

## 957AM Bachelor of Engineering (Mechanical & Manufacturing) and Bachelor of Arts

<b>Year and Campus:</b>	2010 - Parkville
<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>Level:</b>	Undergraduate
<b>Duration &amp; Credit Points:</b>	500 credit points taken over 60 months full time. This course is available as full or part time.
<b>Coordinator:</b>	A/Prof. Andrew Seng Hock Ooi
<b>Contact:</b>	<p>Enquiries: Arts &amp; Music Student Centre Rm 104 (Ground Floor) Old Arts Building</p> <p><b>Location (PDF, 1027kb) (<a href="http://www.pb.unimelb.edu.au/CampusMaps/Parkville_P.pdf">http://www.pb.unimelb.edu.au/CampusMaps/Parkville_P.pdf</a>)</b></p> <p>Tel: +61 3 8344 5235 Fax: +61 3 9347 0424 Search for an answer or send an email via our queries database: <a href="http://arts-unimelb.custhelp.com/">http://arts-unimelb.custhelp.com/</a> (<a href="http://arts-unimelb.custhelp.com/">http://arts-unimelb.custhelp.com/</a>)</p> <p>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 <a href="mailto:eng-info@unimelb.edu.au">eng-info@unimelb.edu.au</a> (<a href="mailto:eng-info@unimelb.edu.au">mailto:eng-info@unimelb.edu.au</a>) <b>(Engineering%20Student%20Centre%20%20Ground%20Floor,%20Old%20Engineering%20Building%20The%20University%20of%20Melbourne%20Victoria%203010%20AUSTRALIA%20%20Tel:%20+61%203%208344%206703%20Fax:%20+61%203%209349%202182%20%20Email%20http://eng-unimelb.custhelp.com)</b></p>
<b>Course Overview:</b>	<p>The Department of Engineering 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 combined degree of Bachelor of Engineering (Mechanical and Manufacturing)/Bachelor of Arts requires a total of 500 points over five years. Students are required to complete 300 points of Engineering subjects and 200 points of Arts subjects.</p> <p>First-year students acquire a broad scientific training in mathematics and computing and an introduction to engineering and their choice of Arts subjects.</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) and materials.</p> <p>Third year students continue mechanics and machine dynamics, and are introduced to electro-mechanical system modelling. Half the year is devoted to studies in Arts.</p> <p>Fourth year is concerned with thermodynamics, fluid mechanics, design, manufacturing and control, as well as further Arts studies.</p>

	<p>Fifth year includes a major project and an elective in advanced engineering. 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> <p>The Bachelor of Arts (BA) offers unique flexibility with the opportunity to focus on a major chosen from a broad range of Arts study options in the humanities, social sciences and languages.</p> <p>Students can:</p> <ul style="list-style-type: none"> <li># Undertake specialised fieldwork, research options and integrated internship programs which provide opportunities for professional work experience and community engagement.</li> <li># Broaden your horizons and undertake international study exchange at any one of 120 universities worldwide, receiving credit towards your Melbourne Arts degree.</li> <li># Study a new language with most areas available from beginners to advanced level.</li> <li># Benefit from studying with high achieving local and international students with Melbourne Arts having the highest entry requirements for arts disciplines in Australia.</li> <li># Learn from internationally recognised scholars and industry professionals.</li> <li># Create pathways into further postgraduate study in professional Arts Masters courses, Melbourne Model Graduate Professional Degrees, and with the completion of an Honours year, entry into research higher degrees in Arts.</li> <li># Enjoy a rewarding professional career, with Melbourne Arts graduates enjoying employment rates well above the national Arts average.</li> </ul>
<p><b>Objectives:</b></p>	<p>The Bachelor of Arts has as its objectives that graduates:</p> <ul style="list-style-type: none"> <li>* can demonstrate a sound knowledge and understanding of selected fields of studies in the humanities, languages and social and behavioural sciences;</li> <li>* can access and appreciate national and international debates in their areas of study;</li> <li>* can demonstrate an independent approach to knowledge that uses rigorous methods of inquiry and appropriate theories and methodologies that are applied with intellectual honesty and a respect for ethical values;</li> <li>* can apply critical and analytical skills and methods to the identification and resolution of problems within a changing social context;</li> <li>* can act as informed and critically discriminating participants within the community of scholars, as citizens and in the work force;</li> <li>* can communicate effectively and, in the case of those students undertaking a language major, are able to read, write and speak another language with fluency and appreciate its cultural context;</li> <li>* qualify for employment in a wide range of occupations;</li> <li>* have a continuing commitment to learning;</li> <li>* are proficient in the use of appropriate modern technologies, such as the computer and other IT systems, for the acquisition, processing and interpretation of data.</li> </ul>
<p><b>Course Structure &amp; Available Subjects:</b></p>	<p>The recommended or standard course structures for engineering 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. In particular, students in combined degrees should plan their courses so that the subjects chosen in the other faculty do not clash with those recommended for the engineering component.</p>

<b>Majors/Minors/ Specialisations</b>	<b>Major/Minor/Specialisation</b>
	American Studies Major
Ancient, Medieval & Early Modern Studies Major	
Anthropology	
Arabic Studies Major	
Art History Major	
Asian Studies Major	
Australian Indigenous Studies Major	
Australian Studies Major	
Chinese Language Major	
Chinese Studies Major	
Cinema Studies Major	
Classical Studies & Archaeology Major	
Creative Writing Major	
Criminology Major	
Cultural Studies Major	
Development Studies Major	
English Literary Studies Major	
English Language Studies Major	
Environmental Studies Major	
European Studies Major	
French Major	
Gender Studies Major	
Geography Major	
German Major	
Hebrew Major	
History Major	
History and Philosophy of Science Major	
Indonesian Major	
International Studies Major	
Islamic Studies Major	
Italian Major	
Japanese Major	
Jewish Studies Major	

	<p>Linguistics &amp; Applied Linguistics Major</p> <p>Modern Greek Major</p> <p>Philosophy Major</p> <p>Planning and Design Major</p> <p>Political Science Major</p> <p>Psychology Major</p> <p>Russian Major</p> <p>Social Theory Major</p> <p>Socio-legal Studies Major</p> <p>Sociology Major</p> <p>Spanish Major</p> <p>Swedish Major</p> <p>Theatre Studies Major</p>
<p><b>Subject Options:</b></p>	<p><b>Arts Requirements:</b></p> <p>All students in the Bachelor of Arts and Bachelor of Engineering (Mechanical and Manufacturing) are required to complete 200 points of Arts subjects of which;</p> <ul style="list-style-type: none"> <li>* 50 points must be taken at first year level;</li> <li>* 75 points must be taken at second year level and;</li> <li>* 75 points must be taken at third year level.</li> </ul> <p>All Arts subjects undertaken must be from the following arts-approved study areas (see the major's description for full details):</p> <ul style="list-style-type: none"> <li>* all language subjects</li> <li>* American studies</li> <li>* Ancient, Medieval and Early Modern Studies (some non-arts approved subjects included)</li> <li>* Anthropology</li> <li>* Art History</li> <li>* Asian Studies (some non-arts approved subjects included)</li> <li>* Australian Indigenous Studies (some non-arts approved subjects included)</li> <li>* Australian Studies</li> <li>* Cinema Studies</li> <li>* Classical studies and Archaeology</li> <li>* Creative Writing</li> <li>* Criminology</li> <li>* Cultural Studies</li> <li>* Development Studies (some non-art approved subjects included)</li> <li>* English Literary Studies</li> <li>* English as a Second Language</li> <li>* English Language Studies</li> <li>* Environmental Studies (some non-arts approved subjects included)</li> <li>* European Studies</li> <li>* Gender Studies</li> <li>* Geography</li> <li>* Hebrew and Jewish Studies</li> <li>* History</li> <li>* History and Philosophy of Science</li> <li>* International Studies</li> <li>* Islamic Studies</li> <li>* Linguistics and Applied Linguistics</li> <li>* Philosophy</li> <li>* Planning and Design</li> <li>* Political Science</li> <li>* Psychology</li> </ul>

- \* Social Theory
- \* Socio-legal Studies
- \* Theatre Studies

There will be no First to Third year Entry into this course from 2010

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.

#### Fourth Year

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

##### Semester 1

Subject	Study Period Commencement:	Credit Points:
MCEN30009 Engineering Design & Processes 1	Semester 1	12.50
MCEN30008 Control Systems 1	Semester 1	12.50
MCEN30004 Thermofluids 2	Semester 1	12.50

Arts subject as required (12.5 points)

##### Semester 2

Subject	Study Period Commencement:	Credit Points:
MCEN30001 Engineering Design & Processes 2	Semester 2	12.50
MCEN30005 Thermofluids 3	Semester 2	12.50

Arts subject(S) as required (25 points)

#### Fifth Year

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

##### Year Long

Subject	Study Period Commencement:	Credit Points:
MCEN40020 Major Project and Professional Practice	Year Long	25

##### Semester 1

Mechanical Elective Group 1 (12.5 points)

Arts Subject(S) as required (25 points)

##### Mechanical Elective Group 1

Select one elective from the group below:

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

##### Semester 2

Arts subject(s) as required (37.5 points)

#### Entry Requirements:

There is no further entry into this combined course.

#### Core Participation Requirements:

The Bachelor of Arts requires a standard level of ability across all disciplines. It will be assumed students are able to access and attend classes on a regular basis, are capable of learning in a University environment and will be able to take responsibility for their own learning. Any ability beyond this threshold will be robustly supported through the curriculum. There are no pre-requisites for first year subjects, and any intensive use of IT or technologies will be adequately supported. Certain subjects have more specific requirements and demands, such as fieldwork or travelling, which are clearly outlined in the subject description. The University is dedicated

	to provide support to those with special requirements. The Faculty Disability Contact Officer works with students, the University Disability Liaison Unit and teaching staff to assist students with their special requirements, with a particular focus on accommodations for in-class and examination assessment tasks. Further details on the disability support scheme can be found at the Disability Liaison Unit website.
<b>Further Study:</b>	<p><b>Honours</b> Depending on your major area of study, you have the option of applying for an Honours year after completing your BA, which will include a research project. For more information on entry to Honours, see the <a href="http://www.arts.unimelb.edu.au/futurestudents/programs/Honours.html">Arts webpage (http://www.arts.unimelb.edu.au/futurestudents/programs/Honours.html)</a>.</p> <p><b>Coursework Masters</b> If you wish to continue your professional studies at postgraduate level, the studies you undertake in your major can provide a direct pathway to Coursework Masters Degrees in areas such as editing, media and communications, public policy and management, international studies, arts management, development studies and many more. Entry is based on academic merit and in most cases requires a Bachelors degree or equivalent in the relevant study area. You will also be well-prepared to undertake a Melbourne Model Graduate Professional Degree in areas such as law, teaching and commerce.</p> <p>For more information on entry into a coursework masters degree, see the <a href="http://www.arts.unimelb.edu.au/futurestudents/programs/pg-programs.html">Arts coursework programs webpage (http://www.arts.unimelb.edu.au/futurestudents/programs/pg-programs.html)</a>, or the <a href="http://www.futurestudents.unimelb.edu.au/grad/">University graduate programs webpage (http://www.futurestudents.unimelb.edu.au/grad/)</a>.</p> <p><b>Research Higher Degrees</b> If you wish to undertake advanced research and explore particular study areas in more depth, there will be opportunities to proceed to a range of Research Higher Degrees at masters and doctoral level. For more information about research higher degree study in Arts, see the <a href="http://www.arts.unimelb.edu.au/futurestudents/research/">Arts webpage (http://www.arts.unimelb.edu.au/futurestudents/research/)</a>.</p>
<b>Graduate Attributes:</b>	See course objectives
<b>Generic Skills:</b>	<p>Arts students are encouraged to pursue their academic interests and professional aspirations by taking a variety of subjects in a range of different areas of study. All arts subjects provide students with transferable generic skills that prepare them for further study and the workplace.</p> <p>As a result of attendance at scheduled classes, participation in planned activities and discussion groups, and timely completion of essays and assignments, arts graduates should acquire transferable generic skills in the following areas:</p> <ul style="list-style-type: none"> <li># <b>research</b> through competent use of the library, electronic databases, and other information sources, and the definition of areas of inquiry and methods of research;</li> <li># <b>critical thinking and analysis</b> through recommended reading, essay writing and tutorial discussion, and by determining the strength of an argument;</li> <li># <b>thinking in theoretical terms</b> through lectures, tutorial discussion, essay writing and engagement in the methodologies of the humanities and social sciences;</li> <li># <b>thinking creatively</b> through essay writing, creative writing, tutorial discussions and presentations, conceptualising theoretical problems, forming judgements and arguments from conflicting evidence and by critical analysis;</li> <li># <b>understanding of social, ethical and cultural context</b> through the contextualisation of judgements, developing a critical self-awareness, being open to new ideas and possibilities and by constructing an argument;</li> <li># <b>communicating knowledge intelligibly and economically</b> through essay writing and tutorial and seminar discussion;</li> </ul>

# **written communication**

through essay preparation and assignment writing;

# **public speaking**

through tutorial and seminar discussion and class presentations;

# **attention to detail**

through essay preparation and writing, and examination revision;

# **time management and planning**

through managing and organising workloads for recommended reading, essay and assignment completion and examination revision;

# **teamwork**

through joint projects and group discussions.