

355AF Bachelor of Engineering (Mechanical and Manufacturing Engineering)

Year and Campus:	2010 - Parkville
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Level:	Undergraduate
Duration & Credit Points:	400 credit points taken over 48 months full time. This course is available as full or part time.
Coordinator:	A/prof. Andrew Seng Hock Ooi
Contact:	Melbourne School of Engineering Office Building 173, Grattan Street The University of Melbourne VIC 3010 Australia General telephone enquiries + 61 3 8344 6703 + 61 3 8344 6507 Facsimiles + 61 3 9349 2182 + 61 3 8344 7707 Email eng-info@unimelb.edu.au (eng-info@unimelb.edu.au)
Course Overview:	<p>The department was first established after the Second World War, although the course in mechanical engineering began in 1907 as a Faculty stream. An industrial engineering degree was added in the late 1950s. In 1988 an extensive review of the curriculum led to the undergraduate courses being restructured into a new, single degree course in mechanical and manufacturing engineering with students having the option to choose specialisations in their last year. A 1995 review of the department by a team from the US and UK ranked its research and teaching at the highest international standards. In 1996, the five-year combined degree in mechatronics commenced. Mechanical and manufacturing engineering applies human and material resources to the design, construction, operation and maintenance of machines (supported increasingly by sophisticated computer technology) to move people, goods and materials; generate energy; produce goods and services; and control pollution and dispose of wastes. It interacts with all other branches of engineering including the medical sciences.</p> <p>The single degree, Bachelor of Engineering (Mechanical), requires the completion of 400 points usually over four years.</p> <p>First-year students acquire a flexible, broad scientific training in mathematics, computing and physics and an introduction to engineering.</p> <p>Second-year students continue with mathematics and are introduced to engineering design plus basic mechanical engineering sciences (thermodynamics, fluid mechanics, mechanics and machine dynamics), materials and electro-mechanical system modelling.</p> <p>Third year students continue engineering science, engineering design, manufacturing studies and control systems.</p> <p>Fourth year includes a major project and electives in advanced engineering; in manufacturing, bioengineering, applied mechanics, fluids, energy, mechatronics and management. Students planning to enter industry directly after graduating can choose how best to prepare for their careers, bearing in mind that many design and research engineers move into management. Many students participate in industry challenges such as the Formula SAE-A competition, or other build and demonstrate projects that are world competitive.</p> <p>In laboratory, research and design work students have access to specialised facilities for materials testing, wind tunnels, engine test cells and a heavy engineering workshop for the manufacture of testing facilities and experimental equipment.</p> <p>Engineering design, which draws on the Faculty's extensive computer facilities and computational mechanics, is now established as an area of study and research in conjunction with computer science.</p> <p>Graduate research programs are available in aspects of mechanical, mechatronics, manufacturing and bioengineering. The department is internationally regarded in fluid</p>

	mechanics, advanced automotive engineering technology, machine dynamics, mechatronics and biomedical engineering.																																										
Objectives:	-																																										
Course Structure & Available Subjects:	The recommended or standard course structures for students who commenced the course prior to 2008 are listed below. When setting the timetable every effort will be made to avoid clashes between the times of classes associated with these sets of subjects. Students should be aware however, that if it proves to be impossible to achieve a timetable without clashes in these sets of subjects, the Faculty reserves the right to modify course structures in order to eliminate the conflicts. Students will be advised during the enrolment period of the semester if the recommended courses need to be varied. Where the courses include elective subjects these should be chosen so that timetable clashes are avoided.																																										
Subject Options:	<p>THE COURSE STRUCTURE BELOW ONLY APPLIES TO RE-ENROLLING STUDENTS WHO COMMENCED THEIR STUDIES PRIOR TO 2008.</p> <p>Note: Students who commenced 3rd year in 2009 and have not completed (or who have failed) the third year subjects required in the Bachelor of Engineering degree please see a course adviser.</p> <p>The following Third year Engineering subjects are available in 2010</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MCEN30008 Control Systems 1</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>MCEN30009 Engineering Design & Processes 1</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>MCEN30005 Thermofluids 3</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>MCEN30001 Engineering Design & Processes 2</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>MAST30015 Statistics for Mechanical Engineers</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>MCEN30007 Mechanics 3</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>MCEN30004 Thermofluids 2</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <p>Credit may not be obtained for:</p> <p>both 436-201 Thermofluids 1 and 436-301 Thermofluids, both 436-353 Mechanics 2 and 436-302 Mechanical Dynamics, both 436-285 Design and Materials1 and 436-303 Mechanics and Materials both 436-286 Design and materials 2 and 436-304 Mechanical Design both 436-284 organisational Engineering and 436-640 Finance & Human Resources for Engineers</p> <p>Fourth Year</p> <p>Subjects listed below MUST be taken in this approved order, regardless of semester availability.</p> <p>Year Long</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MCEN40020 Major Project and Professional Practice</td> <td>Year Long</td> <td>25</td> </tr> </tbody> </table> <p>Semester 1</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MCEN40009 Mechanics 4</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>MCEN40010 Thermofluids 4</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>MCEN40018 Control Systems 2</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	MCEN30008 Control Systems 1	Semester 1	12.50	MCEN30009 Engineering Design & Processes 1	Semester 1	12.50	MCEN30005 Thermofluids 3	Semester 2	12.50	MCEN30001 Engineering Design & Processes 2	Semester 2	12.50	MAST30015 Statistics for Mechanical Engineers	Semester 2	12.50	MCEN30007 Mechanics 3	Semester 2	12.50	MCEN30004 Thermofluids 2	Semester 1	12.50	Subject	Study Period Commencement:	Credit Points:	MCEN40020 Major Project and Professional Practice	Year Long	25	Subject	Study Period Commencement:	Credit Points:	MCEN40009 Mechanics 4	Semester 1	12.50	MCEN40010 Thermofluids 4	Semester 1	12.50	MCEN40018 Control Systems 2	Semester 1	12.50
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Semester 2

Electives from the list below (choose three to make a total of 37.5 points).

Subject	Study Period Commencement:	Credit Points:
MCEN40003 Quality Engineering	Semester 2	12.50
MCEN40002 Optimisation	Semester 2	12.50
MCEN40015 Advanced Engineering Materials	Semester 2	12.50
MGMT20004 Human Resource Management	Semester 1, Semester 2	12.50
MCEN40011 Advanced Computational Mechanics	Semester 2	12.50
MCEN40006 Computational Biomechanics	Semester 2	12.50
MGMT20002 Managing Operations	Summer Term, Semester 1	12.50
325-211 Principles of Marketing	Not offered 2010	12.50

Entry Requirements:

There will be no further entry into this course.

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/>

Graduate Attributes:

The Bachelor of Engineering is a professional degree. Graduates can obtain professional recognition by joining Engineers Australia who has accredited these programs. The Bachelor of Engineering also delivers on the University graduate attribute <http://www.unimelb.edu.au/about/attributes.html>