

CVEN4051

Thesis B

Term 1, 2022



Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Michael Manefield	manefield@unsw.edu.au	Online	Sydney, Australia	0405477066

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 the second of two parts and is undertaken after the completion of CVEN4050 Thesis A. The Thesis involves formulating the designs for and solution to open-ended civil and/or environmental engineering problems. The problems will be drawn from industry and will be multi-disciplinary involving application of material learnt throughout the undergraduate program and will require creative thought. The course will include the preparation of relevant professional documents. Part B involves the satisfactory preparation and submission of an individual thesis addressing the project plan defined in Thesis A.

Course Aims

This course enhances the student's skills for undertaking scholarly enquiry by attempting to achieve a specific topic objective within a defined period of time. A significant component of the course relates to the review of literature, which promotes independent and reflective learning as well as increases students' capacity to develop information literacy. The thesis is expected to reinforce the student's ability and confidence in the written communication of technical information.

Course Learning Outcomes

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

Learning Outcome	EA Stage 1 Competencies
1. Undertake and execute a research project	PE1.1, PE1.3, PE2.2, PE2.4, PE3.1
2. Conduct a thorough literature review	PE1.1
3. Satisfaction of intellectual curiosity and contribution of original ideas and research	PE3.3
4. Development of transferable skills in the process of developing and crafting a feasible research project	PE1.4
5. Produce a self-contained technical report	PE3.2
6. Development of oral and written communication skills	PE3.2
7. Present the research in a seminar	PE3.2
8. Demonstrate an ability to work to produce designs which draw upon knowledge gained in the undergraduate program.	PE2.1, PE2.4
9. Be in a position to make a positive contribution to the workforce as a professional engineer.	PE3.1, PE3.2, PE3.3, PE3.5
10. Critically evaluate information and demonstrate deep	PE1.1, PE1.2

Learning Outcome	EA Stage 1 Competencies
engineering understanding of the given design project.	

Teaching Strategies

The Honours Thesis is an individual thesis in which each student works under the guidance of academic staff with input from industry specialists. Topics are related to industry projects selected from contemporary practice. The work involves investigations and design applications.

Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Assignment 1	10%	25/02/2022 05:00 PM	1, 3, 4, 6
2. Assignment 2	20%	18/03/2022 05:00 PM	1, 2, 3, 4, 5, 6, 9, 10
3. Presentation	20%	22/04/2022 05:00 PM	1, 2, 3, 4, 6, 7, 8, 9, 10
4. Thesis	50%	19/04/2022 05:00 PM	1, 2, 3, 4, 5, 6, 8, 9, 10

Assessment 1: Assignment 1

Assessment length: 1 page

Due date: 25/02/2022 05:00 PM

Deadline for absolute fail: One week after due date

Marks returned: One week after submission

Present an overview of your approach to assessing remediation options and a gantt chart detailing time management for the term.

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

Assessment criteria

Student submissions will be graded according to the following scheme with equal weight given to the following four categories:

Appropriate: Does the submission adhere to requirements? Has the student understood what was expected of them in this assignment? Is the information presented relevant to the task?

Correct: Will the approach outlined produce a justifiable remediation option recommendation for the client? Is the allocation of time presented in the gantt chart sufficient to undertake the task?

Professional: Is the structure, writing quality and document aesthetic of professional standard? Does the submission give the impression it was prepared by a mature professional engineer?

Engaged: Is there evidence of engagement with the task beyond basic requirements?

Additional details

Your task

This assignment requires you to develop and outline an approach to assessing remediation options for the central organochlorine source zone located in groundwater under the Botany Industrial Park (1/2 page). You are also required to present a gantt chart showing how you will allocate time to the task over the course of the term (1/2 page). Suggested time commitment – 4 hours.

Submission details

Your submission should be no longer than one page in total. No exceptions. There are no specific requirements for structure (besides outline and gantt chart) or word or character count. Submit as a pdf via Turnitin on Moodle by 5 pm Friday of Week 3. Late submissions will be penalised by 10% per day. The deadline for absolute fail (zero grade) is 7 days after the submission deadline. Special consideration requests are to be made via Moodle (not the course coordinator).

Assessment 2: Assignment 2

Assessment length: 3 pages

Due date: 18/03/2022 05:00 PM

Deadline for absolute fail: One week after submission deadline

Marks returned: Two weeks after submission deadline

A short report describing the shortlisting of options for remediation of chlorinated solvents in groundwater.

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

Assessment criteria

Student submissions will be graded according to the following scheme with equal weight given to the following four categories:

Appropriate: Does the submission adhere to requirements? Has the student understood what was expected of them in this assignment? Is the information presented relevant to the task?

Correct: Is the information presented factually correct or accurate? Does the content of the submission reflect reality?

Professional: Is the structure, writing quality and document aesthetic of professional standard? Does the submission give the impression it was prepared by a mature professional engineer?

Engaged: Is there evidence of engagement with the task beyond basic requirements? How deeply has the student investigated resources available to produce the submission?

Additional details

Your task

This assignment requires you to write a report describing the process used to shortlist 2-5 remediation options for managing the central organohalide source area in groundwater under the Botany Industrial Park. A shortlist to be examined in detail in your final thesis submission must be presented. The process used for selecting the shortlist must be transparent and justified. Suggested time commitment – 12 hours.

Submission details

Your submission should be no longer than three pages, including figures but excluding title page, references or appendices. There are no specific requirements for structure or word or character count. Submit as a pdf via Turnitin on Moodle by 5 pm Friday of Week 5. Late submissions will be penalised by 10% per day. The deadline for absolute fail (zero grade) is 7 days after the submission deadline. Special

consideration requests are to be made via Moodle (not the course coordinator).

Assessment 3: Presentation

Assessment length: 5 minutes

Due date: 22/04/2022 05:00 PM

Deadline for absolute fail: One week after submission

Marks returned: Two weeks after submission

Submit a recorded video presentation on your recommended remediation option for the client and remediation action plan.

Assessment criteria

Marking scheme

Student submissions will be graded according to the following scheme with equal weight given to the following four categories:

Appropriate: Does the submission adhere to requirements? Has the student understood what was expected of them in this assignment? Is the information presented relevant to the task?

Correct: Is the information presented justifiable? Does the content of the submission reflect reality?

Professional: Is the structure and quality of vocal delivery and visual aids of professional standard? Does the submission give the impression it was prepared by a professional?

Engaged: Is there evidence of engagement with the task beyond basic requirements? How deeply has the student investigated resources available to produce the submission?

Additional details

Your task

Produce and submit a video presentation outlining your remediation option recommendation and action plan for remediation of the central organochlorine source zone in groundwater under the Botany Industrial Park as per the request of the client (Orica).

Submission details

Produce a 5 minute MP4 video presentation with visual aids. The structure and content of your presentation is in your capable hands. There are no specific requirements for numbers of slides though one slide per minute is standard. Submit the file to your media gallery in Moodle by 5 pm Friday of Week 10. You can make your submission earlier if it is more convenient. See the Instructions for submitting video below. Late submissions will be penalised by 10% per day. The deadline for absolute fail (zero grade) is 7 days after the submission deadline. Special consideration requests are to be made via Moodle (not the course coordinator).

Assessment 4: Thesis

Assessment length: 10 pages

Due date: 19/04/2022 05:00 PM

Deadline for absolute fail: One week after submission

Marks returned: Two weeks after submission

Produce a professional report presenting a remediation options assessment and a remediation action plan for the client.

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

Assessment criteria

Marking scheme

Student submissions will be graded according to the following scheme with equal weight given to the following four categories:

Appropriate: Does the submission adhere to requirements? Has the student understood what was expected of them in this task? Is the information presented relevant to the task?

Correct: Is the information presented factually correct or accurate? Does the content of the submission reflect reality? Would a professional engineer make similar decisions?

Professional: Is the structure, writing quality and document aesthetic of professional standard? Does the submission give the impression it was prepared by a mature professional engineer?

Engaged: Is there evidence of engagement with the task beyond basic requirements? How deeply has the student investigated resources available to produce the submission?

Additional details

Your task

The thesis task requires you to a) present the findings of your remediation options assessment and b) outline plans to implement the recommended approach to remediation in a 10 page technical report. You may work in groups of any size to generate communal resources (Figures and Tables), but the text and the submission are to be your individual work. Communal resources must be acknowledged. You are not obliged to work in groups. Submit as pdf. Suggested time commitment – 40 hours.

Submission details

Your submission should be no longer than ten pages, excluding title page, table of contents, references and appendices. Include an executive summary. Use a heading structure that aids readability and enhances navigability. Beyond this, there are no specific requirements for structure or word or character count or font size or line spacing or margins. Submit as a pdf via Turnitin on Moodle by 5 pm Tuesday of Week 10. Late submissions will be penalised by 10% per day. The deadline for absolute fail (zero grade) is 7 days after the submission deadline. Special consideration requests are to be made via Moodle (not the course coordinator).

Attendance Requirements

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

Course Schedule

Date	Topic	Lecturers
14/02/2022 (Week 1)	Course Introduction Client briefing (Orica)	Mike Manefield James Stening
21/03/2022 (Week 2)	Options assessment and action plans	Chris Duesterberg
28/02/2022 (Week 3)	Remediation options assessment case study	TBA
07/03/2022 (Week 4)	Remediation action plan case study	TBA
14/03/2022 (Week 5)	Stakeholder engagement	Mike Manefield
21/03/2022 (Week 6)	Flexibility week	
28/03/2022 (Week 7)	Remediation options assessment help session I	Mike Manefield
04/04/2022 (Week 8)	Remediation options assessment help session II	Mike Manefield
11/04/2022 (Week 9)	Remediation options assessment help session III	Mike Manefield
18/04/2022	Thesis and presentation submission	Students

(Week 10)		
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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>

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	