ENGR90023 Advanced Topics in Mechanical Eng. 3

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 24 hours of lectures Total Time Commitment: 96 hours
Prerequisites:	None.
Corequisites:	Students much be enrolled in a PhD or Master by Research (MPhil).
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 Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability
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Subject Overview:	This subject presents the principles of the design and operation of modern sensors in engineering practice, as well as fundamental techniques in their noise reduction and signal processing. The first unit of this subject will cover the design and function of sensors and their roles across a variety of engineering disciplines. The second unit of this subject will involve the implementation of techniques for sensor signal acquisition and system identification.
Objectives:	The aim of this subject is to provide students with an understanding of current techniques in sensor operation and data acquisition relevant to engineering industry and modern engineering research techniques.
Assessment:	Two mid-semester assignments (equiv. to 2000 words) worth 20% each, due approximately weeks 6 and 12. One three hour end of semester exam worth 60%. Students are required to pass the final exam in order to pass the subject.
Prescribed Texts:	N/A
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 be able to: # Explain the fundamentals of the operation of sensors and transducers for the measurement of pressure, temperature, light, stress, fatigue, composition and the chemical environment. # Demonstrate an understanding of and be able to implement techniques for noise reduction and signal processing # Apply knowledge of modern sensors to solving a variety of science and engineering problems # Undertake problem identification, formulation and solution. # Function effectively as an individual and in multi-disciplinary teams, with the capacity to be leader or manager as well as an effective team member