

Master of Engineering (Mechanical)

Year and Campus:	2014
Coordinator:	Assoc Prof Peter Lee pvlee@unimelb.edu.au
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Overview:	<p>Mechanical engineers focus on turning energy into power and motion. More specifically, this specialisation looks at the generation, conversion and use of energy, as well as the design, construction and operation of devices and systems. Students in this course learn from staff with world-leading expertise in fluid mechanics, turbulence, thermodynamics, control and biomechanics, and have the chance to undertake an industry project that is both research and industrially based. Group activities and site visits help to consolidate theoretical knowledge and prepare students to undertake careers in fields from automotive design and manufacturing to software programming; and in non-engineering roles in organisations such as banks and consulting firms.</p>
Learning Outcomes:	To produce graduates who are both skilled in mechanical engineering principles and have the ability to apply them to complex, open-ended engineering tasks and problems.
Structure & Available Subjects:	<p>The Master of Engineering (Mechanical) consists of 300 points of study - 237.5 points core and 62.5 points elective subjects as detailed below.</p> <p>Advanced standing will be awarded for equivalent subjects taken in prior study on the following basis:</p> <ul style="list-style-type: none"> # A maximum of 100 points for applicants with a 4 year Bachelor of Engineering or equivalent. # A maximum of 100 points for applicants with a 3 year undergraduate degree. Students entering with a three year bachelor degree must complete at least 200 points of study within the Masters of Engineering. In cases where applicants have completed the equivalent of more than 100 points of core masters subjects, discipline specific electives must be taken to fulfill the 200 minimum masters study requirement. <p>Note: applicants from the University of Melbourne with:</p> <ul style="list-style-type: none"> # An appropriate "Engineering System" major will receive 100 points of advanced standing. Applicants who have completed more than 100 points of core subjects in their undergraduate degree will obtain exemption for the cores taken but will need to replace the points in excess of 100 points with approved MC-ENG Mechanical Engineering elective subjects. # Engineering breadth sequences (including those in the Bachelor of Commerce) will receive advanced standing to a maximum of 100 points.
Subject Options:	<p>Total 300 points - 237.5 points core (compulsory) and 62.5 points elective subjects from the lists below. Students must complete all 300 points of subjects, including all core subjects, or have advanced standing or exemption.</p> <p>Students who enter without advanced standing for Engineering Mechanics are strongly advised to enrol in this subject in the summer semester to assist with course planning.</p> <p>In 2014 Engineering Mechanics summer semester will be taught from Jan 13th to Feb 21st</p> <p>It is strongly advised that students complete MCEN90013 Design for Integration (or prior to 2014 MCEN90013 Design & Manufacturing 2) before enrolling in the Capstone Project.</p>

The core and elective subjects are those listed below. The order of subjects below is one way of progressing through the course - students who meet subject requisites may tailor their individual study plan to take into account advanced standing and their preferred study load. Students plan their study on-line, however Melbourne School of Engineering course advisors are available to assist students with individual study plans.

Suggested first 100 points:

Suggested study plan for the first 100 points:

100 points Core

Core (Total 100 points)

Subject	Study Period Commencement:	Credit Points:
ENGR20004 Engineering Mechanics	Summer Term, Semester 1, Semester 2	12.50
MAST20029 Engineering Mathematics	Summer Term, Semester 1, Semester 2	12.50
ENGR90021 Engineering Communication	Semester 1, Semester 2	12.50
MCEN30017 Mechanics & Materials	Semester 1	12.50
MCEN30016 Mechanical Dynamics	Semester 1	12.50
MCEN30014 Mechanical Design	Semester 2	12.50
MCEN30018 Thermodynamics and Fluid Mechanics	Semester 1, Semester 2	12.50
COMP20005 Engineering Computation	Semester 1, Semester 2	12.50

Suggested second 100 points:

Suggested study plan for the second 100 points:

100 points Core

Core (Total 100 points)

Subject	Study Period Commencement:	Credit Points:
MCEN90015 Thermodynamics	Semester 1	12.50
MCEN90014 Materials	Semester 1	12.50
ELEN90055 Control Systems	Semester 1	12.50
MCEN90012 Design for Manufacture	Semester 1	12.50
MCEN90008 Fluid Dynamics	Semester 2	12.50
MCEN90009 Dynamics of Machines	Semester 2	12.50
MCEN90026 Solid Mechanics	Semester 2	12.50
MCEN90013 Design for Integration	Semester 2	12.50

Suggested third 100 points:

Suggested study plan for the third 100 points:

37.5 points Core

62.5 points from the electives listed below (students need to take at least 4 electives from the Group 1 list).

Core

Subject	Study Period Commencement:	Credit Points:
MCEN90022 Capstone Project	Year Long, Semester 1	25
ELEN20005 Foundations of Electrical Networks	January, Semester 2	12.50

Group 1 electives

Choose 4 electives from this group.

Subject	Study Period Commencement:	Credit Points:
ENGM90011 Economic Analysis for Engineers	Semester 1	12.50
MCEN90020 Advanced Materials	Semester 1	12.50
MCEN90018 Advanced Fluid Dynamics	Semester 1	12.50
MCEN90029 Advanced Solid Mechanics	Semester 2	12.50
ELEN90064 Advanced Control Systems	Semester 2	12.50
MCEN90019 Advanced Thermodynamics	Semester 2	12.50
MCEN90037 Advanced Dynamics	Semester 2	12.50

Group 2 electives

Choose one elective from this group -

Subject	Study Period Commencement:	Credit Points:
MCEN90032 Sensor Systems	Semester 1	12.50
ENGR90024 Computational Fluid Dynamics	Semester 1	12.50
BMEN90022 Computational Biomechanics	Semester 2	12.50
ENGR90026 Engineering Entrepreneurship	Semester 2	12.50
MCEN90023 Quality and Reliability	Semester 2	12.50
MCEN90031 Applied High Performance Computing	Semester 2	12.50
MCEN90028 Robotics and Automation Systems	Semester 2	12.50
MCEN90017 Advanced Motion Control	Semester 2	12.50

Links to further information:	http://www.eng.unimelb.edu.au/Postgrad/MEng/me_mechanical.html
Notes:	NOTE: Credit may not be obtained for both ENGR30001 Fluid Mechanics & Thermodynamics and MCEN30018 Thermodynamics and Fluid Mechanics, OR for both MCEN90010 Finance & HR for Engineers and ENGM90011 Economic Analysis for Engineers.
Related Course(s):	Master of Engineering