

## BMEN90024 Human Impact & Forensic Biomechanics

<b>Credit Points:</b>	12.5						
<b>Level:</b>	9 (Graduate/Postgraduate)						
<b>Dates &amp; Locations:</b>	2015, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.						
<b>Time Commitment:</b>	Contact Hours: 12 hours of lectures; 22 hours of workshops; 6 hours of laboratory work; one field trip of 4 hours. Total Time Commitment: 200 hours						
<b>Prerequisites:</b>	The prerequisite for this subject is - <table border="1" data-bbox="389 573 1485 719"> <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>OR</p> Enrolment in the 745BM Master of Biomedical Engineering	Subject	Study Period Commencement:	Credit Points:	BMEN30005 Introduction to Biomechanics	Semester 1	12.50
Subject	Study Period Commencement:	Credit Points:					
BMEN30005 Introduction to Biomechanics	Semester 1	12.50					
<b>Corequisites:</b>	None						
<b>Recommended Background Knowledge:</b>	None						
<b>Non Allowed Subjects:</b>	Students cannot enrol in and gain credit for this subject and - <table border="1" data-bbox="389 1066 1485 1211"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>BMEN30002 Cellular &amp; Tissue Biomechanics</td> <td>Not offered 2015</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	BMEN30002 Cellular & Tissue Biomechanics	Not offered 2015	12.50
Subject	Study Period Commencement:	Credit Points:					
BMEN30002 Cellular & Tissue Biomechanics	Not offered 2015	12.50					
<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>	Prof David Grayden						
<b>Contact:</b>	Assoc Prof David Grayden Email: <a href="mailto:grayden@unimelb.edu.au">grayden@unimelb.edu.au</a> (mailto:grayden@unimelb.edu.au)						
<b>Subject Overview:</b>	This subject examines the mechanics of human tissue injury which is important in situations like a car crash or a workplace injury. After a review of the gross anatomy of the head and neck, the modes by which the function of the brain and spine can be interrupted by injury are explained and the frontiers for research are defined.  Students will become familiar with methods and experiments to determine criteria for life threatening injury to the head and neck, including historical notes on hanging technique and brain function maps from war time gunshot wounds. The course will focus on examining statistical approaches that can cope with large uncertainties in seemingly random data.						
<b>Learning Outcomes:</b>	Having completed this subject the student is expected to be able to: # Discuss the provided literature on injury mechanics						

	<ul style="list-style-type: none"> <li># Design an experiment to determine the yield points and statistical outcomes of bone loading</li> <li># Demonstrate advanced Matlab skills</li> <li># Compare the merits and drawbacks of various experimental and calculative methods in application to bone mechanics</li> <li># Describe the mechanical properties of various soft tissues and bone.</li> </ul>
<b>Assessment:</b>	One end-of-semester exam of 2-hours duration (50%) Three individual on-line tests completed (10%). A group report of conference paper style which is 4 to 6 pages double spaced (25%). One third of the grade is for professional standard presentation, one third for content and one third for clear logical and well supported argument, requiring approximately 30 to 35 hours work. Peer review of reports from other groups (5%), plus fielding questions and delivery of an amended report that addresses the peer review feedback (5%), requiring approximately 13-15 hours of work. An observational study, which is a field trip where a series of observations and tests are conducted (5%). Hurdle requirement - students must pass the written exam to pass the subject.
<b>Prescribed Texts:</b>	None
<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<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>	<ul style="list-style-type: none"> <li># Ability to apply knowledge of science and engineering fundamentals</li> <li># Ability to undertake problem identification, formulation, and solution</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># 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># 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> </ul>
<b>Related Course(s):</b>	Master of Biomedical Engineering Master of Philosophy - Engineering Ph.D.- Engineering
<b>Related Majors/Minors/Specialisations:</b>	Master of Engineering (Biomedical with Business) Master of Engineering (Biomedical)