

## MCEN90022 Capstone Project

<b>Credit Points:</b>	25
<b>Level:</b>	9 (Graduate/Postgraduate)
<b>Dates &amp; Locations:</b>	2013, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
<b>Time Commitment:</b>	Contact Hours: Introductory lecture, weekly team meetings with academic supervisor, attendance and participation in Mechanical Project Conference. Expected minimum time commitment per student: eight hours per week. Total Time Commitment: Not available
<b>Prerequisites:</b>	One of the following two sets of subjects - <b>MCEN90012 Design &amp; Manufacturing 1</b> ( <a href="#">../view/2012/MCEN90012</a> ) (may be taken concurrently) <b>MCEN90013 Design &amp; Manufacturing 2</b> ( <a href="#">../view/2012/MCEN90013</a> ) (may be taken concurrently)  OR <b>MCEN90024 Mechatronics Design</b> ( <a href="#">../view/2012/MCEN90024</a> ) (may be taken concurrently) <b>MCEN90011 Manufacturing Systems</b> ( <a href="#">../view/2012/MCEN90011</a> ) (may be taken concurrently)
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	None
<b>Non Allowed Subjects:</b>	None
<b>Core Participation Requirements:</b>	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: <a href="http://www.services.unimelb.edu.au/disability/">http://www.services.unimelb.edu.au/disability/</a>
<b>Coordinator:</b>	Dr Colin Burvill
<b>Contact:</b>	<a href="mailto:colb@unimelb.edu.au">colb@unimelb.edu.au</a> ( <a href="mailto:colb@unimelb.edu.au">mailto:colb@unimelb.edu.au</a> )
<b>Subject Overview:</b>	The subject involves undertaking a substantial project requiring an independent investigation on an approved topic in advanced engineering design or research. Students will present their findings in both professional exhibition and conference podium presentation formats.  The emphasis of the project can be associated with either - <ul style="list-style-type: none"> <li>• A well-defined project description, often based on a task required by an external, industrial client. Students will be tutored in the synthesis of practical solutions to complex technical problems within a structured working environment, as if they were professional engineering practitioners; or</li> <li>• A project description that will require an explorative approach, where students will pursue outcomes associated with new knowledge or understanding, within the mechanical science disciplines, often as an adjunct to existing academic research initiatives.</li> </ul> It is expected that the Capstone Project will incorporate findings associated with both well-defined professional practice and research principles.
<b>Objectives:</b>	On completion of this subject students should be able to apply the knowledge gained in other subjects to successfully investigate a substantially complex engineering design or research

	<p>problem and have gained experience in collaborative project work, sourcing and collating information that may be associated with disciplines beyond the scope of prior coursework, in developing hypotheses from which engineering decisions will be made, and in reporting contributions arising from project and professional practice activities.</p>
<p><b>Assessment:</b></p>	<p>Semester 1 only 1. Continuous assessment (20%) - identifies effort, progress and contributions over the entire project cycle. Two interim reports outlining progress relative to the Scope of Works document completed at the outset of the project. • Progress Report #1 (10%) will include a review of environmental health and safety issues associated with the project, submitted at the end of week 5 of semester. • Progress Report #2 (10%) is the second interim report submitted at the end of week 9 of semester. 2. Final Report (45%) -submitted at the end of the last week of semester. • The Final Report will be a professional document reporting the findings and contributions of the project team, of no more than 10,000 words (45 pages), excluding appendices of supporting material that can include diagrams, tables, computations and computer output. • The Final Report will include an extended Executive Summary of the important findings contained in the report. 3. Exhibition (10%) • Static display materials (eg poster, computer demonstration, prototype) (5%) • Presented within Conference schedule and made available for Exhibition held at end of semester two. 4. Conference (20%) • Individual assessment. All team members must address the audience. Consider the proceedings as if a professional conference. Each individual will be allocated no less than 8 minutes and each project will have 5 minutes allocated for questions. 5. Professional Practice (10%) - based on lectures, not exceeding 1500 words per student. Continuous assessment task and one final task submitted at the end of semester one. All components of assessment must be satisfactorily completed to pass the subject. Year Long Only 1. Continuous assessment (20%) - identifies effort, progress and contributions over the entire project cycle. Two interim reports outlining progress relative to the Scope of Works document completed at the outset of the project. • Progress Report #1 (10%) will include a review of environmental health and safety issues associated with the project, submitted at the end of semester one. • Progress Report #2 (10%) is the second interim report submitted at the beginning of semester two. 2. Final Report (45%) - submitted at the end of the mid semester two break. • The Final Report will be a professional document reporting the findings and contributions of the project team, no more than 10,000 words (40 pages), excluding appendices of supporting material that can include diagrams, tables, computations and computer output. The report will include an extended Executive Summary of the important findings contained in the report. 3. Exhibition (10%) • Lay person oral examination of no more than 20 minutes duration (5%), and static display materials (eg poster, computer demonstration, prototype) (5%). 4. Conference (15%) • Individual assessment. All team members must address the audience. Consider the proceedings as if a professional conference. Each individual will be allocated no less than 8 minutes and each project will have 5 minutes allocated for questions. 5. Professional Practice (10%) - based on lectures, not exceeding 1500 words per student. Continuous assessment task and one final task submitted at the end of semester one. All components of assessment must be satisfactorily completed to pass the subject. Semester 2 only 1. Continuous assessment (20%) - identifies effort, progress and contributions over the entire project cycle. Two interim reports outlining progress relative to the Scope of Works document completed at the outset of the project. • Progress Report #1 (10%) will include a review of environmental health and safety issues associated with the project. Submitted at the end of week 5 of semester. • Progress Report #2 (10%) is the second interim report submitted at the end of week 9 of semester. 2. Final Report (45%) -submitted at the end of the last week of semester. • The Final Report will be a professional document reporting the findings and contributions of the project team, of no more than 10,000 words (45 pages), excluding appendices of supporting material that can include diagrams, tables, computations and computer output. • The Final Report will include an extended Executive Summary of the important findings contained in the report. 3. Exhibition (10%) • Static display materials (eg poster, computer demonstration, prototype) (5%) • Presented within Conference schedule and made available for Exhibition held at end of semester two. 4. Conference (15%) • Individual assessment. All team members must address the audience. Consider the proceedings as if a professional conference. Each individual will be allocated no less than 8 minutes and each project will have 5 minutes allocated for questions. 5. Professional Practice (10%) - based on lectures, not exceeding 1500 words per student. Continuous assessment task and one final task submitted at the end of semester one. All components of assessment must be satisfactorily completed to pass the subject.</p>
<p><b>Prescribed Texts:</b></p>	<p>None</p>
<p><b>Breadth Options:</b></p>	<p>This subject is not available as a breadth subject.</p>

<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>	<p>On completion of this subject students should have the following skills -</p> <ul style="list-style-type: none"> <li>• critical thinking and critical judgement of assumptions adopted;</li> <li>• interpretation and analysis of data;</li> <li>• application of theory to practice;</li> <li>• The ability to communicate effectively, not only with engineers but also with the community at large;</li> <li>• The ability to utilise a systems approach to design and operational performance;</li> <li>• The ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member;</li> <li>• An understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development;</li> <li>• An understanding of the principles of sustainable design and development;</li> <li>• An understanding of professional and ethical responsibilities and commitment to them;</li> <li>• Capacity for independent critical thought, rational inquiry and self-directed learning;</li> <li>• Openness to new ideas and unconventional critiques of received wisdom;</li> <li>• The ability to apply knowledge of basic science and engineering fundamentals;</li> <li>• The ability to undertake problem identification, formulation and solution.</li> </ul>
<b>Related Course(s):</b>	Bachelor of Engineering (Biomedical) Biomechanics
<b>Related Majors/Minors/ Specialisations:</b>	<p>B-ENG Mechanical Engineering stream  Master of Engineering (Mechanical)  Master of Engineering (Mechatronics)</p>