

# Bioengineering Systems

<b>Year and Campus:</b>	2010																	
<b>Coordinator:</b>	Dr David Grayden Department of Electrical and Electronic Engineering																	
<b>Contact:</b>	grayden@unimelb.edu.au																	
<b>Overview:</b>	<p>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.</p>																	
<b>Objectives:</b>	.																	
<b>Structure &amp; Available Subjects:</b>	Completion of 50 points of study at third year level																	
<b>Subject Options:</b>	<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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<b>Notes:</b>	In addition to these four core subjects, the third year level subject, Differential Equations in Engineering, will also be required in this major for students who have taken Vector Calculus instead of Engineering Mathematics at second year level.																	
<b>Related Course(s):</b>	Bachelor of Science																	