DISCLAIMER

The Department of Biomedical Engineering has endeavoured to ensure that the material contained in this study guide was correct at the time of being published. However,

1. the Department gives no warranty and accepts no responsibility for the accuracy or the completeness of the material;
2. no reliance should be made by any user on the material, but instead the user should check for confirmation with the originating or authorising faculty, department or other body; and
3. the Department reserves the right at any time to make changes as it deems appropriate.

This document is to be used only as a guide and all specific course information can be obtained from:

The University of Melbourne website: www.unimelb.edu.au

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WELCOME TO THE DEPARTMENT OF BIOMEDICAL ENGINEERING

It is my pleasure to welcome all students to the Department of Biomedical Engineering, including Bachelor of Science and Bachelor of Biomedicine students in the Bioengineering Systems major, and our students in the Master of Engineering (Biomedical) and Master of Engineering (Biomedical with Business). I would especially like to welcome students from abroad that are new to Australia.

This guidebook provides essential information for all new students, including sample course structures, subject information, teaching responsibilities, assessment, study abroad applications, special consideration information and lecture locations. It is designed to supplement specific course information provided in the official University Handbook https://handbook.unimelb.edu.au. Subject details are included, together with subject coordinators, some sample programmes and assessment details.

Please be aware that there are many student services available at the University of Melbourne, including admissions information, skills and development services, health and disability services, counselling services, financial services, administrative and information services, as well as course planning services. Please see Stop 1 for further information: http://students.unimelb.edu.au/stop1 or visit (757 Swanston St) or call 13 MELB (13 6352).

I encourage you to provide feedback on your teaching and learning experiences so that we can continue to improve our courses. This can be achieved by providing comments directly to each subject’s Staff-Student Liaison Committee representative; the Committee meets twice each semester to provide feedback to the Department on our subjects. Towards the end of each semester, you will be provided with a teaching evaluation survey called the Subject Experience Survey (SES), which gives you an opportunity to provide specific comments and feedback on each subject in which you are enrolled. You are also welcome to meet with myself or with the Course Co-ordinator and Deputy Head (Academic), Dr David Ackland.

On behalf of the Department of Biomedical Engineering, I wish you all the best during your studies here at the Melbourne School of Engineering.

David Grayden
Professor and Head of Department
Department of Biomedical Engineering
# TEACHING AND ADMINISTRATIVE STAFF LIST

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
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<td><strong>Teaching Staff</strong></td>
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Dr Ackland is Senior Lecturer and Deputy Head of the Department of Biomedical Engineering, University of Melbourne. His research focuses on computational modelling and simulation of human movement, with a particular emphasis on upper limb and maxillofacial surgery and biomechanics. He employs medical imaging, human motion experiments, musculoskeletal modelling, and in vitro biomechanical experiments as his primary research techniques. Dr Ackland has close ties to the orthopaedics industry, and has a particular interest in design and evaluation of joint replacements and other implantable devices for the treatment of end-stage bone and joint conditions.

Professor Anthony Burkitt holds the Chair in Bio-Signals and Bio-Systems in the Department of Biomedical Engineering at the University of Melbourne. He was the Director of Bionic Vision Australia (2010-2016), a Special Research Initiative in Bionic Vision Science and Technology of the Australian Research Council (ARC), and he successfully led the project though all of its phases: Project conception, securing $50 million in ARC funding, the research and development programs that led to the development of a prototype bionic eye (suprachoroidal retinal implant), the successful implantation in three patients, and the establishment of the company Bionic Vision Technologies (BVT) with US$18M of venture capital for the ongoing commercial and clinical development of the technology. In addition to his work on the bionic eye, Professor Burkitt’s research encompasses a number of areas of neuroscience and medical bionics, including computational neuroscience, neuro-engineering, cochlear-implant speech processing and bio-signal processing for epilepsy. His research has been instrumental in the development of visual stimulation paradigms for retinal implants, new cochlear implant speech processing strategies, methods for detecting and predicting seizures, and the use of electrical stimulation for seizure abatement in epilepsy.
Professor Edmund Crampin is Rowden White Chair of Systems Biology at the University of Melbourne. Edmund is Director of the Systems Biology Lab at the School of Mathematics and Statistics and the Melbourne School of Engineering, Department of Biomedical Engineering; and is Adjunct Professor in the Faculty of Medicine, Dentistry and Health Sciences (School of Medicine). The Systems Biology Lab is a multi-team collaborative group developing mathematical and computer modelling approaches to investigate regulatory processes and pathways underlying complex human diseases, and treatments thereof. Recent projects include modelling heart cells to understand the development of heart disease; modelling interactions between cells and nanoparticles; and computational approaches to study the network of genetic interactions underlying breast and skin cancer. The group also develops computational tools and standards for integrative systems biology.

Professor David Grayden is Head of the Department of Biomedical Engineering, Melbourne School of Engineering and Leader of the Bionics Laboratory in the Centre for Neural Engineering, The University of Melbourne.

Prof Grayden’s main research interests are in understanding how the brain processes information, how best to present information to the brain using medical bionics, such as the bionic ear and bionic eye, and how to record information from the brain, such as for brain-machine interfaces. He is also conducting research in epileptic seizure prediction and electrical stimulation to prevent or stop epileptic seizures, and in electrical stimulation of the vagus nerve to control inflammatory bowel disease. He has research linkages with the Bionics Institute, St Vincent’s Hospital Melbourne, Royal Melbourne Hospital, University of South Australia, Florey Institute for Neuroscience and Mental Health, and University of Maryland, USA.
| Dr Daniel Heath | Dr Daniel Heath is a Lecturer with University of Melbourne's School of Chemical and Biomedical Engineering. His research focuses on developing next generation biomaterials. He has specific interest in blood-material interactions, as poor interactions between blood and biomaterials leads to the failure of many medical devices including vascular grafts and stents. His lab hopes to address these challenges by developing new biomaterials with improved blood-material interactions. In many ways, cells are the best producers of biomaterials. Therefore, the Heath Lab also looks at extracellular matrix materials and their applications as biomaterials. Core to this technology is the decellularization of tissue or cell cultures in order to produce extracellular matrix materials that can be used for a variety of applications. |
| A/Prof Leigh Johnston | Associate Professor Leigh Johnston is a member of the Department of Biomedical Engineering within the School of Chemical and Biomedical Engineering. Her primary research focus is medical imaging, in particular Magnetic Resonance Imaging. Leigh holds an honorary appointment at the Florey Institute of Neuroscience and Mental Health, where she is Head of the Animal MRI facility. She is also a member of the Melbourne Brain Centre Imaging Unit, with research programs utilising the Siemens 7T and Siemens PET/CT clinical systems on the Parkville campus. Leigh’s expertise in MRI spans from acquisition sequences to image analysis and applications. Prior to her appointment at The University of Melbourne, Leigh was a postdoctoral researcher at the Howard Florey Institute (Melbourne), York University (Canada), and the Université catholique de Louvain (Belgium). |
Dr Emmanuel Koumoundouros  
emmanuel@unimelb.edu.au

Dr Koumoundouros is Senior Lecturer and Clinical Engineering (CE) coordinator (IBL) of the Department of Biomedical Engineering, University of Melbourne. He has honorary positions in teaching Hospitals where he supervises Clinical Placement for engineering students. His research focuses on both pre-clinical and clinical trials, with emphasis on optimising the dynamics of breathing during various modes of ventilatory support for both animals and patients. Dr Koumoundouros has close ties to the CE industry, and is actively involved in various CE professional bodies. He also promotes CE research is as an Associate Biomedical Engineering editor for the Australasian Physical & Engineering Sciences in Medicine.

Dr Lionel Lam  
lionel.lam@unimelb.edu.au

Dr Lionel Lam is a Senior Tutor within the Department of Biomedical Engineering at the University of Melbourne. He obtained his BEng in Chemical/Process Engineering (2011) from the University of Western Australia. He then completed his MS in Chemical Engineering Practice (2013) and his PhD in Chemical Engineering (minoring in Biology, 2017) at the Massachusetts Institute of Technology. Dr Lam’s doctoral research focused on the development and application of ex vivo single-cell phenotypic, transcriptomic, and functional assays on tumour-infiltrating immune cells to better understand differential responses to anti-PD-1 immunotherapy in mice.
| Prof Peter Vee Sin Lee  
Deputy Head of Department (Research and Engagement)  
pvlee@unimelb.edu.au |
|---|
| Peter (Vee Sin) Lee is a Professor in the Department of Biomedical Engineering at The University of Melbourne.  
Prof Peter Lee obtained his BEng in Mechanical Engineering (1st Class Hons. 1991) and PhD (1996) in Bioengineering from the University of Strathclyde, UK, and continued his post-doc in the same university from 1996–1998. He was a Research Fellow with the Biomaterials Group at the Institute of Materials Research and Engineering, Singapore from 1998–2001. In 2001, he joined the Defence Medical and Environmental Research Institute, DSO National Laboratories, Singapore, as the Head of the Bioengineering Laboratory. He was appointed as an Adjunct Associate Professor from 2002–2008 at the National University of Singapore, Division of Bioengineering. He joined University of Melbourne as a Senior Lecturer in 2008. |

| A/Prof Andrea O’Connor  
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<tr>
<td>Associate Professor O’Connor is the Deputy Head of the School of Chemical and Biomedical Engineering. Her expertise is in chemical and biomedical engineering with particular focus areas including biomaterials, tissue engineering, porous materials and 3D printing. She leads the Tissue Engineering Research Group in the Department of Biomedical Engineering. She has active collaborations with several medical research institutes and medical device companies in Australia and has worked in the chemical industry in Australia and overseas.</td>
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</table>
Dr Vijay Rajagopal
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Dr Vijay Rajagopal is a Senior Lecturer at the Department of Biomedical Engineering at the University of Melbourne. Dr Rajagopal leads the Cell Structure and Mechanobiology Group, and is a co-founder of the MSE Mechanobiology Lab in the Parkville Biomedical Precinct.

Cells harness the interplay between electrical, chemical and mechanical signals as well as their own shape to perform a variety of functions in our bodies. This interplay is what makes the heart beat and also enables cancer cells to dynamically change shape and migrate from a tumour to new regions of the body. By making new experimental measurements and developing innovative computational models, Dr Rajagopal primarily focus on discovering ways to manipulate or engineer this interplay to effect positive treatments for diseases of the heart, cancer metastasis and red blood cell diseases.

Dr Kathryn Stok
kathryn.stok@unimelb.edu.au

Dr Kathryn Stok (FIEAust) is a Senior Lecturer of Mechanobiology in the Department of Biomedical Engineering at the University of Melbourne, and an innovative biomedical engineer in quantitative microstructural imaging (micro-computed tomography) and biomechanics of cartilage and joint structures. She uses a variety of experimental and computational approaches. Her research work merges solid engineering approaches with biomedical advancement. She aims to improve mechanobiological measurement and control methods using novel imaging, mechanics and computational modelling. This involves the development of novel, in vivo, imaging-based measurement technologies for hard and soft biological tissues in 3D at different length scales. It will further enable investigation of joint health, with commercial potential in imaging, mechanobiology and bio fabrication, and translation into Medtech patents and spinoffs. She Heads the Integrative Cartilage Research Group, and is a co-founder of the MSE Mechanobiology Lab in the Parkville Biomedical Precinct.
Andrew Zalesky is a senior researcher at the University of Melbourne, Australia, holding a joint appointment in the medicine and engineering schools. He completed his PhD in electrical engineering in 2006. He is internationally recognised for developing the network-based statistic, one of the most widely used methods for performing statistical inference on brain networks. His contributions to neuropsychiatry include mapping of the schizophrenia connectome and development of advanced methods for analysing patient neuroimaging data. He co-authored Fundamentals of Brain Network Analysis, one of the best-selling Elsevier neuroscience titles published in 2016 and commended by the British Medical Association. His 2010 nodes paper has become a classic in the field of imaging connectomics. He holds the NHMRC Senior Research Fellowship and leads the Systems Neuropsychiatry Group. His primary research interests are in systems neuroscience, neuroimaging, psychiatry and networks.
SAFETY

The Melbourne School of Engineering is committed to providing and maintaining a workplace that is safe and without risk to the health of our staff, students and visitors to our facilities.

The management of the School will take all measures necessary to ensure adherence to safe work practices and conditions and these will be given priority in the School's planning, procedures and work instructions.

The creation and maintenance of a safe and healthy working environment is an integral part of our operation and we actively pursue the goals of this policy. The University follows the National Assessment Tool (NAT) program to ensure that these goals are achieved and the Melbourne School of Engineering is committed to maintaining its accreditation under this program.

It is expected that, through consultation and co-operation, all staff, students, contractors and visitors will observe OHS rules and safe working practices and make every effort to reduce the risk of injury to themselves, their fellow workers and others. A Take risk assessment form will need to be completed for some laboratory classes.

The management of the Melbourne School of Engineering is committed to the provision of appropriate resources and training in order to assist all staff and students to fulfil their responsibilities and maintain a safe working environment.

Emergency Contact Information

**UoM Security**

Emergency phone number: 8344 6666 (internal extension 46666)
Enquiry phone number: 8344 4674

**Note:** UoM Security Guards are trained first aiders and can be called upon to supply first aid in an after-hours emergency.

**MSE Occupational Health and Safety Unit**

Emergency phone number: 8344 2400 (internal extension 42400): business hours only.

**Ambulance, Police or Fire Brigade**

From a university phone: 0-000
From a mobile phone: 000 or 112

**Tell the Emergency Services to enter the University via Gate 10 Grattan St.**
STUDENT SERVICES

The following services are available to all University of Melbourne students:

**Academic Skills**
Academic Skills can help students with academic writing, time and task management, oral presentations, exam preparation and English language development.

**Counselling and Psychological services**
Counselling and Psychological Services provides free individual appointments, and workshops during semester.

**Library**
The University Library holds large collections of printed books, e-books, journals, databases, reference materials, audio-visual and other items available for loan to students.

**Melbourne Scholarships**
Melbourne Scholarships is responsible for the administration and promotion of major scholarship programs for undergraduate, graduate coursework and research students.

**Safer Community Program**
The Safer Community Program (SCP) aims to promote an environment that fosters safe learning, working and living at the University of Melbourne, and provides the opportunity to pass on behaviour of concern before it develops into something serious.

**Student Union Legal Service**
The Student Union Legal Service can provide you with legal advice, support and a referral service on an initial consultation basis.

**AIRport**
The Academic Interactive Resources portal (AIRport) can help you make a smooth transition to University and improve your academic writing and study skills.

**Disability Liaison**
The Disability Liaison team provides a range of advice and services for students who experience disability as a result of health conditions or impairment.

**Health Service**
The Health Service provides confidential medical care, at no direct cost to students with Medicare or OSHC World care insurance.

**Melbourne Centre for the Study of Higher Education**
The Melbourne Centre for the Study of Higher Education offers programs to support quality, innovation and careers in teaching, research, engagement, and leadership and management for graduate researchers and academic staff.
**Student IT**
The Student IT team supports you with setting up your login account, connecting to UniWireless, using the University’s learning tools and systems, printing and document scanning.

**ask.unimelb**
ask.unimelb is the University's comprehensive FAQ database for students and staff. Looking for info? Start here!

**Children’s Services**
Two Children’s Centres provide quality early childhood care and education for your child or children.

**Graduate Student Association**
The University of Melbourne Graduate Student Association (GSA) is the student representative body for graduate students at the University of Melbourne.

**Melbourne Careers Centre**
Melbourne Careers Centre provides a range of career programs, services and resources for students to assist with their career development.

**Melbourne University Sport**
Melbourne University Sport offer a range of resources including a great variety of sporting clubs, fitness facilities and services.

**Student Housing**
Find out about your housing options and how to manage your tenancy (e.g. lease agreements, bonds, repairs, rent, eviction) through Student Housing.

**Student Union Advocacy Service**
The Student Union Advocacy Service (SUAS) provides independent advocacy services to undergraduate and graduate students.

**Chaplaincy**
Perhaps you are thinking about the meaning of life, wondering where your studies lead, or you are experiencing grief or loss. Chaplains are here to support you.

**Financial Aid**
If you find yourself in financial difficulty, not sure how to fill out a tax return, got a question on government subsidies, then visit Financial Aid.

**International Student Services**
International Student Services support all international students and their families during their time at the University.
**Melbourne Global Mobility**
One of the best things you can do whilst studying at Melbourne is leave! Melbourne Global Mobility offers you a range of exciting overseas experiences as part of your degree.

**Murrup Barak**
The Murrup Barak Melbourne Institute for indigenous Development provides Aboriginal and Torres Strait islander students both undergraduate and graduate with a range of support services.

**Student Union**
The Student Union promotes student welfare and culture on campus.

**UMeyecare Clinic**
The University of Melbourne Eye Care (UMeyecare) clinic offers patient care primarily for University staff and students, but is also open to the general public and for specialist referral by other practitioners.

For more Information, please visit:
http://services.unimelb.edu.au/finder
If you need ongoing assistance due to long-term circumstances, you can register with Student Equity and Disability Support.

We offer a range of support services:
- Alternative formats for written materials
- Support workers, such as note-takers
- Specialist equipment
- Assistive technology
- Accessible teaching spaces

Visit services.unimelb.edu.au/disability/students
How do I contact STOP 1?

STOP 1 is located at 757 Swanston St, near the corner of Grattan and Swanston Streets (see Map below)
EXCHANGE and STUDY ABROAD

The Melbourne School of Engineering exchange and study abroad programs facilitate immersion in a different social, cultural and intellectual milieu, with the chance to add an international perspective to study.

There are ways this can be undertaken. First, either an ‘exchange’ or ‘study abroad’ program can be initiated. With an approved study plan, this can provide credit or fulfil academic requirements. There are also opportunities to complete a research project or industry project overseas in a full-time placement over the summer break.

There is a wide variety of funding available to assist with overseas study plans.

Why study overseas?

There are many reasons why you may wish to consider study abroad or exchange. Your reasons can be based on academic, personal, career aspirations or those below:

- **Gain a global perspective on your studies**
  Study at an international university and gain a different perspective on your studies.

- **Challenge yourself**
  Gain independence and build your self-confidence

- **Make some international connections**
  Build links by meeting new people

- **Improve your language skills**
  Immerse yourself in another culture and either refine your foreign language skills or learn a new language

Student Exchange Information Sessions

A variety of information sessions for students are run regularly throughout the semester.

General information sessions are a first step to hear more about the varied opportunities available around the world. They are intended to provide a general overview about how to undertake part of your studies overseas, and get you thinking about where you would like to go.

Further information

Please contact the Global Mobility Coordinator for Engineering & IT:

eng-exchange@unimelb.edu.au

For subject/course-specific info, you can contact the Biomedical Engineering Exchange Coordinator:

A/Prof Leigh Johnston l.johnston@unimelb.edu.au
VACATION WORK

The Department strongly recommends that you obtain vacation work with an engineering employer during your university studies. This work is of greatest value at the end of your penultimate year, but is highly valuable at any stage of your degree program.

Vacation work is advertised by major companies within Australia during the period March to July. These positions are highly competitive. Other companies may also offer vacation work informally and you will need to approach these companies yourself. If you are an overseas student, you may find it easier to gain an internship in your home country. Please contact the Academic Support Coordinator for advice on companies in your country who you could approach.

Please ensure that your cover letter and resume are checked by others before you use them. You will not get past the first selection round if these documents contain spelling mistakes or incorrect grammar.

Further advice on vacation work and careers can be obtained from:

http://careers.unimelb.edu.au/student/what_can_i_do_with_my_degree/career_planning
https://www.youtube.com/watch?v=5tBO1NUl0EA

In some cases, you may be able to use your vacation work as credit towards ENGR90033 (see page 21). However, to do so, the university must first sign an agreement with your intended employer. This means that you need to notify the Engineering Placements team (eng-placements@unimelb.edu.au) at least one month in advance of the intended work to determine whether this is possible.

Upon completion of vacation work, or relevant work experience, please complete the required form (Appendix A) and ask your company supervisor to also comment and sign. This document can then be kept by both the Department and yourself as a permanent record of your experience.
RESEARCH HIGHER DEGREES

The Department of Biomedical Engineering drives research and education in medical technologies, health informatics and healthcare delivery. Combining the expertise of engineers, biomedical researchers, clinical practitioners and industry partners, we create innovative medical solutions that have societal and economic impact.

The Department offers PhD and MPhil research programs in several themes, including:

- Biomaterials and tissue engineering
- Biomechanics and mechanobiology
- Bionics and neuroengineering
- Biomedical imaging
- Systems and synthetic biology

More information about research projects may be found on the Department Website: http://www.bme.unimelb.edu.au/research/.

Successful applicants for admission to research and scholarships with Engineering & IT will typically:

- have secured strong support from their nominated supervisor,
- be placed in the top 5% of their graduating class,
- have evidence of research potential by having completed a capstone research project as part of their final year of their Bachelors or Master degree.

Before you apply, find a supervisor

As a research student, you will work under the guidance of an academic supervisor. Your supervisor will provide advice and direction throughout your research project. Your PhD project is often part of a larger project run by your supervisor. It is your responsibility to identify a supervisor you would like to work with, prior to making an application. You must supply documented evidence that you have secured a supervisor, who has agreed to work with you on your research proposal.

Further details on the application process and Research Scholarships can be found at: http://www.eng.unimelb.edu.au/study/research/
SKILLS TOWARDS EMPLOYMENT PROGRAM (STEP)

The Skills Towards Employment Program (STEP) aims to develop five key professional skills in all Masters of Engineering graduates. The skills that are being targeted are written communication, verbal communication, teamwork and personal and project management.

Engineering Practice Hurdle – Specification

The Engineering Practice Hurdle is the submission of an ePortfolio demonstrating your capabilities in these Professional Skills for internal assessment within the School of Engineering. The primary goal of these applications is to demonstrate that you have achieved good levels of competency in skills required by practicing engineers with a focus on those that are not technical by nature such as communications and team work.

You will need to complete the Engineering Practice Hurdle before you can graduate with a Masters of Engineering.

Your primary resource for information about the Engineering Practice Hurdle is the dedicated community on the LMS.

Specific to the engineering practice hurdle, this community contains:

- the engineering practice hurdle requirements;
- the assessment criteria for the engineering practice hurdle;
- a discussion board for seeking assistance; and
- the link for submitting your applications.

To enrol in the STEP community please follow these instructions:

1. Go to the LMS page.
2. Click on the "communities" tab.
3. Search for "employment".
4. Click on the arrow icon next to the community code "com_00631".(Hold the mouse over community code to reveal the icon).
5. Click on "enrol"
6. Click "submit".
7. Click "ok".

For more Information contact eph-info@unimelb.edu.au.
ENGR90033 Internship is a 25-point subject that gives students the opportunity to undertake a 10–15 week (minimum 350 hours) internship for academic credit to their degree.

ENGR90033 can be taken as a 25-point elective within your Masters program. However, due to the workload required, students should not take a 50-point load in the semester that you take this subject. In Semesters 1 and 2, ENGR90033 Internship can be taken along with one additional 12.5-point subject. Summer enrolment is restricted to 25 points so students cannot take another subject alongside ENGR90033 Internship. Students taking ENGR90033 Internship in the summer semester should be aware that they will need to start their internship in December.

Am I eligible?

Students require an average grade of H2B (70%) or above and there are minimum coursework completion requirements to be eligible for a University-sourced internship. Unless special circumstances apply, students cannot take both ENGR90023 and CHEN90028. Further information is available in the handbook: ENGR90033 Internship.

How do I apply?

Eligible students will be invited to register their interest in ENGR90033 Internship. This registration will give students access to our dedicated ENGR90033 Internship portal where internships will be advertised. Students will be able to apply for these internships and successful students will be invited to interview. This is a competitive process and internships will be limited. If you believe that you are eligible, but have not been invited to register your interest, email eng-internships@unimelb.edu.au.

Students may also self-source internships (subject to approval by the subject coordinator). Students taking self-sourced internships must still meet the eligibility criteria for the subject. The deadline for advising eng-internships that you have potentially sourced your own Internship is one month before the teaching period commencement date quoted in the Handbook.

Note: Students will not be able to enrol into ENGR90033 Internship through the Student Portal until their internship has been approved and signed off.
SPECIAL CONSIDERATION

What do I need to know about Special Consideration?

Special Consideration is available to students who have had their studies significantly impacted by short-term circumstances reasonably beyond their control such as acute illness.

Accepted Reasons for Applying for Special Consideration

To be eligible for Special Consideration students must have complied with the assessment requirements as set out in the subject outline and met one of the criteria below:

- a student has been prevented from preparing or presenting for all or part of a component of assessment such as assignments and examinations; or
- a student has been, to a significant degree, adversely affected during the performance of a component of assessment.

Time Limits

Time limits for Special Consideration applications are enforced.

- Students must submit an application for Special Consideration via the student portal my.unimelb.edu.au no later than 5.00pm on the third (3rd) working day after the submission/sitting date for the relevant assessment component.
- A completed Health Professional Report and/or other supporting documentation must be submitted within five (5) working days of submission of the online application.

Applying for Special consideration

Administrative functions, such as applying for Special Consideration, can be found in the Student admin tab of the student portal my.unimelb.edu.au. Click the 'Go to exams & results' button under the Exams & results portlet on the Student Admin tab and select the 'Apply for Special Consideration' link.

If you are navigating to Special Consideration from an 'eStudent' screen, please select the 'Study Plans' tab from the top menu and access 'Special Consideration' from the left sidebar menu.

You must then submit your Health Professional Report (HPR) form or Statutory Declaration and any other supporting documentation within five (5) working days of your online application. The scanned copy of the completed HPR form must be submitted online via my.unimelb.edu.au. If this is not possible please submit the hardcopy HPR to the office listed on the front of your HPR form.

For more information please visit ask.unimelb.edu.au. Alternatively, speak to a staff member at Stop1 (http://students.unimelb.edu.au/stop1).

P: 13 MELB (13 6352)  
E: Submit an enquiry (https://ask.unimelb.edu.au/app/ask)
ACADEMIC INTEGRITY

Introduction

All University of Melbourne students are expected to uphold academic integrity in all aspects of every piece of work that they submit for assessment. This section has some guidelines and links to resources to help you learn about and demonstrate academic integrity.

While there is a lot of detail below, the fundamental issue you must confront is whether you value the University's position on academic integrity and whether you are willing to uphold those values in every piece of work you do. If you align your values to "learning with integrity", implementation of the following is easy and becomes second nature. If you don’t value academic integrity, you can still implement the mechanics of the requirements below, but at some stage you may “forget”, or take some short cuts in your assessment, which will probably turn out badly for you either while as a student, or as a professional after graduation.

Resources

Please become familiar with the University of Melbourne Academic Integrity website.

http://academicintegrity.unimelb.edu.au/

Be sure to make clear which ideas are yours and which ideas are from other sources. When you submit work, your assessor needs to be able to discriminate between what is your original work, what is your interpretation of the work of others, and what is completely other authors’ work.

Presenting what is other peoples’ work, even if correctly attributed, is unlikely to achieve a good mark.

- Use a recognised referencing system to acknowledge other sources in written text such as essays and paragraphs written in response to questions. http://library.unimelb.edu.au/recite
- Use the referencing system as above for images and drawings in assessment submissions.
- Most images and drawings in publications are subject to copyright and you may need to get the permission of the copyright holder to use it. Please see: http://copyright.unimelb.edu.au/information/copyright-and-research/students-introduction-to-copyright
- Even if images are “public” (e.g., available on the internet), you should provide the URL from which they were sourced.
- For computer programs, any sections of code copied from other sources must be clearly delineated and referenced in comments. Your final code should include:
  (a) a detailed comment stating which part of it, if any, is copied, stating who originally wrote the copied part, how it was accessed (e.g., by providing a URL), all included in a comment at the start of the program or in a header file;
  (b) clear comments in the body of the program marking the start and end of all sections of copied material. Give the name of the original author in the comments;
  (c) if code has been obtained from elsewhere, then modified by the student, the modifications must be explained in a prominent component of the submission. For example, a comment might have the wording “The original code obtained from John Smith was modified to print more detailed error messages”. Each adaptation of the original code must be documented, both in a prominent location and in each part of the code that was modified;
  (d) code should never be solicited or commissioned from any source, including classmates, past students, and pay-for-service tutors and on-line sources.
- For spreadsheets, use text boxes or comments to clearly differentiate between your work and that of others.
Our expectations

The University of Melbourne expects that all students will study all the above resources and ensure that they adopt these best-practice approaches.

For individual assignments, the University of Melbourne expects you to learn first, then communicate what you have learnt as you work on your assignment. This means you may discuss the topics in question with other students while you are learning, but you must write all your assignment yourself. This includes:

- Choosing which resources you decide to reference;
- Creating the overall structure of your communication and argument; and
- Preparing your own figures, calculations and analysis.

For team assignments, the University of Melbourne expects you to:

- discuss and decide as a team how you are going to complete the assignment, and document this agreement via meeting minutes that include the names of people who attended each meeting, what periods they were present for, and what the agreed assignment of duties was;
- learn first (perhaps an aspect allocated by your group);
- teach others in your team what you have learned;
- collaboratively decide how to communicate your learning and who will write what, and again document that via meeting minutes that are circulated to all group members shortly after the end of the meeting;
- check the work of your team mates before submission, using plagiarism checkers if possible;
- inform your subject coordinator on submission if you have concerns about a team member’s contribution;
- acknowledge that the assignment upholds the principles of academic integrity by way of an assignment coversheet or as part of the electronic submission process (e.g. LMS or TurnItIn declaration); and use a plagiarism checking service before final submission (where provide).

Note that not (or minimally) contributing to a team assignment, but still putting your name on the submission and claiming credit for it is another form of academic misconduct. Group members concerned about the imbalance of contributions to the group project should raise the issue with the subject coordinator as soon as the behaviour in question is noted, and again (preferably via formal work-share statements) again when the project is submitted.

Common ways that students fail to show academic integrity

- Copying and pasting material from the internet without using quotation marks and/or without providing a reference/URL and proper acknowledgement. This usually results from poor research practice. To improve, refer to http://services.unimelb.edu.au/academicskills and http://services.unimelb.edu.au/academicskills/all_resources#research-referencing
- Incorrectly paraphrasing by simply swapping some words for synonyms, but leaving the structure of a sentence the same.
- Failing to acknowledge the source of figures and/or images.
- Copying the text, analysis, calculations and/or program code of another student
- Copying from the lecture and or assignment notes of your subject, or from the textbook or other similar resources used in the subject. These are the intellectual property of your lecturer or other authors and should be acknowledged just like any other piece of writing. You must paraphrase these to demonstrate you understand the ideas you are learning, or using quotation marks where you have copied material exactly. If you are copying assignment instructions make sure to distinguish these, for example by using a different font style.
- Explicitly giving your work to another student, or in any way allowing your work to be “borrowed” by another student, even if by carelessness (e.g., by allowing them to have access to a memory stick on which you have a copy of your program, even though you didn’t tell them the program was on it).
Regarding the last of these points, note that allowing other students to see your assessment work, “just so that I can take a look and get some ideas, I won’t copy, honest”, is also inappropriate. If another student asks to see your work then they have already violated the friendship that you have with them, and your best answer is a firm “no”. Any other response is a breach of academic integrity on your part as well as their part, and is likely to irrevocably damage your friendship with that person.

You can avoid these mistakes through careful note-taking practices and being sure to acknowledge all ideas that are not your own. To learn more about referencing and academic integrity, complete the Referencing and Using Sources Module in the Academic Skills Hub in the LMS. Click on the link, then click ‘ok’ to self-enrol. http://bit.ly/ReferencingMSE

Penalties for not following the principles of academic integrity

The process for investigating plagiarism and possible penalties are outlined here: http://academicintegrity.unimelb.edu.au/plagiarism-investigation-and-penalties

The Academic Board has also published guidelines for common forms of breaches of academic integrity: http://www.unimelb.edu.au/governance/structure/committees/academic-board/appeals/academic-and-general-misconduct-appeals

Scroll down to the lower half of this page to the section "PENALTIES FOR ACADEMIC MISCONDUCT - INFORMATION FOR STUDENTS".

The following is an example of the types of penalties from the above document:

Cheating – copying from or providing to another student or students an answer or answers to any assessment task or essay:

- First year undergraduate student - failure of subject - Mark 0, Grade N;
- Any other student or for second or subsequent offence - suspension or termination of enrolment - Mark 0, Grade N;
- Second or subsequent offence - termination of enrolment - Mark 0, Grade N.

This means, if you are a Masters student, even if it is your first semester of study, if you cheat and get caught you will probably fail the subject. This may cost you

- an extra semester of study; and/or
- an extra semester of living costs while you remain a student; and/or
- the need to get a visa extension (if applicable); and/or
- additional tuition fees to re-enrol in the subject.
EXAMINATIONS

Examination Rules

There are several important rules to follow during University examinations. For information, please visit the following link: https://policy.unimelb.edu.au/MPF1326

Note that you must bring your student card or an acceptable form of photo ID to all your examinations (http://ask.unimelb.edu.au/app/answers/detail/a_id/5710).

In particular, pay careful attending to the following with respect to exams:

- Exam Start and Arrival Times (https://policy.unimelb.edu.au/MPF1326#section-5.7)
- What you can bring into an Exam (https://policy.unimelb.edu.au/MPF1326#section-5.9)
- Storing your personal possessions at an Exam (http://ask.unimelb.edu.au/app/answers/detail/a_id/5712), and
- Attendance at Exam, most crucially, your availability during the Exam Period (http://ask.unimelb.edu.au/app/answers/detail/a_id/3482).

Calculator Policy

If you are permitted to use a calculator in an examination, there are restrictions on the models allowed. Within the Melbourne School of Engineering, the approved calculator for all subjects is the Casio FX82 (any suffix). For a small number of subjects (mostly those requiring complex number calculations) the Casio FX100 (any suffix) will also be permitted, as indicated by the Subject Coordinator.

You are required to purchase your own calculator and are responsible for ensuring your calculator is in good working order with fresh batteries.
## SEMESTER 1

<table>
<thead>
<tr>
<th>Subject ID</th>
<th>Subject Name</th>
<th>Subject Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMEN20001</td>
<td>Biomechanical Physics &amp; Computation</td>
<td>Vijay Rajagopal</td>
</tr>
<tr>
<td>BMEN30005</td>
<td>Introduction to Biomechanics</td>
<td>Marcus Pandy (Mechanical Engineering)</td>
</tr>
<tr>
<td>BMEN30006</td>
<td>Circuits &amp; Systems</td>
<td>Anthony Burkitt</td>
</tr>
<tr>
<td>BMEN90012</td>
<td>Soft Matter Engineering</td>
<td>David Dunstan (Chemical Engineering)</td>
</tr>
<tr>
<td>BMEN90018</td>
<td>Biomedical Engineering Capstone Project</td>
<td>David Ackland and Daniel Heath</td>
</tr>
<tr>
<td>/90031/90032</td>
<td>(including Year-long, Sem 1 only and Sem 2 only)</td>
<td></td>
</tr>
<tr>
<td>BMEN90019</td>
<td>Biomedical Engineering Management</td>
<td>David Grayden</td>
</tr>
<tr>
<td>BMEN90021</td>
<td>Medical Imaging</td>
<td>Leigh Johnston</td>
</tr>
<tr>
<td>BMEN90026</td>
<td>Clinical Trials &amp; Regulations</td>
<td>Emmanuel Koumoundouros</td>
</tr>
<tr>
<td>BMEN90027</td>
<td>Systems Biology</td>
<td>Edmund Crampin</td>
</tr>
<tr>
<td>BMEN90029</td>
<td>Soft Tissue &amp; Cellular Biomechanics</td>
<td>Vijay Rajagopal</td>
</tr>
<tr>
<td>BMEN90030</td>
<td>BioDesign Innovation</td>
<td>David Grayden</td>
</tr>
<tr>
<td>BMEN90033</td>
<td>Bioinstrumentation</td>
<td>David Grayden</td>
</tr>
<tr>
<td>COMP90016</td>
<td>Computational Genomics</td>
<td>Jan Schroeder (Computing and Information Systems)</td>
</tr>
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## SEMESTER 2

<table>
<thead>
<tr>
<th>Subject ID</th>
<th>Subject Name</th>
<th>Subject Coordinator</th>
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<tbody>
<tr>
<td>BMEN90002</td>
<td>Neural Information Processing</td>
<td>TBA</td>
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<tr>
<td>BMEN90003</td>
<td>Clinical Engineering</td>
<td>TBA</td>
</tr>
<tr>
<td>BMEN30007</td>
<td>Biotransport Processes</td>
<td>Andrea O’Connor</td>
</tr>
<tr>
<td>BMEN30008</td>
<td>Biosystems Design</td>
<td>David Grayden</td>
</tr>
<tr>
<td>BMEN90011</td>
<td>Tissue Engineering &amp; Stem Cells</td>
<td>Andrea O’Connor</td>
</tr>
<tr>
<td>BMEN90017</td>
<td>Biomedical Engineering Design Project</td>
<td>David Grayden</td>
</tr>
<tr>
<td>BMEN90022</td>
<td>Computational Biomechanics</td>
<td>Marcus Pandy (Mechanical Engineering)</td>
</tr>
<tr>
<td>BMEN90023</td>
<td>Biomaterials</td>
<td>Peter Lee</td>
</tr>
<tr>
<td>BMEN90028</td>
<td>Anatomy &amp; Physiology for Engineers</td>
<td>David Grayden</td>
</tr>
<tr>
<td>COMP90014</td>
<td>Algorithms for Functional Genomics</td>
<td>Clare Sloggett (Computing and Information Systems)</td>
</tr>
</tbody>
</table>
BIOMEDICAL ENGINEERING COURSE INFORMATION

Biomedical Engineering has enormous positive impact on human health. Biomedical Engineers address healthcare problems from a unique perspective, blending an understanding of biomedical science with specialist knowledge of engineering techniques and problem-solving skills.

Courses in Biomedical Engineering

- Master of Engineering (Biomedical)
- Master of Engineering (Biomedical with Business)

You will focus on human systems, the design and operation of devices and processes, and the application of engineering skills to new medical treatments, instruments and machines. Our reputation for biomedical innovation in areas such as medical bionics, prostheses and tissue engineering, ensures you are learning from leaders in the field, who are working on exciting projects aimed at solving major health dilemmas. These professional-entry-level courses will lead to a formal qualification in biomedical engineering.

Career Outcomes

Biomedical Engineers: develop new drug therapies; study the electrical and/or mechanical activity of organs such as the brain, heart, muscle and bone; build artificial organs, limbs, heart valves and bionic implants to replace lost function; develop orthopaedic devices to treat end-stage bone and joint conditions; and grow living tissues to replace failing organs. Employment opportunities exist in the biotechnology, biomedical, pharmaceutical, medical device and equipment industries, in research and innovation, in the health services and hospitals, in government and consulting, and for companies such as Cochlear, Sanofi, Cell Therapies, Compumedics, GlaxoSmithKline and Zimmer Biomet.

Course Entry

Masters of Engineering (Biomedical) and Masters of Engineering (Biomedical with Business) are accredited by EUR-ACE and Engineers Australia (provisional accreditation for the Biomedical with Business specialisation from Engineers Australia). To gain entry into the 2-year Master of Engineering pathway from the BSc (Bioengineering Systems) program, students must have completed the Bioengineering Systems Major, which requires successful completion of 4 biomedical engineering subjects, 4 general engineering subjects, at least 3 mathematics subjects, at least 2 biology subjects, and at least 1 chemistry subject. To gain entry into the 2-year Master of Engineering pathway from the BBiomed (Bioengineering Systems) program, students must have completed the Bioengineering Systems Major, which requires successful completion of 4 biomedical engineering subjects, 2 general engineering subjects, at least 3 mathematics subjects, at least 1 chemistry subject, and at least 6 biology subjects.

Students seeking to gain entry into the 3-year Master of Engineering (Biomedical) programs must have successfully completed a three-year or more undergraduate degree at a tertiary institution. The degree may be in any area of study, but the students must have completed the equivalent of first year university mathematics and first year university biology or chemistry. Students must also have completed their undergraduate program with an average grade equivalent to a Melbourne score of 65%. Students must also have completed mathematics subjects’ equivalent to Calculus 2 and Linear Algebra, as well as two Science subjects including either two biology subjects, two chemistry subjects, or two physics subjects.

Full course information about all our undergraduate study options can be found on the following link: 
http://www.bme.unimelb.edu.au/study/undergraduate/
Course Structure

The Master of Engineering (Biomedical) and Master of Engineering (Biomedical with Business) consist of 300 points of study - 200 points core including the Biomedical Engineering Capstone Project plus 100 points elective subjects (at least 50 points must be taken from Biomedical Engineering Electives).

Advanced standing will be awarded for equivalent subjects taken in prior study to applicants on the following basis: [https://policy.unimelb.edu.au/MPF1293](https://policy.unimelb.edu.au/MPF1293)
Sample Course Plans

The following course plans are examples only and are provided as a suggestion only. Individual course plans will vary according to each student’s background, previous degree(s) and credit awarded.

**Master of Engineering (Biomedical), Semester 1 commencement**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>MAST20009 Engineering Mathematics</th>
<th>BMEN20001 Biomechanical Physics and Computation</th>
<th>Biomedical Science Elective****</th>
<th>BMEN30006 Circuits and Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sem 2</td>
<td>ENGR90034*** Creating Innovative Engineering</td>
<td>Bioengineering Elective</td>
<td>BMEN30007 Biotransport Processes</td>
<td>BMEN30008 Biosystems Design</td>
</tr>
<tr>
<td>Year 2</td>
<td>Sem 1</td>
<td>BMEN90026 Clinical Trials and Regulation</td>
<td>BMEN30005 Introduction to Biomechanics</td>
<td>BMEN90033 Bioinstrumentation</td>
<td>Bioengineering Elective</td>
</tr>
<tr>
<td></td>
<td>Sem 2</td>
<td>BMEN90023 Biomaterials</td>
<td>BMEN90028 Anatomy &amp; Physiology for Engineers</td>
<td>Bioengineering Elective</td>
<td>Bioengineering Elective</td>
</tr>
<tr>
<td>Year 3</td>
<td>Sem 1</td>
<td>BMEN90018 Biomedical Engineering Capstone Project</td>
<td>BMEN90019 Biomedical Engineering Management</td>
<td>Bioengineering Elective</td>
<td>Approved Elective*</td>
</tr>
<tr>
<td></td>
<td>Sem 2</td>
<td>BMEN90017** Biomedical Engineering Design Project</td>
<td>Approved Elective*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*An Approved Elective is any Masters-level subject or 3rd year undergraduate subject. Permission must be obtained by the subject coordinator before enrolling in Approved Elective subjects. Students must meet requisite subjects to enrol in an Approved Elective. For enrolment in subjects outside of the Engineering faculty, permission must be obtained from course coordinator Dr David Ackland (dackland@unimelb.edu.au).

** Students may replace BMEN90018 and BMEN90017 with BMEN90030 BioDesign Innovation, a 50-point year-long subject. An application and approval process is required for enrolment in BioDesign Innovation.

***Pathway students coming from BSc or BBmed at the University of Melbourne should take ENGR90034 Creating Innovative Engineering, while non-pathway students should take ENGR90021 Engineering Practice and Communication.

****For the Biomedical Science Elective, students with a background in Chemistry should take BIOL10004 Biology of Cells and Organisms, while students with a background in Biology should take CHEM10003 Chemistry 1

The following 12.5-point Bioengineering Electives are offered in the Master of Engineering (Biomedical):

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMEN90012 Soft Matter Engineering</td>
<td>BMEN90011 Tissue Engineering and Stem Cells</td>
</tr>
<tr>
<td>BMEN90021 Medical Imaging</td>
<td>BMEN90002 Neural Information Processing</td>
</tr>
<tr>
<td>COMP90016 Computational Genomics</td>
<td>BMEN90022 Computational Biomechanics</td>
</tr>
<tr>
<td>BMEN90029 Soft Tissue &amp; Cellular Biomechanics</td>
<td>COMP90014 Algorithms for Functional Genomics</td>
</tr>
<tr>
<td>BMEN90027 Systems Biology</td>
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</tr>
</tbody>
</table>
**Master of Engineering (Biomedical), Semester 2 commencement**

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>MAST20029 Engineering Mathematics</th>
<th>Bioengineering Elective</th>
<th>ENGR90034*** Creating Innovative Engineering</th>
<th>BMEN30007 Biotransport Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td><strong>Sem 2</strong></td>
<td><strong>BMEN30005</strong> Introduction to Biomechanics</td>
<td>BMEN30006 Circuits and Systems</td>
<td>BMEN20001 Biomedical Physics and Computation</td>
<td>Biomedical Science Elective****</td>
</tr>
<tr>
<td>Year 2</td>
<td><strong>Sem 2</strong></td>
<td>BMEN30008 Biosystems Design</td>
<td>BMEN90028 Anatomy &amp; Physiology for Engineers</td>
<td>Bioengineering Elective</td>
<td>Bioengineering Elective</td>
</tr>
<tr>
<td></td>
<td><strong>Sem 1</strong></td>
<td>BMEN90033 Bioinstrumentation</td>
<td>BMEN90019 Biomedical Engineering Management</td>
<td>BMEN90026 Clinical Trials and Regulation</td>
<td>Bioengineering Elective</td>
</tr>
<tr>
<td>Year 3</td>
<td><strong>Sem 2</strong></td>
<td>BMEN90018** Biomedical Engineering Capstone Project</td>
<td>BMEN90017** Biomedical Engineering Design Project</td>
<td>BMEN90023 Biomaterials</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Sem 1</strong></td>
<td>Bioengineering Elective</td>
<td>Approved Elective*</td>
<td>Approved Elective*</td>
<td></td>
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** Students may replace BMEN90018 and BMEN90017 with BMEN90030 BioDesign Innovation, a 50-point year-long subject. An application and approval process is required for enrolment in BioDesign Innovation.

***Pathway students coming from BSc and BBmed at the University of Melbourne should take ENGR90034 Creating Innovative Engineering, while non-pathway students should take ENGR90021 Engineering Practice and Communication.

****For the Biomedical Science Elective, students with a background in Chemistry should take BIOL10004 Biology of Cells and Organisms, while students with a background in Biology should take CHEM10003 Chemistry 1

### Master of Engineering (Biomedical with Business), Semester 1 commencement

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Sem 1</th>
<th>MAST20029 Engineering Mathematics</th>
<th>BMEN20001 Biomechanical Physics and Computation</th>
<th>Biomedical Science Elective**</th>
<th>BMEN30006 Circuits and Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 2</td>
<td>BMEN30008 Biosystems Design</td>
<td>Bioengineering Elective</td>
<td>BMEN30007 Biotransport Processes</td>
<td>Bioengineering Elective</td>
<td></td>
</tr>
<tr>
<td>Year 2</td>
<td>Sem 1</td>
<td>BMEN90026 Clinical Trials and Regulations</td>
<td>BMEN30005 Introduction to Biomechanics</td>
<td>BMEN9033 Bioinstrumentation</td>
<td>ENGM90014 The World of Engineering Management</td>
</tr>
<tr>
<td>Sem 2</td>
<td>BMEN90023 Biomaterials</td>
<td>BMEN90028 Anatomy and Physiology for Engineers</td>
<td>ENGM90006 Engineering Contracts and Procurement</td>
<td>Bioengineering Elective</td>
<td></td>
</tr>
<tr>
<td>Year 3</td>
<td>Sem 1</td>
<td>*BMEN90018 Biomedical Engineering Capstone Project</td>
<td>ENGM90013 Strategy Execution for Engineers</td>
<td>ENGM90011 Economic Analysis for Engineers</td>
<td>Bioengineering Elective</td>
</tr>
<tr>
<td>Sem 2</td>
<td>*BMEN90017 Biomedical Engineering Design Project</td>
<td>ENGM90012 Marketing Management for Engineers</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Students may replace BMEN90018 and BMEN90017 with BMEN90030 BioDesign Innovation, a 50-point year-long subject. An application and approval process is required for enrolment in BioDesign Innovation.*

**For the Biomedical Science Elective, students with a background in Chemistry should take BIOL10004 Biology of Cells and Organisms, while students with a background in Biology should take CHEM10003 Chemistry 1

The following 12.5-point Bioengineering Electives are offered in the Masters of Engineering (Biomedical with Business):

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMEN90012 Soft Matter Engineering</td>
<td>BMEN90011 Tissue Engineering and Stem Cells</td>
</tr>
<tr>
<td>BMEN90021 Medical Imaging</td>
<td>BMEN90002 Neural Information Processing</td>
</tr>
<tr>
<td>COMP90016 Computational Genomics</td>
<td>BMEN90022 Computational Biomechanics</td>
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<tr>
<td>BMEN90029 Soft Tissue and Cellular Biomechanics</td>
<td>COMP90014 Algorithms for Functional Genomics</td>
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<td>BMEN90027 Systems Biology</td>
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</table>
**Master of Engineering (Biomedical with Business), Semester 2 commencement**

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem 1</th>
<th>MAST20029 Engineering Mathematics</th>
<th>ENGM90006 Engineering Contracts and Procurement</th>
<th>BMEN30007 Biotransport Processes</th>
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<tr>
<td></td>
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<td>BMEN30005 Introduction to Biomechanics</td>
<td>BMEN20001 Biomechanical Physics and Computation</td>
<td>Biomedical Science Elective**</td>
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<td>BMEN30006 Circuits and Systems</td>
<td>BMEN30008 Biosystems Design</td>
<td>ENGM90012 Marketing Management for Engineers</td>
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<td>Year 2</td>
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<td>BMEN90028 Anatomy and Physiology for Engineers</td>
<td>BMEN90008 Bioinstrumentation</td>
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<td>BMEN90026 Clinical Trials and Regulations</td>
<td>ENGM90014 The World of Engineering Management</td>
<td>Bioengineering Elective**</td>
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<td>BMEN900033 Bioinstrumentation</td>
<td>BMEN90023 Biomaterials</td>
<td>BMEN900017 Biomedical Engineering Design Project</td>
</tr>
<tr>
<td>Year 3</td>
<td>Sem 2</td>
<td>*BMEN90018 Biomedical Engineering Capstone Project</td>
<td>*BMEN90017 Biomedical Engineering Design Project</td>
<td>BMEN90023 Biomaterials</td>
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<td>ENGM90011 Economic Analysis for Engineers</td>
<td>ENGM90013 Strategy Execution for Engineers</td>
<td>Bioengineering Elective</td>
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<td></td>
<td>ENGM90014 The World of Engineering Management</td>
<td>BMEN90014 The World of Engineering Management</td>
<td>BMEN90023 Biomaterials</td>
</tr>
</tbody>
</table>

* Students may replace BMEN90018 and BMEN90017 with BMEN90030 BioDesign Innovation, a 50-point year-long subject. An application and approval process is required for enrolment in BioDesign Innovation.

**For the Biomedical Science Elective, students with a background in Chemistry should take BIOL10004 Biology of Cells and Organisms, while students with a background in Biology should take CHEM10003 Chemistry 1.

Details of subjects offered in the Masters of Engineering (Biomedical), may be found in the Handbook: [https://handbook.unimelb.edu.au/2018/components/mc-eng-spec-3](https://handbook.unimelb.edu.au/2018/components/mc-eng-spec-3)
LECTURE THEATRE LOCATIONS

A map of the buildings at the University of Melbourne Parkville campus may be found here:
https://maps.unimelb.edu.au/parkville/building

Lecture venues according to Building may be found here:
http://learningspaces.unimelb.edu.au/room-search
The Melbourne University Biomedical Engineering Society (MUBES) is the faculty-based student-run body for biomedical engineering students at the University of Melbourne. MUBES are affiliated with the University of Melbourne Student Union (UMSU), and serve as a professional and social body for anyone studying or interested in biomedical engineering.

MUBES runs events throughout the year to update students with upcoming learning and job opportunities. MUBES offer academic services with frequent software workshops (MATLAB and Solidworks). They host an Industry Night once per year, which attracts prospective employers and provides invaluable networking opportunities. MUBES also organises frequent social events including barbeques (free food and drinks) and Trivia Night events.

Follow MUBES using the Facebook group (https://www.facebook.com/groups/mubes.unimelb) and Facebook page (https://www.facebook.com/officialmubespage) where all events are advertised. You may find MUBES during Orientation Week or at any of our events to sign up! If you have any questions please feel free to get in touch with any of the committee members via email, on the Facebook page, or at mubes.melbuni@gmail.com

<table>
<thead>
<tr>
<th>Holder</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thai Nguyen Le</td>
<td>President</td>
</tr>
<tr>
<td>Yizhe Cheng</td>
<td>Secretary</td>
</tr>
<tr>
<td>Matt Woolley</td>
<td>Treasurer</td>
</tr>
<tr>
<td>Ravin Vallabh</td>
<td>Education officer</td>
</tr>
<tr>
<td>Edward Green</td>
<td>PhD representative</td>
</tr>
<tr>
<td>Emma Moore</td>
<td>5th year representative</td>
</tr>
<tr>
<td>Gautam Latheesh</td>
<td>4th year representative</td>
</tr>
<tr>
<td>Amy Yu</td>
<td>3rd year representative</td>
</tr>
</tbody>
</table>
WHERE TO GO FOR HELP

Try the following:

Ask Unimelb:  http://ask.unimelb.edu.au/
Stop 1:  http://students.unimelb.edu.au/stop1

For matters relating to the Master of Engineering (Biomedical), Master of Engineering (Biomedical with Business) or the Bioengineering Systems major in the Bachelor of Science and Bachelor of Biomedicine, please contact the Deputy Head (Academic) of the Department of Biomedical Engineering, Dr David Ackland (dackland@unimelb.edu.au).

The main office of the Department of Biomedical Engineering is located on the second floor in Building 193 (see below for map).

Biomedical Engineering Department (EEE Bldg 193)
Appendix A: Vacation Work Record

This form should be completed by students completing a vacation work placement, as a record of their achievements and the skills they have acquired.

Email your completed record to: nbaxter@unimelb.edu.au

A signed copy will be returned to you and your supervisor via the email address supplied

1. UNIVERSITY OF MELBOURNE STUDENT DETAILS

<table>
<thead>
<tr>
<th>Name:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Student No.:</td>
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</tr>
<tr>
<td>Email:</td>
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2. EMPLOYER DETAILS

<table>
<thead>
<tr>
<th>Company Name</th>
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<tbody>
<tr>
<td>Supervisor Name</td>
<td></td>
</tr>
<tr>
<td>Contact details for the Supervisor (email, telephone)</td>
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3. DETAILS OF WORK UNDERTAKEN

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<tr>
<th>Period of Employment</th>
<th>From:</th>
<th>Until:</th>
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</table>

Provide a brief description of the work you have undertaken during your placement

Describe the skills you have acquired

- Corporate ethics
- Teamwork
- Safety and Risk Assessment
- Ability to negotiate
- Aspen simulation
1. APPROVALS & ENDORSEMENTS

<table>
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<th>Comments/Feedback from Company Supervisor:</th>
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<tbody>
<tr>
<td>Signature:</td>
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<td>Date:</td>
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</table>

<table>
<thead>
<tr>
<th>Head of Department</th>
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<tbody>
<tr>
<td>Signature:</td>
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<tr>
<td>Date:</td>
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