Bachelor of Engineering (Honours)/ Master of Biomedical Engineering

What do biomedical engineers do?

Biomedical Engineering uses engineering techniques and analysis to solve problems and create solutions in medicine and health. Biomedical Engineers develop solutions to improve the diagnosis, treatment and quality of life of people with life-threatening or debilitating diseases and conditions. This dual degree combines a four-year Bachelor of Engineering (Honours) and an 18-month Master of Biomedical Engineering into a single five-year full-time program. Biomedical Engineering courses are taken throughout the program.

What will your study involve?

The Bachelor of Engineering (Honours) component of this dual degree provides a solid background in mathematics, natural sciences and computing. In the Master of Biomedical Engineering, we cover principles for the development of technologies and solutions in healthcare-related fields such as medical devices, biomaterials, tissue engineering, neural engineering, biomechanics, bioinformatics, telehealth, biosignal processing, medical imaging and computational modelling. Our graduates are equipped with significant knowledge provided by their degree in engineering combined with high-level skills specific to Biomedical Engineering.

Students benefit from:

- A high-quality, industry-relevant biomedical educational program which utilises world-class facilities and technologies and gives you access to our alumni community
- Being embedded in research teams performing ground-breaking research across many areas of Biomedical Engineering
- Research in the Tyree Foundation Institute of Health Engineering which brings together clinicians, technologists and industry to develop new medical technologies

Program details

Lowest Selection Rank (2024): 90

Duration: five-year embedded dual degree

Study areas: A Master of Biomedical Engineering can be combined with a Bachelor of Engineering (Honours) in the following disciplines: Bioinformatics Engineering, Chemical Engineering, Computer Engineering, Electrical Engineering, Materials Science, Mechanical Engineering, Mechatronic Engineering, Software Engineering, Telecommunications

Assumed knowledge: Mathematics Extension 1, Physics, Chemistry

Portfolio Entry: UNSW offers the Faculty of Engineering Admission Scheme (FEAS) which is a pathway for students interested in studying undergraduate engineering to support their academic results, find out more at **unsw.to/feas**

Accreditation

Your Bachelor of Engineering (Honours) degree is recognised globally, is accredited with Engineers Australia, and is also acknowledged by the Washington Accord, which lets you work in over 20 countries across the globe upon graduation.

Career options

Graduates can pursue career opportunities in the medical devices, pharmaceutical and biotechnology industries, hospitals, regulatory bodies, research institutions and tertiary education institutions. Plus, there are all the opportunities provided by the undergraduate degree.

Example study plan

Sample program outline for the Bachelor of Engineering (Honours) in Mechatronic Engineering/
Master of Biomedical Engineering.

	TERM 1			TERM 2			TERM 3		
YEAR 1	Physics 1A	Introduction to Engineering Design & Innovation	Mathematics 1A	Mathematics 1B	Programming Fundamentals	Software Engineering Fundamentals	Electrical Circuit Fundamentals	Engineering Mechanics	
YEAR 2	Engineering Mathematics 2E	Digital Circuit Design	Engineering Design and Professional Practice	Clinical Laboratory Science	Mechatronics Discipline Elective	Engineering Mechanics 2	Computing for Mechatronic Engineers	Mechatronics Discipline Elective	
YEAR 3	Numerical Methods and Statistics	Mechatronics Discipline Elective	Fundamentals of Anatomy	Linear Systems and Control	Strategic Design Innovation		Biomedical Elective	Mechanics of Solids 1	Principles of Physiology A
YEAR 4	Biomedical Elective	Modelling and Control of Mechatronic Systems	Regulatory Requirements of Biomedical Technology	Biomedical Elective	Robot Design	Computing Applications in Mechatronics Systems	Biomedical Elective	Biomedical Elective	Biomedical Elective
YEAR 5	Biomedical Research Thesis A	Advanced Autonomous Systems	Mechatronics Discipline Elective	Biomedical Research Thesis B	Robotics		Biomedical Research Thesis C	Biomedical Elective	Biomedical Elective

You'll be required to complete 60 days of Industrial Training throughout your degree.

Biomedical Engineering elective examples:

Biological Signal Analysis	Biomedical Instrumentation	Biosensors and Transducers	Bionics and Neuromodulation	Biomedical and health Informatics
Biocompatibility	Cellular and Tissue Engineering	Mechanics of the Human Body	Medical Imaging	Mass Transfer in Medicine
Mechanical Properties of Biomaterials	Dynamics of the Cardiovascular System	Modelling Organs, Tissues and Devices	Biomechanics of Physical Rehabilitation	Biomedical Thesis Project

This is a sample degree outline only and may be subject to change. Please refer to the UNSW Handbook for further information and relevant course codes.