

City University of Hong Kong
Course Syllabus

offered by Department of Architecture and Civil Engineering
with effect from Semester B 2017/18

Part I Course Overview

Course Title:	Earthquakes
Course Code:	GE1313
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:	B1
Proposed Area: <i>(for GE courses only)</i>	[] Arts and Humanities [2] Study of Societies, Social and Business Organisations [1] Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	Nil
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	Nil
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

(A 150-word description about the course)

This course introduces students to earthquakes in aspects related to science, engineering and the society. Science aspects include the origin of earthquakes and their geographical distribution, how they propagate through the earth crust and affect human beings. Engineering and social aspects cover the common methods used for quantifying and monitoring earthquakes, their damage on constructed facilities, preparedness and disaster mitigation strategies. Teaching and learning activities include formal lecture, discussion, and experimental demonstration. Students from all disciplines are welcome. Students shall pursue a topic of their own interest and background in a group project with presentation, which will allow them to consolidate the materials learnt in the course for learning development in their own discipline of focus.

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.	Describe the overall earthquake process and implications, including the origin, geographical distribution, seismic wave propagation and attenuation.	20%	✓		
2.	Describe common scales used for quantifying earthquakes, the principles involved; and interpret earthquake events in news and earthquake monitoring websites.	20%	✓		
3.	Describe the primary effects of an earthquake event to human beings; how constructed facilities are damaged and common solutions adopted for buildings and lifeline facilities.	20%	✓		
4.	Describe the secondary effects of an earthquake event to human beings, e.g., landslides, tsunami and post-earthquake fire.	10%	✓		
5.	Describe existing preparedness and disaster mitigation strategies against earthquake risks.	10%	✓		
6.	Develop an approach to understand and discover earthquake related issues of personal interest; and explain to public audience in a comprehensible manner	20%		✓	
* If weighting is assigned to CILOs, they should add up to 100%.		100%			

Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

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	5	6	
Lecture	overall earthquake process, seismic wave phenomena	✓	✓					
Lecture	Experimental demonstration of seismic wave phenomena	✓						
Lecture	earthquake magnitudes and intensities; case studies and discussion using current and past news of earthquake events.		✓					
Lecture	seismicity and seismic monitoring in Hong Kong, preparedness and mitigation					✓		
Lecture	primary effects of earthquakes (e.g., buildings, lifelines).			✓				
Lecture	secondary effects of earthquakes (e.g., landslide, tsunami, fire, economic loss).				✓			
Group Project/Group Presentation	Students in group pursue a topic of their own interest and background, in consultation with instructor. They are to submit a group report explaining the issue focused and discussing their findings in the context of course./ Students shall present their group projects to the whole class, followed by Q & A.	✓	✓	✓	✓	✓	✓	

Semester Hours:	3 hours per week
Lecture/Tutorial/Laboratory Mix:	Lecture (2); Tutorial (1); Laboratory (0)

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	5	6		
Continuous Assessment: 70%								
Two Assignments	✓	✓	✓	✓			10%	
Group project report	✓	✓	✓	✓	✓	✓	40%	
Group project presentation	✓	✓	✓	✓	✓	✓	20%	
Examination: 30% (duration: 1 hour)								
* The weightings should add up to 100%.							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)
Two Assignments	Capacity to discuss earthquake process and implications	Excellent grasp of the earthquake process and implications	Some grasp of the earthquake process and implications	Fair grasp of the earthquake process and implications	Little grasp of the earthquake process and implications	Not even reaching marginal level
Group project report	Capacity to explain the issue focused and discuss their findings	Clear description of problem focused in relation to course context	Some description of problem focused in relation to course context	Insufficient description of problem focused in relation to course context	Little or no description of problem focused in relation to course context	Not even reaching marginal level
Group project presentation	Capacity to explain the issue focused and discuss their findings	Clear description of problem focused in relation to course context	Some description of problem focused in relation to course context	Insufficient description of problem focused in relation to course context	Little or no description of problem focused in relation to course context	Not even reaching marginal level
Examination	Capacity to discuss earthquake process and implications	Excellent grasp of the earthquake process and implications	Some grasp of the earthquake process and implications	Fair grasp of the earthquake process and implications	Little grasp of the earthquake process and implications	Not even reaching marginal level

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.)

Earthquake hazards, ring of fire, wave propagation, earthquake magnitude and intensity, tsunami, earthquake loss, seismic monitoring

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.	Lecture notes
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2.2 Additional Readings

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

1.	United States Geological Survey (2001), This Dynamic Earth.
2.	Bolt BA (2004). Earthquakes. W. H. Freeman, New York.
3.	Kramer SL (1996). Geotechnical Earthquake Engineering. Prentice-Hall.
4.	Reiter L. (1990). Earthquake Hazard Analysis. Columbia University Press.
5.	"This Dynamic Earth", online version, USGS http://pubs.usgs.gov/gip/dynamic/
6.	Earthquake Hazards Program, United States Geological Survey (USGS) http://earthquake.usgs.gov/
7.	China Seismological Bureau (中國地震信息網) http://www.csi.ac.cn
8.	HK Observatory [earthquakes in HK] http://www.weather.gov.hk/gts/quake/seismic_mon_e.htm?defaultpopup=0
9.	Consortium of Organizations for Strong-Motion Observation Systems (COSMOS) http://db.cosmos-eq.org/scripts/default.plx

Annex (for GE courses only)
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A. Please specify the Gateway Education Programme Intended Learning Outcomes (PILOs) that the course is aligned to and relate them to the CILOs stated in Part II, Section 2 of this form:

GE PILO	Please indicate which CILO(s) is/are related to this PILO, if any (can be more than one CILOs in each PILO)
PILO 1: Demonstrate the capacity for self-directed learning	-
PILO 2: Explain the basic methodologies and techniques of inquiry of the arts and humanities, social sciences, business, and science and technology	1, 3, 4, 5
PILO 3: Demonstrate critical thinking skills	6
PILO 4: Interpret information and numerical data	1
PILO 5: Produce structured, well-organised and fluent text	6
PILO 6: Demonstrate effective oral communication skills	6
PILO 7: Demonstrate an ability to work effectively in a team	6
PILO 8: Recognise important characteristics of their own culture(s) and at least one other culture, and their impact on global issues	-
PILO 9: Value ethical and socially responsible actions	-
PILO 10: Demonstrate the attitude and/or ability to accomplish discovery and/or innovation	6

GE course leaders should cover the mandatory PILOs for the GE area (Area 1: Arts and Humanities; Area 2: Study of Societies, Social and Business Organisations; Area 3: Science and Technology) for which they have classified their course; for quality assurance purposes, they are advised to carefully consider if it is beneficial to claim any coverage of additional PILOs. General advice would be to restrict PILOs to only the essential ones. (Please refer to the curricular mapping of GE programme: http://www.cityu.edu.hk/edge/ge/faculty/curricular_mapping.htm.)

B. Please select an assessment task for collecting evidence of student achievement for quality assurance purposes. Please retain at least one sample of student achievement across a period of three years.

Selected Assessment Task
Student project