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
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

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid session quiz</td>
<td>20%</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Project</td>
<td>40%</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Final Examination</td>
<td>40%</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

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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**Policies and Procedures**

Macquarie University policies and procedures are accessible from [Policy Central](https://policy.mq.edu.au)

https://unitguides.mq.edu.au/156244/unit_guide/print
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.
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.