



## UNSW Course Outline

# CVEN9723 Design of Construction Operations - 2024

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## General Course Information

**Course Code :** CVEN9723

**Year :** 2024

**Term :** Term 3

**Teaching Period :** T3

**Is a multi-term course? :** No

**Faculty :** Faculty of Engineering

**Academic Unit :** School of Civil and Environmental Engineering

**Delivery Mode :** In Person

**Delivery Format :** Standard

**Delivery Location :** Kensington

**Campus :** Sydney

**Study Level :** Postgraduate

**Units of Credit :** 6

### Useful Links

[Handbook Class Timetable](#)

## Course Details & Outcomes

### Course Description

Design theory as applied to construction processes; application to selected areas of the construction industry; building construction; queueing and simulation models; work study (method study and work measurement) procedures; productivity; job planning, layout planning,

capacity planning; planning and design of production systems (construction oriented); reliability, availability, applications.

## Course Aims

The course is designed to extend your knowledge on engineering design and planning of construction operations. It covers fundamental construction methods and design practices for a variety of construction processes, including heavy civil construction, building construction and tunnel and utility pipeline construction. Examples will be given to guide the students in planning and directing construction operations.

## Relationship to Other Courses

Excluded Course: CVEN4102 Operations and Projects.

## Course Learning Outcomes

Course Learning Outcomes
CLO1 : Explain the process of construction operations
CLO2 : Design permanent and temporary structures
CLO3 : Investigate state-of-the-art construction technologies and operations
CLO4 : Work effectively in teams

Course Learning Outcomes	Assessment Item
CLO1 : Explain the process of construction operations	<ul style="list-style-type: none"><li>• Individual Assignment</li><li>• Group Assignment</li><li>• Quizzes</li></ul>
CLO2 : Design permanent and temporary structures	<ul style="list-style-type: none"><li>• Individual Assignment</li><li>• Group Assignment</li><li>• Quizzes</li></ul>
CLO3 : Investigate state-of-the-art construction technologies and operations	<ul style="list-style-type: none"><li>• Individual Assignment</li><li>• Group Assignment</li></ul>
CLO4 : Work effectively in teams	<ul style="list-style-type: none"><li>• Group Assignment</li></ul>

## Learning and Teaching Technologies

Moodle - Learning Management System

# Learning and Teaching in this course

*Hybrid Lectures: Thursday 13:00 - 17:00 (Weeks:1-3,5,7-10), Electrical Engineering G23 (K-G17-G23) or Blackboard Online Lectures*

## Assessments

### Assessment Structure

Assessment Item	Weight	Relevant Dates
Individual Assignment Assessment Format: Individual	10%	Start Date: 19/09/2024 10:00 AM Due Date: 02/10/2024 06:00 PM
Group Assignment Assessment Format: Group	30%	Start Date: 03/10/2024 10:00 AM Due Date: 13/11/2024 06:00 PM
Quizzes Assessment Format: Individual	60%	Start Date: Refer to detailed assessment description Due Date: Refer to detailed assessment description

## Assessment Details

### Individual Assignment

#### Assessment Overview

The purpose of the individual assignment 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.

#### Course Learning Outcomes

- CLO1 : Explain the process of construction operations
- CLO2 : Design permanent and temporary structures
- CLO3 : Investigate state-of-the-art construction technologies and operations

#### Detailed Assessment Description

*Refer to the detailed assignment description to be posted in Moodle.*

#### Assessment Length

2 Weeks

#### Assignment submission Turnitin type

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

## Generative AI Permission Level

### No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

## Group Assignment

### Assessment Overview

Engineering design is generally a team-based activity. The group assignment will help students to learn how to work effectively in a team-based environment. Each group can be up to 4 students. Detailed descriptions of the group assignments will be provided in Moodle.

### Course Learning Outcomes

- CLO1 : Explain the process of construction operations
- CLO2 : Design permanent and temporary structures
- CLO3 : Investigate state-of-the-art construction technologies and operations
- CLO4 : Work effectively in teams

### Detailed Assessment Description

*Refer to the detailed assignment description to be posted in Moodle.*

### Assessment Length

6 Weeks

### Assignment submission Turnitin type

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

## Generative AI Permission Level

### No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

# Quizzes

## Assessment Overview

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 one hour duration. They consist of both quantitative and theoretical questions.

## Course Learning Outcomes

- CLO1 : Explain the process of construction operations
- CLO2 : Design permanent and temporary structures

## Detailed Assessment Description

Quiz 1: 16:00-17:00, Thursday, 10 OCT 2024 (Week 5)

Quiz 2: 16:00-17:00, Thursday, 7 NOV 2024 (Week 9)

## Assessment Length

1 Hour

## Assignment submission Turnitin type

Not Applicable

## Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

# General Assessment Information

## Grading Basis

Standard

# Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Lecture	Topic: Earthwork Planning
Week 2 : 16 September - 22 September	Lecture	Topic: Shoring Design
Week 3 : 23 September - 29 September	Lecture	Topic: Piling Design
Week 4 : 30 September - 6 October	Lecture	Topic: Lifting Design
Week 5 : 7 October - 13 October	Lecture	Topic: Cost Estimation
Week 6 : 14 October - 20 October	Other	Mid-term Break Week, No Lecture
Week 7 : 21 October - 27 October	Lecture	Topic: Concrete Form Design
Week 8 : 28 October - 3 November	Lecture	Topic: Tunnelling Construction
Week 9 : 4 November - 10 November	Lecture	Topic: Trenchless Techniques
Week 10 : 11 November - 17 November	Lecture	Topic: Construction Safety and Quality Management

## Attendance Requirements

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

## General Schedule Information

*The final grade for this course will normally be based on the sum of the scores from each of the assessment tasks. Students who perform poorly in the quizzes are recommended to discuss progress with the lecturer during the term.*

*Note: The lecturer reserves the right to adjust the final scores by scaling if agreed by the Head of School.*

## Course 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.*

# Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
	Johnson Xuesong She n					No	Yes

## Other Useful Information

### Academic Information

#### I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's [Special Consideration page](#).

#### II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- [Attendance](#)
- [UNSW Email Address](#)
- [Special Consideration](#)
- [Exams](#)
- [Approved Calculators](#)
- [Academic Honesty and Plagiarism](#)
- [Equitable Learning Services](#)

#### III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at

the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

#### **IV. Professional Outcomes and Program Design**

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: <https://www.unsw.edu.au/engineering/student-life/student-resources/program-design>.

*Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.*

#### **Academic Honesty and Plagiarism**

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: <student.unsw.edu.au/plagiarism>. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also

be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

[www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf](http://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf)

## Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

## Faculty-specific 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)

#### **School Contact Information**

For assistance with enrolment, class registration, progression checks and other administrative matters, please see [the Nucleus: Student Hub](#). They are located inside the Library – first right as you enter the main library entrance. You can also contact them via <http://unsw.to/webforms> or reserve a place in the face-to-face queue using the UniVerse app.

For course administration matters, please contact the Course Coordinator.

Questions about this course should normally be asked during the scheduled class so that everyone can benefit from the answer and discussion.