City University of Hong Kong
Course Syllabus

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

Part I Course Overview

Course Title:	Wind Engineering
Course Code:	CA6009
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:	P6
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)*	BC6009 Wind Engineering
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

This course is intended to introduce wind engineering, with particular reference to wind-induced loads acting on and responses of civil engineering structures. The course will enable students to determine wind effects on structures using design codes, wind tunnel test techniques and computational methods.

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.	apply fundamental principles of wind engineering theory to determine wind effects on civil engineering structures;			✓	
2.	apply wind loading codes for structural design;			✓	
3.	apply experimental methods for determining wind effects on buildings and structures;			✓	
4.	discover and analyze structural responses under wind action.		✓	✓	
		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	
Lecture	On topics related to wind engineering	✓	✓	✓	✓	
Tutorials	In class discussions and activities on problems related to lecture themes	✓	✓	✓	✓	

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		
Continuous Assessment: 30%						
Assignment 1	✓				5%	
Assignment 2				✓	5%	
Design project		✓			15%	
Lab report			✓		5%	
Examination: 70% (duration: 3 hours)						
					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 1	Demonstrate the ability to understand, analyze, and discuss wind engineering theory	High	Significant	Moderate	Basic	Not even reaching marginal levels
Assignment 2	Demonstrate the ability to understand, analyze, and discuss wind engineering theory	High	Significant	Moderate	Basic	Not even reaching marginal levels
Design project	Demonstrate the ability to explore, investigate and organize knowledge to topics related to wind engineering	High	Significant	Moderate	Basic	Not even reaching marginal levels
Lab report	Demonstrate the ability to record the experiment result and apply the understanding of wind engineering theory	High	Significant	Moderate	Basic	Not even reaching marginal levels
Examination	Demonstrate the ability to understand, discuss and apply theories and knowledge to topics related to wind engineering	High	Significant	Moderate	Basic	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.)

Wind storm, wind damage, atmospheric boundary layer, wind turbulence, bluff-body aerodynamics, wind loading codes, wind effects on tall buildings and structures, experimental methods of determining wind effects, effective static loading distributions, applications of computational fluid dynamics (CFD) to determine wind effects, comparison with earthquake loading.

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

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

1.	Choi, E. C. C. (1983). Wind Loading in Hong Kong: Commentary on the Code of Practice on Wind Effects Hong Kong-1983, Hong Kong Institution of Engineers, Hong Kong.
2.	Chopra, A.K. (1995). Dynamics of Structures, Prentice Hal.
3.	Clough, R. W. and Penzien, J. (1993). Dynamics of Structures, 2nd Edition, McGraw-Hill, Inc. New York.
4.	Code of Practice on Wind Effects, Hong Kong-2004.
5.	Holmes, J. D. (2001). Wind Loading of Structures, Spon Press, London.
6.	Jeary, A. P. (1997). Designer's Guide to the Dynamic Response of Structures. E & FN Spon.
7.	Simiu, E. and Scanlan, R. H. (1996). Wind Effects on Structures: Fundamentals and Applications to Design. John Wiley & Sons, Inc.
8.	Tedesco, J. W., Mcdougal, W. G. and Ross, C. A. (1999). Structural Dynamics Theory and Application. Addison Wesley Longman, Inc. California.