



COURSE OUTLINE

CIV201 Soil Mechanics

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2021 | Semester 2

USC Sunshine Coast
USC Moreton Bay

ON CAMPUS

Most of your course is on campus but you may be able to do some components of this course online.

Please go to the USC website for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

All land-based structures are founded on soil or rock. You will learn about the composition of soils and their behaviour when subjected to forces or displacements. You will assess soil properties and behaviour, applying the relevant theory. This includes identifying and classifying rocks and soils and examining the stresses that exist within a soil mass, soil deformation under loading, and peculiarities of local soils. It is a practical problem-based learning course where you work individually and in groups to advance your skills and knowledge.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
ON CAMPUS			
Laboratory 1	2hrs	Week 2	12 times
Fieldwork	2hrs	Week 1	Once Only
Lecture	1hr	Week 1	13 times

1.3. Course Topics

- Introduction to geology
- Rock and soil identification & classification
- Phase relations
- Peculiarities of clay
- Site investigation process
- Soil compaction
- Water flow in soil
- Stresses in soil
- Consolidation & settlement
- Soil strength

2. What level is this course?

200 Level (Developing)

Building on and expanding the scope of introductory knowledge and skills, developing breadth or depth and applying knowledge and skills in a new context. May require pre-requisites where discipline specific introductory knowledge or skills is necessary. Normally, undertaken in the second or third full-time year of an undergraduate programs.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES MAPPING	PROFESSIONAL STANDARD MAPPING
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...	Engineers Australia
<p>1 Apply current theoretical and practical knowledge of the principles, key concepts and technologies that relate to soil composition and behaviour in regional and global engineering contexts</p>	Creative and critical thinker	<p>1.1 - Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.</p> <p>2.1 - Application of established engineering methods to complex engineering problem solving.</p>
<p>2 Solve theoretical and technical geomechanical engineering problems</p>	Creative and critical thinker	<p>2.1 - Application of established engineering methods to complex engineering problem solving.</p> <p>2.2 - Fluent application of engineering techniques, tools and resources.</p>
<p>3 Communicate soil mechanics theory and technical engineering solutions effectively through written reports and oral presentations</p>	Empowered	<p>3.2 - Effective oral and written communication in professional and lay domains.</p> <p>3.4 - Professional use and management of information.</p>
<p>4 Act professionally by functioning autonomously and in teams.</p>	Engaged	<p>3.1 - Ethical conduct and professional accountability.</p> <p>3.3 - Creative, innovative and pro-active demeanour.</p> <p>3.4 - Professional use and management of information.</p> <p>3.5 - Orderly management of self, and professional conduct.</p> <p>3.6 - Effective team membership and team leadership.</p>

5. Am I eligible to enrol in this course?

Refer to the [USC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

Must be enrolled in Program SC404, SC405, SC410, SC411, SC425 or AB101

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

CV2403 or ENG312

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Feedback will be provided every week in lectures. Example assessment pieces will be presented and considered prior to assessment being assigned.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Portfolio	Group	40%	2000 words equivalent (including diagrams)	Refer to Format	Online Assignment Submission with plagiarism check
All	2	Oral	Individual	20%	12 minutes	Week 12	In Class
All	3	Report	Individual	40%	2000 words equivalent (including diagrams and calculations)	Refer to Format	Online Assignment Submission with plagiarism check

All - Assessment Task 1: Field/laboratory Mini Reports

GOAL:	To develop your ability to apply current practical and theoretical soil mechanics knowledge to solve complex technical engineering problems by conducting and interpreting field and laboratory tests and communicating these results.	
PRODUCT:	Portfolio	
FORMAT:	<p>The portfolio consists of four reports which are done in groups of 3-5. These types of reports are required in the engineering profession for clientele and detail the rationale for, conduct of and results from any field and laboratory testing conducted. Implications of the results should be discussed. The reports will be graded, and feedback provided. You will submit elements of the report periodically as indicated to ensure that you receive early, regular, and timely feedback on your progress.</p> <p>Due Weeks 6, 7, 9 & 10 (this may change).</p>	
CRITERIA:	No.	Learning Outcome assessed
	1	Application of current theoretical and practical knowledge and theoretical and technical geomechanical engineering solutions 1 2
	2	Written communication and Demonstration of professional conduct and ability to work collaboratively. 3 4
	3	EA Criteria 1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline. 1
	4	EA Criteria 3.2. Effective oral and written communication in professional and lay domains. 3
	5	EA Criteria 3.5. Orderly management of self, and professional conduct. 4
	6	EA Criteria 3.6. Effective team membership and team leadership. 4

All - Assessment Task 2: Technical Briefing

GOAL:	To develop your skills in communicating in the form of a technical briefing thus demonstrating how you applied soil mechanics knowledge to solve problems	
PRODUCT:	Oral	
FORMAT:	This task is an individual 12-minute presentation in the form of a briefing which is a standard delivery practice required of engineers in the field. You will communicate your understanding of a key concept/theory/practice/problem in soil mechanics. This is in front of an audience of your engineering peers. It includes a question and answer session. You choose visual media to suit the way you wish to communicate, e.g. film, poster, power point, etc.	
CRITERIA:	No.	Learning Outcome assessed
	1	Demonstration and application of current practical and theoretical knowledge 1
	2	Solving of theoretical and technical geomechanical engineering problems 2
	3	Communication of analysis and results in an oral format 3
	4	EA Criteria 1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline. 1
	5	EA Criteria 3.2. Effective oral and written communication in professional and lay domains. 3
	6	EA Criteria 3.5. Orderly management of self, and professional conduct. 4

All - Assessment Task 3: Soil Mechanics Technical Report

GOAL:	To develop your ability to write an individual technical report encompassing the application of current practical and theoretical soil mechanics knowledge to solve complex technical engineering problems.	
PRODUCT:	Report	
FORMAT:	15 – 20-page A4 individual typed report will address questions based on material presented via lectures, practicals, tutorials and assigned external readings covering the whole course. Questions will be about real-life scenarios or case studies that include the types of practical activities you did involving testing and experiments on soils, collecting data, and dealing with sources of error. The scenarios present information in different forms, e.g. graphs, tables of data, instrument readings, diagrams, images, descriptions of experiments and results, literature extract. You interpret and analyse these scenarios and answer the associated questions by applying both practical and theoretical knowledge. These answers may involve calculations, sequenced solutions to problems, drawing diagrams, or explanations. See Blackboard for further information. Due Week 15	
CRITERIA:	No.	Learning Outcome assessed
	1	Application of current theoretical and practical knowledge 1
	2	Theoretical and technical geomechanical engineering solutions 2
	3	Written communication 3
	4	EA Criteria 1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline. 1
	5	EA Criteria 3.2. Effective oral and written communication in professional and lay domains. 3
	6	EA Criteria 3.5. Orderly management of self, and professional conduct. 4

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Blackboard site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

There are no required/recommended resources for this course.

8.2. Specific requirements

Not applicable

9. How are risks managed in this course?

Risk assessments have been performed for all laboratory classes and a low level of health and safety risk exists. Some risk concerns may include equipment, instruments, and tools; as well as manual handling items within the laboratory. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

10.2. Assessment: Additional Requirements

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

The final mark is in the percentage range 47% to 49.4%

The course is graded using the Standard Grading scale

You have not failed an assessment task in the course due to academic misconduct

10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate:

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.

- 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.

- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

10.4. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the [Learning Advisers](#) web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.5. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to [Student Hub](#), email studentwellbeing@usc.edu.au or call 07 5430 1226.

10.6. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, , injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, [AccessAbility Services](#) can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to [Student Hub](#), email AccessAbility@usc.edu.au or call 07 5430 2890.

10.7. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website: <http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.8. General Enquiries

In person:

- **USC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **USC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **USC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **USC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **USC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **USC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au