



UNIVERSITY OF  
AUCKLAND  
Waipapa Taumata Rau  
NEW ZEALAND

# Engineering

## Undergraduate Prospectus 2025



**No. 1**  
New Zealand  
University\*



**No. 1**  
in New Zealand  
for Engineering\*\*



**No. 1**  
in New Zealand  
for Employability\*\*\*

Ko Waipapa Taumata  
nei, e karanga nei ki t  
ki te kai i te mātaura  
Nau mai, haere mai,  
ki te whare whakairo

We are Waipapa Taumata Rau, we greet, we call to the many who desire the sustenance of knowledge.

Welcome, come forth and fasten to the carved meeting house, Tāne-nui-a-rangi.

Rau mātou, e mihi  
te marea e hiahia ana  
āngā

herea mai tōu waka  
o Tāne-nui-a-rangi

# Nau mai ki Te Herenga Mātai Pūkaha

## A warm welcome to the Faculty of Engineering

With innovative and creative abilities, engineers are vital in our increasingly complex technological world. At New Zealand's leading engineering faculty<sup>1</sup>, you'll be surrounded by people who are excited to push boundaries, improve lives and learn from each other.

### *Engineers change lives.*

As we seek to transition our society to green energy, build more resilient cities in the face of climate change, and design the next generation of robotic devices, the world looks to us for answers.

At New Zealand's leading Engineering faculty, you will be surrounded by people rising to that call, those who are excited to push boundaries and learn from each other. You will do so in our state-of-the-art Engineering buildings, located across the heart of Auckland City. Our labs and facilities, spacious student areas and Multi-Disciplinary Learning Spaces are all built with you in mind.

After completing our Bachelor of Engineering (Honours) programme, you will also be highly sought after by graduate employers. As a holder of a Washington Accord accredited degree that is recognised internationally, you will have a passport to solving the global socio-economic challenges of the day.

And so, on behalf of our Faculty, I invite you to join us in taking your next steps in changing our world for the better.

Whakauru mai ki tō mātou kāhui ako. Together, we can make a positive difference in our world.



**ASSOCIATE PROFESSOR RICHARD CLARKE**  
Manukura Pūkaha | Dean of Engineering  
Waipapa Taumata Rau | University of Auckland

<sup>1</sup> QS World University Rankings by Subject 2023

### Cover attributions

\*QS World University Rankings 2024  
\*\*QS World University Rankings by Subject 2023  
\*\*\*QS Graduate Employability Rankings 2022

Disclaimer: Although every reasonable effort is made to ensure accuracy, the information in this document is provided as a general guide only and is subject to alteration. All students enrolling at the University of Auckland must consult its official document, the current Calendar of the University of Auckland, to ensure that they are aware of and comply with all regulations, requirements and policies. Publication date: March 2024.

# Our undergraduate programme

## Bachelor of Engineering (Honours)

**Full-time:** 4 years

**Points per degree:** 480

**Taught at:** City Campus

**Application closing date:** 8 December 2024

**Classes start:** 3 March 2025 and 21 July 2025

The BE(Hons) at the University of Auckland is a four-year programme that can lead to registration as a Chartered Professional Engineer after graduation and suitable work experience. It consists of 480 points, usually divided into four 120-point parts (each equivalent to one year of study).

Part I is a common first year. You gain experience in each of our ten specialisations and study a broad base of engineering and professional fundamentals.

At the end of Part I, you will be invited to select the discipline in which you wish to specialise for the remainder of your degree. We offer ten specialisations. Each has a limited number of places, so admission into your preferred specialisation is based on your academic results in Part I.

Parts II, III and IV are customised over the following three years according to your area of specialisation. You will study a common core of mathematical modelling, technical communication and professional development, in addition to specialist subjects relevant to your chosen field. You will also have opportunities to choose elective courses, which allow you to further specialise in topics that interest you most.

Throughout your degree, your courses will involve a mixture of lectures, tutorials, traditional assignments and exams, as well as laboratories, field trips, practical work, research projects and presentations.

## Conjoint programmes

**Full-time:** 5 years, or 6 years with an LLB or BAdvSci(Hons), and 7 years with an LLB(Hons)

**Points for BE(Hons):** 420 points

**Conjoint combinations:** Find out more about the conjoint options available to compliment your degree.

**[auckland.ac.nz/conjoints-by-faculty](http://auckland.ac.nz/conjoints-by-faculty)**

**Points for other degree:** 465 points for LLB(Hons), 405 points for LLB, 375 points for BAdvSci(Hons), and 255 points for all other conjoints.

Conjoint programmes enable you to complete a BE(Hons) and another degree more quickly than if you were to undertake them separately. They can be an excellent choice if you know that the other degree component will be beneficial in your proposed career, or if you are a capable student with skills in various areas.

The workload for a conjoint programme is higher than that of a single degree (usually 135 points per year, compared with 120 points per year for a single degree). The BE(Hons) programme alone is considered to have a high workload, so conjoint students must be prepared for an even greater challenge.

Conjoint programmes have higher entry requirements and may be subject to faculty approval. They can be structured in several ways, and planning your timetable can be complex, so please contact your local Student Hub if you need extra help.

**[auckland.ac.nz/student-hubs](http://auckland.ac.nz/student-hubs)**

**[auckland.ac.nz/conjoints](http://auckland.ac.nz/conjoints)**

### Sample BE(Hons) degree structure\*

Part I	<b>CHEMMAT 121</b> Materials Science	<b>ELECTENG 101</b> Electrical and Digital Systems	<b>ENGGEN 115</b> Principles of Engineering Design	<b>ENGGEN 121</b> Engineering Mechanics	<b>ENGGEN 131</b> Introduction to Engineering Computation and Software Development	<b>ENGGEN 140</b> Energy and Society	<b>ENGSCI 111</b> Mathematical Modelling 1	Waipapa Taumata Rau	<b>ENGGEN 199</b> English Language Competency
Part II	<b>ENGGEN 204</b> Professional Skills and Communication	<b>ENGSCI 211</b> Mathematical Modelling 2	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Specialisation course	<b>ENGGEN 299</b> Workshop Practice
Part III	<b>ENGGEN 303</b> Managing Projects and Innovation	<b>ENGSCI 311</b> Mathematical Modelling 3	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Elective	<b>ENGGEN 499</b> Practical Work
Part IV	<b>ENGGEN 403</b> Managing a Business	Specialisation course	Research Project		Elective	Elective	Elective	Elective	

Common core courses Specialisation courses Elective courses General Education courses Part IV research project Compulsory degree components

\*A review of Part I is underway. This may result in some changes to specific courses in Part I, including the retention of General Education requirement. The overall structure of the degree will not change.

## Practical work

There are two compulsory practical work requirements of the BE(Hons) degree. In Part II, you will need to complete a 40-hour workshop practice course. You are also required to gain at least 800 hours of practical work experience throughout your degree. This will involve exposure to general trade and sub-professional skills relevant to your Engineering specialisation, ensuring you're ready for the workforce by the time you graduate.

## General Education

BE(Hons) students may be required to complete a 15 point General Education course. General Education courses are designed to broaden your education and give you a chance to try a course outside your degree. Special arrangements may apply if you transfer from another tertiary institution with credit.

**[auckland.ac.nz/generaleducation](http://auckland.ac.nz/generaleducation)**

# Our ten engineering specialisations

We offer a variety of specialisations that mirror the diversity of our five departments, the ever-evolving engineering profession, and our increasingly interdisciplinary research. Our ten Bachelor of Engineering (Honours) specialisations are accredited by Engineering New Zealand, a signatory of the Washington Accord. This makes it a recognisable Engineering qualification in many countries.

## Department of Chemical and Materials Engineering

- Chemical and Materials Engineering

## Department of Civil and Environmental Engineering

- Civil Engineering
- Structural Engineering

## Department of Electrical, Computer, and Software Engineering

- Computer Systems Engineering
- Electrical and Electronic Engineering
- Software Engineering

## Department of Engineering Science and Biomedical Engineering

- Biomedical Engineering
- Engineering Science

## Department of Mechanical and Mechatronics Engineering

- Mechanical Engineering
- Mechatronics Engineering

➔ **Find out more:** [auckland.ac.nz/engineering-specialisations](https://auckland.ac.nz/engineering-specialisations)



## Pūhanga Matū

# Chemical and Materials Engineering

In facing future global challenges, we need transformative change in the way we utilise and process materials, energy, and data. By studying Chemical and Materials Engineering, you will develop as an engineer that can help deliver and drive the change towards a more sustainable future. You will learn how to translate innovations into actual real-world applications in areas such as food engineering, industrial waste, resource recovery, and materials for sustainable energy production. Our students learn about 'scaling-up' benchtop discoveries into practical new technologies and processes for industry, and are highly sought after by a large number of industries.

### Career opportunities

Major industries employing chemical and materials engineers include dairy and food, pharmaceuticals, paper and pulp, petrochemicals, energy processing and production, construction and cement, timber, water treatment, resource development and management, electronics, and mineral processing industries such as aluminium and steel production. As sustainable practices become increasingly critical, chemical and materials engineers will also be required to re-evaluate and re-design many of the fundamental products and processes that these industries are built on.

➔ **Find out more:** [auckland.ac.nz/chemmat](http://auckland.ac.nz/chemmat)



*“After my first year, I loved being in the lab and developing my knowledge of chemistry and physics. The idea of turning theories and molecules into tangible wonders or solutions sparked my curiosity. I get excited from every little discovery taught in the lab.”*

*“I would describe the support I received from SPIES, the South Pacific Indigenous Engineering Students network, as energetic, kind, and heartfelt. The encouragement from my peers and members of SPIES provides a safe and social space to learn and interact with others. It is an excellent way to build confidence and make lifelong friends.”*

*“I participated in the University’s interfaculty Great Waka Ama Race as an Engineering Eagles team member. We came first, so we got to travel to Hawaii to represent the University at the Queen Lili’uokalani Canoe Race. Being out on the water is refreshing, taking in the sea breeze and connecting to my roots. My ancestors were voyagers, and I could feel their presence guiding me. I will save those memories and keep them close to me. Taking these opportunities and having more experiences are what makes life so colourful.”*

*“Studying a Bachelor of Engineering (Honours)/ Bachelor of Laws conjoint programme, the experience is insightful from the interpretations, the experimentations, and the hard work put into both degrees.”*

*“Once I graduate, the plan is to return back home to the Cook Islands and use the knowledge and abilities I’ve gained to help develop the country further, and positively impact their sustainability and environment.”*

## Meilani Karika

**Student: Bachelor of Engineering (Honours) in Chemical and Materials Engineering/Bachelor of Laws conjoint**

*“In my first year of engineering, I was unsure of which specialisation to select, I felt overwhelmed with choice! But eventually, I chose Civil Engineering because it is a jack of all trades. It includes the water sector, civil infrastructure, transport, environmental and geotechnical. I like that Civil Engineering is broad and there’s so much to explore.*”

*“The best thing about the student life here at the University of Auckland is meeting new people – not just from my Civil Engineering specialisation, but from all over campus. It’s so exciting to share our love for engineering.*”

*The support I’ve received while studying here has been 10/10, especially in first year which was quite a daunting experience. Making the transition from high school to university life, I remember there were peer mentors available five days a week. That was so helpful.*

*“I remember as a Year 13 student I went to all of the University information events available. The Engineering Info Evening was my first trip to the Engineering grounds. It was really exciting seeing a lecture theatre and just the whole space. I was quite overwhelmed but I’m so glad I went. It was a great experience.”*

## **Bhanu Raveenthiran**

**Student: Bachelor of Engineering (Honours) in Civil Engineering**

## Pūhanga Metarahi Civil Engineering

Civil engineers shape the world that we live in, thereby making modern life possible. They work on the planning, design, construction and maintenance of infrastructure. That includes transportation networks, coastal protection, water and wastewater systems, tunnels and dams. The breadth of civil engineering means that you will study transportation, geotechnical, hydraulic and environmental engineering, as well as construction and project management. You will also gain a solid underpinning in structural design, although students who want to focus in this area should choose the structural engineering specialisation. Civil engineers are increasingly being tasked with the development of environmentally sustainable and resilient solutions to our infrastructure challenges, in response to population growth, climate change and natural disasters.

### Career opportunities

The demand for civil and environmental engineers will soon exceed supply. As cities continue to grow, ageing infrastructure must be replaced and the need to rectify human harm to the environment becomes critical. You will find opportunities in state-owned enterprises, in regional and district councils and in the private sector as an engineering contractor or consultant. A number of our graduates have progressed into the top echelons of business organisations around the world.

 **Find out more:** [auckland.ac.nz/cee](https://auckland.ac.nz/cee)







## Pūhanga Rangaranga Structural Engineering

Structural engineers are essential to our built environment, applying principles of mechanics and materials to create structures that can withstand a range of loading conditions. They work on the design, analysis, construction and maintenance of residential, industrial and commercial buildings, bridges, and other civil infrastructure. Structural engineers also have a solid underpinning in geotechnical engineering and other civil engineering disciplines, which facilitates collaborative work. Their technical knowledge enables them to design our built environment to resist the forces of nature, including earthquakes. As many parts of the world are increasingly susceptible to natural disasters, the structural engineering profession is especially important to the safety and resilience of people and communities.

### Career opportunities

A major benefit of Structural Engineering is the direct link between your study and future employment. We live in a time of rapid population growth, ageing infrastructure, and changing climatic, technical, and economic conditions. These factors increase demand for skilled structural engineers both within Aotearoa and abroad. Structural engineers are notable specialists of the civil engineering field, and can find work opportunities in both the public and private sectors.

➔ **Find out more:** [auckland.ac.nz/cee](https://auckland.ac.nz/cee)

*“Structural Engineering involves hands-on work. I’ll get to design and witness my creations being built, which will bring me pride and a deep sense of satisfaction.*”

*“I’m 29 - so a bit older than everybody else in my cohort. I was studying engineering back home in Brazil. I came to New Zealand and decided to continue my undergraduate studies at the University of Auckland after gaining some work experience and receiving my residency. One of the main reasons I chose to study here is because the BE(Hons) programme has the Washington Accord recognition, which is outstanding when compared to other universities.*”

*“Structural Engineering serves society as a whole. Everyone needs structures, everyone needs water, everyone needs roading. These things are essential in every country, and this aligns with my aspirations to do humanitarian work. With Structural Engineering, I know I have broad opportunities. Also I really enjoy the fact that it’s both creative and technical.*”

*“I took part in the Dean’s Leadership Programme (DLP). It was great to have that recognition from the University and to know that they saw I had potential to be a leader. The most important takeaway was that leadership centres around people. It’s not merely about task completion but involves understanding the team and oneself to effectively manage tasks and address various situations.”*

## Douglas Nadys Goncalves

**Student: Bachelor of Engineering (Honours)  
in Structural Engineering**

*“I really enjoyed my Part IV Research Project. It involved using analytics, optimisation, and data to model the borrowing of Te Reo Māori words into English, which is something I didn’t think you would even be able to do with an Engineering degree.”*

*“Engineering Science stood out to me because it wasn’t confined to one area or industry. The elective courses allow you to tailor the programme to your interests. I was particularly interested in technology and the data analysis side of Engineering Science.*

*“This year I’m the Vice President of SPIES, the South Pacific Indigenous Engineering Students network. Our events aim to support students culturally, academically, and socially. My favourite part of my role is being in a position of influence and creating events that nurture these areas. It’s been an incredibly rewarding role that has helped me gain leadership experience and develop professionally.*

*“Through my internship with Tetra Tech Coffey, I worked in the Environmental and Social Advisory team, primarily on Environmental and Social Impact Assessments and Environmental and Social Management Plans for various projects around the world. I loved the range of projects and being able to learn about the different environmental and social impacts that must be considered, as well as the different measures to manage these.*

*“I’d like to make a positive impact on communities through my career and prioritise sustainability and environmental concerns. I hope to include more of the technical skills that I’ve developed, and learn new software and programs used in the industry.”*

## **Grace Little**

**Ngāti Kahungunu, Rongomaiwahine and Nukunonu, Tokelau**  
**Student: Bachelor of Engineering (Honours) in Engineering Science**



## Pūtaiao Pūhanga Engineering Science

Engineering scientists are problem solvers committed to the science of “better”. They use their intellect and advanced mathematical skills to design ways to optimise and improve systems. How can a forest be managed to make a profit while still remaining environmentally friendly? How can a sail be designed to work in low wind conditions? What prices should be charged for airline tickets to maximise the revenue from a given flight? These are the kind of questions engineering scientists are tasked with solving.

### Career opportunities

The diverse range of options available throughout your degree will directly contribute to your professional versatility. You might end up developing software, modelling production processes for a large manufacturer, or perhaps take up a management position with a bank. Our graduates can be found in leading New Zealand companies like Fonterra, Air New Zealand, and Meridian Energy, in government organisations including NIWA and Transpower and in consultancy firms such as Beca and AECOM.

 **Find out more:** [auckland.ac.nz/esb](https://auckland.ac.nz/esb)

# Pūhanga Koiora Rongoā

## Biomedical Engineering

Biomedical engineers combine engineering, medicine and biology to resolve challenges in the healthcare industry. They respond to problems, and design solutions for more effective medical treatment and quicker recovery. Biomedical Engineering is a rapidly diversifying field, and as the role of technology in healthcare becomes more prominent, biomedical engineers find themselves at the forefront of real-world, life-changing progress.

### Career opportunities

Biomedical engineers often gain employment in the medical, healthcare and biotechnology sectors, research facilities, hospitals and government regulatory agencies. They design medical devices, prostheses and implants, develop drugs and drug delivery systems, improve sports and injury assessment, and work in medical IT. As some of the most versatile professionals in the field, biomedical engineers can also be found in fields like software development, electronics, consulting, financial modelling, and the food, meat and wool industries.

➔ **Find out more:** [auckland.ac.nz/esb](http://auckland.ac.nz/esb)



*“I was originally based in Wellington, but I wanted to go somewhere new. I wanted to enjoy a bigger city, and the University of Auckland has so many options available it felt like a natural choice to pick Auckland.”*

*“My favourite project was my Part IV Research Project, which was computationally modelling cardiac cells. I was trying to investigate certain channels that may or may not contribute to heart failure and create a clinical link between them.”*

*“I really enjoy the balance between everything here; the labs, the lectures, socialising, and other interactions. I enjoy the community that we have in Engineering, it's so big. You have so many options to find your passion and you have a lot of support behind you to help you do what you want and do it well.”*

*“One of my favourite things we did was called Systems Week. It's a one-week event where our regular classes are postponed, and we instead work with 35 different students from other specialisations to tackle a nationwide problem. I really enjoyed talking to everyone from all the different specialisations, getting to know one another, and working together to solve a complicated real-world problem.”*

*“I attended Mānawa Mai | Open Day in Year 13 and learnt about Biomedical Engineering. The people there were really helpful. They introduced me to this new area of study, and it really interested me. I went through pre-med initially, however I missed the physics and maths aspect. When I realised I could transfer straight into second year Biomedical Engineering, I took the opportunity through Summer School and haven't looked back since.”*

## Alexander Yan

**Student: Bachelor of Engineering (Honours) in Biomedical Engineering**

## Pūnaha Rorohiko

# Computer Systems Engineering

Computer Systems Engineering is needed in almost every industry across the world. It constitutes the core of the controllers and components of wireless communication systems, home automation systems, appliances, automobiles, factory processes, mechatronics, instrumentation, embedded systems and nano-systems. Computer Systems Engineering is a crucial discipline that pushes us to solve practical engineering problems with computer-based approaches, often by embedding a computer system into a complex operation that can sense, problem-solve and act in the real world.

### Career opportunities

As innovative design and product development continue at pace, so does the demand for qualified engineers. As a graduate, you will find opportunities in multinational computer companies, consultancy firms, the telecommunications industry and in the research and development teams of companies in a multitude of sectors. You might extend your Part IV research project, develop a new technology and form your own start-up company.

➔ **Find out more:** [auckland.ac.nz/ecse](http://auckland.ac.nz/ecse)

*“I chose Computer Systems because I enjoy both software and hardware, and this specialisation captures them perfectly. There’s a lot of space within the specialisation. I found it very freeing. You get to tackle something new every day, and it’s always exciting to solve a new problem in various ways.*”

*“I attended the Engineering Info Evening. It was a really informative event that allowed me to see different perspectives of engineering life at the University, including both academia and student lifestyle. Hearing about various experiences in social clubs from current students was insightful. I definitely recommend attending these events.*”

*“I’m also a part of the Engineering Revue. It’s a stage show entirely run by engineers! The actors, the dancers, the band, even the people backstage and the tech crew too. It’s a group of engineering students that bring a friendly, welcoming atmosphere, have a good time and put on an amazing show for the people.*”

*“It may sound daunting to give Engineering a go. There’s a misconception that engineering is really difficult, but the same could be said for any degree. If you are interested in making peoples’ lives better, have a knack for solving problems, or you’re just keen to see what engineering is about, look into it further - because it is a rewarding degree you won’t regret.”*

## Rishi Shukla

**Student: Bachelor of Engineering (Honours)  
in Computer Systems Engineering**





## Pūhanga Hiko me te Tāhiko Electrical and Electronic Engineering

Modern society is highly dependent on reliable power, communications and electronic systems. Electrical and electronic engineers design the equipment and systems that provide these essential services. The discipline encompasses a range of exciting and diverse fields, from heavy electrical power generation, to sophisticated medical electronics, computer modelling, electromagnetics, information technology and the global telecommunications network. We will have electrical and electronic engineers to thank when new forms of green electricity are developed and electric vehicles replace our fossil-fuel-powered fleet.

### Career opportunities

This engineering discipline changes so rapidly that it may be difficult to envision the types of technology you will be working on by the time you graduate – they may not even be invented yet! Today, our graduates are employed in roles relating to communications, wireless computing technologies, electronics, instrumentation, power electronics and motor-control. Opportunities also exist in processing industries such as timber, pulp and paper, steel, aluminium, meat and dairy.

➔ **Find out more:** [auckland.ac.nz/ecse](https://auckland.ac.nz/ecse)

*“Electrical and Electronic Engineering encourages curiosity and creativity in exploring technological findings. In the courses, your passion for understanding how things work and all things technology bring you on an exciting journey. Solving problems and puzzles is applied to real-life situations and you can potentially change the future with your innovations.”*

*“Studying Engineering at the University of Auckland, in the ‘City of Sails’, has presented a myriad of exciting opportunities and adventures.”*

*“ELECTENG 310 is the first design course in our third year. I learned essential skills such as working in a team and building on my technical skills. The project allows you to design for a client with some freedom in design choices along with client specifications. This course is where theory starts becoming real-life. You begin to see and understand that there’s so much more than just what’s on paper.”*

*“The Women in Engineering Network has been a huge support and really helped me cope with the transition from high school to university. There are a lot of exciting, fun events to participate in, such as painting evenings, lunches, volunteering outreach programmes and MET gala dinner. There are also plenty of career-development opportunities, which include speed networking, internship meet and greets, and guidance through each year.”*

*“After I complete my degree, my career goals include using my skill set and passion for a clean environment to progress renewable energy sources and improve energy storage efficiency.”*

## Soleil de Bruto

**Student: Bachelor of Engineering (Honours)  
in Electrical and Electronic Engineering**

## Pūhanga Pūmanawa Software Engineering

Software Engineering is behind many of the things we now take for granted – internet banking, online shopping and mobile payments. It is the apps on your smart phone, the games on your computer and the cloud storage you depend on to back up your devices. This area of engineering is being propelled by widespread demand for faultless software support. The creative possibilities can stretch as far as your imagination!

### Career opportunities

Software engineers are emerging as the newest generation of IT workforce leaders as government agencies, businesses and individuals increasingly rely on cloud-based solutions. As a graduate, you could end up in virtually any company and manage their information storage and sharing technologies. You might choose to join a dedicated software consultancy firm, or work your way up to management. Or you might extend your Part IV project into postgraduate research, and use that to kick-start your very own start-up company.

➔ **Find out more:** [auckland.ac.nz/ecse](http://auckland.ac.nz/ecse)

*“The job stability was something that attracted me. Out of all the Engineering specialisations, software was the one that stood out to me the most because I found that there’s so much variety in the work that you can do. I really enjoyed the first-year courses and from there I got to know about the different areas of tech. I always knew I wanted to be in the tech sector, and what better specialisation to choose than Software Engineering.”*

*“I started studying Engineering because I always knew that I wanted to do something a bit technical. Growing up, I enjoyed maths and science. But I also wanted something that wasn’t purely theory. I wanted to actually apply my learning, and Software Engineering is where technical knowledge is applied, it’s a form of problem solving for technology.”*

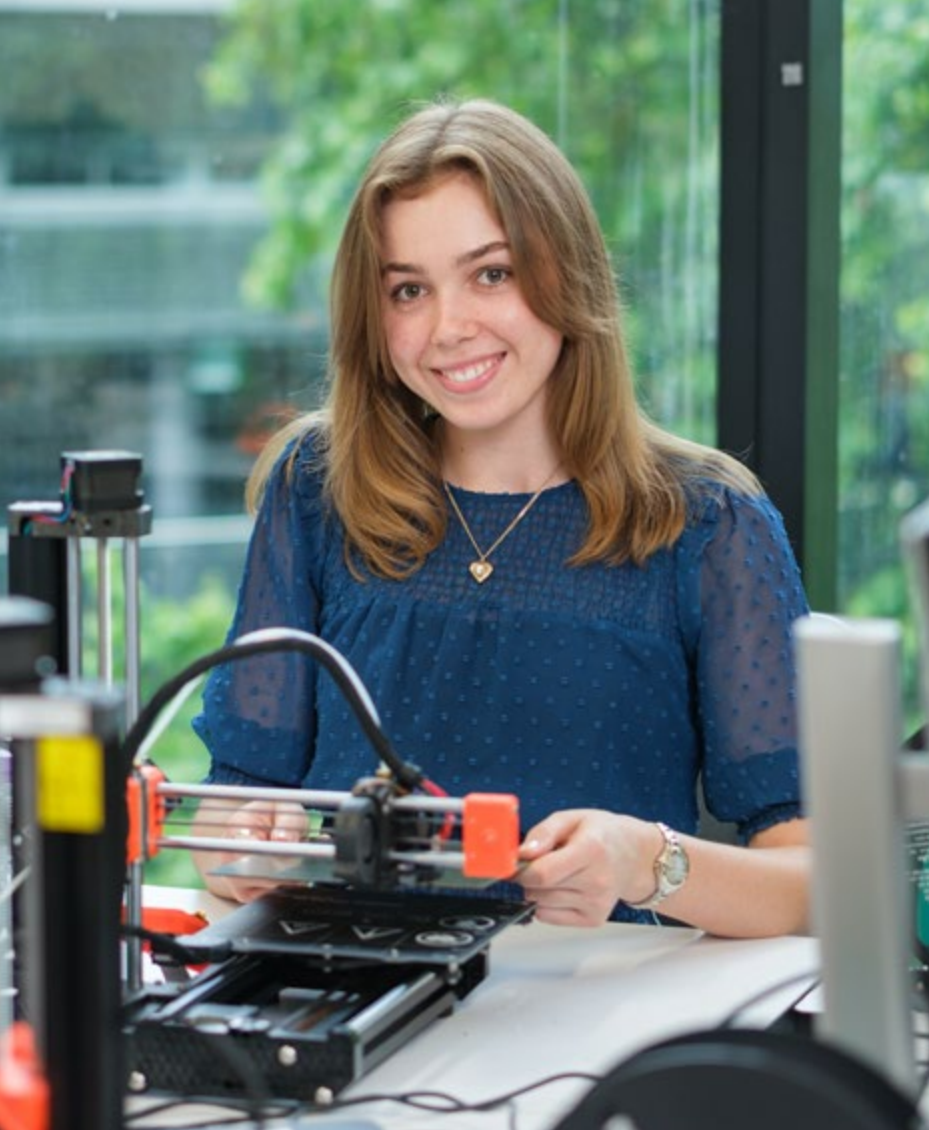
*“I went to a Women in Engineering event - Enginuity Day, when I was in high school. We got to walk around the University, and I thought it was quite interesting as well as the activities we did. The facilities were really cool. Being able to walk around before actually being in the university was great because I could envision myself studying here.”*

*“I’m also part of the Software Engineering Student Association, where I was Secretary this year. It’s where we help out Software Engineering students navigate their way around the industry, through essential skills they might need, social events, and overall building of a community.”*

## Kyla Lee

**Student: Bachelor of Engineering  
(Honours) in Software Engineering**





*“In Year 13 I went to Enginuity Day, which is run by the Women in Engineering Network. That was when I saw where I could go with my high school physics and calculus classes. Getting to see and experience what students do helped solidify engineering as my place to be.”*

*“I grew up in Auckland, so it was nice to have the support of my family and friends, and some familiarity as I branched out on this new chapter. It’s been really nice getting to see another part of town and be a part of this community here in the city.”*

*“I love the design focus and creative freedom Mechanical Engineering offers. I’ve always liked to understand how tangible systems move and work.”*

*“As Mechanical Engineering students, we do a lot of physical design projects in groups, which I think is good because in industry you’re always working in teams. It’s interesting to hear other people’s perspectives, and to collaborate so that we come up with the best possible solution to a problem.”*

*“I joined the Women in Engineering Network’s executive committee as a leader for the Part I team. I love being able to back to the community and the faculty by welcoming our first-year students into university life - and I always enjoy their passion, energy, and open minds.”*

*“If you’re curious about the world in general, then engineering will give you the answers you’re looking for. Once you’re able to understand how maths and science fit into what you see and experience around you, life becomes all the more fascinating!”*

## **Olivia Gordon**

**Student: Bachelor of Engineering (Honours) in Mechanical Engineering**

## Pūhanga Pūrere Mechanical Engineering

Mechanical engineers design and produce devices like robots, wind turbines and rockets. Their work ranges from the small to the big: from nanotechnologies to the large-scale industrial machinery in paper mills and car assembly plants. Mechanical engineers also deal with thermodynamics and fluid dynamics, and they understand how to use energy efficiently in processes. Amongst other projects, they use these skills to design heating systems for hospitals and cooling solutions for refrigeration plants, and to make sure aircraft and yachts move efficiently.

### Career opportunities

As a graduate, you might pursue opportunities in the manufacturing or transport industries, or in large-scale plants that produce things like wood pulp, dairy products, meat, steel, petroleum and electricity. Many of our graduates enjoy the variety involved in consultative engineering, where they are commissioned by companies to plan, design and implement a range of projects, which are often confined by challenging and industry-specific parameters.

➔ **Find out more:** [auckland.ac.nz/mech](http://auckland.ac.nz/mech)

## Pūhanga Pūrere Tāhiko Mechatronics Engineering

Mechatronics engineers use specialist knowledge in mechanics, electronics and computer systems to design and develop automated systems. These can include technologies like chassis-stabilising systems, anti-lock brakes, engine control units, disk drives, service and surgical robots, cameras and medical devices. These systems are all largely mechanical in nature, but could not function without their electronic and computer control system components. As 'jacks of all trades', mechatronics engineers are often generalists rather than specialists, with a versatility that is highly valued in the workforce.

### Career opportunities

This specialisation aligns with the modern world's desire for a high-tech, knowledge-based economy. As society moves toward 'smart homes', cities and grids, mechatronics engineers will be in high demand. Our graduates can be found in a wide range of jobs that involve the design and improvement of high-tech products, such as home appliances, medical devices, machine tools, and processes related to precision agriculture and remote sensing.

➔ **Find out more:** [auckland.ac.nz/mech](http://auckland.ac.nz/mech)

*"I was excited about the idea of being a part of the robotics and automation evolution, positioning me at the forefront of the developing technological world. My degree in Mechatronics Engineering at the University of Auckland really helps me to realise my ambition to achieve that. I hope to actively contribute to high-impact projects that can make a positive difference.*

*"When I left high school, I was very close to pursuing a degree in medicine given that both of my parents were involved in this field. I ended up choosing engineering with the ambition to combine medicine and engineering through the likes of intelligent and robotic prosthetics. I have always enjoyed understanding how things work, tinkering, and dismantling and reassembling items, especially with technology evolving so fast.*

*"Being at university is the perfect time to explore all your options and get a taste for everything. Within my degree I've done process engineering, product development, engineering project management and more. I have loved Mechatronics Engineering as it's such a broad degree that encompasses so many aspects. It allows you to end up anywhere. I'm not sure where I'll end up and that's exciting.*

*"I would recommend halls of residence to anyone, especially in first year - it's the best start to your university life. You meet so many people and you make friends for life there. Throughout my degree I've made close friends that have continued to push me to study, keep active, and achieve highly; it's been a close support network. We've all worked collaboratively to motivate and encourage each other."*

**J.D. Rosset**

**Student: Bachelor of Engineering (Honours)  
in Mechatronics Engineering**





# Enabling your success

Our dedicated support services complement our culture of academic excellence. These services help create an environment in which our engineers feel welcome and inspired.

## Modern learning environments

Our newest Engineering building is located at the heart of Auckland, on our University's City Campus. It has many tailor-made spaces, including over 50 specialist research laboratories across 11 floors to encourage multi-disciplinary teaching and learning.

## International recognition

Our ten Engineering specialisations are accredited by Engineering New Zealand, a regulatory professional body and signatory to the Washington Accord.

An Engineering New Zealand accreditation is a recognised qualification in many countries.

## Combine your degrees

You can complete an Engineering degree alongside another specialist qualification from another faculty by pursuing a conjoint degree. Explore possible conjoint options that complement your degree.

[auckland.ac.nz/conjoints-by-faculty](http://auckland.ac.nz/conjoints-by-faculty)

## Innovation and entrepreneurship

We are ranked as the most innovative university in New Zealand\*, and we are committed to building a culture of innovation and entrepreneurship, with high levels of connectivity between researchers and businesses.

Outside of study, Engineering students have found success in initiatives such as Velocity, our University's entrepreneurial programme, and the Auckland Programme for Space Systems, a satellite mission programme open to undergraduate students. It is a part of our faculty's mission to enrich Aotearoa New Zealand's space industry.

## Women in Engineering

We have one of the highest participation rates of women in tertiary-level engineering across New Zealand and Australia. We strive to inspire and empower women to achieve their aspirations in engineering.

## Practical experience

You'll gain relevant experience in the workplace alongside industry professionals, as you carry out the 800 hours' practical work required over the course of your degree.

## Strong career and employment outcomes

The University of Auckland is the leading university in the country for reputation, making our graduates highly sought-after by industry employers. With the highest employability rate in New Zealand\*\* we can assure you that opportunity is around every corner.

## Research excellence

We have the most top-rated researchers, and the highest level of research income of any university in New Zealand. This equips us with the best knowledge our country can offer.

You'll have access to well-established facilities such as QuakeCoRE, Civil Structures Testing Lab, the Boundary Layer Wind Tunnel, Centre for Automation & Robotic Engineering Science and more. We also have a strong network with various other research centres around the University, including the renowned Auckland Bioengineering Institute.

This opens up opportunities, especially if you're already thinking ahead to a future in research or postgraduate study.

## Competitive admission

We have a guaranteed entry scheme for high-performing secondary school students, so you'll be studying alongside the best. Limited places are also available under our Targeted Admission Schemes for eligible students.

## Unique specialisations

We are the only university in New Zealand to offer undergraduate specialisations in Engineering Science, Biomedical Engineering, and the combination of Chemical and Materials Engineering.

\* Times Higher Education Impact Rankings 2023

\*\* QS Graduate Employability Rankings 2022



**New Zealand's  
most innovative  
university\***

**Find out more**  
[auckland.ac.nz/engineering](http://auckland.ac.nz/engineering)

# Student life

University is both a challenging and exciting experience. At the Faculty of Engineering, we're dedicated to providing strong academic support, as well as a variety of events year-round. Through our wide array of student clubs and associations, we're proud to nurture networks that foster diversity amongst our students. Our goal is a supportive and inclusive environment for all.

## Part I Assistance Centre

First-year students can receive weekly academic assistance from high-achieving student guides during both Semesters One and Two. These mentors are trained and supported by our course coordinators throughout the semester.

## In-house support

The Student Engagement and Development team supports you academically, personally and professionally. They are there from Orientation through to employment, providing academic help and links to key support services. These include health and counselling, Career Development and Employability Services and academic help.

[foe-engagement@auckland.ac.nz](mailto:foe-engagement@auckland.ac.nz)

## Tuākana Tutorial Programme

The Faculty of Engineering employs high-achieving Part II and Part III students to provide targeted tutorials in all core Part I Engineering courses. Academic support programmes are also provided for Māori and Pacific Engineering students.

## Clubs and associations

We ensure that you have the spaces and opportunities to make new friends and enjoy the vibrant culture of student life.

You may choose to join specific groups, such as the Women in Engineering Network (WEN), the South Pacific Indigenous Engineering Students Network (SPIES) and the Rainbow Engineering Network.

There are also lots of clubs for varying areas of interest, including the Engineering Revue, the University of Auckland Formula SAE Team and Engineers Without Borders.

## International students

We welcome applications from international students. If you seek admission to Part I of the BE(Hons) and have New Zealand secondary school qualifications, you will require the same guaranteed entry score as domestic students.

If you apply for admission based on an overseas secondary school qualification, you must meet admission, programme and undergraduate English language requirements.

[auckland.ac.nz/prioroverseasschoolstudy](https://auckland.ac.nz/prioroverseasschoolstudy)

## Scholarships

More than 40 Engineering undergraduate scholarships ranging from \$1,000 to \$7,500 have been graciously established by individuals, societies, businesses and industry bodies.

A full list of undergraduate scholarships and awards is available online.

[auckland.ac.nz/foe-scholarships](https://auckland.ac.nz/foe-scholarships)

## Student Hubs

The Student Hubs are your physical gateway to Waipapa Taumata Rau, providing welcoming and friendly support to help you navigate potential study options, groups, clubs, university services and more.

Our specialised hub staff are available seven days a week, across all our campuses in Auckland, to answer any questions you may have about your study options and the application process.

Once you are enrolled and part of the University whānau, the Student Hubs will be your access point for general information, mana-enhancing learning support, and programme and course advice, as you progress through your studies and prepare for your exciting next step.

[auckland.ac.nz/student-hubs](https://auckland.ac.nz/student-hubs)



Over 15 fun engineering-specific events in 2024!

→ Find out more:  
[auckland.ac.nz/engineering/events](https://auckland.ac.nz/engineering/events)

# Joining us

## University Entrance Standard

To apply for admission based on secondary school qualifications, you need to meet the University Entrance Standard established by Universities New Zealand. [auckland.ac.nz/entry-requirements](https://www.auckland.ac.nz/entry-requirements)

## Programme requirements

As well as achieving University Entrance, you must also meet entry requirements for the BE(Hons) programme.

Guaranteed entry requirements			
Programme	NCEA (Level 3)	CIE	IB
<b>Bachelor of Engineering (Honours)</b>	260 with 17 external Level 3 credits in Calculus and 16 external Level 3 credits in Physics	310 with Mathematics and Physics at A levels*	33 with Mathematics and Physics at HL level*
<b>Bachelor of Engineering (Honours) conjoins</b>	275 with 17 external Level 3 credits in Calculus and 16 external Level 3 credits in Physics	330 with Mathematics and Physics at A levels*	36 with Mathematics and Physics at HL level*

\*The following may be accepted based on grade achieved: AS Mathematics and Physics for CIE students, and SL Physics and SL Mathematics: Analysis and Approaches for IB students.

## Calculating your rank score

### National Certificate of Educational Achievement (NCEA) Level 3

Your rank score is based on your best 80 credits at Level 3 over a maximum of five approved subjects. These credits are then weighted according to the level of achievement in each set of credits: Excellence (4 points), Merit (3 points) or Achieved (2 points).

A maximum of 24 credits are counted for each approved subject. The maximum rank score is 320. If you achieve fewer than 80 credits, the rank score will be based on your total Level 3 credits gained over a maximum of five approved subjects and weighted by the level of achievement.

Credits obtained in required subjects do not have to be among the best 80 credits used to calculate the rank score. NCEA Level 3 credits achieved before Year 13 can count towards the 80 best credits used for ranking.

Those who completed Year 13 Calculus and Physics but did not meet the rank score may still be considered.

### University of Cambridge International Examinations (CIE)

Your rank score is based on the UCAS Tariff score for up to six subject units at AS level (one subject unit) or A level (two subject units). A maximum of two subject units can be included from any one syllabus group in the table of available syllabus groups, which are broadly equivalent to those in the list of approved subjects for NCEA. If you have completed more than six subject units, the best six scores will be used. Thinking Skills and the General Paper will be excluded from the rank score calculation. The maximum rank score is 420. The following points are awarded for each syllabus group.

### International Baccalaureate (IB)

Level	A*	A	B	C	D	E
A	140 points	120 points	100 points	80 points	60 points	40 points
AS	-	60 points	50 points	40 points	30 points	20 points

Your rank score is the same as your IB score. For example, if you achieve 27 points for IB, your rank score will be 27 points. The maximum rank score is 45.

## Prior tertiary study

To transfer from another tertiary institution you must meet admissions, programme and English language requirements.

[auckland.ac.nz/priortertiarystudy](https://www.auckland.ac.nz/priortertiarystudy)

## Academic English Language Requirement (AELR)

The AELR aims to ensure you have a sufficient level of competence in academic English to support your study at University. It will not affect whether you are offered a place on a programme, and may be met through your entry qualification or satisfactory completion of an approved course in your first year of study. [auckland.ac.nz/aelr](https://www.auckland.ac.nz/aelr)

## Alternative pathways into Engineering

If you do not have the appropriate secondary school qualification, subjects and/or rank score, there are a number of alternative pathways for gaining admission. [auckland.ac.nz/foe-entry-pathways](https://www.auckland.ac.nz/foe-entry-pathways)

## Targeted Admission Schemes

The Faculty of Engineering is committed to equity and offers admission schemes for eligible Māori and Pacific students, students with disabilities, students from refugee backgrounds and students from constrained economic backgrounds. Places are limited. Applicants must have met the University Entry Standard and studied Physics and Mathematics (including Calculus).

## Māori and Pacific Targeted Entry Scheme (MAPTES)

All eligible Māori and Pacific students may apply under MAPTES. Places will be allocated according to academic performance. We recommend that you apply for MAPTES even if you don't think you will have the grades to get in. Entry via MAPTES gives you access to Tuākana, our academic and mentoring support programme. See [auckland.ac.nz/foe-maptes](https://www.auckland.ac.nz/foe-maptes)

## Apply and enrol

### Application closing dates for 2025

BE(Hons) Semester One entry	8 December 2024
BE(Hons) Semester Two entry	4 July 2025

For a guide to applications, admission, enrolment and how to get started on the process, visit [auckland.ac.nz/apply](https://www.auckland.ac.nz/apply)

Admission decisions are made within four weeks from receipt of the required documents. Delays may occur for future semester intakes and during peak admission periods (September to January and May to July).

Once you've accepted an offer of place in a programme, you can enrol in your courses. If you need some help with the enrolment process, go to [auckland.ac.nz/enrolment](https://www.auckland.ac.nz/enrolment)

You can also find out more about the courses in your engineering degree at [auckland.ac.nz/foe-ug-enrolment](https://www.auckland.ac.nz/foe-ug-enrolment)

Next, you need to make sure to pay your fees! You'll find all the details at [auckland.ac.nz/fees](https://www.auckland.ac.nz/fees)

If you feel stuck at any point in the process, you can find answers to your questions at [askauckland.ac.nz](https://www.askauckland.ac.nz)

There's also someone who can help during business hours at **0800 61 62 63** or you can email [studentinfo@auckland.ac.nz](mailto:studentinfo@auckland.ac.nz)

Some late applications may be accepted after 2024 school results are received. We encourage you to apply for all programmes that you might wish to study before the published closing date. Multiple applications are acceptable and all applications will be considered when 2024 results are available.

If you're not offered a place in the programme(s) of your choice, you'll receive an email with alternative options. A final offer of place generally depends on two things: your admission to the University (for school leavers, this may depend on your final results) and your assessment by the relevant faculty.



For personal assistance, please visit us at your local Student Hub, where students and whānau are welcome to talk with our expert advisers:

**City Campus**

General Library, Building 109,  
5 Alfred Street, Auckland

**Grafton Campus**

Philson Library, Building 503,  
Level 1, 85 Park Rd, Grafton  
(Entry via the Atrium)

**South Auckland Campus**

**Te Papa Ako o Tai Tonga**  
6 Osterley Way, Manukau

**Whangārei Campus**

**Te Papa Ako o Tai Tokerau**  
L Block, 13 Alexander Street, Whangarei

**Email us:** [studentinfo@auckland.ac.nz](mailto:studentinfo@auckland.ac.nz)

**Phone:** 0800 61 62 63

**Web:** [auckland.ac.nz](http://auckland.ac.nz)

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[auckland.ac.nz/engineering](http://auckland.ac.nz/engineering)