

Form 2B

City University of Hong Kong

Information on a Course

offered by Department of Architecture and Civil Engineering
with effect from Semester A in 2014/2015

Part I

Course Title:	Geotechnical and Foundation Engineering
Course Code:	CA5693
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
Prerequisites:	Nil
Precursor:	Nil
Equivalent Courses:	Nil
Exclusive Courses:	Nil

Part II

Course Aims:

The course introduces advanced concepts and theories in geotechnical and foundation engineering. Numerical methods will also be introduced to solve geotechnical design problems.

Course Intended Learning Outcomes (CILOs):

Upon successful completion of this course, students should be able to:

No.	CILOs	Weighting (if applicable)
1.	explain the importance of advanced concepts and theories in geotechnical and foundation engineering;	---
2.	solve geotechnical and foundation problems using commercial computer software;	---
3.	carry design for geotechnical structures, such as slopes, retaining walls and foundations;	---
4.	select appropriate theories to analyze various geotechnical structures.	---

Teaching and Learning Activities (TLAs):

(Indicative of likely activities and tasks designed to facilitate students' achievement of the CILOs. Final details will be provided to students in their first week of attendance in this course)

Semester Hours: 3 hours per week

Lecture/Tutorial/Laboratory Mix: Lecture (2); Tutorial (1); Laboratory (0)

CILO No.	TLAs	Total Hours (if applicable)
CILO 1	<ul style="list-style-type: none">LecturesDemonstrations during tutorials	6
CILO 2	<ul style="list-style-type: none">Exercises on the use of computer software to solve engineering problem during tutorialsHands-on experience of commercial software and personal observations and discovery using the software	10
CILO 3	<ul style="list-style-type: none">LecturesExercises on the use of computer software to solve engineering problem during tutorialsHands-on experience of commercial software and personal observations and discovery using the software	15
CILO 4	<ul style="list-style-type: none">LecturesCase studies during tutorials	8

Assessment Tasks/Activities:

(Indicative of likely activities and tasks designed to assess how well the students achieve the CILOs. Final details will be provided to students in their first week of attendance in this course)

Coursework: 50%

Examination: 50% (Examination duration = 3 hours)

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%.

CILO No.	Type of assessment tasks/activities	Weighting (if applicable)	Remarks
CILO 1	<ul style="list-style-type: none">Final examination	---	<ul style="list-style-type: none">Nil
CILO 2	<ul style="list-style-type: none">In-class exercises on the use of commercial software	---	<ul style="list-style-type: none">Nil
CILO 3	<ul style="list-style-type: none">Final examinationReports on in-class exercises, with attentions to the documentation of the observations and discovery made through the use of software	---	<ul style="list-style-type: none">Nil
CILO 4	<ul style="list-style-type: none">Final examination	---	<ul style="list-style-type: none">Nil

Grading of Student Achievement:

Grading Pattern:

Standard

Refer to Grading of Courses in the Academic Regulations for Taught Postgraduate Degrees.

Part III

Keyword Syllabus:

Advanced designs of deep excavation, shallow and deep foundations, ground Settlement due to Tunneling, Ground Improvement, Geotechnical construction techniques, Land reclamation, Geotechnical risk and reliability, Numerical Analysis, Use of computer software to solve common geotechnical problems associated with empirical relationships, seepage, consolidation, pile applications, excavations, and general soil behavior.

Recommended Reading:

- **Texts:**
 1. Coduto, D.P. 2001. Foundation Design: Principles and Practices. 2nd Ed. Prentice-Hall.
 2. Craig, R.F. 2004. Craig's Soil Mechanics. 7th Ed. Spon Press.
 3. Das B.M. 1999. Principles of Foundation Engineering. 4th Ed. PWS Publishing.
 4. Geotechnical Control Office (GCO) 1984. Geotechnical Manual for Slopes. The Government of Hong Kong Special Administration Region, 2nd Edition, Hong Kong.
 5. Geotechnical Control Office (GCO) 1987. Geoguide 2: Guide to Site Investigation. The Government of Hong Kong Special Administration Region. Hong Kong.
 6. Geotechnical Control Office (GCO) 1987. Geoguide 3: Guide to Soil and Rock Descriptions. The Government of Hong Kong Special Administration Region. Hong Kong.
 7. Geotechnical Engineering Office (GEO) 1993. Geoguide 1: Guide to Retaining Wall Design. 2nd Edition, The Government of Hong Kong Special Administration Region, Hong Kong.
 8. Muir Wood, D. 1990. Soil Behaviour and Critical State Soil Mechanics. Cambridge University Press.
 9. Powrie, W. 2004. Soil Mechanics: Concepts and Applications. 2nd Ed. Spon Press.
 10. Atkinson & Bransby 1978. The Mechanics of Soils. McGraw-Hill
 11. Atkinson 1993. An Introduction to the Mechanics of Soils and Foundations. Mc-Graw-Hill.
 12. Mitchell, J. K. and Soga, K. 2005. Fundamentals of Soil Behavior. Wiley.
 - **Online Resources:**
 1. Nil
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