

Bioengineering Systems

Year and Campus:	2011															
Coordinator:	Dr David Grayden Department of Electrical and Electronic Engineering															
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Overview:	Students who have completed the Bioengineering Systems major will be able to rigorously integrate the fundamental mathematics of systems modelling with the fundamental sciences of biology, chemistry and physics in the formulation and solution of problems involving biomedical systems. More specifically, core skills and knowledge that will be developed include: fundamental scientific comprehension that will lead to accurate mathematical modelling of biological and engineering systems, analytical and abstract thinking, problem-solving and design skills, ability to carry out laboratory experiments to confirm possible solutions to complex problems. At all levels of this major, we will ensure the development of excellent communication skills that will enable our graduates to deliver complex scientific information in a clear and concise fashion. The Bioengineering Systems major will open up pathways for students leading to accredited professional or scientific research careers in biomedical engineering (through further study in the Masters in Engineering or PhD programs), applied mathematics, applied science, teaching, management and finance.															
Objectives:	The objective of the bioengineering systems major is to contribute to the academic preparation of graduates who embody the University of Melbourne graduate attributes, as well as additional attributes more specific to the Bachelor of Science or the Bachelor of Biomedicine.															
Structure & Available Subjects:	Completion of 50 points of study at Level 3.															
Subject Options:	<p>All four of:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BMEN30005 Biomechanics and Biotransport</td> <td>Semester 1</td> <td>12.50</td> </tr> <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> <tr> <td>BMEN30008 Biosystems Design</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	BMEN30005 Biomechanics and Biotransport	Semester 1	12.50	BMEN30006 Fundamentals of Biosignals	Semester 1	12.50	BMEN30007 Biocellular Systems Engineering	Semester 2	12.50	BMEN30008 Biosystems Design	Semester 2	12.50
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Notes:	In addition to these four core subjects, the Level 3 subject, MAST30023 Differential Equations for Engineers (not offered after 2011), will also be required in this major for students who have taken MAST20009 Vector Calculus instead of MAST20029 Engineering Mathematics at Level 2.															
Related Course(s):	Bachelor of Biomedicine Bachelor of Science															