

# CVEN4102

Operations and Projects

Term 1, 2022



## Course Overview

### Staff Contact Details

#### Convenors

Name	Email	Availability	Location	Phone
Dr Johnson Shen	<a href="mailto:x.shen@unsw.edu.au">x.shen@unsw.edu.au</a>	Available during lectures and consultation sessions, or Email to make appointment on any urgent or personal matters	Civil Engineering Building (H20) Level 2, Room 212 Kensington Campus	+61293850483

### School Contact Information

[Engineering Student Support Services](#) – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

[UNSW Exchange](#) – student exchange enquiries (for inbound students)

[UNSW Future Students](#) – potential student enquiries e.g. admissions, fees, programs, credit transfer

#### Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

## Course Details

### Units of Credit 6

### Summary of the Course

This course is designed to extend your knowledge on construction methods, engineering design and operations planning. It covers three categories of operations: heavy civil construction, building construction, and underground infrastructure construction. Examples will be given to introduce design theory and best practice in engineering construction, such as how to improve the productivity in earthmoving, how to design a concrete formwork, and how to install a utility tunnel without opening up the ground. At the end of the course, you will have a better understanding about a variety of construction processes, practical engineering design and state-of-the-art construction techniques.

### Course Aims

The aim of this course is to introduce students to:

- Understand a variety of construction processes and methods;
- Identify the key factors adopted in the design of permanent or temporary structures;
- Provide you with procedures and tools for engineering design.

### Course Learning Outcomes

After successfully completing this course, you should be able to:

Learning Outcome	EA Stage 1 Competencies
1. Explain the process of construction operations	PE1.1, PE3.2, PE3.6
2. Work independently on the design a permanent or temporary structure	PE1.5, PE2.1, PE2.2
3. Select a suitable method for constructing underground tunnels.	PE1.6, PE2.2, PE2.3

### Teaching Strategies

Lectures: Find out what you must learn, Follow worked examples, Hear announcements on course changes.

Workshops: Be guided by demonstrators, Practice solving set problems, Ask questions.

Private Study: Review lecture material and look up books in the library if necessary, Do set problems and assignments, Reflect on class problems and assignments, Download materials from Moodle, Keep up with notices and find out marks via Moodle gradebook.

Assessments (examinations and assignments): Demonstrate your knowledge and skills, Demonstrate higher understanding and problem solving.

Observation: Go to construction sites and look through the fence to see what happens! Feel free to ask

about what you see during the workshops.

Guest Lecture: Hear what actually happens in construction sites from practitioners.

## **Additional Course Information**

Pre-requisites for Undergraduate students: CVEN2101 Engineering Construction;  
CVEN3101 Engineering Operations and Control.

Excluded Course for Postgraduate students: CVEN9723 Design of Construction Operations.

## Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Quizzes	30%	11/03/2022, 08/04/2022	1, 2
2. Final Exam	50%	Not Applicable	1, 2, 3
3. Individual Assignments	20%	06/03/2022, 17/04/2022	1, 2, 3

### Assessment 1: Quizzes

**Assessment length:** 1 hour

**Due date:** 11/03/2022, 08/04/2022

The quizzes will assess the basic knowledge covered in the main topics of the course. Students who perform poorly in the quizzes will have a chance to discuss progress with the lecturer during the term. The quizzes will be of an hour duration and will be open book. They consist of both quantitative and theoretical questions.

This is not a Turnitin assignment

#### Additional details

**Quiz 1** - Length: 1 hour; Weight: 15 marks; Due date: 11/03/2022; Deadline for absolute fail: 11/03/2022; Marks returned: 25/03/2022

**Quiz 2** - Length: 1 hour; Weight: 15 marks; Due date: 08/04/2022; Deadline for absolute fail: 08/04/2022; Marks returned: 22/04/2022

### Assessment 2: Final Exam

The final exam provides an opportunity to assess higher capabilities in understanding and applying the knowledge learned throughout the term. It will be of two hours duration in the formal exam period and will be open book. Students must achieve 40% in the final exam for course work to be included in the final mark.

This is not a Turnitin assignment

### Assessment 3: Individual Assignments

**Assessment length:** 2 - 6 weeks

**Due date:** 06/03/2022, 17/04/2022

The purpose of the individual assignments is to work independently on the engineering design of construction operations. Students can reflect and apply what they have learnt from the course by solving practical and open-ended engineering problems.

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

### **Additional details**

**Assignment 1** - Length: 2 weeks; Weight: 5 marks; Due date: 06/03/2022; Deadline for absolute fail: 11/03/2022; Marks returned: 11/03/2022

**Assignment 2** - Length: 6 weeks; Weight: 15 marks; Due date: 17/04/2022; Deadline for absolute fail: 22/04/2022; Marks returned: 29/04/2022

## Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

## Course Schedule

Online Lectures: Wed 11:00 - 13:00 (Weeks:1-5,7-10), Fri 14:00 - 15:00 (Weeks:1-5,7-8,10)

Online Workshops: Fri 15:00 - 17:00 (Weeks:1-3, 5,7)

Online Quizzes: Fri 15:30 - 16:30 (Weeks: 4, 8)

Week 6: Flexibility week for all courses (non-teaching)

Week 9: Fri, Public Holiday (no workshop)

[View class timetable](#)

## Timetable

Date	Type	Content
Week 1: 14 February - 18 February	Lecture	Topic: Dewatering
	Workshop	Topic: Dewatering
Week 2: 21 February - 25 February	Lecture	Topic: Shoring
	Workshop	Topic: Shoring
Week 3: 28 February - 4 March	Lecture	Topic: Bracing
	Workshop	Topic: Bracing
Week 4: 7 March - 11 March	Lecture	Topic: Piling
	Assessment	Quiz 1
Week 5: 14 March - 18 March	Lecture	Topic: Concrete Formwork
	Workshop	Topic: Concrete Formwork
Week 7: 28 March - 1 April	Lecture	Topic: Lifting
	Workshop	Topic: Lifting
Week 8: 4 April - 8 April	Lecture	Topic: Tunnelling
	Assessment	Quiz 2
Week 9: 11 April - 15 April	Lecture	Topic: TBM Tunnelling
Week 10: 18 April - 22	Lecture	Topic: Trenchless Techniques

April





## **Resources**

### **Prescribed Resources**

There is no prescribed textbook for this course.

### **Recommended Resources**

There are numerous books in the library covering Construction Methods and Project Management. If you are having trouble following the lectures or understanding how a construction process works then it is recommended that you look at one of these.

## **Submission of Assessment Tasks**

Please refer to the Moodle page of the course for further guidance on assessment submission.

**UNSW has a standard late submission penalty of:**

- 5% per day, for all assessments where a penalty applies, capped at five days (120 hours), after which a student cannot submit an assessment, and no permitted variation.

## Academic Honesty and Plagiarism

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person's work or ideas as if they were your own. When it is necessary or desirable to use other people's material you should adequately acknowledge whose words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

<https://student.unsw.edu.au/plagiarism>

## Academic Information

### Final Examinations:

Final exams in T1 2022 will be held online between 29th April - 12th May inclusive, and supplementary exams between 23rd - 27th May inclusive. You are required to be available on these dates. Please do not to make any personal or travel arrangements during this period.

### ACADEMIC ADVICE

- Key Staff to Contact for Academic Advice (log in with your zID and password): <https://intranet.civeng.unsw.edu.au/key-staff-to-contact-during-your-studies-at-unsw>
- [Key UNSW Dates](#) - eg. Census Date, exam dates, last day to drop a course without academic/financial liability etc.
- CVEN Student Intranet (log in with your zID and password): <https://intranet.civeng.unsw.edu.au/student-intranet>
- Student Life at CVEN, including Student Societies: <https://www.unsw.edu.au/engineering/civil-and-environmental-engineering/student-life>
- Special Consideration: <https://student.unsw.edu.au/special-consideration>
- General and Program-Specific Questions: [The Nucleus: Student Hub](#)
- Refer to Academic Advice on the School website available at: <https://www.engineering.unsw.edu.au/civil-engineering/student-resources/policies-procedures-and-forms/academic-advice>

## CRICOS

CRICOS Provider Code: 00098G

## Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.

## Appendix: Engineers Australia (EA) Professional Engineer Competency Standard

Program Intended Learning Outcomes	
Knowledge and skill base	
PE1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline	✓
PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline	
PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline	
PE1.4 Discernment of knowledge development and research directions within the engineering discipline	
PE1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline	✓
PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline	✓
Engineering application ability	
PE2.1 Application of established engineering methods to complex engineering problem solving	✓
PE2.2 Fluent application of engineering techniques, tools and resources	✓
PE2.3 Application of systematic engineering synthesis and design processes	✓
PE2.4 Application of systematic approaches to the conduct and management of engineering projects	
Professional and personal attributes	
PE3.1 Ethical conduct and professional accountability	
PE3.2 Effective oral and written communication in professional and lay domains	✓
PE3.3 Creative, innovative and pro-active demeanour	
PE3.4 Professional use and management of information	
PE3.5 Orderly management of self, and professional conduct	
PE3.6 Effective team membership and team leadership	✓