



# CIVL2205

## Geotechnical Engineering

Session 2, Special circumstances, North Ryde 2021

*School of Engineering*

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#### **Disclaimer**

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#### **Session 2 Learning and Teaching Update**

The decision has been made to conduct study online for the remainder of Session 2 for all units WITHOUT mandatory on-campus learning activities. Exams for Session 2 will also be online where possible to do so.

This is due to the extension of the lockdown orders and to provide certainty around arrangements for the remainder of Session 2. We hope to return to campus beyond Session 2 as soon as it is safe and appropriate to do so.

Some classes/teaching activities cannot be moved online and must be taught on campus. You should already know if you are in one of these classes/teaching activities and your unit convenor will provide you with more information via iLearn. If you want to confirm, see the list of [units with mandatory on-campus classes/teaching activities](#).

Visit the [MQ COVID-19 information page](#) for more detail.

## General Information

Unit convenor and teaching staff

Lecturer

Golnaz Alipour Esgandani

[golnaz.alipour@mq.edu.au](mailto:golnaz.alipour@mq.edu.au)

Contact via [golnaz.alipour@mq.edu.au](mailto:golnaz.alipour@mq.edu.au)

Level 1, 50 Waterloo road

By Agreement, please contact via email

Co-Lecturer

Craig O'Neill

[craig.oneill@mq.edu.au](mailto:craig.oneill@mq.edu.au)

Contact via [craig.oneill@mq.edu.au](mailto:craig.oneill@mq.edu.au)

12 Wally's Walk, Room 515

By Agreement, please contact via email

Credit points

10

Prerequisites

CIVL1001

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, analysis and design of shallow and deep foundations, retaining structures, stability of slopes, 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:** Exhibit in-depth understanding of engineering design and analysis

**ULO3:** Analyse and design retaining walls, foundations and analyse the stability of slopes

**ULO4:** Determine and analyse the factors affecting the stability of slopes

## General Assessment Information

Students are expected to attend all lectures, tutorials and practicals. Lectures are online. Tutorials will start from week 2 and will be online for the first couple of weeks. We will move to face to face mode (for tutorials) if possible later on. Practical sessions will be face to face when possible. It includes some laboratory work and some field trips. More information will be provided about the practicals via iLearn through the semester. Recordings of lectures, tutorials and some practicals will be made available via iLearn. Practical sessions are conducted in the soil mechanics lab at 13 Research Park Drive. Please contact your convenor [Golnaz.alipour@mq.edu.au] as soon as possible if you have difficulty attending and participating in any classes. If there are circumstances that mean you miss a practical, you can apply for a disruption to studies request through ask.mq.edu.au and if approved this practical will be removed from your record of absences.

The dates for submission of assessment tasks are listed on the iLearn schedule. Extensions for submission of assessment tasks will be given only for illness or misadventure, which must be supported by documentation through the online request portal (ask.mq.edu.au). Assessment tasks submitted late without approval will be penalized 10% of the potential total mark per day late. Students must keep a copy of their assignments.

### Grading and passing requirement for unit

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.

### On-line quizzes (optional)

There may be problem sets at the end of some of the online lectures and students can answer to them if they want. These online short quizzes will have bonus marks (maximum 5% in total) and the bonus mark can help to increase their total mark at the end of the semester. The quiz will be held at the end of each online lecture session and will be about the topic that covered in that session. Students are required to listen to the lecture to be able to answer the questions. The link for the online quiz will be shared at the end of each lecture.

### Practicals and lab reports

There are some assessed practical activities; the schedule and details of which will be distributed via iLearn. You must submit a written lab report which addresses the given problems/questions

and describes the work you have done during the practical session. Some practicals involve group work but reports are individually assessed, i.e. you must submit your own work written in your own words. Cutting and pasting information from web pages is NOT acceptable. Information you obtain from other sources (brief quotes, images, ideas) must be fully referenced in the text (author, year), with references listed at the end of the report (year, author, title, journal or link). Additionally, all work must be shown for calculation problems, including correct use of units and significant figures.

Written assignments are to be submitted using Turnitin. Macquarie University promotes student awareness of information management and information ethics. As well as training and the provision of general information, the University tackles the issue of plagiarism through use of an online plagiarism detection tool (Turnitin). This software is used in conjunction with a set of procedures to ensure its use is equitable. Turnitin automatically compares your work to the work of your classmates, previous students from Macquarie University and other universities, and with material available on the Internet, both freely available and in subscription-based electronic journals and books. The results will be sent only to your unit convenor and tutors, who will analyze these in reference to the University's standard Policy on Plagiarism.

## **Exams**

This unit has two exams, a final and a mid-term. These examinations are based on lectures, reading material, practicals and tutorial exercises. This is information you should have absorbed through completing assignments and any other material presented during classes. A printed English dictionary (not electronic) may be brought in for the exam if English is not your first language. The educational rationale for the exam is to check the acquired knowledge by the students at the end of the unit.

The mid-term exam will be conducted during the scheduled lecture slot in week 6 and it is going to be online. The final will occur during the normal exam period following week 13 and will be scheduled by the university. The exam timetable will be available in draft form about eight weeks before the commencement of examinations and finalized approximately four weeks before the commencement of the examinations.

## **Field visit**

Assessment Type **1**: Field work task Indicative Time on Task **2**: 7 hours Due: **week 1-4** Weighting: **10%**

The field work task may include some individual or group work based on the information and instructions given by the lecturer.

On successful completion you will be able to:

- Identify rock samples
- Identify rock failure and calculate GSI
- Conduct surveying and collect some data for slope stability analysis

### Mid-session quiz

Assessment Type <sup>1</sup>: Examination Indicative Time on Task <sup>2</sup>: 19 hours Due: **week 6** Weighting: **30%**

The Mid-term Exam may include any topic covered until the end of Week 5.

On successful completion you will be able to:

- Demonstrate proficiency in rock identification and classification
- Solve problems about rock failure and stress in rocks

### Lab book

Assessment Type <sup>1</sup>: Report Indicative Time on Task <sup>2</sup>: 13 hours Due: **ongoing** Weighting: **20%**

Students are required to work on a basic laboratory or design project. Each student is required to write an individual report on the project and submit it online.

On successful completion you will be able to:

- Demonstrate proficiency in the presentation of laboratory work or design procedure

### Final Exam

Assessment Type <sup>1</sup>: Examination Indicative Time on Task <sup>2</sup>: 26 hours Due: **Final Examination Period** Weighting: **40%**

The Final Examination may include any topic covered in this unit.

On successful completion you will be able to:

- Demonstrate proficiency in identifying rocks, rock classification, site investigation and surveying.
- Perform geotechnical structures analysis
- Demonstrate proficiency in checking the factor of safety and stability status of different geotechnical structures
- Have a good knowledge about stabilisation techniques

<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance.
- the [Learning Skills Unit](#) for academic skills support.

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

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

Name	Weighting	Hurdle	Due
<a href="#">Final Examination</a>	40%	No	TBD
<a href="#">Lab book</a>	20%	No	Week 13
<a href="#">Field visit</a>	10%	No	Week 6
<a href="#">Mid session quiz</a>	30%	No	Week 6

### Final Examination

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 26 hours

Due: **TBD**

Weighting: **40%**

Final examination

On successful completion you will be able to:

- Exhibit in-depth understanding of engineering design and analysis
- Analyse and design retaining walls, foundations and analyse the stability of slopes
- Determine and analyse the factors affecting the stability of slopes

### Lab book

Assessment Type <sup>1</sup>: Lab book

Indicative Time on Task <sup>2</sup>: 13 hours

Due: **Week 13**

Weighting: **20%**

Lab book reporting practical work

On successful completion you will be able to:

- Exhibit in-depth understanding of engineering design and analysis
- Analyse and design retaining walls, foundations and analyse the stability of slopes
- Determine and analyse the factors affecting the stability of slopes

## Field visit

Assessment Type <sup>1</sup>: Field work task

Indicative Time on Task <sup>2</sup>: 7 hours

Due: **Week 6**

Weighting: **10%**

Site visit and in-situ testing for geotechnical engineering project

On successful completion you will be able to:

- Carry out site investigation and in-situ testing for geotechnical engineering projects

## Mid session quiz

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 19 hours

Due: **Week 6**

Weighting: **30%**

Mid session quiz

On successful completion you will be able to:

- Exhibit in-depth understanding of engineering design and analysis
- Analyse and design retaining walls, foundations and analyse the stability of slopes

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<sup>1</sup> 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.

<sup>2</sup> 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

The best resource is the lecture contents and the material given in the practicals and tutorials,

however, if the students are interested in obtaining more information about the topics, they can refer to:

Handy, Richard Lincoln. Geotechnical engineering: soil and foundation principles and practice. McGraw-Hill Education, 2007.

## 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 \(https://policies.mq.edu.au\)](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](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](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 \(https://policies.mq.edu.au\)](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](https://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Student Support

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



## Learning Skills

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [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

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## 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](#). The policy applies to all who connect to the MQ network including students.

## Changes from Previous Offering

Not applicable