

School of Civil and Environmental Engineering UNSW Engineering

CVEN9742

Professional Civil Engineering

Term 1, 2023



Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Robert Holdom	robert.holdom@unsw.edu.au	email or office contact by phone or in person	CE211	02 9385 7773

School Contact Information

<u>Engineering Student Support Services</u> – 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

The development of civil engineering infrastructure requires skills including that of planning, estimating, work administration, people handling and costing. These skills are crucial in order that infrastructure projects satisfy the clients' needs in terms of schedule, cost, quality and sustainability. The course explores some necessary skills required of a civil engineer.

Course Aims

The aim of this course is to transfer in-depth knowledge of industry practice for satisfying the clients' needs in terms of schedule, cost, quality and sustainability; promote advanced thinking in construction; develop skills related to real world applications of planning, estimating, work administration, people handling and costing.

Course Learning Outcomes

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

Learning Outcome	EA Stage 1 Competencies
1. Problem solving skills related to real world applications of planning, estimating, work administration, people handling and costing	PE1.1, PE1.3, PE2.3, PE2.4
2. Through independent research (which is student-centred and selfdirected learning), a student should be able to apply the principles associated with 'planning', 'estimating', 'work administration', 'people handling', and 'costing' associated in delivering project infrastructure.	PE1.1, PE1.2, PE1.4, PE2.3, PE2.4
3. Communicate developed solutions concisely, by presenting their work as a written submission or verbally	PE3.1, PE3.2, PE3.3, PE3.4, PE3.5, PE3.6
4. Complete such work if assigned to a multi-disciplinary team	PE2.2, PE2.3, PE2.4, PE3.1, PE3.2, PE3.4, PE3.5, PE3.6

Teaching Strategies

Lectures: Structured learning content.

Workshop sessions: Guided problem solving.

Private study: Review of lecture and workshop material; library work; additional problem solving.

Assessment: Assignments and examination.

Additional Course Information

This purpose of this course is to develop key skills that will enable a Civil Engineer to successfully deliver infrastructure projects that meet their clients' performance requirements and expectations. Those performance requirements and expectations are most often defined in terms of: 'schedule', 'cost', 'quality' and 'sustainability', and as such, the Civil Engineer is delving into project management issues. The course is designed to enable you to draw key focus towards identifying clients' needs, examining the project planning process and being able to recognise a project team's strength and weaknesses, the formation of teams and dealing with the associated people handling and development issues that unfold in the process and aspects of managing the estimating and tendering process. Additionally, you will be introduced to project costing and control measures and managing the work administration process. Weekly scheduled workshops will provide the opportunity for you to develop your skills across a wide scope of disciplines that are needed for the delivery infrastructure projects. There are no specific prerequisites for this course but it is assumed that students commencing this course have either an undergraduate degree in engineering or allied experience in civil construction operations. All communications shall be made using the course Moodle.

Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Dot-point Brief	20%	Week 4	2, 3
2. Reflective Journal of your Learning	35%	Week 9	1, 2, 3
3. Three (3) in-term Class Tests each valued at 15%	45%	Not Applicable	1, 2, 3

Assessment 1: Dot-point Brief

Start date: 13/02/2023 09:00 PM Assessment length: Limited page count Submission notes: The submission will be as a single pdf document. Due date: Week 4 Marks returned: Within two weeks

This assignment allows you to investigate the status of companies and organisations based in Australia and working in the Australian civil engineering and construction. The way you present your findings will feature as a significant part of the assessment of this task. The successful completion of this Assignment will provide you with the ability and processes that can be utilised as employability skills in investigating and reporting on other organisations allied to the engineering industry.

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Assessment criteria

The criteria of this Assessment Task are detailed in Assessment 1 located in the Moodle.

Hurdle requirement

This is a must pass submission requiring a minimum mark of 50% of the available marks allocated for this Assessment Task.

Assessment 2: Reflective Journal of your Learning

Start date: 13/02/2023 09:00 PM
Assessment length: 4500 words and page limited
Submission notes: The submission will be as a single pdf document.
Due date: Week 9
Marks returned: After the Term finishes. Expect 3 weeks after the submission deadline.

Each student will be required to produce a Reflective Journal of their learning throughout the semester. The submission of the Reflective Journal shall be due in Week 9, as noted below In the Assessment overview. The Reflective Journal will be set-out as a Report and each chapter will correspond to the learnings for each week (and should include their progress in their Assignments and Class Test reflective comments),up to and including Week 9's material for which you will be required to maintain

regular weekly input. It is emphasised that you will need to be regular with you journal input and proof of your diligence will be seen in the improvement of your weekly chapter writings throughout the semester, which forms part of the marking criteria. This submission will provide you with a substantial document which you will be able to utilise beyond this course as documentary proof of your ability to write a coherent Report on civil engineering management matters, which is in this case, is self-reflective by type.

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Assessment criteria

The criteria of this Assessment Task are detailed in Assessment 2 located in the Moodle.

Hurdle requirement

This is a must pass submission requiring a minimum mark of 50% of the available marks allocated for this Assessment Task.

Assessment 3: Three (3) in-term Class Tests each valued at 15%

Assessment length: Each Class Test will be 75 minutes duration Submission notes: Uploaded Class test submissions in accordance with the issued instructions for each Class Test Marks returned: Within two weeks of each Class Test sitting

The course has been structured along particular topics that form the basis of each Class Test, viz:

a. Organisations, Professional standing, Project Management and Client Expectations.

b. Project planning, Value Management, Multi-disciplinary teams, Risk issues, Managerial Control and Project Control measures.

c. Personnel Management, Project Commissioning, Marketing, Individual Development matters, Disruptive Technology and Project Sustainability.

The grouping of these topics will be taught and examined by way of separate Class Tests:

Class Test 1 will examine the content of lecture and workshop material covered in Weeks 1, 2, & 3.

Class Test 2 will examine the content of lecture and workshop material covered in Weeks 4, 5, & 7.

Class Test 3 will examine the content of lecture and workshop material covered in Weeks 8, 9, & 10.

Class Test 1 will be held on Saturday 4th March, 2023.

Class Test 2 will be held on Saturday 1st April, 2023.

Class Test 3 will be held on Saturday 22nd April, 2023.

Hurdle requirement

Students are required to obtain at least 50% of the marks available for the Class Test section of the course. Students do not have to gain a 50% pass in each Class Test in obtaining their overall Class Test total mark.

Additional details

The course will be instructed in three sections and a Class Test will be examine these sections discretely. For each Class Test an Answer Template will be issued. The Class Test will commence at 10:00am on the dates indicated. Students will have 75 minutes to hand-write their answers onto the Answer Template. There will be an additional 30 minutes allocated for each Class Test consising of 10 minutes Reading Time plus 20 minutes for scanning yor answers, creating a single file and uploading your answers onto the Moodle. There are substantial penalties applied for late submissions and the submission portal will close after five (5) minutes have lapsed from the scheduled finish time.

Each Class Test will be conducted as an open-book test and students are to complete each Class Test individually and without assistance from others.

Students are required to use the Practice Test portal to become familiar with the scanning and upload requirements.

Attendance Requirements

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

Course Schedule

All Lectures and Workshops will be ordinarily be presented by Mr Robert Holdom and students will be advised of changes to this expectancy.

The weekly Lecture and Workshop will be an integrated evening program. The weekly allocated time (18:00 - 21:00h) will be recorded as a 'Lecture' and made available on the course Moodle should you want to review any content. The Week 1 Lecture uploading may take several days for it to be made available on the Moodle, but beyond that, the weekly lecture recordings are normally expected to be available on the course Moodle within 24 hours.

An additional 1 hour each week will be allocated for students to meet with the lecturer to discus their learning. The time and place for this additional weekly Workshop session will be finalised in Week 1.

View class timetable

Timetable

Date	Туре	Content	
Week 1: 13 February - 17 February	Lecture	Introduction to organisations and management Your Professional standing and the Institution of Engineers (Engineers Australia)	
		Change Management and its impact to construction	
	Workshop	Outline of Assignments	
		Preparing your Reflective Journal	
		Outline of the requirements imposed on the profession	
		Minzberg managerial roles Implementing organisational change	
Week 2: 20 February -	Lecture	Project Management role in infrastructure proje	
24 February		Team formation, selection and leadership issues	
	Workshop	Reading articles and reports	
		Conduct of Belbin analysis	
		Conduct of Honey and Mumford analysis	

Week 3: 27 February -	Lecture	Defining a client's expectation	
		Identifying the factors that impact upon: 'schedule', 'cost', 'quality' and 'sustainability' in project delivery	
	Workshop	Sustainability overview in project work	
		Class Test 1 on Saturday	
Week 4: 6 March - 10 March	Lecture	Factors impacting on project planning and estimates	
		The Value Management process	
	Workshop	Similarities and differences in the Value Management documents used by the NSW Treasury and the Queensland Department of Public Works	
		Submit Dot-point Brief	
	Assessment	Dot-point Brief: The submission will be as a single pdf document.	
Week 5: 13 March - 17 March	Lecture	Complex projects and multi-disciplinary teams	
March		Managing risk within a project team	
	Workshop	The discipline needed with project teams and their Leadership	
		Creating 'Virtual Teams'	
Week 6: 20 March - 24 March	Homework	Flexibility Week	
		No Lecture or Workshop	
Week 7: 27 March - 31 March	Lecture	Managerial Control	
March		Introduction to Project Control	
	Workshop	Issues associated with 'Managerial Control' and 'Project Control'	
		'Benchmarking' as a process	
		Class Test 2 on Saturday	
Week 8: 3 April - 7 April	Lecture	Managing personnel turnover and project impacts	

		Commissioning, completion and handover	
	Workshop	Personal employment expectancies	
		The 'work-life' balance	
Week 9: 10 April - 14 April	Homework	Easter Monday Public Holiday	
		No Lecture or Workshop	
		Complete Reflective Journal for submission this week	
	Assessment	Reflective Journal of your Learning: The submission will be as a single pdf document.	
Week 10: 17 April - 21 April	Lecture	Marketing issues and maintaining industry relevance	
		Impacts in dealing with disruptive technologies	
		Sustainability issues in the delivery of infrastructure projects	
	Workshop	Discussion on your professional development	
		Dealing with Disruptive technology	
		Sustainability specifics in the delivery of infrastructure projects	
		Class Test 3 on Saturday	

Resources

Prescribed Resources

The Moodle will provide you with the initial readings for each week.

Recommended Resources

Students will be advised during the Lecture and Workshop sessions of additional readings. As postgraduate students, it is expected that students will research and read widely on the course topics.

Course Evaluation and Development

The course will be evaluated formally using the myExperience reporting tool. Student discussion with the lecturer throughout the term as wall as review of the assessment elements will form part of the course review process. That said, all students are encouraged take the time throughout the term to meet and discuss their learning progress with the lecturer.

Laboratory Workshop Information

Whilst the Lecture and Workshop session each week as the foral class meeting times, an additional weekly session of 1 hour is allocted for students to discuss their progress, learning issues and their understanding of the weekly topics.

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 2023 will be held on campus between the 28th of April and the11th of May, and Supplementary Exams between the 22nd of May and the 26th of May. 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): <u>https://intranet.civeng.unsw.edu.au/key-staff-to-contact-during-your-studies-at-unsw</u>
- <u>Key UNSW Dates</u> 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): <u>https://intranet.civeng.unsw.edu.au/student-intranet</u>
- Student Life at CVEN, including Student Societies: <u>https://www.unsw.edu.au/engineering/civil-and-environmental-engineering/student-life</u>
- Special Consideration: <u>https://student.unsw.edu.au/special-consideration</u>
- General and Program-Specific Questions: <u>The Nucleus: Student Hub</u>
- Book an Academic Advising session: <u>https://unswengacademicadvising.as.me/schedule.php</u>

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	1		
PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline	1		
PE1.4 Discernment of knowledge development and research directions within the engineering discipline	1		
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	1		