MCEN90027 Simulation Of Mechatronic Systems

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2012.
Time Commitment:	Contact Hours: 24 hours of lectures and case studies, 24 hours of tutorials and projects. Total Time Commitment: 120 hours

Prerequisites:

Subject	Study Period Commencement:	Credit Points:
ELEN90055 Control Systems	Semester 1	12.50

Also one of the following -

Subject	Study Period Commencement:	Credit Points:
MCEN90024 Mechatronics Design	Semester 2	12.50
MCEN30014 Mechanical Design	Semester 2	12.50
ELEN90053 Electronic System Design	Semester 2	12.50

Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	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. 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
Contact:	**doetomo@unimelb.edu.au (mailto:d.oetomo@unimelb.edu.au)**
Subject Overview:	This subject is concerned with the simulation methodologies which underpin the specification, design, development and testing of mechatronic systems. Topics covered include - # Mechatronics design concepts - integrative design concepts, analogies between electrical and mechanical systems, analog/digital transducers # Mechatronic system modelling and simulation methods - hardware-in-the-loop methods, hardware-software co-designs # Mechatronic system design - optimal division into sub systems, prototype development, market considerations, appraisal of benefit and cost # Case studies - various case studies and hands-on lab modules
Objectives:	On completion of this subject students should be able to - # Describe the mathematical, programming and modelling issues for multi-domain and hybrid system simulation # Demonstrate experience in the use of state-of-the-art software for modelling mechatronic systems

	# Demonstrate knowledge of and experience in the model-based design paradigm
Assessment:	One 2 hour written exam (50%).A series of assignments (projects and labs), completed throughout the semester (50% total). Students must obtain a mark of at least 40% for all continuing assessment tasks in order to pass the subject.
Prescribed Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completion of this subject, students should have the following skills - # Critical thinking and critical judgement of assumptions adopted # Abstract mathematical reasoning # Interpretation and analysis of data # Application of theory to practice # Ability to utilise a systems approach to design and operational performance
Related Majors/Minors/ Specialisations:	Master of Engineering (Mechanical) Master of Engineering (Mechatronics)