



CIVL2205

Geotechnical Engineering

Session 2, In person-scheduled-weekday, North Ryde 2023

School of Engineering

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General Information

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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, 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

Mid session quiz Assessment Type 1: Quiz/Test Indicative Time on Task 2: 19 hours Due: 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 1: Project Indicative Time on Task 2: 25 hours Unit guide CIVL2205 Geotechnical Engineering Due: Weighting: 40% There will be set of small projects through out 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

Final Examination Assessment Type 1: Examination Indicative Time on Task 2: 26 hours Due: 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

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

Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Mid session quiz</u>	20%	No	
<u>Project</u>	40%	No	
<u>Final Examination</u>	40%	No	

Mid session quiz

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 19 hours

Due:

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 ¹: Project

Indicative Time on Task ²: 25 hours

Due:

Weighting: **40%**

There will be set of small projects through out 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

Final Examination

Assessment Type ¹: Examination

Indicative Time on Task ²: 26 hours

Due:

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

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- 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

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#) (<https://policie>

[s.mq.edu.au](https://www.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 \(https://students.mq.edu.au/support/study/policies\)](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 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](#), or contact [Service Connect](#).

IT Help

For help with University computer systems and technology, visit 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.