CVEN4032

Higher Honours Thesis A

Term One // 2021

School of Civil and Environmental Engineering // UNSW Engineering

Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Ian Turner	ian.turner@unsw.edu.au	email	UNSW Water Research Laboratory, Manly Vale	0280719800

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

Credit Points 12

Summary of the Course

This course is the first of two parts and is undertaken prior to CVEN4033 Higher Honours Thesis B. Successful completion of Parts A and B are required to obtain an honours degree. The higher honours thesis may describe a higher level directed research work on an approved topic and will be completed under the guidance and supervision of a member of the academic staff. The research may involve a directed laboratory or field investigation, analytical or numerical modelling, a detailed design or such other individual research project approved by the Head of School. All projects must include a literature review. Part A involves the satisfactory formulation of the project, thesis outline, completion of the literature review, commencement of a significant portion of the research, and a presentation of 'in progress' research through a seminar/video.

Course Aims

The purpose of the Higher Honours courses CVEN4032 ‘Part A’ and CVEN4033 ‘Part B’ are to engage the participation of top-performing students with current and leading-edge research activities across the School. Together, the courses promotes higher level independence in learning to prepare students for their professional and/or research careers; with a particular emphasis on the development of research, writing and presentation skills that would assist their participation in further (postgraduate) research and for a career in industry.

The Higher Honours Thesis is an individual research project in which each student works under the guidance of a nominated member of the School’s academic staff (supervisor). The Higher Honours course requires students to submit both an extended research thesis (as a guide, approximately 30,000 word equivalence) plus a journal-ready manuscript ready for submission. A co-supervisor (either from within, or external to the School) may also be nominated depending on the set up of the project. The research may involve laboratory experiments, field or industry-based investigations, design applications or theoretical research.

Course Learning Outcomes

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

Learning Outcome	EA Stage 1 Competencies
1. Undertake scholarly enquiry by attempting to achieve a specific topic objective within a defined period of time	PE1.3, PE2.1
2. Review literature to promote independent and reflective learning as well as increased capacity to develop information literacy	PE1.1, PE1.3
3. Have the ability and confidence in the written and oral communication of technical information	PE3.2

Teaching Strategies

The course is taught as an individual research project, to develop a level of research skills and autonomy.

PRIVATE STUDY

- As a rough guide only, an average student would be expected to spend approximately 20+ hours per week on work related to this course.
- More guidance is needed initially from the supervisor when the topic is being defined to establish the objectives and methodology of the thesis.

SUPERVISION

- There are no specific hours assigned to this course, except for the scheduled Workshops (see below).
- Meetings between the supervisor(s) and the student may take place periodically or by private arrangement.
- Should supervisors be on study leave or unavailable for a considerable period of the session, alternative arrangements need to be established and made known to both the student and course coordinator.

CONSULTATION

- The course coordinator will be available by prior appointment to liaise with enrolled students as needed

IT IS ESSENTIAL THAT YOU REGULARLY CHECK YOUR OFFICAL UNSW EMAIL FOR UPDATES, REMINDERS, ETC.

Additional Course Information

This course is in two parts. CVEN4032 covers Part A in Term 1, which is a prerequisite for CVEN4033 Part B in Term 3.

The purpose of the Higher Honours Research Thesis courses CVEN4032 and CVEN4033 are to engage the participation of top-performing students with current and leading-edge research activities across the School. Together, the courses promote higher level independence in learning to prepare students for their professional and/or research careers; with a particular emphasis on the development of research, writing and presentation skills that would assist their participation in further (postgraduate) research and for a career in industry.

Prerequisite:

A university WAM (as assessed by the School at the completion of all stage 3 courses) of a minimum of 80 is required for entry into the course. In addition, all courses to the end of Year 3 in the discipline of the thesis topic need to be completed.

This course is differentiated from the 6+6 units of credit Honours Research Thesis courses by the substantial additional requirements of:

CVEN4032

- extended review of literature and project report
- ‘in progress’ research presentation
- An additional level of rigor to the assessment procedure (refer below)

CVEN4033

- an extended research thesis (approx. 30,000 equivalence)
- Completion of a submission ready research paper to an international journal standard.
- Professional presentation within the school seminar program to full School audience.

The unique learning outcomes from these courses are in promotion of higher level independence in learning, above that of Honours Research Thesis A & B, by preparing students for a potential career in academic research and/or higher independent research skills used in industry. The advanced skill set to be developed emphasises the development of research, writing and presentation skills.

PROCEDURE FOR SELECTION OF A RESEARCH TOPIC

- Browse online 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 Higher Honours 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 (Noting that this must first be signed by you, your Supervisor and the Head of School) Higher Honours 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
- You will only be able to complete course enrolment for CVEN4032. 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 a Higher Honours Thesis Supervisor by the start of Term 1, then you will not be allowed to enrol/continue in the course and it will be automatically dropped from your enrolments. As the alternatives, you may enrol in one of the alternative Honours courses CVEN4951 (an individual Supervisor is also required) or CVEN4050 for which an individual Supervisor is not required.

WHY WRITE AND HONOURS RESEARCH THESIS AND DRAFT JOURNAL MANUSCRIPT?

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 PhD) 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.

Assessment

The assessment of A1 & A2 is more rigorous than for the 4 units of credit CVEN4951 Honours Research Thesis A course, requiring an extended review and report, research presentation, and assessment by the independent examiner in addition to supervisor.

In the event of an unsatisfactory assessment in any of components A1, A2 or A3, 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 CVEN4033 is allowed. Failure to receive the progress assessment by the due date will result in the student results being withheld and/or failure.

At the completion of CVEN4032, the School reserves the right to require the student to complete their Honours Research Thesis by enrolment in CVEN4952 then CVEN4953, rather than continuation to Higher Honours Thesis CVEN4033.

Assessment Tasks

Assessment task	Weight	Due Date	Student Learning Outcomes Assessed
A1 submission: Statement of the Problem and draft Literature Review	N/A	Friday 4pm WEEK 7	
A2 submission: More detailed, revised and improved Introduction (Statement of the problem), Literature review, Thesis Outline, Study Methodology, Study Results to-date and outline of Project Time-Line for thesis completion and preparation of submission-ready journal manuscript.	10%	4pm Friday WEEK 10	2, 3
'In Progress' research presentation	10%	Friday WEEK 10	3

Assessment Details

Assessment 1: A1 submission: Statement of the Problem and draft Literature Review

Start date: Not Applicable

Length: As advised by supervisor

Details: Further information and resources will be provided in Workshop held in WEEK 2.

Submission notes: To be provided directly to supervisor by due date

Assessment 2: A2 submission: More detailed, revised and improved Introduction (Statement of the problem), Literature review, Thesis Outline, Study Methodology, Study Results to-date and outline of Project Time-Line for thesis completion and preparation of submission-ready journal manuscript.

Length: as advised by supervisor

Details:

Further information and resources will be provided in Workshop held in WEEK 2.

Submission notes: To be provided directly to supervisor by due date

Assessment 3: 'In Progress' research presentation

Start date: Not Applicable

Details: Seminar/video presentation. Further information available in Moodle.

Attendance Requirements

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

Course Schedule

View class timetable

Timetable

Date	Type	Content
O Week: 8 February - 12 February		
Week 1: 15 February - 19 February		
Week 2: 22 February - 26 February		
Week 3: 1 March - 5 March		
Week 4: 8 March - 12 March		
Week 5: 15 March - 19 March		
Week 6: 22 March - 26 March		
Week 7: 29 March - 2 April	Assessment	A1 submission due Friday 4pm
Week 8: 5 April - 9 April		
Week 9: 12 April - 16 April		
Week 10: 19 April - 23 April	Assessment	A2 due 4pm Friday
	Presentation	A3 - Friday

Resources

Prescribed Resources

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

Recommended Resources

Honours Thesis Writing for Engineering Students: https://student.unsw.edu.au/honours-thesis-writing-engineering-and-science-students

Online iWrite thesis writing tutorial: http://iwrite.sydney.edu.au/tutorials/start/starthere.htm

- Topic material as direct by the supervisor.
- Materials provided by course coordinator.

References on writing style and technical communication skill:

- Lindsay, D “A Guide to Scientific Writing” 2nd ed. Longman, 1995
- Eisenberg, A “Effective Technical Communication” 2nd ed. McGraw-Hill, 1992.
- Evans, D. “How to write a better thesis or report” Melbourne University Press, 1995.
- Winkle, A and Hart, B “Report writing Style Guide for engineering students” 3rd ed. Faculty of Engineering, Flexible Learning Centre, University of South Australia, 1996.

Course Evaluation and Development

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

Laboratory Workshop Information

To be discussed with Supervisors.

Submission of Assessment Tasks

Please refer to the Moodle page of the course for further guidance on assessment submission.

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

Key UNSW Dates - eg. Census Date, exam dates, last day to drop a course without academic/financial liability etc.

Final Examinations:

Final exams in Term 1 will be held online between 30th April - 13th May inclusive. You are required to be available on these dates. Please do not to make any personal or travel arrangements during this period.

Supplementary Examinations:

Supplementary Examinations for Term 1 2021 will be held on 24th - 28th May inclusive should you be required to sit one. You are required to be available on these dates. Please do not to make any personal or travel arrangements during this period.

ACADEMIC ADVICE

For information about:

- Notes on assessments and plagiarism;
- Special Considerations: student.unsw.edu.au/special-consideration;
- General and Program-specific questions: The Nucleus: Student Hub
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC/SURVSOC/CEPCA

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

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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	