

CVEN90052 Integrated Design

| Credit Points: | 25 | | | | | | | | | | | | |
|--|---|----------------|----------------------------|----------------|--|------------|-------|---|------------|-------|--|------------|-------|
| Level: | 9 (Graduate/Postgraduate) | | | | | | | | | | | | |
| Dates & Locations: | 2014, Parkville This subject commences in the following study period/s: Year Long, Parkville - Taught on campus. | | | | | | | | | | | | |
| Time Commitment: | Contact Hours: 75 hours (Lectures: 55 hours, Practice classes: 20 hours) per year Total Time Commitment: 400 hours | | | | | | | | | | | | |
| Prerequisites: | Successful completion of the following subjects is required: <table border="1" data-bbox="389 573 1485 833"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CVEN90043 Sustainable Infrastructure Engineering</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>CVEN90044 Engineering Site Characterisation</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>CVEN90045 Engineering Project Implementation</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>OR Approval from the Subject Coordinator.</p> | Subject | Study Period Commencement: | Credit Points: | CVEN90043 Sustainable Infrastructure Engineering | Semester 1 | 12.50 | CVEN90044 Engineering Site Characterisation | Semester 1 | 12.50 | CVEN90045 Engineering Project Implementation | Semester 2 | 12.50 |
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| CVEN90043 Sustainable Infrastructure Engineering | Semester 1 | 12.50 | | | | | | | | | | | |
| CVEN90044 Engineering Site Characterisation | Semester 1 | 12.50 | | | | | | | | | | | |
| CVEN90045 Engineering Project Implementation | Semester 2 | 12.50 | | | | | | | | | | | |
| Corequisites: | None | | | | | | | | | | | | |
| Recommended Background Knowledge: | This subject assumes that students study it at the end of their degree in order to integrate their previously learned knowledge. | | | | | | | | | | | | |
| Non Allowed Subjects: | <table border="1" data-bbox="389 1111 1485 1256"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CVEN90057 Integrated Design (Construction)</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> | Subject | Study Period Commencement: | Credit Points: | CVEN90057 Integrated Design (Construction) | Semester 1 | 12.50 | | | | | | |
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| Core Participation Requirements: | <p><p>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.</p> <p>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</p></p> | | | | | | | | | | | | |
| Coordinator: | Dr Tuan Ngo | | | | | | | | | | | | |
| Contact: | Dr Tuan Ngo dtngo@unimelb.edu.au (mailto:dtngo@unimelb.edu.au) Mr Philip Christopher phc@unimelb.edu.au (mailto:phc@unimelb.edu.au) | | | | | | | | | | | | |
| Subject Overview: | <p>AIMS</p> <p>This subject aims to apply previously learnt skills and knowledge to a large typical industry infrastructure project. The first semester has a substantial industry presence with experienced engineers from a range of leading firms in Australia presenting a range of civil and environmental topics with a practical focus on construction, project planning and management, surveying, geotechnical engineering and civil works. Parallel to the industry lectures, students</p> | | | | | | | | | | | | |

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| | <p>will develop research and report writing skills and will learn how to prepare industry standard reports.</p> <p>The last few weeks of semester one and the entirety of semester two shifts focus to developing a team based design. Students are guided by senior industry practitioners to plan, manage and co-ordinate their work teams of eight students to deliver a professional functional design report for a large scale infrastructure engineering project. This project will integrate much of the knowledge and skills developed in previous years. Finally each team will present their functional design report highlighting innovation, sustainability and design functionality in a professional setting.</p> <p>This subject aims to bridge the gap between engineering theory and practice by teaching students to be innovative and flexible in their work. Students develop these skills in a design team environment through completing an engineering design report using best practice engineering standards. Students will concurrently learn applications of construction engineering, project planning and management techniques.</p> <p>INDICATIVE CONTENT</p> <p>Technical lectures and case studies include a construction focus on piling, temporary works, basements, ground water management, pipelines and earthworks, structural design and surveying. Additional lectures include sustainable power generation, urban development, structured evaluation of engineering options in a sustainability framework, report writing and referencing, project and team management and presentation of design concepts and outcomes.</p> |
| <p>Learning Outcomes:</p> | <p>INTENDED LEARNING OUTCOMES (ILO)</p> <p>Having completed this subject the student is expected to:</p> <ol style="list-style-type: none"> 1 Conduct thorough research and prepare industry standard reports relating to a given engineering topic 2 Identify key issues in construction engineering specifically relating to basements, earthworks and groundwater 3 Assess and choose optimal engineering solutions using a multi-criteria assessment incorporating net present value, social and environmental considerations 4 Understand the engineering design process and present solutions to a technical audience 5 Assess team member contribution using a peer verification process to ensure a high standard in all sections of the final report 6 Demonstrate his or her ability to work in a team to design a complex engineering project with definite deliverables and completion dates 7 Apply core management techniques to project execution |
| <p>Assessment:</p> | <p>An individual technical assignment (500 words), due around week 5 of Semester 1 (5%) ILO 2 & 3 A mid-semester examination (2 hours), beginning of Week 8 (25%) ILO 2 & 3 A group project management task (totalling 5000 words), sections due throughout Semester 1 and 2 (10%), ILO 5, 6 & 7 An individual feasibility report (2000 words), due at the end of Semester 1 (10%). ILO 1 & 2 An individual report (2000 words), due mid Semester 2 (10%) ILO 1,2,3,4 A group report (3000 words per person), due at the end of the year (35%) ILO 1,2,3,6,7 A group oral presentation (10 mins) at the end of the year (5%) ILO 4 Note: students work in groups of around 8</p> |
| <p>Prescribed Texts:</p> | <p>None</p> |
| <p>Breadth Options:</p> | <p>This subject is not available as a breadth subject.</p> |
| <p>Fees Information:</p> | <p>Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees</p> |
| <p>Generic Skills:</p> | <ul style="list-style-type: none"> # Ability to undertake research and apply critical thought to formulate engineering solutions # Potential for innovation and creativity # Proficiency in report writing # Capacity to summarise and present design concepts and outcomes # Understanding of how to engage with and work constructively and productively in an integrated multi-disciplinary team to achieve mutually agreed outcomes in a constrained time frame. |
| <p>Notes:</p> | <p>LEARNING AND TEACHING METHODS</p> <p>This subject is industry driven by a range of leading engineers from a variety of backgrounds. Numerous case studies are presented and related back to the design project. Students are introduced to the design project in semester one through a preliminary feasibility study</p> |

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| | <p>relating to the final design. A management plan to distribute the scope of works within each team is prepared late in the first semester and revisited periodically throughout the year. Tutorials support learning throughout the first semester consolidating knowledge in a range of construction engineering practices. The second semester consists of lectures supported by group workshops. Students will work together as a team to produce a functional design report consolidating previous design knowledge and team work skills. Peer collaboration, sharing of ideas and verification of work is encouraged with a variety of workshops and mini presentations in the second semester. Students are invited to visit the design site to help gain appreciation for real design issues and challenges.</p> <p>INDICATIVE KEY LEARNING RESOURCES</p> <p>Introduction and training links to Bentley Microstation and Autodesk, libguide for research http://unimelb.libguides.com/content.php?pid=111013&hs=w, (http://unimelb.libguides.com/content.php?pid=111013&hs=w)</p> <p>Planning overlays from DPCD http://services.land.vic.gov.au/maps/pmo.jsp (http://services.land.vic.gov.au/maps/pmo.jsp)</p> <p>Geovic maps and GIS data http://er-info.dpi.vic.gov.au/sd_weave/anonymous.html (http://er-info.dpi.vic.gov.au/sd_weave/anonymous.html)</p> <p>CAREERS / INDUSTRY LINKS</p> <p>Senior practising engineers from industry deliver the lectures and case studies with focus on typical industry design considerations. The subject provides industry exposure and assists in preparing students for a future professional career in infrastructure engineering.</p> |
| Related Course(s): | <p>Bachelor of Engineering (Civil) and Bachelor of Science Master of Engineering Project Management Master of Engineering Project Management</p> |
| Related Majors/Minors/Specialisations: | <p>B-ENG Civil Engineering stream Master of Engineering (Civil with Business) Master of Engineering (Civil) Master of Engineering (Environmental) Master of Engineering (Structural)</p> |