

| Course Information                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| Course title                                                                                                                      | Geotechnical Earthquake Engineering                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Semester                                                                                                                          | 114-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Designated for                                                                                                                    | COLLEGE OF ENGINEERING GRADUATE INSTITUTE OF CIVIL ENGINEERING, GEOTECHNICAL ENGINEERING DIVISION                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Instructor                                                                                                                        | <a href="#">ON-LEI( ANNIE) KWOK</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Curriculum Number                                                                                                                 | CIE7030                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Curriculum Identity Number                                                                                                        | 521EM2210                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Class                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Credits                                                                                                                           | 3.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Full/Half Yr.                                                                                                                     | Half                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Required/ Elective                                                                                                                | Elective                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Time                                                                                                                              | Thursday 7,8,9(14:20~17:20)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Remarks                                                                                                                           | Restriction: within this department (including students taking minor and dual degree program)<br>The upper limit of the number of students: 20.                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Course introduction video                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Table of Core Capabilities and Curriculum Planning                                                                                | <a href="#">Table of Core Capabilities and Curriculum Planning</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Course Syllabus                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Please respect the intellectual property rights of others and do not copy any of the course information without permission</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Course Description                                                                                                                | The purpose of this course is to introduce the concepts, theories, and applications of Geotechnical Earthquake Engineering. It is a multidisciplinary course including the related topics in seismology, geology, wave propagation, soil dynamics, structure dynamics, risk analysis and related engineering problems. Topics discussed in this course include plate tectonics, faults, wave propagation, earthquake ground motion, probabilistic seismic hazard analysis dynamic soil behavior and its evaluation, site |

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|                                                                             | effect, soil liquefaction, soil-structure interaction and other earthquake-induced ground failure.                                                                                                                                                                                                                                                                                                                                                                                   |       |
| Course Objective                                                            | The students will have a basic understanding of concepts, theories and applications related to the field of geotechnical earthquake engineering.                                                                                                                                                                                                                                                                                                                                     |       |
| Course Requirement                                                          | Structural Dynamics or Soil Dynamics                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |
| Student Workload<br>(Expected weekly study hours before and/or after class) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |
| Office Hours                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |
| Designated reading                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |
| References                                                                  | S.L. Kramer (1996). Geotechnical Earthquake Engineering, Prentice Hall<br><br>Articles from earthquake engineering related journals (e.g. Earthquake Spectra, Bulletin of Seismological Society of America, Journal of Soil Dynamics and Earthquake Engineering)                                                                                                                                                                                                                     |       |
| Grading                                                                     | <div>1. NTU has not set an upper limit on the percentage of A+ grades.</div> <div>2. NTU uses a letter grade system for assessment. The grade percentage ranges and the single-subject grade conversion table in the NATIONAL TAIWAN UNIVERSITY Regulations Governing Academic Grading are for reference only. Instructors may adjust the percentage ranges according to the grade definitions. For more information, see <a href="#">the Assessment for Learning Section</a>.</div> |       |
| Progress                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |
| Week                                                                        | Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Topic |
| No data                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |