

**Special Topic in Geotechnical Engineering:
Geotechnical Earthquake Engineering
(CIEE 709 / IMSC 009)**

Semester Syllabus

Part 1: Course Information

Instructor Information

Instructor: Dr. Thomas M.H. Lok

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Course Description

This is a course for postgraduate students to understand the principles of geotechnical earthquake engineering. The basic concepts of seismology will be covered. Basic principles of wave propagation and ground response analysis will be presented. Advanced topics including liquefaction and seismic slope stability will also be covered.

Prerequisite

None

Course Duration

42 contact hours, 3 hours per week (3-credit course)

Credit: 3

Compulsory/elective course: Elective

Part 2: Course Objectives

The objectives of this course are to introduce the student concepts and procedures of geotechnical earthquake engineering. In particular, this course will cover the following topics:

1. Seismology
 - Seismology and earthquakes
 - Strong Ground Motion
 - Seismic Hazard Analysis

2. Soil Dynamics
 - Wave propagation
 - Dynamic soil properties
 - Ground response analysis

3. Seismic Hazards

- Liquefaction
- Seismic slope stability
- Seismic stability of retaining walls

Part 3: Major Assessment Methods

Homework	40%
Midterm Exam & quiz	20%
Final Exam	40%