi-degrees of freedom system. Newmark integration. Earthquake time series. Time response to earthquake. Wave force. Stationary random response. Non-stationary random response. Torsion response. Design of building structures for earthquake. Offshore structures.

2. Reading List

2.1 Compulsory Readings

1.	Nil
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2.2 Additional Readings

1.	Anil K. Chopra. Dynamics of structures : theory and applications to earthquake engineering. Upper Saddle River, NJ : Prentice Hall, c2001; 2nd edition.
2.	J.M.T. Thompson, H.B. Stewart. Nonlinear dynamics and chaos. Chichester ; New York : Wiley, c2002; 2nd ed.