

355-AF Bachelor of Engineering (Mechanical and Manufacturing Engineering)

Year and Campus:	2008
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Level:	Undergraduate
Duration & Credit Points:	
Contact:	-
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 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 mechanics, advanced automotive engineering technology, machine dynamics, mechatronics and biomedical engineering.</p>
Objectives:	-
Course Structure & Available Subjects:	<p>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.</p>
Subject Options:	

First Year (2008 Entry)

Note: Students who have successfully completed VCE Specialist Maths should enrol into:

620-155 Calculus 2 in semester 1; and

620-156 Linear Algebra in semester 2

Subjects listed below **MUST** be taken in this approved order, regardless of semester availability.

Semester 1

Subject	Study Period Commencement:	Credit Points:
800-001 Engineering Systems Design 1	Semester 1, Semester 2	12.50
620-154 Calculus 1	Semester 1, Semester 2	12.50
640-171 Physics 1: Fundamentals	Semester 1	12.50

Breadth subject (<http://handbook.unimelb.edu.au/breadth/index.html>) (12.5) points

Semester 2

Subject	Study Period Commencement:	Credit Points:
800-002 Engineering Systems Design 2	Semester 2, Summer	12.50
620-155 Calculus 2	Semester 1, Semester 2	12.50
640-132 Physics 2: Physical Science & Technology	Semester 2	12.50

PLUS Breadth subject (<http://handbook.unimelb.edu.au/breadth/index.html>) (12.5 points)

THE COURSE STRUCTURE BELOW ONLY APPLIES TO RE-ENROLLING STUDENTS WHO COMMENCED THEIR STUDIES PRIOR TO 2008

431-101 Fundamentals of Electrical Engineering will be replaced with 431-103 Electrical Circuits 1

Second Year

Subjects listed below **MUST** be taken in this approved order, regardless of semester availability.

Semester 1

Subject	Study Period Commencement:	Credit Points:
431-201 Engineering Analysis A	Semester 1	12.50
436-285 Engineering Design and Materials 1	Semester 1	12.50
436-284 Organisational Engineering	Semester 1	12.50
436-202 Mechanics 1	1	12.500

Semester 2

Subject	Study Period Commencement:	Credit Points:
431-202 Engineering Analysis B	Summer, 1, 2	12.500
436-201 Thermofluids 1	Semester 2	12.50
436-204 Systems Modelling	Semester 2	12.50
436-286 Engineering Design & Materials 2	Semester 2	12.50

Third Year

Subjects listed below **MUST** be taken in this approved order, regardless of semester availability.

Semester 1

Subject	Study Period Commencement:	Credit Points:
436-351 Thermofluids 2	Semester 1	12.50
436-353 Mechanics 2	Semester 1	12.50
436-382 Control Systems 1	Semester 1	12.50
436-384 Engineering Design & Processes 1	Semester 1	12.50

Semester 2

Subject	Study Period Commencement:	Credit Points:
436-352 Thermofluids 3	Semester 2	12.50
436-354 Mechanics 3	Semester 2	12.50
436-311 Engineering Design & Processes 2	Semester 2	12.50
620-370 Statistics for Mechanical Engineers	Semester 2	12.50

Fourth Year

Subjects listed below **MUST** be taken in this approved order, regardless of semester availability.

Year Long

Subject	Study Period Commencement:	Credit Points:
436-492 Major Project and Professional Practice	Year Long	25

Semester 1

Subject	Study Period Commencement:	Credit Points:
436-431 Mechanics 4	Semester 1	12.50
436-432 Thermofluids 4	Semester 1	12.50
436-470 Control Systems 2	Semester 1	12.50

Semester 2

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

Subject	Study Period Commencement:	Credit Points:
436-386 Biomaterials	Semester 1	12.50
436-388 Introduction to Biomechanics	Semester 1	12.50
436-415 Quality Engineering	Semester 2	12.50
436-414 Optimisation	Semester 2	12.50
436-460 Advanced Engineering Materials	Semester 2	12.50
436-465 Advanced Fluid Mechanics	Semester 2	12.50
436-421 Power Generation Systems	Semester 2	12.50
436-439 Dynamics of Rotors	Not offered 2008	12.500

	436-443 Production Engineering	Not offered 2008	12.500
	325-209 Human Resource Management	Semester 1, Semester 2	12.50
	436-436 Advanced Computational Mechanics	Semester 2	12.50
	436-419 Computational Biomechanics	Semester 2	12.50
	436-459 Advanced Control and Automation	Semester 2	12.50
	436-387 Cellular & Tissue Biomechanics	Semester 2	12.50
	325-203 Managing Operations	Semester 1, Summer	12.50
	325-211 Principles of Marketing	Summer, 1, 2	12.500
Core Participation Requirements:	<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>		