BMEN90017 Biomedical Engineering Design Project

Credit Points:	25
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: Up to 24 hours of lecture and 36 hours of workshops (1 x three hour workshop per week) Total Time Commitment: 400 hours
Prerequisites:	One of the following subjects: <table><tr><th>Subject</th><th>Study Period Commencement:</th><th>Credit Points:</th></tr><tr><td>BMEN90020 Biomedical Design and Regulation</td><td>Not offered 2016</td><td>12.50</td></tr><tr><td>BMEN90026 Clinical Trials and Regulations</td><td>Semester 1</td><td>12.50</td></tr></table>AND At least four 9-level Master of Engineering (Biomedical) electives
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
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/
Coordinator:	Prof David Grayden
Contact:	Prof David Grayden Email: **grayden@unimelb.edu.au (https://mce_host/faces/htdocs/grayden@unimelb.edu.au)**
Subject Overview:	**AIMS** This subject involves undertaking a major design project, requiring independent investigation in a team context to produce an advanced biomedical engineering design in a timely and professional manner. Examples of possible design problems include the development of a pacemaker and sensor, development of new methods for delivering personalized medical treatments, and a new device for interfacing with the brain. In addition to written reports, students will present their findings in an oral presentation format. **INDICATIVE CONTENT** Topics include: System-level device descriptions, component interface specifications, regulatory bodies and biomedical device approval processes, intellectual property, component specifications, biomaterials and biocompatibility, manufacturing specifications, economic analyses. 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).

Learning Outcomes:	**INTENDED LEARNING OUTCOMES (ILO's)** Having completed this unit the student should be able to: 1 Work as part of an interdisciplinary team to complete a technical project; 2 Develop a range of strategies and choose a preferred strategy that satisfies performance, safety, regulatory, economic and sustainability requirements; 3 Undertake the technical computations required to justify the design solution; 4 Write a technical report and/or design specifications; 5 Present their work to the class; 6 Assess the work of their peers.
Assessment:	Three components follows: One team-based presentation (15%), with 3 to 5 team members, of approximately 20-30 minutes duration during Week 4-5, (approximately 35-40 hours of work per student). ILO's 1-6 are addressed in this presentation. One team-based written assignment (25%), with 3 to 5 team members, of approximately 2500 words per student, due in Weeks 8-9, (approximately 65-70 hours of work per student). ILO's 1-4 and 6 are addressed in this team assignment. One written assignment (60%) of approximately 6000 words due in Week 12, approximately 155-160 hours of work. ILO's 2-4 are addressed in this written assignment. Hurdle requirement: A mark of 50% or more in each assessment component is required to pass the subject.
Prescribed 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:	On completion of this subject, students should have developed the following generic skills: # Ability to undertake problem identification, formulation and solution # Ability to utilise a systems approach to design and operational performance # Ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member # Understanding of the principles of sustainable design and development # Capacity for independent critical thought, rational inquiry and self-directed learning # Openness to new ideas and unconventional critiques of received wisdom.
Notes:	**LEARNING AND TEACHING METHODS** The subject is delivered through workshop classes that include lecture classes, teamwork activities and research consultations. **INDICATIVE KEY LEARNING RESOURCES** Students are provided with lecture slides and design notices. **CAREERS / INDUSTRY LINKS** Exposure to biomedical engineering design, regulations and standards through guest lectures.
Related Majors/Minors/ Specialisations:	Master of Engineering (Biomedical with Business) Master of Engineering (Biomedical)