

BMEN90016 Introduction to Biomaterials

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 48 hours Total Time Commitment: 120 hours
Prerequisites:	N/A
Corequisites:	N/A
Recommended Background Knowledge:	N/A
Non Allowed Subjects:	436-386 Biomaterials
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability
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Subject Overview:	This course is designed to enable students to apply the fundamental principles in material sciences to biomedical applications. It will address different materials (polymers, metals, ceramics and composites) used in contact with living tissue. In addition, students will be introduced to biological materials like bone, muscles, skin and vasculature. A main focus in this course is to examine the application of materials in the physiological environment. Topics will include host reaction, testing and degradation of biomaterials in the biological environment (eg blood - material interaction). Finally, students will be introduced to the regulatory ethical and legal aspects of fielding biomaterials.
Objectives:	On completion of this subject students should be able to - <ul style="list-style-type: none"> # Describe the material science and engineering requirements related to biomaterials; # Recognise the complexity in the application of materials in biology; # Describe the practical aspects of biomaterials; # Apply mechanical testing to biomaterials; # Apply basic regulatory and ethical concepts to biomaterials.
Assessment:	Mid semester quiz (5%) Two case studies due in week 5 and week 10 (5%) One group term paper and presentation due in week 12 (30%) End of semester exam of two hours duration (60%)

Prescribed Texts:	Biomaterials Science: An Introduction to Mterials in Medicine. Edited by Buddy D. Ratner. 2nd Edition. Elsevier Academic Press.
Recommended Texts:	TBA
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:	<p>On completion of the subject students should have the following skills:</p> <ul style="list-style-type: none"> # Ability to apply knowledge of science and engineering fundamentals; # Ability to undertake problem identification, formulation and solution; # Ability to conduct an engineering project; # 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):	Master of Biomedical Engineering