Course Outline

Civil Engineering Techniques

CIVE 2009 Study Period 5 - 2024

Internal - Mawson Lakes Campus

University of South Australia

Introduction

Welcome

Welcome to the course Civil Engineering Techniques.

This course provides your first specific exposure to Civil Engineering as a career - what do Civil Engineers do? We will explore this within the context of sustainable materials and design and get familiar with a technological platform that will become increasingly important in most areas of Civil Engineering - namely Building Information Modelling and AutoCad basic drawings. We will apply this learning to introduce you to the specialist area of Structural Engineering, which will lay the foundations you will need for undertaking third year courses in structural design.

Excellent communication skills are an important part of being a civil engineer. In this course, students will continue to develop teamwork, reflection and presentation skills required for professional practice as a civil engineer.

I hope that you will enjoy this course and that it will reinforce for you that your decision to study Civil Engineering was the right one. It's an exciting and interesting career!

Elsayed Abdelaal

Academic Work Definitions

Internal mode includes face to face/in person components such as lectures, tutorials, practicals, workshops orseminars that may be offered at a University campus or delivered at another location. Courses delivered ininternal mode may also be offered intensively allowing them to be completed in a shorter period of time. Thereis an expectation that students will be physically present for the delivery of face to face/in person teaching andlearning activities.

Lecture

Student information

A lecture is delivery of course content either in person, or online in a virtual classroom, that builds on the course readings and pre-lecture requirements for you and other students in the course. The primary purpose of the lecture is to comprehensively describe and explain course content, ideas or skills to provide a foundation on which students build understanding through extended study. Lectures may also be pre-recorded and embedded in online courses.

All students are expected to have undertaken required readings and assigned activities prior to the lecture.

Staff information

A lecture is delivery either in person, or online in a virtual classroom environment, of original material to students with the primary purpose of comprehensively describing and explaining course content, ideas or skills. Consequently, lectures require adequate preparation time to ensure appropriate and current content across

multiple delivery modes. Online delivery may require additional preparation time to adapt or record material.

Tutorial

Student information

A tutorial can be conducted either in person or online in a virtual classroom. A tutorial is a facilitated group discussion, where your tutor leads analyses of issues and/or more detailed explanations related to the topics provided to you in online resources and/or lectures.

All students are expected to be familiar with relevant lecture content and readings prior to a tutorial and to participate actively in the related activities assigned for preparation. Tutorials may include a range of activities, including problem solving, group work, practical activities, and presentations.

Staff information

A tutorial can be conducted either in person, or online in a virtual classroom, as a facilitated group discussion, which includes analysis of issues and/or more detailed explanation related to topics provided in online resources and/or lectures. Tutorials may include a range of activities, including problem solving, group work, practical activities, and presentations.

Staff are expected to be familiar with the relevant and related course content as described and set out in the course documentation. Consequently, tutorials require adequate preparation time to ensure relevance to, and reinforcement of, course content across multiple delivery modes.

Course Teaching Staff

Online Course Facilitator:	Dr Elsayed Metwally
Location:	UniSA STEM P2-35
Telephone:	+61 8 8302 5234
Email:	ElSayed.Abd-Elaal@unisa.edu.au
Staff Home Page:	people.unisa.edu.au/ElSayed.Abd-Elaal

* Please refer to your Course homepage for the most up to date list of course teaching staff.

Contact Details

UniSA STEM

Website:	https://www.unisa.edu.au/about-unisa/academic-units/stem/

Course Overview

Prerequisite(s)

CIVE 2005 Mechanics of Materials

Corequisite(s)

There are no corequisite courses to be completed in conjunction with this course.

Course Objectives

On completion of this course, students should be able to:

CO1. Compare and distinguish between the specialisations within the civil engineering industry (PO 1,2,9) (EA 1.1, 1.5, 3.5).

CO2. Demonstrate a knowledge of standards and codes of practice (PO 1,4,5,6) (EA 1.1, 1.2, 1.6, 2.1, 2.2, 2.3).

CO3. Explain limit states design, load determination and load paths in real structures (PO 4,5) (EA 2.1, 2.2, 2.3).

CO4. Apply technical drawing skills using AutoCAD and Revit and describe the capabilities of Building Information Modelling (BIM) and its role in facilitating collaboration between architecture, engineering and construction (AEC) professionals (PO 5,7,9) (EA 2.2, 2.3, 3.2, 3.5, 1.5, 2.4).

CO5. Appraise a structure in terms of green building design concepts and sustainable construction materials (PO 1,3,6) (EA 1.1,1.6).

CO6. Continue to develop and apply teamwork, reflection and visual communication skills required for professional practice as a civil engineer (PO 2,7,8) (EA 3.2, 3.5, 3.6).

Upon completion of this course, students will have achieved the following combination of Graduate Qualities and Course Objectives:

	Graduate Qualities being assessed through the course						
	GQ1	GQ2	GQ3	GQ4	GQ5	GQ6	GQ7
CO1	•	•					
CO2	•		•		•		
CO3				•			
CO4	•		•			•	
CO5	•				•		
CO6		•		•		•	

Graduate Qualities

A graduate of UniSA:

GQ1. operates effectively with and upon a body of knowledge of sufficient depth to begin professional practice

GQ2. is prepared for life-long learning in pursuit of personal development and excellence in professional practice

GQ3. is an effective problem solver, capable of applying logical, critical, and creative thinking to a range of problems

GQ4. can work both autonomously and collaboratively as a professional

GQ5. is committed to ethical action and social responsibility as a professional and citizen

GQ6. communicates effectively in professional practice and as a member of the community

GQ7. demonstrates international perspectives as a professional and as a citizen

Course Content

Students will apply the methods, tools and techniques required as a civil engineer including:

- Relevance of standards and codes of practice, green building design and sustainable material selection
- Building design and construction including limit states, loads and load paths; introduction to Building Information Modelling (BIM) and structural analysis software
- Civil Engineering technical drawing skills using AutoCAD and Revit

Teaching and Learning Arrangements

Tutorial	2 hours x 12 weeks
Lecture	1 hour x 12 weeks
Practical	2 hours x 4 weeks

Unit Value

4.5 units

Use of recorded material

This course will involve the production of audio and/or video recordings of UniSA students. To protect student privacy, you must not at any time disclose, reproduce or publish these recordings, or related material, in the public domain including online, unless the videoed students give consent for reproduction, disclosure or publication. This requirement is consistent with University statutes, by-laws, policies, rules and guidelines which you agreed to abide by when you signed the Student Enrolment Declaration.

Student recording of learning activities

Students must seek permission prior to recording any UniSA learning activity. See A-56 Policy Student recording of learning activities (https://i.unisa.edu.au/siteassets/policies-and-procedures/docs/academic/a56_student-recording-of-learning-activities.pdf)

Breaches of this Policy contravene the principles of academic integrity, and attract the penalties provided in the Academic Integrity Procedure (https://i.unisa.edu.au/policies-and-procedures/university-policies/).

Learning Resources

Textbook(s)

You will need continual access to the following text(s) to complete this course. Where possible the Library will make the book available for student use. Please check the Library catalogue before purchasing the book(s). The Library will always seek to purchase resources that allow an unlimited number of concurrent users, however availability is dependent on license arrangements with book publishers and platforms. http://www.library.unisa.edu.au

Standards Australia (2002). *AS/NZS 1170.0:2002 : Structural design actions - General principles*.

Standards Australia (2011). *AS/NZS 1170.2:2011 : Structural design actions - Wind actions*.

Standards Australia (2002). *AS/NZS 1170.1:2002 : Structural design actions - Permanent, imposed and other actions*.

learnonline course site

All course related materials are available on your learnonline course site which you will be able to access from the ‘my Current Studies’ section in myUniSA (https://my.unisa.edu.au).

Access to Previous Courses
You will have access to your previous course sites for a period of 4 years. After this time, the course sites will be archived and will be unavailable.

Note: Course readings provided via the University Library are only made available to current students and staff due to licensing and copyright restrictions. Students may download their course readings while they are enrolled in the course for their personal research purposes only.

Assessment

Academic Integrity

Academic integrity is fundamental to the reputation of UniSA and its staff and students. Academic integrity means all staff and students are committed to producing academic work that accurately reflects authorship, and is created with honesty, trustworthiness, fairness, respect, and responsibility.

The University of South Australia expects students to demonstrate accurately what they have learned so that university qualifications are earned honestly and are trusted and valued by its students and their employers. That means students need to present work that represents what they have learned. Therefore, students must indicate where and how they have used other people's ideas to support their knowledge. Academic integrity requires an honest account of the source of contributions to the work by using correct referencing. Students must not represent the work of others as their own as this does not demonstrate what they have learned. Using another person's work without correct referencing is considered Academic Misconduct.

The approach to academic integrity has many layers.

At the government level, a law exists that specifically states that providing academic cheating services to students of Australian universities is an **offence**, irrespective of whether the service is provided by an Australian or overseas operator (see Tertiary Education Quality and Standards Agency Amendment (Prohibiting Academic Cheating Services) Bill 2019 - https://www.legislation.gov.au/Details/C2020A00078). “Academic cheating services” includes providing or undertaking work for students, where that work forms a substantial part of an assessment task.

The University has policies and procedures to promote academic integrity and manage academic misconduct.More information about academic integrity and what constitutes academic misconduct can be found in the Academic Integrity Policy and Procedure (https://i.unisa.edu.au/policies-and-procedures/university-policies/). One example is that work submitted electronically by students for assessment will be examined for copied and un-referenced text using the text comparison software Turnitin http://www.turnitin.com.

At the course level, your instructor may also provide specific instruction and guidance on whether the use of tools such as translation software, writing aides, and artificial intelligence software is permissible and to what degree in completing learning tasks and assessments. When in doubt, ask your teaching team.

To learn more about academic integrity and how to avoid academic misconduct, please refer to the Academic Integrity Module: https://lo.unisa.edu.au/mod/book/view.php?id=252142

Use of generative artificial intelligence

The assessment tasks for this course require you to demonstrate your learning.

It is important to understand that information generated by GenAI tools, such as ChatGPT, Copilot, and DALL-E, may be unreliable, inaccurate, and incorrect. It is your responsibility to comply with the conditions for each assessment task summarised in the assessment description and that any use of GenAI tools is ethical and responsible and adheres to the assessment conditions.

Use of GenAI tools that extends beyond the stated assessment conditions will be considered a breach of academic conduct, as per the Academic Integrity Policy (AB-69).

Important information about all assessment

All students must adhere to the University of South Australia's procedures about assessment: http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/.

Assessment Details

Details of assessment submission and return are listed under each assessment task. Assessment tasks will be returned to you within 15 working days of submission.

Cover sheets

A cover sheet is not required for assessment tasks submitted via learnonline, as the system automatically generates one.

If the Course Coordinator allows submissions in hard copy format, you will be required to attach an Assignment Cover Sheet which is available on the learnonline student help (https://asklearnonline.unisa.edu.au/app/answers/detail/a_id/2222/kw/coversheet) and in myUniSA.

Assessment Descriptions

Assessment 1

Multiple	50% of Course Total	Objectives being assessed:CO2, CO3, CO4, CO6

Title	Team work	Length	Duration	Sub-weighting	Due date (Adelaide Time)	Submit via	Re-Submission	Re-Marking
Group project (Part 1)	Yes	Calculation based	N/A	20%	9 Aug 2024, 7:00 PM	learnonline	No	No
Group project (Part 2)	Yes	Calculation based	N/A	80%	16 Sep 2024, 7:00 PM	learnonline	No	No

Further information on re-marking and re-submission is available in the academic policy, AB-68 P4 Re-marking and Re-submission Procedure

Group project

Assessment 2

Single (Continuous)	40% of Course Total	Objectives being assessed:CO1, CO3, CO4, CO5

Title	Team work	Length	Duration	Sub-weighting	Due date (Adelaide Time)	Submit via	Re-Submission	Re-Marking
Case study (Part 1)	No	600 words	N/A	30%	18 Oct 2024, 7:00 PM	learnonline	No	No
Case study (Part 2)	No	1400 words	N/A	70%	4 Nov 2024, 7:00 PM	learnonline	No	No

Further information on re-marking and re-submission is available in the academic policy, AB-68 P4 Re-marking and Re-submission Procedure

Case study

Assessment 3

Single	10% of Course Total	Objectives being assessed:CO1, CO2, CO3, CO4, CO5, CO6

Title	Team work	Length	Duration	Due date (Adelaide Time)	Submit via	Re-Submission	Re-Marking
continuous assessment	No	1 or 2 pages in specific weeks	N/A	continuous assessment	Learnonline and in person in some weeks	No	No

Further information on re-marking and re-submission is available in the academic policy, AB-68 P4 Re-marking and Re-submission Procedure

continuous assessment

Feedback proformas

The feedback proforma is available on your course site.

Further Assessment Information

In the 'Assessment Summary' please ignore the details in the column 'Duration'. Please refer to the 'Assessment Activities' for deadlines.

Additional assessment requirements

Peer assessment is required for the group project and will be submitted through Spark Plus. Students should attend each practical class and report on the project progress and the jobs undertaken by all group members, to the tutor. Class absence should be communicated to all other group members.

Penalties for late submission

Submission and return of assessment tasks
EXTENSIONS:
Extensions will only be granted if:

1. An application is received through the course extension request available on the Learnonline page for the relevant course OR via an email directly to the course coordinator

2. The application is received at least 24 hours prior to the due date / time for the particular assignment

3. Appropriate evidence (e.g. medical certificate) is supplied

LATE SUBMISSIONS:
Late assignments that do not have approved extensions will incur the following penalties:

1. 5% of the maximum available for the assignment per calendar day will be deducted off the final mark awarded to an assignment. For example, if you score 75% (e.g. 15/20 marks) for your assignment, but it is two calendar days late you will lose 10% and thus score 65% (e.g. 13/20 marks) for your assignment. A total of 5% will be deducted for every 24 hr period – regardless if the assignment is 30 minutes late, or 24hrs late.

2. Late assignments will not be accepted more than 5 calendar days after an assignment deadline.

Exam Arrangements

This course does not have an exam.

Deferred Assessment or Examination

Deferred assessment or examination is not available for this course. APPM 7.6.4

Supplementary Assessment

Supplementary assessment or examination offers students an opportunity to gain a supplementary pass (SP) and is available to all students under specific conditions unless supplementary assessment or examination has not been approved for the course.

Specific conditions and further information is available in the Variations to Assessment Procedure. http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/

Special Consideration

Variations to assessment tasks

Details for which variation may be considered are discussed in the Variations to Assessments Procedure (http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/). Variation to assessment in unexpected or exceptional circumstances should be discussed with your course coordinator as soon as possible.

More information about variation to assessment is available in the Variations to Assessments Procedure (http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/).

Students with disabilities or medical conditions please refer to **Students with disabilities or medical conditions**.

Students with disabilities or medical conditions

Students with disabilities or medical conditions or students who are carers of a person with a disability may be entitled to a variation or modification to standard assessment arrangements. See the Variations to Assessment Procedure at: http://i.unisa.edu.au/policies-and-procedures/codes/assessment-policies/ and Policy C7 Students with Disability at: https://i.unisa.edu.au/policies-and-procedures/university-policies/corporate/c-7/

Students who require variations or modifications to standard assessment arrangements must first register for an Access Plan with the UniSA Access & Inclusion Service. It is important to contact the Access & Inclusion service early to ensure that appropriate support can be implemented or arranged in a timely manner.

Students who wish to apply for an Access Plan must book an appointment with a UniSA Access & Inclusion Advisor by contacting Campus Central or via the Online Booking System in the Student Portal. For more information about Access Plans please visit: https://i.unisa.edu.au/students/student-support-services/access-inclusion/

Once an Access Plan has been approved, students must advise their Course Coordinator as early as possible to ensure that appropriate supports can be implemented or arranged in a timely manner.

Students are advised there are also strict deadlines to finalise Access Plan arrangements prior to examinations. Further information is available at: http://i.unisa.edu.au/campus-central/Exams_R/Before-the-Exam/Alternative-exam-arrangements/

Action from previous evaluations

This is the first time this course has been taught on campus so there are no relevant previous evaluations

Course Calendar

Study Period 5 - 2024

	Weeks	Topic	Tutorial	Assessment Details (Adelaide Time)
	08 - 14 July	Pre-teaching		
	15 - 21 July	Pre-teaching		
1	22 - 28 July		Campus walk with worksheet/photos	
2	29 July - 4 August		Introduction to Group Project and BIM/Revit - BIM Tutorial	
3	05 - 11 August		Tutors to check every student can demonstrate Group Project Task 1 on screen in person	Group project (Part 1) due 09 Aug 2024, 7:00 PM
4	12 - 18 August		Tutorial questions on loads. Students working in their groups to calculate dead and live loads	
5	19 - 25 August		Work through tutorial questions on wind loads	
6	26 August - 1 September		Work through tutorial questions on wind loads	
7	02 - 8 September		Space GASS and Hand calculations	
8	09 - 15 September		Hand calculations and questions on group project	
9	16 - 22 September	Mid-break		Group project (Part 2) due 16 Sep 2024, 7:00 PM
10	23 - 29 September	Mid-break		
11	30 September - 6 October		Intro to Individual Project & Presentation. Viewing Vignettes and Preparing Formative Oral Presentation with reflection on graduate videos.	
12	07 - 13 October		Individual Project Tasks 1	
13	14 - 20 October		Individual Project Tasks 2, 3 and 4	Case study (Part 1) due 18 Oct 2024, 7:00 PM
14	21 - 27 October		Individual Project Tasks 5, 6 and 7	
15	28 October - 3 November		Walk through of shed to display load paths.	
16	04 - 10 November	Swot-vac		Case study (Part 2) due 04 Nov 2024, 7:00 PM
17	11 - 17 November			
18	18 - 24 November			