CIVL 4710 – SOIL SLOPE ENGINEERING
COURSE SYLLABUS
SPRING 2016/17

UNITS [3-0-0:3]

COURSE CREDITS AND FORMAT

<table>
<thead>
<tr>
<th>TOTAL CREDITS</th>
<th>3</th>
</tr>
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<tbody>
<tr>
<td>LECTURE (Week 1-13)</td>
<td>Monday/Wednesday 12:00-13:20 Room 2504 (Lift 25/126)</td>
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<tr>
<td>TUTORIAL</td>
<td>Use Lecture Time</td>
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INSTRUCTOR

| Dr Jidong ZHAO | Room 3589 | Ext: 8481 | Email: Jzhao@ust.hk |

COURSE DESCRIPTION

This final-year elective course aims to teach students to apply the fundamental principles of saturated and unsaturated soil mechanics to the analysis and design of slope stability. The course covers slope failure mechanisms, transient seepage analysis, measurement and selection of shear strength parameters, historical and recent methods of slope stability analysis, designs of slope stabilization measures and instrumentation.

COURSE OUTCOMES

From this course, the students are expected to master the fundamental theories and knowledge in the stability analysis of soil slopes, the failure of which proves to be a recurring natural hazard for both Hong Kong and around the world. They will obtain the various analytical and numerical skills in treating a complicated practical slope problem to evaluate its safety and design proper stabilization measures if they are needed. These skills and knowledge are closely contingent to the practical needs if the students wish to become a geotechnical engineer after graduation.

PREREQUISITE

CIVL 4720 - Geotechnical Analysis and Design

ASSESSMENT ITEMS AND WEIGHTINGS

| Assignments | = 20% |
| In-class quick quizzes | = 5% |
| Mid-term examination | = 40% |
| Term Project | = 35% |

COURSE CONTENTS

1. Introduction (Week 1)

2. Theory of Soil strength (Week 1-2)
3. Methods of slope stability analysis (Week 3-5)

4. Transient seepage analysis (Week 6-7)

5. Field instrumentation (Week 8)

6. Design of stabilization measures (Week 9)

7. Probabilistic approach in soil slope engineering (Week 10)

8. Soil nailing in loose fills (Week 11)

9. Expansive soil slopes (Week 12)

10. Loess slopes (Week 13)

REFERENCES