UNSW Course Outline

CVEN4952 Research Thesis B - 2024

Published on the 29 Jan 2024

General Course Information

Course Code : CVEN4952
Year : 2024
Term : Term 1
Teaching Period : T1
Is a multi-term course? : No
Faculty : Faculty of Engineering
Academic Unit : School of Civil and Environmental Engineering
Delivery Mode : Research
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 4

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

The thesis provides an opportunity for you to bring together engineering principles learned over your previous years of study and apply these principles to innovatively solve problems such as the development of a specific design, process and/or the investigation of a hypothesis. Thesis

projects are complex, open-ended problems that allow room for your creativity, and the acquisition, analysis and interpretation of results. There are multiple possible solutions or conclusions at the outset and sufficient complexity to require a degree of project planning. The thesis requires you to formulate problems in scientific or engineering terms, manage an technical project and find solutions by applying scientific and engineering methods. You will also develop their ability to work in a research and development environment. You must identify a supervisor and project prior to enrolling in this course. This is the second course of the 3 course thesis structure.

Course Aims

The thesis provides an opportunity for the student to bring together engineering principles learned over their previous years of study and apply these principles to innovatively solve problems such as the development of a specific design, process and/or the investigation of a hypothesis. Thesis projects must be complex, open-ended problems that allow room for student creativity, and the acquisition, analysis and interpretation of results. There must be multiple possible solutions or conclusions at the outset and sufficient complexity to require a degree of project planning from the student. The thesis requires the student to formulate problems in engineering terms, manage an engineering project and find solutions by applying engineering methods. Students also develop their ability to work in a research and development environment.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Develop a design or a process or investigate a hypothesis following industry and professional engineering standards.
CLO2 : Critically reflect on a specialist body of knowledge related to their thesis topic.
CLO3 : Apply scientific and engineering methods to solve an engineering problem.
CLO4 : Analyse data objectively using quantitative and mathematical methods.
CLO5 : Demonstrate oral and written communication in professional and lay domains.

Course Learning Outcomes	Assessment Item
CLO1 : Develop a design or a process or investigate a hypothesis following industry and professional engineering standards.	• Thesis project and report
CLO2 : Critically reflect on a specialist body of knowledge related to their thesis topic.	• Thesis project and report
CLO3 : Apply scientific and engineering methods to solve an engineering problem.	• Thesis project and report
CLO4 : Analyse data objectively using quantitative and mathematical methods.	• Thesis project and report
CLO5 : Demonstrate oral and written communication in professional and lay domains.	• Thesis project and report

Learning and Teaching Technologies

Moodle - Learning Management System

Other Professional Outcomes

https://www.unsw.edu.au/engineering/student-life/student-resources/program-design

Additional Course Information

This course is in three parts. Research Thesis A is undertaken in the first term of enrolment. Research Thesis A is a prerequisite for Research Thesis B, which in turn is a prerequisite for Research Thesis C.

By default, students must ordinarily take Research Thesis A, B and C in three consecutive terms.

With School permission, students may request to take Research Thesis A in one term then Research B + C concurrently in the following term. This option is strictly limited only to students

who can demonstrate the ability to progress. - Further details are provided in the ASSESSMENTS section below.

Students may enrol in up to and including 20 UoC while undertaking Research Thesis without being considered as overloading. Students who enrol in 22 UoC or more while undertaking Thesis are considered to be overloading and will require permission to do so.

By default, students cannot undertake Industrial Training while enrolled in Research Thesis B unless exceptional circumstances are demonstrated by the student and accepted by the School.

Co-requisites:

All students enrolled in Research Thesis must take CVEN4701 Planning Sustainable Infrastructure as one of their discipline electives, OR GMAT4150 Field Projects 2 for Surveying students.

Where can I find more information?

Find more information about the structure of the Research Thesis on the School website here.

PROCEDURE FOR SELECTION OF A RESEARCH TOPIC

Your priority is to find a Supervisor and agree on a topic BEFORE ENROLLING in Research Thesis A.

- Browse online (search projects) the selection of available topics and identify potential supervisors

http://intranet.civeng.unsw.edu.au/info-about/student-intranet/honours

Note: It is unlikely that this list is fully up-to-date and comprehensive. It is essential that during the Term prior to enrolment in Research Thesis A that individual students approach School teaching staff in area(s) of potential interest, to explore the range of possible thesis topics that may be available.

- Discuss your selection with potential topic supervisors
- Once you have a Supervisor and topic, you will need to download, complete and sign (both you and your Supervisor) a Research Thesis Form enrol yourself on myUNSW then upload the signed form to the Student Intranet here: http://intranet.civeng.unsw.edu.au/info-about/student-intranet/submit-thesis-application-form
- Please note that you will only be able to complete course enrollment for CVEN4951. The

School will complete your class registration once you've submitted your topic nomination form to the Student Intranet

Please note that If you cannot find an Honours Research Thesis Supervisor by the start of Term, then you will not be allowed to enrol/continue in the course and it will be automatically dropped from your enrolments. As the alternative, you may choose to enrol the parallel Honours course CVEN4050 (Thesis A) for which an individual supervisor is not required.

WHY WRITE AN HONOURS RESEARCH THESIS?

Satisfy your intellectual curiosity

This is the most compelling reason to write a research thesis. You have studied courses during your degree that perhaps really piqued your interest. Now's your chance to follow your passions, explore further, and contribute some original ideas and research in your field.

Develop transferable research skills

Whether you choose to pursue further research (e.g. complete a Ph.D) or not, the process of developing and crafting a feasible research project will polish skills that will serve you well in almost any future job. After all, most jobs require some form of problem solving and oral and written communication. Writing an honours thesis requires that you:

- ask smart questions
- acquire the investigative instincts needed to find answers
- navigate libraries, laboratories, archives, databases, and other research venues
- develop the flexibility to redirect your research if your initial plan flops
- master the art of time management
- sharpen your argumentation skills
- organize a lengthy piece of writing
- polish your oral communication skills by presenting and defending your research to academic staff and students

Work closely with academic staff

At large research universities like UNSW, you have likely taken classes where you barely got to know your lecturer. Writing a thesis offers the opportunity to work one-on-one with an academic supervisor. Such relationships can enrich your intellectual development and later serve as invaluable references for postgraduate degree and employment.

Open windows into future professions

An honours research thesis will give you a taste of what it's like to do research in your field. It also might help you decide whether to pursue that field in your future career.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Thesis project and report	100%	

Assessment Details

Thesis project and report

Assessment Overview

T1

- Project proposal (start of-term); Short (2-3 pages) based on pro forma;
- Project presentation and report; Report limited to 10-15 pages;
- Supervisor report

T2

- Project update report (mid-term); Reflection on issues faced, project timelines, resourcing issues, further risks; Thesis document plan, update to literature review;
- Peer assessment (mid-term)

T3

- Thesis open day (end of term - conference/demonstration);
- Final thesis report (end of term)

Course Learning Outcomes

- CLO1 : Develop a design or a process or investigate a hypothesis following industry and professional engineering standards.
- CLO2 : Critically reflect on a specialist body of knowledge related to their thesis topic.
- CLO3 : Apply scientific and engineering methods to solve an engineering problem.
- CLO4 : Analyse data objectively using quantitative and mathematical methods.
- CLO5 : Demonstrate oral and written communication in professional and lay domains.

Detailed Assessment Description

• **Component B1 submission:** Progress Report – this will take the form of an improved and extended A2 submission, including a detailed Thesis Outline (chapter and sub-headings), Research Methodology and preliminary Results and Analyses.

• **Lunchtime Workshop:** Thesis Writing Workshop (Week 3)

Component B1 is due:

- Project update report (mid-term); Reflection on issues faced, project timelines, resourcing issues, further risks; Thesis document plan, update to literature review;
- Peer assessment (mid-term)
- 5% of Final Mark

WEEK 3 for students enrolled in Research Thesis B+C concurrently

WEEK 8 for students enrolled in Research Thesis B only

Submission B1 must be provided to Moodle by 4.00pm on Friday of the submission week.

General Assessment Information

In Thesis B, a Progress Report is to be submitted in week 8 (in week 3 for students enrolled in B+C) – this will take the form of an improved and extended A2 submission, including a detailed Thesis Outline (chapter and sub-headings), Research Methodology and preliminary Results and Analyses.

In the event of an unsatisfactory assessment in Research Thesis B, a student must submit a show cause. A plan of future action to improve student performance must be prepared and agreed upon by both the supervisor and course coordinator before progress to Research Thesis B or Research Thesis C is allowed. Failure to receive the progress assessment by the due date will result in the student results being withheld and/or failure.

PROCEDURE FOR SEEKING APPROVAL TO ENROL IN RESEARCH THESIS B + C CONCURRENTLY

With Supervisor and School approval, students who demonstrate accelerated progress during Research Thesis A may be permitted to enrol in a 4+8 UoC structure, where Research Thesis B and C are both taken in the same term after Research Thesis A.

Students should submit their request to undertake Research Thesis B+C (concurrent) at the same time that they submit their extended Component A2 submission (see the ASSESSMENTS section above for the additional content to be include). The Course Coordinator will email all students closer to this date with detailed instructions on how to do this.

It is strongly recommended that you discuss with your supervisor, prior to submitting your formal request for approval. Once your application for concurrent B+C is received, your supervisor will

be asked to approve or decline this request (again, you will receive an email outlining how to do so closer to the date).

Students who do not demonstrate sufficient progress during Research Thesis A may be instructed to change enrolment and complete Research Thesis C in a third term after Research Thesis B.

FAIL/LATE PENALTIES AND PROCEDURES for Thesis A/B/C:

Fail in Research Thesis A: must re-enrol in Research Thesis A again (or enrol in CVEN4050)

Fail in Research Thesis B: must re-enrol in Research Thesis B again (or enrol in CVEN4050)

Fail in Research Thesis C: Students have three options.

1. re-enrol for Thesis A, B & C again, new project and supervisor
2. re-enrol for Thesis C again, same project - needs consent of an appropriate supervisor & student
3. Student does further work, re-submits thesis after a max of 6 weeks. *Course* mark capped at 50%. If still not satisfactory, then needs to re-enrol. (This option is only available if the original mark was ≥40, OR if the student is in their last semester before graduation, regardless of the original mark).

Fail in Thesis B & C (when taken simultaneously) – Students must re-enrol in Thesis B again, and cannot concurrently enrol in C. They can then take Thesis C when Thesis B has been satisfactorily completed

Late Procedure.

In all cases, applications for late submission can be applied for BEFORE the due date. This is at the discretion of the Thesis Coordinator, but should only be granted in exceptional circumstances. As per normal, students can also apply through myUNSW for special consideration.

- For all other assignments beside thesis zero (0) mark is awarded
- For thesis 5 marks off the thesis for every day late. Penalty applies until the marks for the course decrease to 50, and further lateness does not result in failure of the course, but might be a failure of the thesis (weekends count as days).
- Any thesis not turned in within 6 weeks after the deadline will be finalised at zero (0) marks.

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Other	Milestones: Receive review of Component A2 from supervisor(s)
Week 2 : 19 February - 25 February	Other	Suggested activities: Undertake thesis research with Supervisor(s) guidance.
Week 3 : 26 February - 3 March	Other	Suggested activities: Undertake thesis research with Supervisor(s) guidance.
	Assessment	Thesis B+C students: Component B1 Due – submit to Moodle by 4.00 pm on Friday
Week 5 : 11 March - 17 March	Other	Suggested activities: Undertake thesis research with Supervisor(s) guidance. Work on Progress Report. Thesis B+C students: Receive review of Component B1 from supervisor(s)
Week 6 : 18 March - 24 March	Other	Suggested activities: Undertake thesis research with Supervisor(s) guidance. Work on Progress Report.
Week 7 : 25 March - 31 March	Other	Suggested activities: Undertake thesis research with Supervisor(s) guidance. Work on Progress Report.
Week 8 : 1 April - 7 April	Other	Suggested activities: Undertake thesis research with Supervisor(s) guidance. Work on Progress Report.
	Assessment	Component B1 Due – submit to Moodle by 4.00 pm on Friday
Week 9 : 8 April - 14 April	Other	Suggested activities: Finalise and submit Progress Report to supervisor(s) –including a detailed Thesis Outline (chapter and sub-headings), Research Methodology and (Preliminary) Results and Analyses.
Week 10 : 15 April - 21 April	Other	Milestones: Receive review of Component B1 from supervisor(s) Suggested activities: Revise thesis. Undertake thesis research with Supervisor(s) guidance. Analyse data.
Week 11 : 22 April - 28 April	Other	Milestones: Complete research component (results) Suggested activities: Revise thesis. Undertake thesis research with Supervisor(s) guidance. Analyse data.

Attendance Requirements

Research Thesis is a research-based course and does not have any regularly scheduled classes (lectures, workshops, labs, etc.). The course schedule provided is suggested framework for what we recommend that you do each week.

Course Resources

Prescribed Resources

This is project-specific, and will be advised by your supervisor(s).

Recommended Resources

Students are encouraged to utilise the excellent resources at the UNSW Learning Centre during

their thesis research.

- Honours Thesis Writing for Engineering and Science Students: https://student.unsw.edu.au/honours-thesis-writing-engineering-and-science-students
- UNSW Learning Centre: https://student.unsw.edu.au/individual-consultations-academic-support
- Online iWrite thesis writing tutorial: http://iwrite.sydney.edu.au/tutorials/start/starthere.htm

Additional material to use:

Topic material as directed by your supervisor. Materials provided by course coordinator.

Course Evaluation and Development

Feedback from students in welcomed, and is used to continuously improve the course outcomes and experiences for students.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
	Daniel O'Shea				email/MS teams	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 Plagarism

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

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-specific Information

Final Examinations

Final Exams in T1 2024 will be held on campus between the 26th April and 9th May, and Supplementary Exams between the 20th - 24th May 2024. You are required to be available on these dates. Please do not to make any personal or travel arrangements during this period.

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