CIVL2205
Geotechnical Engineering
Session 2, In person-scheduled-weekday, North Ryde 2024
School of Engineering

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General Information

Unit convenor and teaching staff
Convenor
Golnaz Alipour Esgandani
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Contact via email
Room 111, Level 1, 50 Waterloo Road, Macquarie Park
By arrangement

Credit points
10

Prerequisites
CIVL1001 or MECH1001

Corequisites

Co-badged status

Unit description
This unit applies principles of soil mechanics to different design stages of geotechnical structures. The unit will help the students analyse and design different structures associated with soils. Specific topics include introduction to geotechnical design, site investigation and in situ testing, water flow and seepage in soils, lateral stress and retaining structures, slope stability and landslides, shallow and deep foundations, and ground improvement. This unit provides the essential knowledge required for successful completion of a Geotechnical and Transportation Project in the fourth year.

Important Academic Dates
Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes
On successful completion of this unit, you will be able to:

ULO1: Carry out site investigation and in-situ testing for geotechnical engineering projects
ULO2: Estimate stresses and pore pressures associated with the construction of a geotechnical structure
ULO3: Exhibit in-depth understanding of engineering design and analysis
ULO4: Appreciate and demonstrate an understanding of the factors affecting the final design and considerations that should be made according to the Australian standards and guidelines.

ULO5: Analyse and design retaining walls, foundations and analyse the stability of slopes

General Assessment Information

Grading and passing requirement for unit

There are a set of small projects, the mid session test and a final exam that need to be completed for assessment. In order to pass this unit a student must obtain a mark of 50 or more for the unit (i.e. obtain a passing grade P/ CR/ D/ HD).

For further details about grading, please refer below in the policies and procedures section.

Late Assessment Submission Penalty

Students enrolled in Session based units with written assessments will have the following university standard late penalty applied. Please see https://students.mq.edu.au/study/assessments for more information.

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11:55 pm. A 1-hour grace period is provided to students who experience a technical concern.

For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/presentations, and/or scheduled practical assessments/labs, students need to submit an application for Special Consideration.

Assessments where Late Submissions will be accepted

In this unit, late submissions will accepted as follows:

- Written reports as part of the project – YES, Standard Late Penalty applies
- Oral presentation as part of the project - NO, unless Special Consideration is Granted
- Mid session exam and final exam - NO, unless Special Consideration is Granted

Final exam:

If you receive special consideration for the final exam, a supplementary exam will be scheduled by the faculty during a supplementary exam period, typically about 3 to 4 weeks after the normal exam period. By making a special consideration application for the final exam you are declaring yourself available for a resit during the supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. Approved applicants will receive
an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

### Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Examination</td>
<td>40%</td>
<td>No</td>
<td>TBA</td>
</tr>
<tr>
<td>Mid session quiz</td>
<td>20%</td>
<td>No</td>
<td>Week 8 Monday from 10am to 12pm</td>
</tr>
<tr>
<td>Project</td>
<td>40%</td>
<td>No</td>
<td>Weekly</td>
</tr>
</tbody>
</table>

### Final Examination

Assessment Type ¹: Examination  
Indicative Time on Task ²: 26 hours  
Due: TBA  
Weighting: 40%

Final examination

On successful completion you will be able to:

- Exhibit in-depth understanding of engineering design and analysis
- Appreciate and demonstrate an understanding of the factors affecting the final design and considerations that should be made according to the Australian standards and guidelines.
- Analyse and design retaining walls, foundations and analyse the stability of slopes

### Mid session quiz

Assessment Type ¹: Quiz/Test  
Indicative Time on Task ²: 19 hours  
Due: Week 8 Monday from 10am to 12pm  
Weighting: 20%

Mid session quiz

On successful completion you will be able to:
Carry out site investigation and in-situ testing for geotechnical engineering projects
Estimate stresses and pore pressures associated with the construction of a geotechnical structure

**Project**

Assessment Type: Project
Indicative Time on Task: 25 hours
Due: Weekly
Weighting: 40%

There will be set of small projects throughout the session, which are part of a larger project.

On successful completion you will be able to:
- Carry out site investigation and in-situ testing for geotechnical engineering projects
- Estimate stresses and pore pressures associated with the construction of a geotechnical structure
- Exhibit in-depth understanding of engineering design and analysis
- Appreciate and demonstrate an understanding of the factors affecting the final design and considerations that should be made according to the Australian standards and guidelines.
- Analyse and design retaining walls, foundations and analyse the stability of slopes

1 If you need help with your assignment, please contact:
   - the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
   - the Writing Centre for academic skills support.

2 Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

**Delivery and Resources**

Lecture starts in Week 1. Practical sessions start in Week 2. All the lecture materials will be uploaded on iLearn for the students to review before attending practical classes. Lecture materials are designed in the format of iLearn quizzes and contain some questions for your practice, however, they do not have any marks. Students are expected to go through the materials, do the work and be prepared for the upcoming practical session. Practical sessions are face to face and students are expected to attend the classes which will be held on the main
Unit Schedule

Refer to iLearn and lecture notes for the unit schedule.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Assessment Procedure
- Complaints Resolution Procedure for Students and Members of the Public
- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct
Results
Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity
At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

Student Support
Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

The Writing Centre
The Writing Centre provides resources to develop your English language proficiency, academic writing, and communication skills.

- Workshops
- Chat with a WriteWISE peer writing leader
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support
Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
• **Social support including information about finances, tenancy and legal issues**
• **Student Advocacy** provides independent advice on MQ policies, procedures, and processes

**Student Enquiries**

Got a question? Ask us via [AskMQ](https://www.mq.edu.au/about_us/offices_and_units/information_technology/help/), or contact [Service Connect](https://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

**IT Help**

For help with University computer systems and technology, visit [http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University’s IT, you must adhere to the [Acceptable Use of IT Resources Policy](https://www.mq.edu.au/about_us/offices_and_units/information_technology/help/). The policy applies to all who connect to the MQ network including students.

Unit information based on version 2024.02 of the [Handbook](https://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).