

BMEN90023 Biomaterials

| Credit Points: | 12.5 | | | | | | | | | | | | |
|--|---|----------------|----------------------------|----------------|--|------------------|-------|---------|----------------------------|----------------|----------------------------------|------------|-------|
| Level: | 9 (Graduate/Postgraduate) | | | | | | | | | | | | |
| Dates & Locations: | 2016, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus. | | | | | | | | | | | | |
| Time Commitment: | Contact Hours: 58 hours consisting of 36 hours of lectures, 12 hours of tutorials and 10 hours of workshops per semester. Total Time Commitment: 200 hours | | | | | | | | | | | | |
| Prerequisites: | <p>Enrolment in the 745BM Master of Biomedical Engineering OR</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BMEN30005 Introduction to Biomechanics</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <p>AND</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BMEN30007 Biotransport Processes</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table> | Subject | Study Period Commencement: | Credit Points: | BMEN30005 Introduction to Biomechanics | Semester 1 | 12.50 | Subject | Study Period Commencement: | Credit Points: | BMEN30007 Biotransport Processes | Semester 2 | 12.50 |
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| BMEN30005 Introduction to Biomechanics | Semester 1 | 12.50 | | | | | | | | | | | |
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| BMEN30007 Biotransport Processes | Semester 2 | 12.50 | | | | | | | | | | | |
| Corequisites: | None | | | | | | | | | | | | |
| Recommended Background Knowledge: | None | | | | | | | | | | | | |
| Non Allowed Subjects: | <p>Students cannot gain credit for this subject and BMEN30005 Biomechanics and Biomaterials (2012 and before).</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BMEN90016 Introduction to Biomaterials</td> <td>Not offered 2016</td> <td>12.50</td> </tr> </tbody> </table> | Subject | Study Period Commencement: | Credit Points: | BMEN90016 Introduction to Biomaterials | Not offered 2016 | 12.50 | | | | | | |
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| Core Participation Requirements: | <p>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/</p> | | | | | | | | | | | | |
| Coordinator: | Prof Peter Vee Sin Lee | | | | | | | | | | | | |
| Contact: | pvlee@unimelb.edu.au (mailto:pvlee@unimelb.edu.au) | | | | | | | | | | | | |
| Subject Overview: | <p>AIMS</p> <p>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.</p> <p>INDICATIVE CONTENT</p> | | | | | | | | | | | | |

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| | <p>A main focus in this subject is to examine the application of materials in the physiological environment. Topics will include host reaction, testing and degradation of biomaterials in biological environment (e.g. blood – material interaction). Finally, students will be introduced to the regulatory, ethical and legal aspects of fielding biomaterials.</p> <p>This subject has been integrated with the Skills Towards Employment Program (STEP) and contains activities that can assist in the completion of the Engineering Practice Hurdle (EPH).</p> |
| Learning Outcomes: | <p>INTENDED LEARNING OUTCOMES (ILO)</p> <p>Having completed this subject the student is expected to be able to:</p> <ol style="list-style-type: none"> 1 Describe the material science and engineering requirements related to biomaterials 2 Recognise the complexity in the application of materials in biology 3 Describe the practical aspects of biomaterials 4 Apply mechanical testing on biomaterials 5 Apply basic regulatory and ethical concepts to biomaterials. |
| Assessment: | <p>Four case study reports due throughout semester (total 15%), requiring approximately 5-6 hours work each One group term paper and presentation due near end of semester (35%), requiring approximately 40 hours work per student End-of-semester exam of two hours duration (50%). HURDLE - Students will need a mark of at least 50% in the exam to pass this subject. Intended Learning Outcomes (ILOs) 1-5 are assessed in the final exam, case studies reports, and class presentation.</p> |
| Prescribed Texts: | TBA |
| Recommended Texts: | None |
| 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: | <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 Majors/Minors/ Specialisations: | <p>Master of Engineering (Biomedical with Business)</p> <p>Master of Engineering (Biomedical)</p> |