

## B-ENG Mechanical Engineering stream

<b>Year and Campus:</b>	2011																																		
<b>Coordinator:</b>	Associate Professor Peter Lee																																		
<b>Contact:</b>	<b>Email: <a href="mailto:pvlee@unimelb.edu.au">pvlee@unimelb.edu.au</a> (mailto:pvlee@unimelb.edu.au)</b>																																		
<b>Overview:</b>	The Mechanical Engineering stream of the Bachelor of Engineering (for students commencing in 2008 and later years). See Bachelor of Engineering (B-ENG)																																		
<b>Objectives:</b>	See Bachelor of Engineering (B-ENG)																																		
<b>Structure &amp; Available Subjects:</b>	Completion of 400 points of study culminating in an industry project in the final year. The structure of the Bachelor of Engineering degree requires completion of specific subjects as part of this stream. The majority of subjects have one or more prerequisites and therefore the sequence in which subjects are taken is very important. It is unlikely that prerequisite waivers will be granted for these engineering subjects and therefore students should take care to select subjects in one study period that satisfy prerequisites for subjects in later study periods.																																		
<b>Subject Options:</b>	<p>The following subjects are required for this stream of the Bachelor of Engineering.</p> <p><b>First Year (normally 100 points taken in Year 1)</b></p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ENGR10004 Engineering Systems Design 1</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>PHYC10003 Physics 1</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>MAST10005 Calculus 1</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>ENGR10003 Engineering Systems Design 2</td> <td>Not offered 2011</td> <td>12.50</td> </tr> <tr> <td>PHYC10004 Physics 2: Physical Science &amp; Technology</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>MAST10006 Calculus 2</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>Plus</p> <ul style="list-style-type: none"> <li># Two breadth subjects (i.e. 25.00 credit points total)</li> </ul> <p><b>N.B.</b></p> <ul style="list-style-type: none"> <li># Students who have completed VCE Specialist Mathematics (or equivalent) are exempt from MAST10005 Calculus 1 and should therefore enrol in MAST10006 Calculus 2 and MAST10007 Linear Algebra.</li> <li># Students with a high level of achievement in mathematics may enrol in both MAST10008 Accelerated Mathematics 1 and MAST10009 Accelerated Mathematics 2 instead of both MAST10006 Calculus 2 and MAST10007 Linear Algebra.</li> <li># Students with a high level of achievement in physics may enrol in PHYC10001 Physics 1: Advanced and PHYC10002 Physics 2: Advanced instead of both PHYC10003 Physics 1 and PHYC10004 Physics 2: Physical Science &amp; Technology.</li> </ul> <p><b>Second Year (normally 100 points taken in Year 2)</b></p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>COMP20005 Engineering Computation</td> <td>Not offered 2011</td> <td>12.50</td> </tr> <tr> <td>MAST10007 Linear Algebra</td> <td>Summer Term, Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>ELEN20005 Foundations of Electrical Networks</td> <td>January, Semester 2</td> <td>12.50</td> </tr> </tbody> </table>		Subject	Study Period Commencement:	Credit Points:	ENGR10004 Engineering Systems Design 1	Semester 1, Semester 2	12.50	PHYC10003 Physics 1	Semester 1	12.50	MAST10005 Calculus 1	Semester 1, Semester 2	12.50	ENGR10003 Engineering Systems Design 2	Not offered 2011	12.50	PHYC10004 Physics 2: Physical Science & Technology	Semester 2	12.50	MAST10006 Calculus 2	Semester 1, Semester 2	12.50	Subject	Study Period Commencement:	Credit Points:	COMP20005 Engineering Computation	Not offered 2011	12.50	MAST10007 Linear Algebra	Summer Term, Semester 1, Semester 2	12.50	ELEN20005 Foundations of Electrical Networks	January, Semester 2	12.50
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ENGR20004 Engineering Mechanics	January, Semester 1, Semester 2	12.50
MAST20029 Engineering Mathematics	Summer Term, Semester 1, Semester 2	12.50

**Plus**

- # One breadth subject (i.e. 12.50 credit points total)
- # One science elective (i.e. 12.50 credit points total)
- # One approved elective (i.e. 12.50 credit points total)

**NB.**

- # Students who have completed VCE Specialist Mathematics (or equivalent) and completed either both MAST10006 Calculus 2 and MAST10007 Linear Algebra or both MAST10008 Accelerated Mathematics 1 and MAST10009 Accelerated Mathematics 2 in Year 1 can replace MAST10007 Linear Algebra in the table above with a science elective.
- # A science elective is any subject available as science credit in the Bachelor of Science course (B-SCI). Refer to that course entry for a full list of subjects. Science electives may have prerequisites.
- # An approved elective is either a science elective or, with approval of the coordinator of this specialisation, any other subject for which the student has the appropriate prerequisites.

**Third Year (normally 100 points taken in Year 3)**

Subject	Study Period Commencement:	Credit Points:
MCEN30017 Mechanics & Materials	Semester 1	12.50
ENGR30001 Fluid Mechanics & Thermodynamics	Semester 1, Semester 2	12.50
MCEN30016 Mechanical Dynamics	Semester 1	12.50
MCEN90010 Finance & Human Resources for Engineers	Semester 1	12.50
MCEN30014 Mechanical Design	Semester 2	12.50
MCEN90008 Fluid Dynamics	Semester 2	12.50
MCEN90009 Dynamics of Machines	Semester 2	12.50
MCEN40024 Solid Mechanics	Semester 2	12.50

**N.B.**

- # Students who have taken ECON10004 Introductory Microeconomics as breadth must replace the core subject MCEN90010 Finance & Human Resources for Engineers with MGMT20001 Organisational Behaviour.
- # Students who have completed MGMT20001 Organisational Behaviour as breadth must use MGMT20001 to replace the core subject MCEN90010 Finance & Human Resources for Engineers Students and take ECON10004 Introductory Microeconomics as breadth.
- # Students may also enrol in both ECON10004 Introductory Microeconomics and MGMT20001 Organisational Behaviour as breadth and replace MCEN90010 Finance & Human Resources for Engineers with a science elective (see above).
- # Students will need to contact their student centre in order to make any of the above adjustments on their study plan.

**Fourth Year (normally 100 points taken in Year 4)**

Subject	Study Period Commencement:	Credit Points:
MCEN90015 Thermodynamics	Semester 1	12.50
ELEN90055 Control Systems	Semester 1	12.50
MCEN90014 Materials	Semester 1	12.50
MCEN90012 Design and Manufacturing 1	Semester 1	12.50

	MCEN90022 Mechanical Project	Not offered 2011	25
	MCEN90013 Design and Manufacturing 2	Semester 2	12.50
	Plus		
	# One elective selected from subjects offered by the Department of Mechanical Engineering (i.e. 12.50 credit points total)		
	<b>Subject</b>	<b>Study Period Commencement:</b>	<b>Credit Points:</b>
	MCEN40002 Optimisation	Not offered 2011	12.50
	ENGR90024 Computational Fluid Dynamics	Not offered 2011	12.50
	MCEN90020 Advanced Materials	Not offered 2011	12.50
	MCEN40011 Advanced Computational Mechanics	Semester 2	12.50
	MCEN40003 Quality Engineering	Semester 2	12.50
	MCEN40006 Computational Biomechanics	Not offered 2011	12.50
	MCEN40015 Advanced Engineering Materials	Semester 2	12.50
<b>Notes:</b>	Students who completed third year in 2010 will have taken MCEN30015 Thermofluids as a core subject instead of ENGR30001 Fluid Mechanic & Thermodynamics. An equivalent year-long version of MCEN90016 Mechanical Project will be available.		
<b>Related Course(s):</b>	Bachelor of Engineering		