

CVEN3101

Engineering Operations and Control

Term 3, 2022



Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Khalegh Barati	Khalegh.barati@unsw.edu.au	anytime	CE209 School of Civil and Environment al Engineering	469039745

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 subject is an introduction to the general principles of the organisation and control of engineering operations. The subject starts by looking at early practitioners and theorists in the area, and applies their thinking to the organisation of construction projects. Key skills will be developed in time and resource planning - critical path networks, decision processes, and quality, safety and environmental planning and control systems including the phases of plan generation, control and continuous improvement. Additional issues considered include procurement systems, field operations and the potential impact of the contract on relationships, processes and outcomes. A part of the course addresses the organisation and control of continuous processes; topics include process design, simulation and modelling, process control and adaptive management. Finally the course also looks at the management of the firm including product development and marketing, engineering entrepreneurship and financial planning and control and engineering economics.

Course Aims

The aim of this course is to introduce students to management theory, and to develop students understanding of the importance and application of management functions to the successful performance of engineering projects and engineering works. The course achieves this through a combination of lecture presentations, workshop classes and assessment exercises that are designed to introduce students to general management principles and enable them to critically reflect on how these principles are employed in the real world.

Course Learning Outcomes

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

Learning Outcome	EA Stage 1 Competencies
1. Demonstrate familiarity with definitions of engineering and management work	PE1.6
2. Understand the elements of economics and financial management and risk management	PE1.1
3. Understand and use project management tools such as: Gantt chart and CPM charts	PE1.5
4. Analyse practical considerations when managing construction projects	PE1.4
5. Appreciate the key aspects of project management including time, cost, safety and quality	PE2.1
6. Understand the role of ethics in engineering professionalism	PE3.1

Teaching Strategies

Please refer to the information in Moodle

Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Examination	60%	Not Applicable	1, 2, 3, 4, 5, 6
2. Assignment	40%	Not Applicable	1, 2, 3, 4, 5, 6

Assessment 1: Examination

Mid-term Examination

The Mid-term Examination is an online open-book exam, and students can have access to all formulas and supplementary data deemed necessary to complete calculation questions. This Examination will be based on the lecture and workshop materials up to and including **WEEK 4**.

Final Examination

The Final Examination will be externally conducted and scheduled by the UNSW Examinations Branch. Students will be informed via MyUNSW of the timetabling of this 2-hour Examination. This Examination is to assess student understanding of the course's significant technical content, based upon the presented lecture and workshop material from **WEEK 5 TO WEEK 10 inclusive**. The Final Examination is an online open-book exam, and students can have access to all formulas and supplementary data deemed necessary to complete calculation questions.

Assessment 2: Assignment

This submission is to be your own work and provides students the opportunity to work independently. Each student needs to nominate a construction project and prepare an Engineering Report on the project management, safety, quality, and ethics issues. Detailed description of the assignment and instruction of Engineering Report preparation will be provided in the Moodle. Each student is required to submit a pdf version of their assignment onto the Moodle by the due date.

Attendance Requirements

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

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 T3 2022 will be held online between 25th November - 8th December 2022 inclusive, and supplementary exams between 9th - 13th January 2023 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](#)
- Book an Academic Advising session: <https://app.acuityscheduling.com/schedule.php?owner=19024765>

Disclaimer

This course outline sets out 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 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 (as updated in Moodle), the description in the Course Outline/Moodle applies.

Image Credit

Mike Gal.

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	