

MCEN40020 Major Project and Professional Practice

Credit Points:	25
Level:	4 (Undergraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Year Long, Parkville - Taught on campus.
Time Commitment:	Contact Hours: Up to thirty-six hours of lectures and seventy-two hours of department-based practical project engineering Total Time Commitment: Estimated 120 hours
Prerequisites:	Students must have completed 436-384 Design and Processes 1 (/view/2010/436-384) and 436-311 Design and Processes 2 (/view/2010/436-311) to enrol in this subject (except students enrolled in Biomedical Engineering (679 BM) who must have completed 436-285 Engineering Design and Materials 1 (/view/2010/436-285) and 436-286 Engineering Design Materials 2). (/view/2010/436-286)
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	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: http://www.services.unimelb.edu.au/disability
Coordinator:	Dr Peter Lee
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Subject Overview:	<p>Upon completion, students will have developed the ability to apply the knowledge gained in other subjects to successfully investigate a substantial engineering design or research problem. Experience will be gained in collaborative project work, sourcing and collating information that may be associated with disciplines beyond the scope of prior coursework, developing hypotheses from which engineering decisions will be made, and the reporting contributions arising from project and professional practice activities.</p> <p>Unit 1: Major Project:</p> <p>This unit involves undertaking a major project, requiring an independent investigation and the preparation of reports on an approved topic in advanced engineering design or research. Students will present their findings in a conference podium presentation format, held at the end of the project cycle in the latter half of semester two. The emphasis of the project can be associated with either:</p>

	<ul style="list-style-type: none"> # 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 # 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. <p>It is expected that the major project will incorporate findings associated with both well-defined professional practice and research principles.</p> <p>Unit 2: Professional Practice:</p> <p>Upon completion of this unit, students will have developed an appreciation of the role of technology in society, the responsibilities of engineers with respect to their fellow workers, society and the environment. Topics covered include:</p> <ul style="list-style-type: none"> # research methodologies: reviewing literature, preparing and executing a research program, peer review of findings, academic research case studies; # design processes: conceptual design, integration of design and manufacturing; quality assessment, project management, concurrent engineering; # engineering profession: historical, sociological and environmental factors in invention and innovation, technology forecasting, patenting, professional ethics, statutory requirements and legal responsibilities, environment considerations, and human relations.
Objectives:	See subject overview
Assessment:	All components of assessment must be satisfactorily completed to pass the subject. Major Project (90% of overall mark) Continuous assessment, identifying effort, progress and contributions over the entire project cycle. Two interim reports outlining project progress, each 10% A professional engineering project report (Final Report) of no more than 10 000 words (40 pages), excluding appendices of supporting material that can include diagrams, tables, computations and computer output (40%). The Final Report will include an extended Executive Summary of the important findings contained in the Final Report (5%). Technical oral examination of no more than one half-hour duration. Technical oral examination includes a formal presentation followed by questions from an academic supervisor and academic examiner (15%). Major Project Exhibition:- Lay-person oral examination of no more than 20 minutes duration (5%)- Static display materials (eg. poster, computer demonstration, prototype) (5%) Professional Practice (10% of overall mark) One assignment based on lecture material not exceeding 1,500 words per student (10%).
Prescribed Texts:	None
Recommended Texts:	Information Not Available
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:	<ul style="list-style-type: none"> # Synthesise solutions to both unstructured and constrained problems descriptions; # Manage long term project work at a professional engineering level; # Develop professional written and verbal communications skills; # Effective team membership and team leadership; # Awareness of the roles and responsibilities of the professional engineer in contemporary society.
Related Course(s):	Bachelor of Engineering (Biomedical) Biomechanics Bachelor of Engineering (Engineering Management) Mechanical & Manufacturing Bachelor of Engineering (Mechanical & Manufacturing) and Bachelor of Arts

Bachelor of Engineering (Mechanical & Manufacturing) & Bachelor of Science
Bachelor of Engineering (Mechanical & Manufacturing) / Bachelor of Commerce
Bachelor of Engineering (Mechanical and Manufacturing Engineering)
Bachelor of Engineering (Mechatronics) and Bachelor of Computer Science
Bachelor of Engineering (Mechanical & Manufacturing) and Bachelor of Laws