431-673 Clinical Engineering

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 2, - Taught on campus.
Time Commitment:	Contact Hours: 36 Hours; Non contact time commitment 84 Hours 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:	Prof Anthony Burkitt
Subject Overview:	This subject introduces students to the special requirements necessary for managing Medical Devices and Clinical/Biotechnological Environments. Topics covered include: detailed analysis of the cardiopulmonary system, including computer-aided modelling of the cardiovascular system and respiratory system; electrical devices that monitor/support these systems, international/national electrical/biological regulatory bodies and standards.
Objectives:	On successful completion, students should be able to: # describe the structure and function of cellular and cardiopulmonary systems # interpret various measures of dynamic responses of the cardiopulmonary system # calculate vascular resistances using thermodilution techniques # implement and evaluate a physiological model on a computer # develop models for analysing physiological systems to determine physiological parameters Design a monitoring system to monitor a specific physiological process # describe the principles underlying various life support devices # identify types of medical devices and their safety requirements # identify clinical and biotechnological workplace areas with their specialised environmental requirements # identify the type of methodology required to analyse different systems using clinical studies
Assessment:	Assignments/reports (70%) and one assignment of 2,000 words equivalent based upon a computer-based project using MATLAB/LABVIEW (30%).
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:	1. ability to apply knowledge of basic science and engineering fundamentals; 2. ability to communicate effectively, not only with engineers but also with the community at large; 3. ability to undertake problem identification, formulation and solution; 4. ability to utilise a systems approach to design and operational performance. 5. ability to function effectively as an individual and in multi-disciplinary teams, with the capacity to be a leader or manager as well as an effective team leader. 6. understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development understanding of professional and ethical responsibilities and commitment to them 7. capacity for independent critical thought, rational inquiry and self-directed learning profound respect for truth and intellectual integrity and for the ethics of scholarship
Related Course(s):	Master of Biomedical Engineering Master of Engineering Science(Biomedical Enginering)