

# CVEN90058 Construction Engineering

| <b>Credit Points:</b>                            | 12.5   |                |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
|--|--|----------------|--|---------|----------------------------|----------------|--|------------|-------|--|------------------|-------|---|------------|-------|--|------------|-------|---|------------|-------|-------------------------------------|------------|-------|--|------------|-------|
| <b>Level:</b>                                    | 9 (Graduate/Postgraduate)  |                |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| <b>Dates &amp; Locations:</b>                    | 2015, Parkville<br>This subject commences in the following study period/s:<br>Semester 2, Parkville - Taught on campus.  |                |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| <b>Time Commitment:</b>                          | Contact Hours: 48 hours consisting of 24 hours of lectures and 24 hours of workshops Total<br>Time Commitment: 200 hours   |                |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| <b>Prerequisites:</b>                            | <table border="1"> <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>CVEN90045 Engineering Project Implementation</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>CVEN90044 Engineering Site Characterisation</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <p>CVEN90045 Engineering Project Implementation may be taken concurrently</p>   |                |  | Subject | Study Period Commencement: | Credit Points: | CVEN90043 Sustainable Infrastructure Engineering | Semester 1 | 12.50 | CVEN90045 Engineering Project Implementation | Semester 2       | 12.50 | CVEN90044 Engineering Site Characterisation | Semester 1 | 12.50 |  |            |       |   |            |       |                                     |            |       |  |            |       |
| Subject  | Study Period Commencement:   | Credit Points: |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| CVEN90043 Sustainable Infrastructure Engineering | Semester 1   | 12.50          |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| CVEN90045 Engineering Project Implementation     | Semester 2   | 12.50          |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| CVEN90044 Engineering Site Characterisation      | Semester 1   | 12.50          |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| <b>Corequisites:</b>                             | None   |                |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| <b>Recommended Background Knowledge:</b>         | <p>Learning in the following subjects, taken either before or concurrently with Construction Engineering will enhance a student's learning experience:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CVEN90050 Geotechnical Engineering</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>CVEN90051 Civil Hydraulics</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>CVEN90049 Structural Theory and Design 2</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>ENEN90005 Environmental Management ISO 14000</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>ENEN90006 Solid Wastes to Sustainable Resources</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>CVEN90060 Integrated Design - Civil</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>CVEN90059 Integrated Design - Infrastructure</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> |                |  | Subject | Study Period Commencement: | Credit Points: | CVEN90050 Geotechnical Engineering               | Semester 1 | 12.50 | CVEN90051 Civil Hydraulics                   | Semester 2       | 12.50 | CVEN90049 Structural Theory and Design 2    | Semester 1 | 12.50 | ENEN90005 Environmental Management ISO 14000 | Semester 2 | 12.50 | ENEN90006 Solid Wastes to Sustainable Resources | Semester 1 | 12.50 | CVEN90060 Integrated Design - Civil | Semester 2 | 12.50 | CVEN90059 Integrated Design - Infrastructure | Semester 1 | 12.50 |
| Subject  | Study Period Commencement:   | Credit Points: |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| CVEN90050 Geotechnical Engineering               | Semester 1   | 12.50          |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| CVEN90051 Civil Hydraulics                       | Semester 2   | 12.50          |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| CVEN90049 Structural Theory and Design 2         | Semester 1   | 12.50          |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| ENEN90005 Environmental Management ISO 14000     | Semester 2   | 12.50          |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| ENEN90006 Solid Wastes to Sustainable Resources  | Semester 1   | 12.50          |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| CVEN90060 Integrated Design - Civil              | Semester 2   | 12.50          |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| CVEN90059 Integrated Design - Infrastructure     | Semester 1   | 12.50          |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| <b>Non Allowed Subjects:</b>                     | <table border="1"> <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> <tr> <td>CVEN90052 Integrated Design</td> <td>Not offered 2015</td> <td>25</td> </tr> </tbody> </table>  |                |  | Subject | Study Period Commencement: | Credit Points: | CVEN90057 Integrated Design (Construction)       | Semester 1 | 12.50 | CVEN90052 Integrated Design                  | Not offered 2015 | 25    |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
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| CVEN90057 Integrated Design (Construction)       | Semester 1   | 12.50          |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| CVEN90052 Integrated Design                      | Not offered 2015   | 25             |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |
| <b>Core Participation Requirements:</b>          | <p>&lt;p&gt;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.&lt;/p&gt; &lt;p&gt;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: &lt;a href="http://services.unimelb.edu.au/disability"&gt;http://services.unimelb.edu.au/disability&lt;/a&gt;&lt;/p&gt;</p>  |                |  |         |                            |                |  |            |       |  |                  |       |   |            |       |  |            |       |   |            |       |                                     |            |       |  |            |       |

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| <b>Coordinator:</b>                                | Assoc Prof Tuan Ngo  |
| <b>Contact:</b>                                    | Dr Tuan Ngo<br><a href="mailto:dtngo@unimelb.edu.au">dtngo@unimelb.edu.au</a> ( <a href="mailto:dtngo@unimelb.edu.au">mailto:dtngo@unimelb.edu.au</a> )  |
| <b>Subject Overview:</b>                           | <p><b>AIMS</b></p> <p>This subject involves students learning the integrated process between design and construction by developing a proposal for a design &amp; build project. An objective of the project is to help students explore the close relationship between design, constructability and construction. Students will develop a simplified design for an infrastructure project that includes a range of civil works such as earthworks, foundations, drainage, on-site concrete construction and crange, and then propose solutions for construction that may require iteration of the design. The proposed solution would also address OH&amp;S, environmental, and social sustainability issues inherent in areas such waste minimisation, noise and dust control in an project environmental maagement plan.</p>   |
| <b>Learning Outcomes:</b>                          | <p><b>INTENDED LEARNING OUTCOMES</b></p> <p>At the completion of this subject students are expected to be able to;</p> <ol style="list-style-type: none"> <li>1 Integrate knowledge from engineering management and technical subjects into the planning of the construction process</li> <li>2 Apply the principles of economic, social and environmental sustainability to design and construction processes</li> <li>3 Demonstrate the link between project design and construction in achieving efficient and safe project outcomes and</li> <li>4 Evaluate, choose and communicate appropriate construction processes for an engineering project.</li> </ol>  |
| <b>Assessment:</b>                                 | <p>Present in a concept map the system interactions in a design and construction project, requiring about 20 hours critical thinking. Addresses Intended Learning Outcomes (ILOs) 1, 2, &amp; 3. Due week 5 (10%) As a team prepare an EH&amp;S risk management register and Environmental Management Plan for a construction project, requiring about 20 hours critical thinking and documentation per person. Addresses ILOs 1, 2 &amp; 3. Due week 7 (10%) As a team member prepare a two-page brief evaluating the construction options associated with an aspect of the overall project requiring about 40 hours work. Addresses ILOs 2, 3 &amp; 4. Due week 9 (20%) As a team present a final report not exceeding 20 pages on the recommended construction process for the chosen design, requiring about 50 hours work per team member. Addresses ILO s 1 - 4. Due week 12 (30%) A two hour written exam held in the end of semester examination period. Addresses ILOs 1 - 4 (30%).</p> |
| <b>Prescribed Texts:</b>                           | None   |
| <b>Breadth Options:</b>                            | This subject is not available as a breadth subject.  |
| <b>Fees Information:</b>                           | Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>  |
| <b>Generic Skills:</b>                             | <ul style="list-style-type: none"> <li>• Ability to undertake research and apply critical thought to formulate engineering solutions</li> <li>• Potential for innovation and creativity</li> <li>• Proficiency in report writing</li> <li>• Capacity to summarise and present design concepts and outcomes</li> <li>• 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.</li> </ul>  |
| <b>Related Majors/Minors/<br/>Specialisations:</b> | <p>Master of Engineering (Civil with Business)</p> <p>Master of Engineering (Civil)</p> <p>Master of Engineering (Environmental)</p> <p>Master of Engineering (Structural)</p>   |