BLAR12052 *Geotechnical Studies*
Term 2 - 2023

Profile information current as at 12/10/2024 07:11 pm

All details in this unit profile for BLAR12052 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student).The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview
In this unit, you will learn the role of geotechnical investigations in the design process, and soil mechanics including description of physical properties, soil classification, bearing capacity, permeability, compressibility, shear strength, slope stability, flow of water, and foundations and footings including investigations into basic principles of subsurface rock and soil materials and their ability to support structures.

Details
Career Level: *Undergraduate*
Unit Level: *Level 2*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites
BLAR11049 Built Environment Communication and Skills Or COMM11003 Professional and Technical Communication (before 2012 term 1)
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

Offerings For Term 2 - 2023

- Online

Attendance Requirements
All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website
This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

Regional Campuses
Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses
Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Written Assessment**
Weighting: 30%
2. **Written Assessment**
Weighting: 25%
3. **Online Quiz(zes)**
Weighting: 10%
4. **Written Assessment**
Weighting: 35%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the CQUniversity Policy site.
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Student Unit Teaching Evaluation

Feedback

Clear, informative and well-delivered unit. Assessment questions are relevant to actual building and construction industry practice.

Recommendation

It is recommended to continue with the same teaching practice.

Feedback from Student Unit Teaching Evaluation

Feedback

Assessment tips were extremely helpful in this unit.

Recommendation

It is recommended to continue with the same teaching strategy in which the lecturer regularly provides 'Tips for Assessment Questions' in News Forum/ Quickmail upon covering the required knowledge in lectures and tutorials to answer those questions.

Feedback from Student Unit Teaching Evaluation and student email

Feedback

The unit covers a long list of materials related to every day practice. The lecturer made sure they were covered giving better understanding of the knowledge referring to practical examples. Students are now using this knowledge in their actual practice e.g. reading soil test reports, retaining wall design and construction.

Recommendation

It is recommended to continue with the same teaching practice.

Unit Learning Outcomes

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

1. Apply soil and rock mechanics principles in building design and construction.
2. Interpret the influences of geological processes and natural environments on geotechnical design.
3. Explain the use and limitations of geotechnical design in built environment projects.
4. Perform basic geotechnical calculations including soil phase relationships, strength, stability, stress, compressibility, permeability and bearing capacity.

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level | • Introductory Level | • Intermediate Level | • Graduate Level | ◦ Professional Level | ◦ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Written Assessment - 30%	•	•	•	•
2 - Written Assessment - 25%	•	•	•	•

Assessment Tasks	Learning Outcomes			
	1	2	3	4
3 - Online Quiz(zes) - 10%	•	•	•	
4 - Written Assessment - 35%	•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Communication	•	•	•	•
2 - Problem Solving	•	•	•	•
3 - Critical Thinking				
4 - Information Literacy	•	•	•	•
5 - Team Work				
6 - Information Technology Competence	•	•	•	•
7 - Cross Cultural Competence				
8 - Ethical practice				
9 - Social Innovation				
10 - Aboriginal and Torres Strait Islander Cultures				

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Written Assessment - 30%	•	•		•		•				
2 - Written Assessment - 25%	•	•		•		•				
3 - Online Quiz(zes) - 10%	•	•		•		•				
4 - Written Assessment - 35%	•	•		•		•				

Textbooks and Resources

Textbooks

BLAR12052

Prescribed

PRINCIPLES OF GEOTECHNICAL ENGINEERING: SI EDITION
Edition: 10th edn (2021)
Authors: Braja M. Das
Cengage Learning
Boston , MA , USA
ISBN: 9780357420485
Binding: Paperback

Additional Textbook Information
The Library has already provided an eBook of the 8th edition of this textbook and hopefully other editions in future at least to limited number of users.

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Micorsoft Office or equivalent (wordprocessing) software for preparation of assessment items in the appropriate format
- Microphone and headset (and prefereably a camera) to participate in Zoom sessions
- MS Teams

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Pushpitha Kalutara Unit Coordinator
p.kalutara@cqu.edu.au

Schedule

Week 1 - 10 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Topic 1: History of geotechnical studies, origin of soil, and weight-volume relationships	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	

Week 2 - 17 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Topic 2: Plasticity and structure of soil, classification of soil, and soil compaction	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	

Week 3 - 24 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Topic 3: Permeability	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	

Week 4 - 31 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Topic 4: In situ stress	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	

Week 5 - 07 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Topic 5: Stresses in a soil mass	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	

Vacation Week - 14 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
No online sessions- enjoy the break!		**Assessment Item 1** Due: Vacation Week Monday (14 Aug 2023) 11:45 pm AEST

Week 6 - 21 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Topic 6: Compressibility of soil	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	

Week 7 - 28 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Topic 7: Shear strength of soil	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	

Week 8 - 04 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Topic 8: Lateral earth pressure: At-rest, Rankine, and Coulomb	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	

Week 9 - 11 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Topic 9: Lateral earth pressure: Curved failure surface	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	**Assessment Item 2** Due: Week 9 Monday (11 Sept 2023) 11:45 pm AEST

Week 10 - 18 Sep 2023

Module/Topic	Chapter	Events and Submissions/Topic
Topic 10: Slope stability	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	

Week 11 - 25 Sep 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Topic 11: Soil bearing capacity for shallow foundations	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	

Week 12 - 02 Oct 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Topic 12: Subsoil exploration and rock mechanics	Please refer to the study guide and Moodle site for specific text book readings and additional unit information.	**Assessment Item 3 (Quiz)** Due: Week 12 Friday (6 Oct 2023) 11:45 pm AEST

Review/Exam Week - 09 Oct 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Relax! No exams for this unit.		**Assessment item 4** Due: Review/Exam Week Monday (9 Oct 2023) 11:45 pm AEST

Exam Week - 16 Oct 2023		
Module/Topic	**Chapter**	**Events and Submissions/Topic**
Relax! No exams for this unit.		

Assessment Tasks

1 Assessment Item 1

Assessment Type
Written Assessment

Task Description
Assessment task 1 covers Topic 1-3 in the study guide. It will require you to research and answer a number of questions that explore significant geotechnical concepts and calculations in relation to soil characteristics/properties, standard Proctor test, conductivity test, and soil compaction.
As with all assessments, formatting and presentation is important to design your answer with clarity. Technical accuracy and references to support ideas/facts will be paramount in demonstrating your answer in valid and reliable manner.
Your assignment should be produced in electronic format either as a:

- single word-processed document, or
- single pdf format document

Before or on the nominated due date, upload your work following the on-screen instructions.
Your submission will be processed through the similarity detection software, Turnitin. You may amend your work based on the detection report (Turnitin score).
You must ensure that the submission is your own and that any cited work has been correctly referenced as per Harvard referencing style as advised by CQU Harvard referencing guide.
Further information regarding the assessment will be available on the unit Moodle site.

Assessment Due Date
Vacation Week Monday (14 Aug 2023) 11:45 pm AEST

Please submit via the assessment portal on the Moodle home page .

Return Date to Students
Week 7 Monday (28 Aug 2023)

Review of the assessment will be returned within two weeks of the submission due date.

Weighting
30%

Minimum mark or grade
Must achieve 40% in this assessment and an overall cumulative result of 50% or more from all assessments to pass this unit.

Assessment Criteria
The following criteria will be used to evaluate the submissions:

- Clarity of expression and comprehensive coverage of issues
- Use of quality supporting documentation as appropriate
- Use of original thought and content
- Overall presentation and ability to communicate using correct spelling, grammar and punctuation and the use of appropriate diagrams and other visual communication
- Demonstration of core knowledge and demonstration of appropriate application of knowledge

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Please submit a single Word or PDF file via the assessment portal on the Moodle home page before the due date.

assessmentOutcome

- Apply soil and rock mechanics principles in building design and construction.
- Interpret the influences of geological processes and natural environments on geotechnical design.
- Explain the use and limitations of geotechnical design in built environment projects.
- Perform basic geotechnical calculations including soil phase relationships, strength, stability, stress, compressibility, permeability and bearing capacity.

assessmentGradAttribute

- Communication
- Problem Solving
- Information Literacy
- Information Technology Competence

2 Assessment Item 2

Assessment Type
Written Assessment

Task Description
Assessment task 2 covers Topic 4-7 in the study guide. It will require you to research and answer a number of questions that explore significant geotechnical concepts and calculations in relation to stresses in a soil mass, compressibility of soil, and shear strength of soil.
As with all assessments, formatting and presentation is important to design your answer with clarity. Technical accuracy and references to support ideas/facts will be paramount in demonstrating your answer in valid and reliable manner.
Your assignment should be produced in electronic format either as a:

- single word-processed document, or
- single pdf format document

Before or on the nominated due date, upload your work following the on-screen instructions.
Your submission will be processed through the similarity detection software, Turnitin. You may amend your work based on the detection report (Turnitin score).
You must ensure that the submission is your own and that any cited work has been correctly referenced as per Harvard referencing style as advised by CQU Harvard referencing guide.
Further information regarding the assessment will be available on the unit Moodle site.

Assessment Due Date
Week 9 Monday (11 Sept 2023) 11:45 pm AEST

Please submit via the assessment portal on the Moodle home page.

Return Date to Students
Week 11 Monday (25 Sept 2023)

Review of the assessment will be returned within two weeks of the submission due date.

Weighting
25%

Minimum mark or grade
Must achieve 40% in this assessment and an overall cumulative result of 50% or more from all assessments to pass this unit.

Assessment Criteria
The following criteria will be used to evaluate the submissions:

- Clarity of expression and comprehensive coverage of issues
- Use of quality supporting documentation as appropriate
- Use of original thought and content
- Overall presentation and ability to communicate using correct spelling, grammar and punctuation and the use of appropriate diagrams and other visual communication
- Demonstration of core knowledge and demonstration of appropriate application of knowledge

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Please submit a single Word or PDF file via the assessment portal on the Moodle home page before the due date.

assessmentOutcome

- Apply soil and rock mechanics principles in building design and construction.
- Interpret the influences of geological processes and natural environments on geotechnical design.
- Explain the use and limitations of geotechnical design in built environment projects.
- Perform basic geotechnical calculations including soil phase relationships, strength, stability, stress, compressibility, permeability and bearing capacity.

assessmentGradAttribute

- Communication
- Problem Solving
- Information Literacy
- Information Technology Competence

3 Assessment Item 3 (Quiz)

Assessment Type
Online Quiz(zes)

Task Description
In this assessment task, students need to answer a quiz consists of 20 multiple choice questions based on all the topics of the unit.
Further information regarding the assessment will be available on the unit Moodle site.

Number of Quizzes
1

Frequency of Quizzes
Other

Assessment Due Date
Week 12 Friday (6 Oct 2023) 11:45 pm AEST

Please refer to the instructions on Moodle page

Return Date to Students
Review/Exam Week Monday (9 Oct 2023)

Results of the quiz will be returned within 24 hours of due date or submission date (whichever is the latest)

Weighting
10%

Minimum mark or grade
Must achieve 50% in this assessment and an overall cumulative result of 50% or more from all assessments to pass this unit.

Assessment Criteria
The quiz will be assessed based on the understanding of core knowledge and application areas of geotechnical engineering.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Please refer to Moodle for more information

assessmentOutcome

- Apply soil and rock mechanics principles in building design and construction.
- Interpret the influences of geological processes and natural environments on geotechnical design.
- Explain the use and limitations of geotechnical design in built environment projects.

assessmentGradAttribute

- Communication
- Problem Solving
- Information Literacy
- Information Technology Competence

4 Assessment item 4

Assessment Type
Written Assessment

Task Description
Assessment task 4 covers Topics 8-12 in the study guide. It will require you to research and answer a number of questions that explore significant geotechnical concepts and calculations in relation to earth pressure, slope stability, soil bearing capacity, and subsoil exploration and rock mechanics.
As with all assessments, formatting and presentation is important to design your answer with clarity. Technical accuracy and references to support ideas/facts will be paramount in demonstrating your answer in valid and reliable manner.
Your assignment should be produced in electronic format either as a:

- single word-processed document, or
- single pdf format document

Before or on the nominated due date, upload your work following the on-screen instructions.
Your submission will be processed through the similarity detection software, Turnitin. You may amend your work based on the detection report (Turnitin score).
You must ensure that the submission is your own and that any cited work has been correctly referenced as per Harvard referencing style as advised by CQU Harvard referencing guide.
Further information regarding the assessment will be available on the unit Moodle site.

Assessment Due Date
Review/Exam Week Monday (9 Oct 2023) 11:45 pm AEST

Please submit via the assessment portal on the Moodle home page.

Return Date to Students
Exam Week Friday (20 Oct 2023)

Within two weeks of submission due date but before the certification of grades

Weighting
35%

Minimum mark or grade
Must achieve 50% in this assessment and an overall cumulative result of 50% or more from all assessments to pass this

unit.

Assessment Criteria
The following criteria will be used to evaluate the submissions:

- Clarity of expression and comprehensive coverage of issues
- Use of quality supporting documentation as appropriate
- Use of original thought and content
- Overall presentation and ability to communicate using correct spelling, grammar and punctuation and the use of appropriate diagrams and other visual communication
- Demonstration of core knowledge and demonstration of appropriate application of knowledge

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
Please submit a single Word or PDF file via the assessment portal on the Moodle home page before the due date.

assessmentOutcome

- Apply soil and rock mechanics principles in building design and construction.
- Interpret the influences of geological processes and natural environments on geotechnical design.
- Explain the use and limitations of geotechnical design in built environment projects.
- Perform basic geotechnical calculations including soil phase relationships, strength, stability, stress, compressibility, permeability and bearing capacity.

assessmentGradAttribute

- Communication
- Problem Solving
- Information Literacy
- Information Technology Competence

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the **Student Academic Integrity Policy and Procedure**. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?
A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?
A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?
For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

Be Honest
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

Seek Help
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

Produce Original Work
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem