

The University of Hong Kong  
Department of Earth Sciences

Continuing Professional Development (CPD) Courses from the MSc in Applied Geosciences

SEPTEMBER TO DECEMBER 2024

**GEOS7010 Geology principles and practice** (approximately 36 hours) Fees \$15,000

Taught by Dr Samuel Ng and Miss Trudy Kwong  
(Mondays 9 September to 25 November 2024, 7:00pm - 9:45pm)

This course provides a comprehensive review of fundamental concepts in geoscience, including earth and geological processes, surface processes, minerals and rocks, geological structures, and geological map interpretation. It aims to enhance students' practical skills in identifying minerals and rocks, which will be developed through dedicated practical sessions aimed at refining their analytical and observational abilities. **This course is the pre-requisite for course GEOS7033 Geology of Hong Kong and GEOS7035 Intermediate Geology to be offered in January to May 2025.**

**GEOS7011 Advanced geology of Hong Kong** (approximately 36 hours) Fees \$15,000

Taught by Dr. Denise Tang, GEO, Mr. Edison Tse, GEO, and Miss Trudy Kwong  
(Fridays 6 September to 15 November 2024, 7:00pm – 9:45pm, Field Classes on Saturdays)

This advanced course explores the specialised aspects of the rocks and geological formations and structures in Hong Kong and their importance in geotechnical engineering, natural hazard management and resource development. Topics include volcanic systems, volcanic-plutonic connections, marble formations and complex geology, metamorphic rocks, tectonic history and geological structures, Quaternary stratigraphy and processes, and geological aspects of landslides.  
Pre-requisite: a bachelor's degree in Geology or Earth Sciences, or completed GEOS7033 Geology of Hong Kong.

**GEOS7015 Rock mechanics** (approximately 18 hours) Fees \$7500 **HKIE**

Taught by Prof Louis NY Wong and Ir Ivan Ho, GEO  
(Tuesdays 22 October to 26 November 2024, 7:00pm – 9:45pm, 6 meetings)

The course introduces the basic concepts of rock mechanics used in geotechnical practice. Topics include index properties, strength and deformability of intact rock; distribution and measurement of in-situ stresses; and shear strength of discontinuities in rock masses. Pre-requisite: school science to HK A-Level or DSE or equivalent.

**GEOS7016 Soil mechanics** (approximately 18 hours) Fees \$7500 **HKIE**

Taught by Prof Philip Chung, GEO and Ir Florence Ko, GEO  
(Tuesdays 3 September to 15 October 2024, 7:00pm – 9:45pm, 6 meetings)

An examination of the basic soil mechanics theory used in geotechnical practice. The course reviews phase relationships, soil classification, compaction, fluid flow and effective stress concepts; and provides a more detailed analysis of elasticity, shear strength and consolidation. Pre-requisite: school science to HK A-Level or DSE or equivalent.

**GEOS7024 Management** (approximately 18 hours) Fees \$7500 **HKIE**

Taught by Dr PL Ng  
(Fridays 6 September to 18 October 2024, 7:00 – 9:45pm, 6 meetings)

This course introduces the basic knowledge of project management practice. It will cover the following topics: engineering processes, programming and procurement strategies; contract management; construction site safety, health and environmental aspects; quality control and quality assurance.

**GEOS8001 Hydrogeology** (approximately 18 hours) Fees \$7500 **HKIE**

Taught by Prof J Jiao  
(Wednesdays 23 October to 27 November 2024, 7:00pm – 9:45pm)

To study the role of sub-surface water in engineering and environmental applications. Topics include the hydrologic cycle, properties of aquifers controlling the transmissivity storage and quality of groundwater, quantification of groundwater flow, the field investigation of groundwater and assessment of field parameters and applications of hydrogeology in engineering and environmental studies.

**GEOS8101 Engineering geology and geotechnical design** (approximately 36 hours) Fees \$15,000 **HKIE**

Taught by Prof Philip Chung, GEO and Dr Eric Sze, GEO

(24 October 2024 to 18 March 2025, 7:00pm - 9:45pm, 6 Thursdays meetings + 6 Tuesdays meetings)

An examination of civil engineering design methodology and the application of soil mechanics theory and empiricism in geotechnical design. Emphasis is given to soil slopes and embankments, earth pressure and retaining structures and shallow and deep foundations. Pre-requisite: GEOS7016 Soil Mechanics or equivalent.

**GEOS8104 Natural hillside landslide and hazard studies** (approximately 18 hours) Fees \$7500

Taught by Jonathan Hart, GeoRisk Solutions and Steven Williamson, AECOM

(Mondays 21 October to 25 November 2024, 7:00pm - 9:45pm, 6 meetings)

The contents of this course will include most of the following topics: classification of landslides; Hong Kong terminology, examples of natural terrain landslides and documentary sources of information; hillslope evolution, geomorphological principles (including the evolutionary landform models of Dalrymple and Hansen) and Quaternary geology of Hong Kong; hillslope hydrology, modes of groundwater flow, runoff and infiltration, piping; hydrological and morphological conditions for initiation of shallow landslides in regolith; engineering geological and geomorphological mapping; landform processes; regolith mapping, boulder identification; landslide hazard assessment; landslide susceptibility assessment for risk quantification; design event approach; landslide mobility modelling. Pre-requisite: a bachelor's degree in Geology or Earth Sciences

**GEOS8205 Mathematics I** (approximately 36 hours) Fees \$15,000 **HKIE**

Taught by Dr FL Tsang

(Fridays 6 September to 29 November 2024, 7:00pm – 9:45pm, 12 meetings)

This course, together with GEOS8206 Mathematics II, strives to provide a comprehensive introduction to the fundamental mathematics that all earth scientists need. Topics include the language of sets, the concept of matrices and its applications, functions, limits, first order differentiation, applications of derivatives, first order Taylor's expansion, properties of exponential and logarithmic functions, the notation of integration, integration techniques, volume of revolution, higher order differentiation and Taylor's expansion, Hessian test for functions of two variables, the concept of multiple integration, and volume using triple integration. Pre-requisite: a bachelor's degree in Geology or Earth Sciences.

**HKIE** Courses approved by HKIE. These are some of the courses which a graduate in Earth Sciences or Geology would need to meet the entry requirements of the Hong Kong Institution of Engineers in the Geotechnical Discipline.

A student must attend at least 80% of the meetings to receive a Certificate of Attendance. A Certificate of Completion is awarded to students who also successfully pass the assessment (examination and assignments).

For queries please contact Miss Trudy Kwong [trudy8@hku.hk](mailto:trudy8@hku.hk) Tel: 2859 8002

or Miss Erica Lee [erica25@hku.hk](mailto:erica25@hku.hk) DES General Office Tel: 2857 8247

**Application Form for Enrolment in CPD Courses from the MSc in Applied Geosciences  
SEPTEMBER TO DECEMBER 2024**

**Apply by 20 August 2024**

<b><u>Courses</u></b>	<b><u>credits</u></b>	<b><u>Fees</u></b>
GEOS7010 Geology principles and practice	6 credits	HK\$15,000
GEOS7011 Advanced geology of Hong Kong	6 credits	HK\$15,000
GEOS7015 Rock mechanics	3 credits	HK\$7500
GEOS7016 Soil mechanics	3 credits	HK\$7500
GEOS7024 Management	3 credits	HK\$7500
GEOS8001 Hydrogeology	3 credits	HK\$7500
GEOS8101 Engineering geology and geotechnical design	6 credits	HK\$15,000
GEOS8104 Natural hillside landslide and hazard studies	3 credits	HK\$7500
GEOS8205 Mathematics I	6 credits	HK\$15,000

Family Name: \_\_\_\_\_ Given names: \_\_\_\_\_

Postal Address: \_\_\_\_\_

Phone numbers: Day \_\_\_\_\_ Home/Mobile \_\_\_\_\_ Fax: \_\_\_\_\_

Personal email: **ESSENTIAL** \_\_\_\_\_

Current position: \_\_\_\_\_ Company: \_\_\_\_\_

First Degree field of study: \_\_\_\_\_ Other Degrees \_\_\_\_\_

Course(s) applied for: \_\_\_\_\_

Total fees: HK\$ \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

How did you find out about these CPD courses? \_\_\_\_\_

Please return a completed application form and your cheque, payable to “*The University of Hong Kong*”, to the following address:

**Director, MSc in Applied Geosciences  
Department of Earth Sciences  
The University of Hong Kong  
Pokfulam Road  
Hong Kong**

You will be notified by email regarding approval of application and meeting dates and venue.

**These courses will qualify for advanced standing in the MSc in Applied Geosciences.**