421-286 Bioengineering Systems Modelling 2

Credit Points:	12.500
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Semester 2, - Taught on campus.
Time Commitment:	Contact Hours: Thirty-six hours of lectures, 12 hours of tutorials. Total Time Commitment: Not available
Prerequisites:	None
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
Coordinator:	David Smith
Subject Overview:	This subject will present material that complements and reinforces selected portions of the material presented in the subject Biomedical Science II (536-250). The emphasis is on developing quantitative engineering models describing biological systems at the organ and whole body scale. Students will be introduced to the process of developing engineering models of biological systems, and to powerful simulation software for the solution of the mathematical equations describing the system behaviour. The subject introduces the fundamentals of fluid mechanics and signals and systems analysis. When possible, examples will be related to disease processes and the way in which engineering principles can be employed to improve understanding of the biological origin of disease, and subsequent differential diagnosis and patient management.
Assessment:	A 2-hour end-of-semester examination (50%): 30-minute mid-semester test (10%): four assignments each of 1000 word equivalent, due throughout the semester (30%): two laboratory work sessions and associated reports scheduled equally throughout the semester (10%).
Prescribed Texts:	None
Recommended Texts:	Information Not Available
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:	At the end of this subject a student should have an: # ability to apply knowledge of basic science and engineering fundamentals;

	# ability to undertake problem identification, formulation and solution; # capacity for independent critical thought, rational inquiry and self-directed learning; # openness to new ideas and unconventional critiques of received wisdom
Related Course(s):	Bachelor of Engineering (Biomedical) Biomechanics Bachelor of Engineering (Biomedical)Biocellular Bachelor of Engineering (Biomedical)Bioinformatics Bachelor of Engineering (Biomedical)Biosignals