CVEN90047 IE Research Project 2

Credit Points:	25
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus. Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 18 hours (Workshops: 6 hours per semester; Progress meetings/feedback by academic supervisors: 12 hours per semester) Total Time Commitment: 400 hours
Prerequisites:	This is a Capstone subject and may only be taken in the final 2 semesters of study.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students cannot enrol in and gain credit for this subject and: CVEN90020 - Research Topic **OR**

Subject	Study Period Commencement:	Credit Points:
CVEN90022 IE Research Project 1	Semester 1, Semester 2	12.50
CVEN90056 IE Research Project 3	Semester 1, Semester 2	12.50

Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Coordinator:	Assoc Prof Graham A. Moore
Contact:	Associate Professor Graham Moore **grahamam@unimelb.edu.au (mailto:grahamam@unimelb.edu.au)**
Subject Overview:	**AIMS** This subject provides the capstone experience for students in Infrastructure Engineering. Students will combine their expertise in interdisciplinary groups or as individuals to address real-world problems, typically in contact with industry. Project topics will be advertised well in advance of commencement of the subject so that students can make an informed choice of topic and enrol early. Students must register their topic, group and supervisor before the subject commences. Students with an average score of H1 in the previous 100 points of study and an interest in a PhD have the opportunity to undertake an individual research project. Note: CVEN90022 IE Research Project 1 is of year-long duration, students may commence in either Semester 1 or Semester 2 and continue their enrolment in the consecutive semester. Students wishing to undertake the project component through an Industry internship during the university breaks must have completed the Research Training component (first five weeks of

	first semester), i.e. students undertaking an internship during the Winter break must commence CVEN90022 in Semester 1, similarly students undertaking an internship during the Summer break must commence CVEN90022 in Semester 2. **INDICATIVE CONTENT** The first half semester addresses research training and comprises online lectures and tutorials with group homework on topics such as project development, literature review, methodology development, skill development, critical thinking, project documentation, reflective writing, and scientific writing. Students will practise these skills throughout their project topics with supervisors providing feedback on the results. Students then continue the project within their groups and with regular progress meetings with their supervisor for the remainder of the year. The project culminates with students presenting their project and findings on a poster at a student expo and also in written form in the style of a conference paper. This subject has been integrated with the Skills Towards Employment Program (STEP) and contains activities that can assist in the completion of the Engineering Practice Hurdle (EPH). **Choice of Research Subject for the Master of Engineering** The Master of Engineering (Civil, Civil with Business, Geomatics, Environmental, Structural) streams have a core requirement of 25 points of research project. This may be achieved by enrolling in CVEN90047 in either the final or penultimate semester of study, or by enrolling CVEN90022 in two successive semesters in the final year of study.
Learning Outcomes:	**INTENDED LEARNING OUTCOMES (ILO)** On completion of this subject the student is expected to: 1 Search, analyse and document engineering science and other literature in order to determine the need for further research in a chosen area 2 Synthesize an hypothesis to be tested 3 Devise a methodology of investigation to test the hypothesis 4 Collect and analyse a range of data (qualitative and/or quantitative) and/or undertake computer modelling and simulation to implement the methodology 5 Write project reports that follow good engineering science practice 6 Present a poster of the findings of an investigation.
Assessment:	Project Proposal team report (20%), 1 to 4 people, outlining the context, literature review, methodology and method for their project, requiring 120 hours of work per person, due mid semester. Passing is a hurdle requirement. Intended Learning Outcomes (ILOs) 1, 2, 3 and 4 are addressed in this project Final team report (50%) in the style of a conference paper, and incorporating revised sections of the proposal report, not exceeding 15 pages excluding reference lists. Requiring approximately 180 hours of work per team member. Due at the end of semester. ILOs 1, 2, 3 and 4 are addressed in this report Presentation of conference style team poster (10%) requiring approximately 15 hours total work and due during the end of semester exam period. ILO 5 is addressed in this assessment Presentation of a team oral presentation (10%) of approximately 15 minutes, and participation in the subject conference. Requiring approximately 10 hours per team member, during the end of semester exam period. ILO 5 is addressed in this presentation Individual journal (5%) containing reflections on the research process and progress, and the development of graduate attributes, presented in 6 individual journal entries totalling approximately 2000 words over the project period, and requiring about 10 hours of reflection, investigation and writing. ILOs 1, 2 and 3 are addressed in this journal A weekly factual record (5%) of project progress including items such as meeting minutes, key decisions and resources used, and must be maintained on a project blog and contributed to by all team members, requiring about 10 hours work each. For team projects, the relative contributions of each team member to the overall project should be discernible from this record. ILOs 1, 2 and 3 are addressed in this assessment Fortnightly attendance (minimum of 70%) of the Departmental research seminars (or equivalent) in the project period, and completion of a critique form for 6 seminars will be evidence of attendance, which will be marked Pass/Fail. Approximately 10 hours work. ILOs 1, 2, 3 and 5 are addressed in this assessment (hurdle requirement) Registration for a project topic prior to day 1 of the first semester of study is a hurdle requirement, requiring about 2 hours of work. ILO 1 is addressed in this assessment Hurdle Requirements: The following must be satisfied in order to pass the subject: Students must register for a project topic prior to day 1 of the first semester of study Fortnightly attendance (minimum of 70%) of the Departmental research seminars (or equivalent) in the project period, and completion of a critique form for each seminar will be evidence of attendance which will be marked Pass/Fail A factual record of project progress including items such as meeting minutes, key decisions and resources used must be maintained on a project

	blog. For group projects the relative contributions of each group member to the overall project should be discernible from this record A Pass mark for the mid-project report.
Prescribed Texts:	None
Recommended Texts:	David Evans, Paul Gruba and Justin Zobel (2011) *How to write a better thesis*, Melbourne University Press, Carlton, Vic.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	# Discernment of knowledge development and research directions within the engineering discipline # Ability to undertake problem identification, formulation and solution # Ability to communicate effectively, with the engineering team and with the community at large # Ability to manage information and documentation # Capacity for creativity and innovation # Understanding of professional and ethical responsibilities, and commitment to them.
Notes:	**LEARNING AND TEACHING METHODS** Online lectures and tutorials on research techniques. Fortnightly meetings with mentors and other students to discuss progress and problems. Independent research on a project, and communication of the results of that research. **INDICATIVE KEY LEARNING RESOURCES** David Evans, Paul Gruba and Justin Zobel (2011) How to write a better thesis. Melbourne University Press. Carlton, Vic. **CAREERS / INDUSTRY LINKS** Some topics available for investigation are sponsored and supervised by industry partners. For students intending to develop a career in research, this subject represents a key subject and opportunity to demonstrate their talents.
Related Course(s):	Master of Engineering Project Management Master of Engineering Structures Master of Environmental Engineering
Related Majors/Minors/ Specialisations:	Master of Engineering (Civil) Master of Engineering (Environmental) Master of Engineering (Spatial) Master of Engineering (Structural)