

## BMEN30008 Biosystems Design

<b>Credit Points:</b>	12.50									
<b>Level:</b>	3 (Undergraduate)									
<b>Dates &amp; Locations:</b>	2012, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.									
<b>Time Commitment:</b>	Contact Hours: 12 hours of lectures; 36 hours of workshops Total Time Commitment: 120 hours									
<b>Prerequisites:</b>	<p>The prerequisites for this subject are:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BMEN30006 Fundamentals of Biosignals</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>BMEN30007 Biocellular Systems Engineering</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>Note: BMEN30007(480-303) Biocellular Systems Engineering may be taken concurrently</p>	Subject	Study Period Commencement:	Credit Points:	BMEN30006 Fundamentals of Biosignals	Semester 1	12.50	BMEN30007 Biocellular Systems Engineering	Semester 2	12.50
Subject	Study Period Commencement:	Credit Points:								
BMEN30006 Fundamentals of Biosignals	Semester 1	12.50								
BMEN30007 Biocellular Systems Engineering	Semester 2	12.50								
<b>Corequisites:</b>	None									
<b>Recommended Background Knowledge:</b>	None									
<b>Non Allowed Subjects:</b>	None									
<b>Core Participation Requirements:</b>	For the purposes of considering applications for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005) and Students Experiencing Academic Disadvantage Policy, this subject requires all students to actively and safely participate in laboratory activities. Students who feel their disability may impact upon their participation are encouraged to discuss this with the Subject Coordinator and the Disability Liaison Unit. <a href="http://www.services.unimelb.edu.au/disability/">http://www.services.unimelb.edu.au/disability/</a>									
<b>Coordinator:</b>	Dr Emmanuel Koumoundouros									
<b>Contact:</b>	Email: <a href="mailto:emmanuel@unimelb.edu.au">emmanuel@unimelb.edu.au</a> ( <a href="mailto:emmanuel@unimelb.edu.au">mailto:emmanuel@unimelb.edu.au</a> )									
<b>Subject Overview:</b>	<p>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.</p> <p>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.</p> <p>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.</p>									
<b>Objectives:</b>	<p>Upon completion of this subject students should be able to:</p> <ul style="list-style-type: none"> <li># Apply fundamental concepts of engineering design through various stages of the design process, problem formulation and structuring, ideation, decision making and communication;</li> <li># 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;</li> <li># Design simple engineering components for desired performance specifications;</li> </ul>									

	# Write a professional technical report and/or design specifications.
<b>Assessment:</b>	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%).
<b>Prescribed Texts:</b>	To be advised
<b>Breadth Options:</b>	<p>This subject potentially can be taken as a breadth subject component for the following courses:</p> <ul style="list-style-type: none"> <li># <b>Bachelor of Arts</b> (<a href="https://handbook.unimelb.edu.au/view/2012/B-ARTS">https://handbook.unimelb.edu.au/view/2012/B-ARTS</a>)</li> <li># <b>Bachelor of Music</b> (<a href="https://handbook.unimelb.edu.au/view/2012/B-MUS">https://handbook.unimelb.edu.au/view/2012/B-MUS</a>)</li> </ul> <p>You should visit <b>learn more about breadth subjects</b> (<a href="http://breadth.unimelb.edu.au/breadth/info/index.html">http://breadth.unimelb.edu.au/breadth/info/index.html</a>) and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.</p>
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	<p>On completion of this subject, students should have developed their:</p> <ul style="list-style-type: none"> <li># Ability to undertake problem identification, formulation and solution.</li> <li># Understanding of social, cultural, global and environmental responsibilities and the need to employ principles of sustainable development.</li> <li># Ability to utilise a systems approach to complex problems and to design and operational performance.</li> <li># Proficiency in engineering design.</li> <li># Ability to conduct an engineering project.</li> <li># Understanding of the business environment.</li> <li># Ability to communicate effectively, with the engineering team and with the community at large.</li> <li># Ability to manage information and documentation.</li> <li># Capacity for creativity and innovation.</li> <li># Understanding of professional and ethical responsibilities, and commitment to them.</li> <li># 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.</li> <li># Capacity for lifelong learning and professional development</li> </ul>
<b>Related Majors/Minors/Specialisations:</b>	<p>Bioengineering Systems  Master of Engineering (Biomedical)  Science-credited subjects - new generation B-SCI and B-ENG. Core selective subjects for B-BMED.</p>