Master of Engineering (Mechatronics)

Year and Campus:	2015
Coordinator:	Dr Chris Manzie
Contact:	Melbourne School of Engineering Ground floor, Old Engineering (Building 173) Current students: Email: **13MELB@unimelb.edu.au (mailto:13MELB@unimelb.edu.au)** Phone 13MELB (13 6352) +61 3 9035 5511 Prospective students: Visit **Master of Engineering (Mechatronics) (../../view/2014/%21H05-AA-SPC%2B1009)**
Overview:	Mechatronics engineering blends the disciplines of mechanical, electrical and software engineering around the principles of control systems and automation. Mechatronic engineers create and work with systems that have various degrees of automation, which is increasingly a factor of everyday life with examples including robots, automobiles and CNC machines all featuring levels of computer control.
Learning Outcomes:	This objectives of the course are that graduates should: # Have a sound fundamental understanding of the scientific principles underlying technology # Have acquired the educational and professional standards of the professional institutions and boards with which the School's courses are accredited # Possess a broad knowledge base of their chosen discipline, and of other disciplines so as to facilitate effective communication with those other professionals with whom engineers routinely communicate # Understand the basic principles underlying the management of physical, human and financial resources # Have acquired the mathematical and computational skills necessary for the solution of theoretical and practical problems for further professional development and for meeting future changes in technology # Possess analytical, problem-solving and, where relevant, design skills, including those appropriate for sustainable development # Have verbal and written communication skills that enable them to make a meaningful contribution to the changes facing our society # Have developed professional ethics and responsibility towards the profession and the community # Have an appreciation of the interpersonal and management skills required by engineers in undertaking professional activities # Understand the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development.
Structure & Available Subjects:	The Master of Engineering (Mechatronics) consists of 300 points of study - 287.5 points core and 12.5 points elective subjects as detailed below. Advanced standing will be awarded for equivalent subjects taken in prior study to applicants on the following basis: # 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 fulfil the 200 minimum masters study requirement. Note: applicants from the University of Melbourne with: # 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 with approved Master of Engineering (Mechatronics) elective subjects.

Subject Options:

Total 300 points - 287.5 points core (compulsory) and 12.5 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.

The core and elective subjects are listed below. The order of subjects 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 if a domestic student, their study load. Students plan their study online, however Melbourne School of Engineering course advisors are available to assist students with individual study plans.

Students who enter without advanced standing for Engineering Mechanics should commence in Summer Semester or in Semester 2 to assist with course planning.

Suggested first 100 points:

100 points Core

Subject	Study Period Commencement:	Credit Points:
MAST20029 Engineering Mathematics	Summer Term, Semester 1, Semester 2	12.50
ENGR20004 Engineering Mechanics	Summer Term, Semester 1, Semester 2	12.50
ELEN20005 Foundations of Electrical Networks	January, Semester 2	12.50
COMP20005 Engineering Computation	Semester 1, Semester 2	12.50
MCEN30017 Mechanics & Materials	Semester 1	12.50
MCEN30016 Mechanical Dynamics	Semester 1	12.50
MCEN30018 Thermodynamics and Fluid Mechanics	Semester 1, Semester 2	12.50
ENGR90021 Engineering Practice and Communication	Semester 1, Semester 2	12.50

Suggested second 100 points:

100 points Core

Subject	Study Period Commencement:	Credit Points:
ELEN90055 Control Systems	Semester 1, Semester 2	12.50
ELEN30009 Electrical Network Analysis and Design	Semester 1	12.50
ELEN30010 Digital System Design	Semester 1	12.50
SWEN30006 Software Modelling and Design	Semester 1, Semester 2	12.50
COMP90041 Programming and Software Development	Semester 1, Semester 2	12.50
MCEN90024 Mechatronics Design	Semester 2	12.50
ELEN90066 Embedded System Design	Semester 2	12.50
MCEN90009 Dynamics of Machines	Semester 2	12.50

Suggested third 100 points:

87.5 points Core

12.5 points Mechatronics Elective from the list below

Subject	Study Period Commencement:	Credit Points:
MCEN90022 Capstone Project	Year Long, Semester 1	25
MCEN90011 Manufacturing Systems	Semester 1	12.50
MCEN90015 Thermodynamics	Semester 1	12.50
COMP90038 Algorithms and Complexity	Semester 1, Semester 2	12.50
MCEN90017 Advanced Motion Control	Semester 2	12.50
ELEN90064 Advanced Control Systems	Semester 2	12.50

Mechatronics Electives

Total 12.5 points

Students must select at least one of these electives -

Subject	Study Period Commencement:	Credit Points:
MCEN90028 Robotics and Automation Systems	Semester 2	12.50
MCEN90032 Sensor Systems	Semester 1	12.50

Students may also select any remaining electives from appropriate level subjects of the Master of Engineering (Mechanical), (Electrical) and (Software) programs.

Links to further information:	http://www.eng.unimelb.edu.au/Postgrad/MEng/me_mechatronics.html
Related Course(s):	Master of Engineering