BMEN30008 Biosystems Design

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 12 hours of lectures; 36 hours of workshops Total Time Commitment: 120 hours
Prerequisites:	These subjects must be taken as prerequisites

Subject	Study Period Commencement:	Credit Points:
BMEN30005 Biomechanics and Biotransport	Semester 1	12.50
BMEN30006 Fundamentals of Biosignals	Semester 1	12.50

Corequisites: This subject must be taken as a corequisite

Subject	Study Period Commencement:	Credit Points:
BMEN30007 Biocellular Systems Engineering	Semester 2	12.50

Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	Ability to participate actively and safely in the laboratory
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Subject Overview:	This subject involves undertaking a Biosystems design group projects from concept to reporting and communicating the design proposal through to possible development, and so will provide an integrated capstone experience for the Bioengineering major. The emphasis of each of the projects is associated with a well-defined project description that may be based on a task required by an academic or external, industry-based client. The topics covered will include design processes, formulation of the problem, conceptual designs, partitioning of design activities, analysis of system components, integration of design, quality and safety assessment, project management, and engineering professional attitudes.

	The open-ended nature of the design task will result in students having exposure to historical, sociological and environmental factors in invention and innovation, professional ethics, regulatory and statutory requirements, legal and ethical responsibilities, and environmental considerations.
Objectives:	Upon completion of this subject students should be able to: # Apply fundamental concepts of engineering design through various stages of the design process, problem formulation and structuring, ideation, decision making and communication; # Demonstrate awareness of the integrative nature of engineering design through the experience of balancing a range of factors, including uncertainties relating to safety, regulatory, safety and economic requirements; and have observed the close interrelation between the properties of engineering materials and the design process; # Design simple engineering components for desired performance specifications; # Write a professional technical report and/or design specifications.
Assessment:	Three written design reports submitted by each individual (maximum of 1,000 words each) spread from week 4 to week 10 (30%).A poster presentation by each individual due in week 11 (10%).An oral presentation (up to 30 minutes duration) by each group due in week 12 (10%).A final report by each group (maximum 3,000 words) due in week 12 (50%).
Prescribed Texts:	To be advised
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2010/B-ARTS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2010/B-MUS)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completion of this subject, students should have developed their: # Ability to undertake problem identification, formulation and solution. # Understanding of social, cultural, global and environmental responsibilities and the need to employ principles of sustainable development. # Ability to utilise a systems approach to complex problems and to design and operational performance. # Proficiency in engineering design. # Ability to conduct an engineering project. # Understanding of the business environment. # Ability to communicate effectively, with the engineering team and with the community at large. # Ability to manage information and documentation. # Capacity for creativity and innovation. # Understanding of professional and ethical responsibilities, and commitment to them. # Ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member. # Capacity for lifelong learning and professional development
Related Course(s):	Bachelor of Science
Related Majors/Minors/ Specialisations:	Bioengineering Systems Bioengineering Systems Master of Engineering (Biomedical)