UNIVERSITY
OF WOLLONGONG
AUSTRALIA

School of Mechanical, Materials, Mechatronic & Biomedical Engineering

October 20, 2022

INFORMATION FOR BIOMEDICAL ENGINEERING STUDY PROGRAM IN 2023

Dear Biomedical Engineering Students,

We hope 2022 was an academically rewarding year for you and that you are enjoying the break away from University. We look forward to seeing you again in 2023.

While you have made you effort in your study, I hope you also agree that the academic staff are continuing to work hard to improve your learning experience in Biomedical Engineering. Improving the curriculum and subject designs, facilitating your connections to people form the industries, provisions of internship opportunities (e.g. signing students placement agreements with a couple of Local Health Districts) are the examples of our work. We are always happy to give you feedback to help your learning, and you are always welcome to give us your suggestions regarding our Biomedical Engineering program.

I mentioned earlier our Biomedical Engineering (BMEG) course received its provisional accreditation from Engineers' Australia, which is the best accreditation level a new engineering course can receive. Nationally, we saw some other universities which were either expanding or creating new Biomedical Engineering courses, which shows the attractiveness of our discipline. In 2023, we are aiming to obtain full accreditation from Engineers' Australia as we now have sufficient data to show our good practices in designing and teaching the program.

The primary aim of this letter is to let you know of some key study program arrangements for 2023 – please keep this letter for future reference. If you will need to discuss what subjects to take in 2023, please do not hesitate to see me.

Curriculum changes

We implemented the changes in earlier 2021. As a result of the change, we currently have two curriculums which can be found at the end of this letter. A majority of students are using the new curriculum, but if you enrolled at UoW in 2019 or before you will likely still be using the old one. Please note as a result of the curriculum change, BMEG305 has been recoded as BMEG215. BMEG302 is now run in Spring. ENGG251 has become a compulsory subject. There may be some revisions in pre/co-requisite requirements in some Biomedical Engineering subjects from time to time. Please see the latest subject descriptions. Feel free to let me know if you have any questions.

Mechanical Engineering Practice (MECH203)

This 0 credit point subject allows your development of practical mechanical engineering skills which are important to the Biomedical Engineering subject: BMEG215. It is only on offer in Autumn Session. Skills developed including documentation of your engineering experience will assist with attaining work experience placements. You are strongly advised to take MECH203 in the Autumn session prior to taking BMEG215 in the Spring session. Those with prior experience or who have done workshop activities in a previous subject may have a varied program assigned. Further information will be issued to those who are enrolled.

Thesis selection

Students have a choice of enrolling in MMMB498 Thesis A (12 credit points), MMMB499 Thesis B (18 credit points. Those with high WAM (75 or above) have the option of enrolling in MMMB499 Thesis B (18 credit points). Please refer to paragraph "Weighted Average Mark (WAM) below for more information on how to calculate WAM. In MMMB499 thesis, you can undertake a significant research activity that will help in providing the best possible platform for you to launch your career as a Professional Engineer following graduation. Students enrolled in Scholars degree must take MMMB499. If they do MMMB498, they will be moved into the non-scholars program at graduation time.

In the session prior to the intended commencement of your thesis, you must:

1. Contact and meet your potential supervisor(s) to discuss thesis topics. If you come to an agreement with your potential supervisor regarding your thesis topic, then please send an email containing your student number, thesis topic and supervisor name to the thesis coordinator by week 9 of the session prior to commencement of your thesis.
2. If you have a topic confirmed with a supervisor, your selection process is complete.

If you have any questions regarding thesis, please consult the thesis coordinator, A/Prof Andrzej Calka, acalka@uow.edu.au.

Electives

The list of engineering electives on offer this year is attached.

We continue to offer a range of elective subjects which reflect the broad range of career opportunities in Biomedical Engineering and which also reflect the strengths of the Biomedical Engineering Discipline at the University of Wollongong. The electives that are acceptable in the program are grouped in two different lists.

List A: The approved technical or engineering electives are provided in list A – you may take all your electives from this list.

List B: Contains the pre-approved electives from other faculties or disciplines. You may take up to one (1) electives from other faculties. Should you identify a subject not listed in either list A or B that you wish to take, you must seek approval from the academic program director before taking that subject and have that subject approved in writing by the Sub Dean as counting towards your degree. Available electives vary from year to year and are dependent on staff availability.

Timetabling

Details of the timetable and room allocations can be found on the web. These are set centrally at University level and ***are subject to change – it is important that you check this information as the semester approaches.***

Weighted Average Mark (WAM)

WAM is the weighted average mark from *every* subject you have attempted over the whole of your degree. (Remember that each 6 credit point subject requires in the order of twelve (12) hours per week of study, including time in class, for a successful outcome). You can calculate your WAM using the following formula:

$$\text{WAM} = \frac{\sum MLC}{\sum LC};$$ where C = credit point value of subject; L = Level (ie L=2 for BMEG201); M = Mark (%).

The summation terms must include ***all*** subject attempts (including any failures). The grades of honour are then awarded as follows:

First Class honours: 77.5 < WAM < 100
Second Class, Division 1 honours: 72.5 < WAM < 77.5
Second Class, Division 2 honours: 67.5 < WAM < 72.5
The Third Class honours grade will no longer be awarded (previously for 62.5 < WAM < 67.5)
Pass Degree will no longer be awarded (previously for WAM < 67.5)

Scholars Program

Those students who maintain a WAM greater than 80 *(NB this is a change from the previous requirement of 75)* are eligible for the Scholars Program, which has benefits including the following:

- Scholars are eligible to take the 18 credit point Final Year Thesis option (ENGG453 Thesis B).
- Final year Scholars may be given the opportunity to act as paid student mentors to first year students in the Opportunity Program. This not only gives you some extra cash, but also improves your understanding of your own discipline, since the best way to understand a subject is to explain it to someone else. Scholars are encouraged to discuss their study program with the Sub-Dean with a view to arranging a customised study program to suit a student's particular interests and abilities. For instance, we would encourage scholars to consider taking high-level analytical subjects (possibly at postgraduate level) from Mechanical Engineering, other Engineering/Science disciplines and in Mathematics (which is particularly important for those students considering a career in research or academia).

- Some research based subjects (ENGG171, ENGG271 and ENGG371) have been introduced as options for students in the Scholars Program. Proposals to undertake these subjects should be discussed with the Sub-Dean.

Professional Experience

If you are in the 2nd or 3rd year of your degree, actively pursue and obtain work experience to avoid delaying your graduation. There are strict rules for the type and duration of work that is eligible to be claimed as professional experience.

Students are required to complete at least 12 weeks of approved professional experience during their course and submit a report to a satisfactory standard as part of any Bachelor of Engineering degree program (a requirement from Engineers Australia as part of the accreditation of the course). This requirement is included in the course as the ENGG454 subject (zero credit points). Students should enroll in ENGG454 the session before undertaking 12 weeks full time or equivalent of professional experience. It is preferable that the students undertake this requirement during the summer recess and be completed at the latest **between the third and fourth years.** It is ***the student's own responsibility*** to find Professional Experience work.

All students enrolled in ENGG454 are automatically added to the EIS PEXs system (Professional Experience system). The possible placement opportunities are posted on EIS PEXs notice boards or distributed by email. The student must follow process, starting with student enrolment and finishing with the discipline coordinator marking the student's final report, in EIS PEXs.

Remember if you are in 2nd or 3rd year in 2022 – ***apply for Professional Experience positions early.*** (There is always a lot of competition for these opportunities).

You should discuss any professional experience placement you are considering with the coordinator for this subject to ensure that it meets the relevant criteria**.**

Contact: Dr Emre Sariyildiz via email: emre@uow.edu.au).
It is important that the suitability of the position is confirmed in advance to avoid the considerable difficulty and disappointment that arises if your 12 week work experience does not meet the requirements.

If you would like to have placement in hospitals, there are additional requirements (e.g. vaccination).

Engineers Australia is our Professional Body and you can join as a student member and get many benefits and significant assistance. Being certified as a professional engineer by this body may be essential for your career, so it is a good idea to get involved early. For more information please go to http://www.engineersaustralia.org.au/

I would like to take this opportunity to draw your attention to:

The Biomedical Engineering Society (https://www.facebook.com/groups/uow.bmed.society/)

The society has a wide range of activities over the course of the year. It is a place where you may interact with other biomedical engineering students from different years. I encourage you all to join the society and support its activities throughout 2022.

To assist you in finding out where you are in your degree program, I have also attached *degree maps* for full-time and part-time programs illustrating how all the subjects are linked by pre- and co-requisites and some examples of links for prior knowledge.

In closing, on behalf of all academic and support staff, I would like to wish you the very best for the academic year 2022. We look forward to seeing you again in 2022, for yet another exciting year for our discipline of Biomedical Engineering.

Dr Winson LEE
Academic Program Director for Biomedical Engineering
School of Mechanical, Materials, Mechatronic and Biomedical Engineering
(Room 8.101, Ph 4221 4119, email: ccwlee@uow.edu.au)

COURSE STRUCTURE for BIOMEDICAL ENGINEERING
(For students enrolled at UOW IN 2020 or after)

SUBJECT CODE	SUBJECT NAME	CREDIT POINTS	SESSION(S)
Year 1			
ENGG102	Fundamentals of Engineering Mechanics	6	Autumn
ENGG103	Materials in Design	6	Autumn
ENGG105	Engineering Design for Sustainability	6	Autumn
MATH141	Foundations of Engineering Mathematics	6	Autumn
ENGG100	Engineering Computing and Analysis	6	Spring
ENGG104	Electrical Systems	6	Spring
MATH142	Essentials of Engineering Mathematics	6	Spring
PHYS143	Physics For Engineers	6	Spring
Year 2			
MECH203	Mechanical Workshop Practice	0	Autumn
MEDI100	Human Structure and Function	6	Autumn
ENGG252	Engineering Fluid Mechanics	6	Autumn
MATH283	Advanced Engineering Mathematics and Statistics	6	Autumn
ENGG251	Mechanics of Solids	6	Autumn
PHYS155	Introduction to Biomedical Physics	6	Spring
ECTE203	Signals and Systems	6	Spring
BMEG201	Biomedical Instrumentation and Design	6	Spring
BMEG215	Mechanical Design of Biomedical Devices	6	Spring
Year 3			
CSCI291	Programming for Engineers	6	Autumn
ECTE233	Digital Hardware	6	Autumn
BMEG301	Mechanics of Biomedical Systems	6	Autumn
BMEG304	Manufacturing Techniques for Biomedical Engineering	6	Autumn
BMEG302	Biomedical Sensors and Actuators	6	Spring
BMEG303	Biomechanical Basis of Human Movement	6	Spring
BMEG306	Biomaterials and Tissue Engineering	6	Spring
ECTE344	Control Theory (pre-req ECTE203)	6	Spring
Year 4			
BMEG401	Artificial Organs and Implants	6	Autumn
BMEG402	Ethics and Practices in Biomedical Engineering	6	Autumn
ENGG461	Managing Engineering Projects	6	Autumn
ECTE331	Real-time Embedded Systems (pre-reqs ECTE233 and CSCI291 Programming for Engineers subject)	6	Spring
ENGG454	Professional Experience	0	Annual, Autumn, Spring
Bachelor of Engineering (Honours) students complete one of the following research options Plus 2 electives: 1 from List A and 1 from List A or B.*			
MMMB498	Thesis A	12	Annual
Or			
MMMB499	Thesis B	18	Annual
Bachelor of Engineering Scholar (Honours) students must complete MMMB499 Plus 1 elective from either List A or B			
MMMB499	Thesis B	18	Annual

*Please find the updated List A and B elective subjects in:
https://courses.uow.edu.au/courses/current/1856

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Year 1			
ENGG102	Fundamentals of Engineering Mechanics	6	Autumn
ENGG103	Materials in Design	6	Autumn
ENGG105	Engineering Design for Sustainability	6	Autumn
MATH141	Foundations of Engineering Mathematics	6	Autumn
ENGG100	Engineering Computing and Analysis	6	Spring
ENGG104	Electrical Systems	6	Spring
MATH142	Essentials of Engineering Mathematics	6	Spring
PHYS143	Physics For Engineers	6	Spring
Year 2			
MECH203	Mechanical Workshop Practice	0	Autumn
MEDI100	Human Structure and Function	6	Autumn
ENGG252	Engineering Fluid Mechanics	6	Autumn
MATH283	Advanced Engineering Mathematics and Statistics	6	Autumn
ECTE233	Digital Hardware	6	Autumn
BMEG201	Biomedical Instrumentation and Design	6	Spring
PHYS155	Introduction to Biomedical Physics	6	Spring
ECTE203	Signals and Systems	6	Spring
MECH226	Machine Dynamics	6	Spring
Year 3			
BMEG301	Mechanics of Biomedical Systems	6	Autumn
BMEG302	Biomedical Sensors and Actuators	6	Autumn
CSCI291	Programming for Engineers	6	Autumn
BMEG304	Manufacturing Techniques for Biomedical Engineering	6	Autumn
BMEG303	Biomechanical Basis of Human Movement	6	Spring
BMEG215	Mechanical Design of Biomedical Devices	6	Spring
BMEG306	Biomaterials and Tissue Engineering	6	Spring
ECTE344	Control Theory (pre-req ECTE203)	6	Spring
Year 4			
BMEG401	Artificial Organs and Implants	6	Autumn
BMEG402	Ethics and Practices in Biomedical Engineering	6	Autumn
ECTE331	Real-time Embedded Systems (pre-reqs ECTE233 and CSCI291 Programming for Engineers subject)	6	Spring
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ENGG454	Professional Experience	0	Annual, Autumn, Spring
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Or			
MMMB499	Thesis B	18	Annual
Bachelor of Engineering Scholar (Honours) students must complete ENGG453 Plus 1 elective from either List A or B			
MMMB499	Thesis B	18	Annual

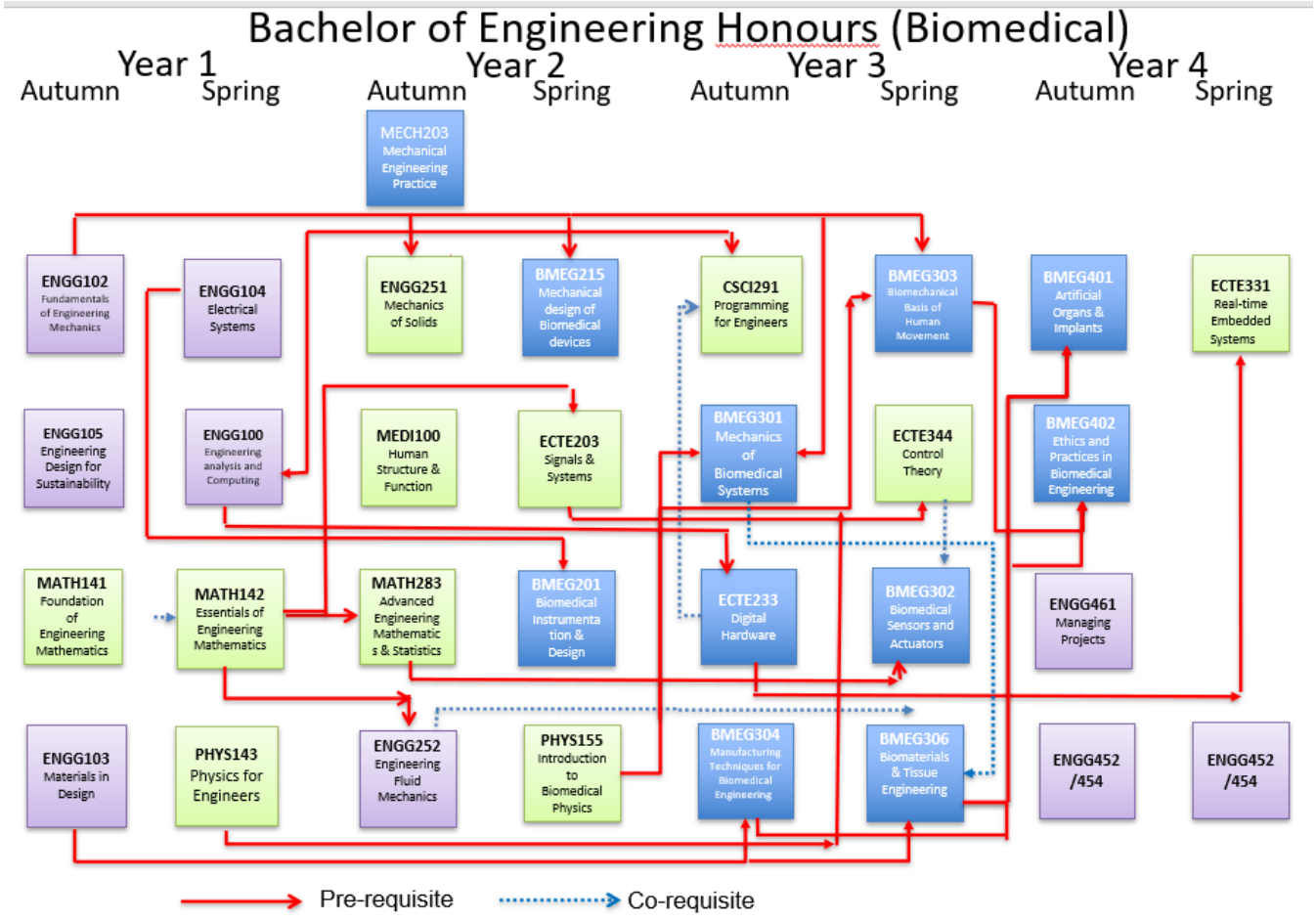
*Please find the updated List A and B elective subjects in:
https://courses.uow.edu.au/courses/current/1856

OTHER INFORMATION
Further information is available at:
UOW Course Finder
Email: eis@uow.edu.au
Email: Academic Program Director

List of Advisers / Coordinators

Matters	**Academics**
Professional work experience / Professional options	Dr. Emre Sariyildiz
Thesis	A/Prof Andrzej Calka and Dr Zhixin Chen
First year and Study abroad	Dr. David Hastie

For students enrolled at UOW in 2020 or after



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