



THE UNIVERSITY OF
AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

Engineering

Undergraduate Prospectus 2018



ACHIEVE THE
AMAZING

Welcome to the Faculty of Engineering

Why study with us?	3
What can you study?	4
Choose your specialisation	5
How do you get in?	14
It's time to apply	15

Welcome to the Faculty of Engineering

As an engineer, you will be at the forefront of innovation in New Zealand and worldwide. At New Zealand's leading engineering faculty*, you will be surrounded by people who share your passion, and have the opportunity to learn from world leaders in their fields.



During your undergraduate degree, you will be introduced to cutting-edge engineering technologies across our nine specialisations. These all deliver unique opportunities to shape and design future research and commercial outcomes in a vast variety of environments.

With our brand new Building 405 set to open in 2019, you will be amongst the first to experience the new technologies, spacious student areas, and multi-disciplinary learning spaces that have been created to provide you with the best possible environment to promote success.

A degree in Engineering can offer you unparalleled opportunities to make positive change in the world. With the skills learned throughout your degree, the opportunity to create solutions to global problems is at your fingertips.

On behalf of the faculty, I invite you to take the challenge and join us.

A handwritten signature in black ink that reads "Nic Smith".

PROFESSOR NIC SMITH
Dean of Engineering
The University of Auckland

*QS World University Rankings by Faculty, 2016/2017

ACHIEVE THE
AMAZING

Why study with us?

A degree from the University of Auckland's Faculty of Engineering will give you the skills to shape our world. Engineers contribute to the health of our nations, the growth of our economy and the future of our cities.

Leading the way

You'll be studying at New Zealand's leading engineering faculty*. We also host an extensive engineering library collection, offering you access to a huge array of resources.

International recognition

All University of Auckland BE(Hons) specialisations are accredited by the Institution of Professional Engineers New Zealand (IPENZ), a signatory to the Washington Accord. IPENZ accreditation makes your degree a recognised qualification in many overseas countries.

Innovation and entrepreneurship

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

Based at the University's Business School, Velocity is New Zealand's leading entrepreneurial development programme. This initiative is open to all University of Auckland students, and has supported over 110 ventures, raised \$220 million of capital and created over 400 jobs since its launch in 2003.

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.

Exclusive specialisations

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

World-class facilities

You'll have access to leading research, equipment and study facilities including the renowned Auckland Bioengineering Institute, a specialised NanoIndenter machine, the Twisted Flow Wind Tunnel and more.

Combine your degrees

You can combine specialist fields across two faculties by taking a conjoint degree, such as Engineering with Commerce or Law.

Women in Engineering

Women are highly represented in our undergraduate student body, making up around 25% of students – one of the highest

participation rates of females in tertiary-level engineering across Australia and New Zealand.

Practical experience

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

First-class research

We have the largest number of top-rated researchers and the highest level of research income of any university in New Zealand. You'll have access to our leading research institutes, including the Centre for Advanced Composite Materials and the Centre for Healthcare Robotics.

Strong career and employment outcomes

The University of Auckland has a QS 5 Star PLUS rating for excellence in eight categories, including employability***. We are the leading university in New Zealand for graduate employability****.

*QS World University Rankings by Faculty, 2016/2017

** Reuters Top 75: A list of Asia's most innovative universities 2016

*** QS Stars University Ratings 2016/2017

****Times Higher Education Global University Employability Ranking 2016

Student life

University can be both a challenging and exciting experience. The Faculty of Engineering is dedicated to providing a relaxed and supportive atmosphere for our students, so academic and pastoral support is always available. Events are held throughout the year and there are many student groups, clubs and associations to get involved with.

Part I Assistance Centre

Part I students can receive academic assistance from high-achieving Part II and III students every teaching week during Semesters One and Two. These mentors are trained and maintain close contact throughout the semester with the course coordinators for all Part I courses. This service is also provided at O'Rorke Hall for Engineering students who are living there.

Student Engagement team

The Student Engagement team supports you academically, personally and professionally.

They are there from Orientation through to employment, and provide academic help, pastoral services and links to key support services. These include health and counselling, Career Development and Employability Services and academic help. For more information, email 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

Our faculty has a vibrant student culture. Beyond studying, we ensure that you have the safe spaces and opportunities to make new friends and enjoy 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. Alternatively,

there are plenty of clubs for different areas of interest, including the Engineering Revue, the University of Auckland Formula SAE Team, Engineers Without Borders and more.

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. See www.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. For a full list of undergraduate scholarships and awards, visit www.engineering.auckland.ac.nz/scholarships

What can you study?

Bachelor of Engineering (Honours)

Full-time: 4 years

Points per degree: 480

Taught at: City Campus

Application closing date: 8 December 2017

Classes start: 26 February 2018 and 16 July 2018

The BE (Hons) degree at the University of Auckland is a four-year programme that can lead to Chartered Professional Engineer status 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 exposure to each of our nine engineering 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 nine different specialisations, each with a limited number of places. 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. All students 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, allowing 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 (6 years with LLB)

Points for BE(Hons): 405 points

Points for other degree: 270 points (255 points for Property and Music, 390 points for LLB, 450 for LLB Hons)

Conjoint combinations: Arts, Commerce, Law, Music*, Property, Science

Conjoint programmes enable you to complete a BE(Hons) and another degree more quickly than if you were to complete 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. They can be structured in several ways, and planning your timetable can be complex. Before you apply, see www.auckland.ac.nz/conjoints

**BE(Hons)/BMus conjoint programmes are subject to prior approval from the Faculty of Engineering.*

Sample BE(Hons) degree structure

Part I	CHEMMAT 121 Materials Science	ELECTENG 101 Electrical and Digital Systems	ENGGEN 115 Principles of Engineering Design	ENGGEN 121 Engineering Mechanics	ENGGEN 131 Introduction to Engineering Computation and Software Development	ENGGEN 140 Engineering Biology and Chemistry	ENGSCI 111 Mathematical Modelling 1	General Education	ENGGEN 199 English Language Competency
Part II	ENGGEN 204 Managing Design and Communication	ENGSCI 211 Mathematical Modelling 2	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Specialisation course	ENGGEN 299 Workshop Practice
Part III	ENGGEN 303 Managing Projects and Innovation	ENGSCI 311 Mathematical Modelling 3	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Specialisation course	Elective	ENGGEN 499 Practical Work
Part IV	ENGGEN 403 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

All successful applicants will gain entry into the BE(Hons) programme. The BE(Hons) degree is awarded to those students who achieve a sufficiently high Grade Point Average (GPA) in Parts II, III and IV. Students who successfully complete the programme, but do not achieve a sufficiently high GPA to be awarded the Honours degree, will be awarded the BE degree.

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

General Education courses are a distinctive feature of the University of Auckland's bachelors degrees. They are designed to broaden your education and give you a chance to try a course outside your degree. As a BE(Hons) student, you must pass one General Education course (15 points) in Part I. Special arrangements may apply if you transfer from another tertiary institution with credit. For more information, visit www.auckland.ac.nz/generaleducation

Choose your specialisation

Biomedical Engineering

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

Career opportunities

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

Misha Garg

Student: Bachelor of Engineering (Honours) in Biomedical Engineering

"I've always been interested in biology and physics but never really chemistry. I wanted to know how the human body worked and maybe how I could help improve it, using science and engineering. Because of this, coming into university I always knew I wanted to pursue Biomedical Engineering.

"Engineering feels like a family. All the academic staff and advisers are there to support you – they're all so lovely and helpful. If you want a chance to prove your leadership skills, or are struggling with academia, chances are the faculty will be able to give you the opportunity or help you need.

"I enjoy being a part of the Women in Engineering Network (WEN) leadership team. I feel a sense of achievement to see what we've accomplished this year, especially when it comes to the quality of the events we've hosted. WEN has definitely made a great impact this year, and I'm glad to be part of something that helps fellow female engineering students.

"During my degree, I've had the opportunity to go on exchange to the University of California. It was honestly the best four months of my life – I feel like I've become a more adventurous, open-minded, and independent person because of it. I would recommend it to anyone studying at the University of Auckland.

"I hope to pursue a masters degree following my undergraduate studies, and perhaps work for a big medical devices company overseas. If I get inspired, maybe I'll be tempted to try my hand at my own start up!"



Emily Badley

Student: Bachelor of Engineering (Honours) in Chemical and Materials Engineering

“I decided to apply for engineering because it offered a broad range of specialisations, and the skills that are developed during the degree can be applied in many other fields. Chemical and Materials Engineering at the University of Auckland is a unique degree – most other universities offer either materials science or process engineering, but not both. The combination of these two disciplines gives us a much broader knowledge of chemical engineering, which will be invaluable in industry.”

“We have some outstanding lecturers in the department who are at the top of their respective fields, and inspire and engage with the student body both in and out of the classroom. One of my favourite courses was CHEMMAT 121, because the lecturers we had were fantastic – they gave me my first taste of materials science which sparked my interest in Chemical and Materials Engineering.”

“The Part I Assistance Centre and the student tutors were very helpful, and the programme helped me immensely with the academic transition from high school to university. The faculty has a very strong and supportive student culture, and engineering has a way of banding people together. The experiences we have shared over the years has resulted in friendships that I’m sure will last a lifetime.”

Chemical and Materials Engineering

Do you wonder how products like petrol, plastic bottles, and synthetic polyester are produced from oil? Or are you more interested in developing new, sustainable replacements for these everyday items? These topics fall under Chemical and Materials Engineering, a discipline that involves understanding how to chemically or physically alter a substrate in order to produce something useful. As “big picture” professionals, these engineers are often responsible for the overall design, operation and quality of giant-scale processes.

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 have been built upon.





Faireka Fairoa

Student: Bachelor of Engineering (Honours) in Civil and Environmental Engineering

“During my high-school years I had strong abilities in problem solving and I was always up for a new challenge. Studying Civil Engineering has helped enhance my interests in extraordinary man-made structures and problem solving to help improve the quality of life for my community. It always feels great to find a solution to a particular problem and the rewards keep me motivated for the next project.”

“I find Civil and Environmental Engineering suits me best, as it is a programme that not only involves a lot of theoretical work but also a lot of hands-on work through experimental labs with fluid mechanics to on the field land surveying. The support facilities are extremely helpful and there is always assistance when you need it.”

“It is always a satisfying feeling that you belong to a faculty that ultimately paves the way for the future. The reputation of the Faculty of Engineering is widely known around University and facilities in the faculty building provide a good environment for engineers to work and network.”

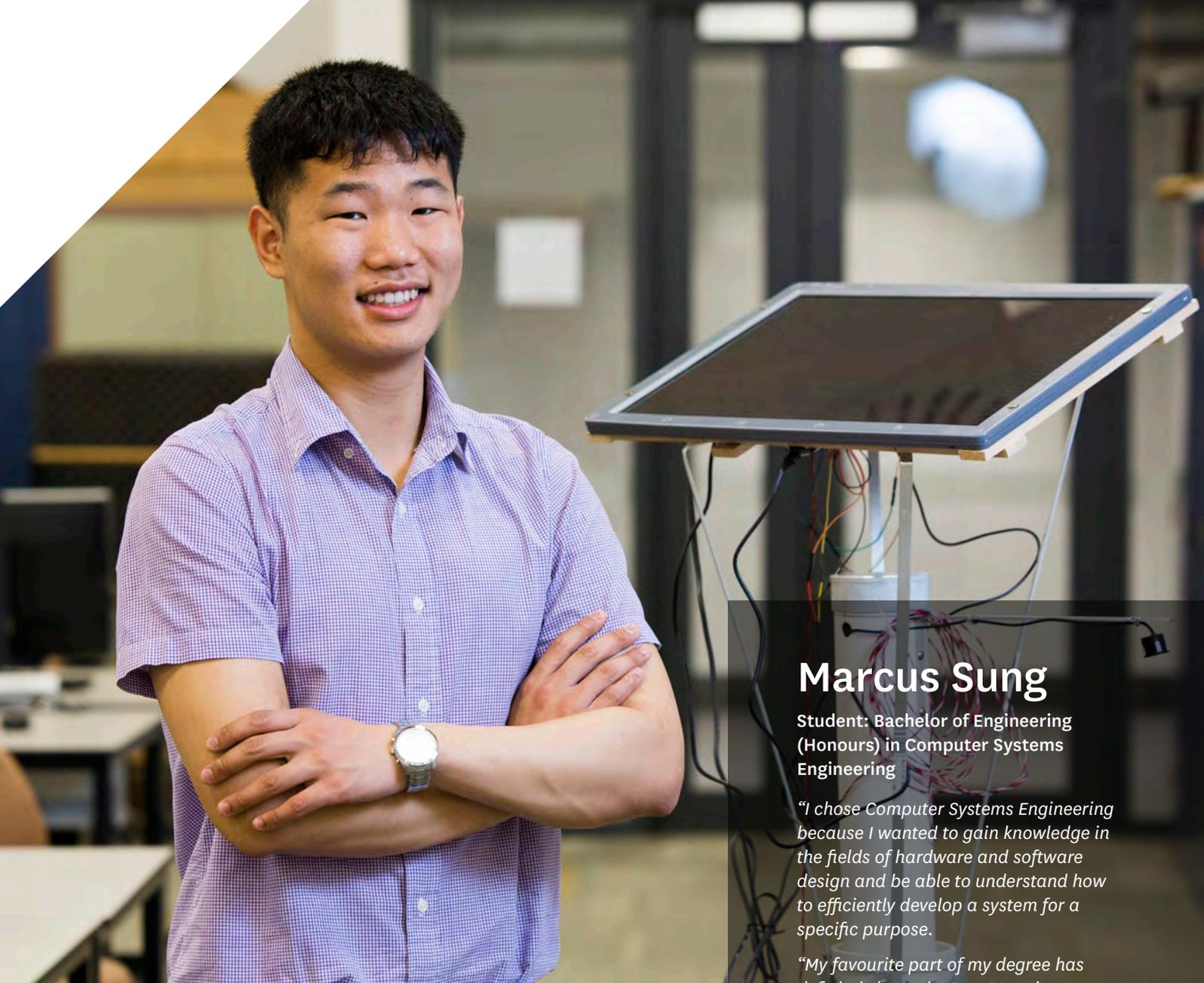
“I am proud of who I am and where I come from. As a Cook Islander, I have represented SPIES (South Pacific Indigenous Engineering Students Association) through past executive positions and as the 2016 Co-President. I am proud to represent Pasifika and Māori engineering students through providing academic support and social events to help enhance their student life here at the University of Auckland. I hope to lead by example, encouraging potential future Pasifika and Māori students to consider engineering as a career path.”

Civil and Environmental Engineering

Civil engineers make modern life possible. They work on the planning, design, construction and maintenance of projects such as skyscrapers, motorways, bridges, tunnels and dams. They calculate the maximum weight that a bridge will be able to hold, or work out how to earthquake-proof buildings. Environmental engineers design practical solutions that help mitigate further harm to our planet. You can see how, as disciplines, civil and environmental engineering will only become further connected as time passes.

Career opportunities

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



Marcus Sung

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

"I chose Computer Systems Engineering because I wanted to gain knowledge in the fields of hardware and software design and be able to understand how to efficiently develop a system for a specific purpose."

"My favourite part of my degree has definitely been the Part IV project. Working in a team of two, I got to develop a cloud-based water monitoring system as an early warning system for flood-prone areas. I gained invaluable skills and knowledge during this project, and was able to see how my studies can be implemented into real-life processes."

"Computer Systems Engineering focuses on utilising hardware to create automation systems, factory processes and much more. I hope that my degree will lead me to a career in hardware and software development for modern technology."

"I got so much help from both the department technicians and the professors. Everyone in the department is helpful and supportive of each other, and going to the lecturers' drop-in sessions helped me learn to solve problems from different perspectives."

Computer Systems Engineering

Computer systems engineering now pervades almost every aspect of our world. It constitutes the core of 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 the crucial branch of the discipline that solves practical engineering problems with computer-based solutions, 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 continues at pace, so too 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.

Sultan Al Balushi

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

“Since I was little, I’ve always loved to build things, take things apart, and solve problems. I excelled in science and maths during high school, and I knew I wanted to be an engineer but wasn’t sure what type. After trying every specialisation in first year, I found that Electrical and Electronic Engineering was the best fit for me.”

“Getting to do projects that are applicable to the real world has been really enjoyable – I’ve worked on wireless headphones for airlines, smart fans, and wireless monitors. It also allowed me to build connections with global companies, and use the skills learned in my degree in a practical way.”

“Coming from Oman, I had the opportunity to go to many universities around the world, but the University of Auckland was my first choice. I wanted a university that was in the top 100 in the world, which offered a high quality education and a great social life.”

“I’ve really enjoyed every moment of my study in Auckland. I have a large group of friends from many different cultures, and love that Auckland as a city is surrounded by beautiful harbours, islands and beaches. The clubs and opportunities provided by the University of Auckland have developed my communication skills, networking abilities, and teamwork skills, as well as being a great way to meet people.”

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.



Ryan Tonkin

Student: Bachelor of Engineering (Honours) in Engineering Science

“I chose Engineering Science because it sounded diverse, interesting and challenging – everything I wanted from my degree and university experience! It also played to my strengths of calculus and statistics. The University of Auckland is the only place in New Zealand you can do Engineering Science, so it was an obvious choice for me.”

“The best thing about being part of the department is its small size, which allows a close-knit community to form. Your classmates become your best friends, not just another face out of thousands. In my degree I have made lifelong friends, and I have found inspiration and mentors within the faculty. You get to meet people here who want to help you succeed.”

“As I progressed through the Engineering Science programme, I gravitated more and more towards continuum mechanics, so much so that I have decided to continue on with postgraduate studies in geothermal reservoir engineering.”

“Engineering Science provides such a wide range of subjects – over the past three years, I’ve been exposed to areas of finance, continuum mechanics, and optimisation. The lecturers are all really friendly, and always helpful. It’s a really positive atmosphere, which cultivates success.”

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 all questions an engineering scientist would relish.

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 gain 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 consultancy firms such as Beca and Maunsell.





Corina Pilbrow

Student: Bachelor of Engineering (Honours) in Mechanical Engineering

"I've always really liked physics and maths, but I wanted to be able to do something practical. Rather than getting a degree where I'd end up doing research in a lab somewhere, I wanted to be able to go out and create something that would have my name on it, which the general public could see and use."

"We have access to some really cool engineering equipment, and get to use it as part of our courses. I've had the opportunity to weld, and use laser cutters, 3D printers, KUKA robotic arms and CNC machines. Rather than just writing reports and doing theory, we get to actually make stuff to learn about the practical aspects of what we do. We got to 3D print a prototype dynamo torch, which you could light up by turning a handle. This was great, because we got to design, calculate and print the torch ourselves."

"My final year project involved working with the University robotic driver. Most autonomous cars have built-in controls and sensors that allow them to be driven unaided. This driver differs as it can be placed in any car. The project involved a lot of hands on work, as well as a lot of programming – I even got to program the user interface!"

"I chose the University of Auckland not only because it is the highest ranked in New Zealand, but because they had so many engineering options. I love Auckland as a city – you're so close to all the concerts, and there's heaps of opportunities to spend time outdoors in beautiful areas like the Viaduct, Mission Bay, and all the different parks. Coming from a small town, I was pretty nervous about moving by myself to a city, but I love the lifestyle in Auckland, and I'm really glad that I chose to come here."

Mechanical Engineering

Mechanical engineers use science and technology to design and produce mechanical devices, machinery and systems, such as robots, wind turbines and cars. Their work spans a range of scales, from nanotechnologies to large-scale industrial machinery and processes, such as paper mills or car assembly plants. Mechanical engineers also understand how to efficiently use energy in processes, so they might be involved in designing a heating system for a hospital or a refrigeration plant for a food export company.

Career opportunities

As a graduate, you might pursue opportunities in the manufacturing or transport industries, or in major primary process 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 often confined by interesting and industry-specific parameters.

Theo Drissner-Devine

Student: Bachelor of Engineering (Honours) in Mechatronics Engineering

"I chose Mechatronics because I wanted the ability to combine technical learning with the opportunity to be creative and innovative. I like that the degree is versatile and recognised worldwide. During the degree, I've found that I really enjoy robotics, so now I'm getting a qualification in a field that I love working in."

"The size of the Mechatronics cohort means you get to know so many of your classmates, and with a large part of the course focused on group work, there's a real opportunity to make friends from projects. The support given for sourcing practical work experience such as employer presentations and career expos helped a lot in finding work within my field. I've also been involved in a variety of outdoor clubs during my time at the University, and have had the opportunity to see the country on trips they have organised. There's such a wide variety of clubs; there is a group for everyone."

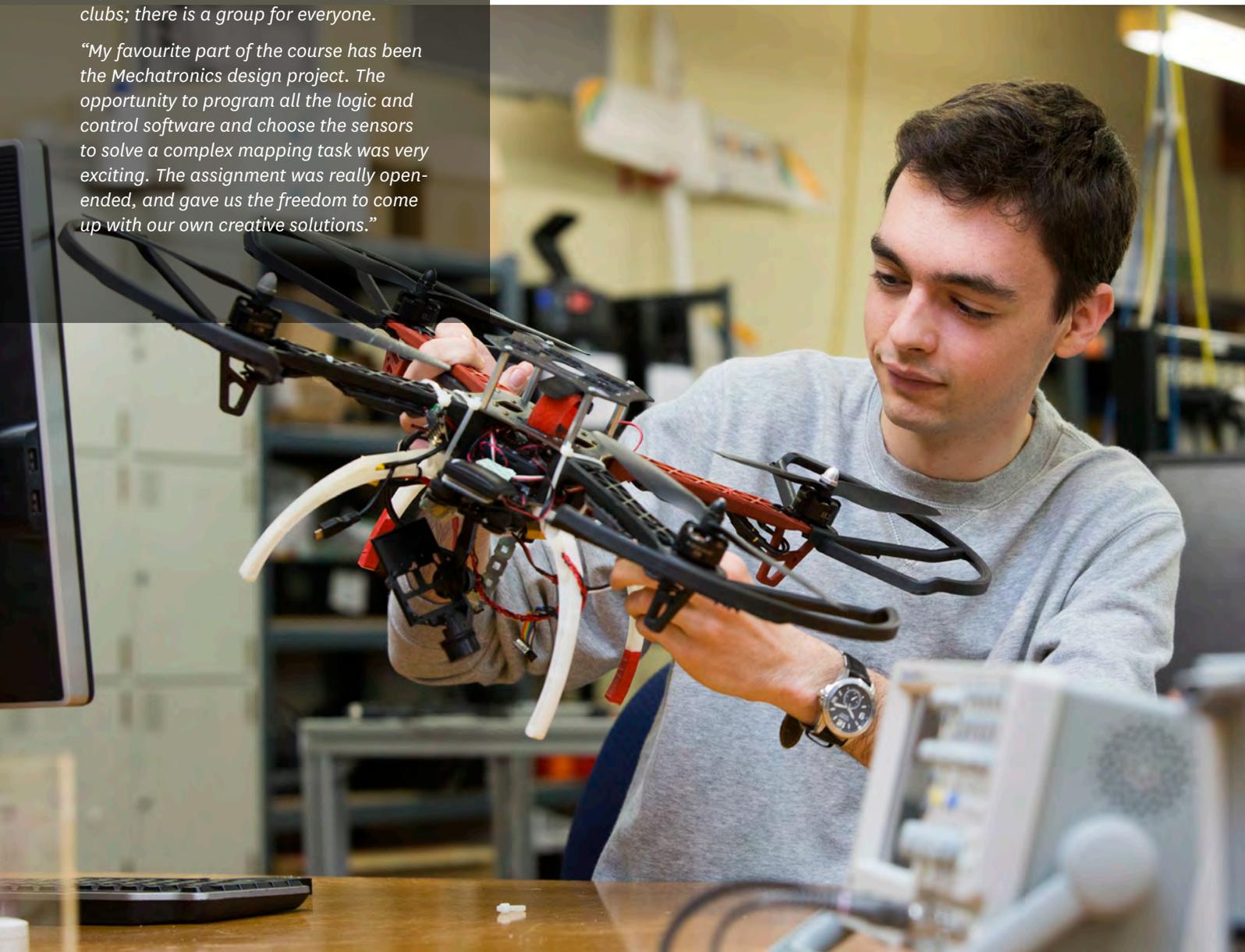
"My favourite part of the course has been the Mechatronics design project. The opportunity to program all the logic and control software and choose the sensors to solve a complex mapping task was very exciting. The assignment was really open-ended, and gave us the freedom to come up with our own creative solutions."

Mechatronics Engineering

Mechatronics Engineering integrates specialist knowledge in mechanics, electronics and computer systems to design and develop automated systems, such as chassis-stabilising systems, anti-lock brakes, engine control units, disk drives, cameras, service and surgical robots and medical devices. All of these systems are largely mechanical in nature, but could not function without their essential 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 is fully in line 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 and machine tools, and processes related to precision agriculture and remote sensing.





Helen Zhao

Student: Bachelor of Engineering (Honours) in Software Engineering and Bachelor of Commerce

“At the end of high school, I had absolutely no idea what I wanted to do at university or as a career. I’d taken physics and maths, so I decided to do engineering. I was also interested in commerce through my participation in the Young Enterprise Programme, so I just thought ‘Why not both?’”

“The most instrumental part of my degree has been learning how to learn. Technology is constantly evolving especially in the software industry – the languages and tools we are using now may well be obsolete in five years. However, we get a good grasp of fundamentals in Software Engineering and learn how to adapt effectively, so we can keep evolving right alongside the technologies.”

“The Software Engineering Students Association has been incredible. They’re a very active group that are a fount of knowledge, especially as the older students have gone through the same experiences we’re going through now. They’re able to offer great advice on all things, from tutoring to advice on getting internships. The cohort is really small, which means that everyone knows each other and we’re able to help each other out.”

“There’s a strong work ethic that runs throughout the entire faculty – it’s infectious and inspires all of us to put our best effort into everything. The lecturers in Software Engineering are not only knowledgeable in the subjects they’re teaching, but also able to convey it to us in an engaging and clear way.”

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 literally stretch as far as your imagination!

Career opportunities

As infrastructure, government agencies, businesses, and individuals become increasingly reliant on intuitive, dependable, cloud-based solutions, software engineers are emerging as the newest generation of IT workforce leaders. As a graduate, you could end up in virtually any company, managing 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 with postgraduate research, and use this to kick-start your very own start-up company.

How do you get in?

The following information details the requirements for admission to the BE(Hons).

University Entrance Standard

If you are applying for admission to the University of Auckland in 2018 based on secondary school qualifications, you will be required to meet the University Entrance Standard established by Universities New Zealand. For details please see *The University of Auckland Undergraduate Prospectus 2018* or visit www.auckland.ac.nz/entry-requirements

BE(Hons) programme requirements

As well as achieving University Entrance, you must also meet entry requirements for the BE(Hons) programme. The following table indicates the rank score, credit and subject requirements that will guarantee you a place in 2018.

Guaranteed entry requirements for BE(Hons) programmes in 2018			
Programme	NCEA (Level 3)	CIE (taken in NZ)	IB
Bachelor of Engineering (Honours) (BE(Hons))**	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*
Bachelor of Engineering (Honours) conjoins	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*

*For CIE students, AS Mathematics and Physics may be accepted based on level of grade achieved. For IB students, SL Mathematics and Physics may be accepted based on level of grade achieved.

** The Faculty of Engineering will give consideration to students who missed out on admission to BE(Hons) who are able to demonstrate sufficient ability in engineering-related and approved study, in the Bachelor of Science (BSc) programme for admission in Semester Two. For more information, see www.engineering.auckland.ac.nz/behon-alt-pathway

How your rank score is calculated

National Certificate of Educational Achievement (NCEA) Level 3

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

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.

University of Cambridge International Examinations (CIE) (taken in New Zealand)

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 studied 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.

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

International Baccalaureate (IB)

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.

Academic English Language Requirement (AELR)

The AELR aims to ensure that 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. For further information, see www.auckland.ac.nz/aelr

Prior tertiary study

To transfer from a New Zealand or overseas tertiary institution you must meet admission, programme, and undergraduate English language requirements. When you apply, you may also apply for credit for courses completed elsewhere.

For more information, see www.auckland.ac.nz/priortertiarystudy

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 into the BE(Hons).

For details, visit www.engineering.auckland.ac.nz/entry-pathways

Targeted Admission Schemes

The Faculty of Engineering is committed to equity within its programmes and offers admission schemes for eligible Māori and Pacific students, students with disabilities, students from refugee backgrounds, and students from low socio-economic backgrounds. The faculty reserves a number of places in our undergraduate programme for these students who have met the University Entrance Standard but have not met the guaranteed entry score for the BE(Hons). Places are limited, and applicants still must have studied Physics and Mathematics (including Calculus).

Māori and Pacific Targeted Entry Scheme (MAPTES)

The Faculty of Engineering invites applications from all eligible Māori and Pacific students. Places under MAPTES will be allocated based on academic performance. We recommend that you apply for MAPTES even if you don't think you will have the grades to get in. Gaining entry via MAPTES makes you eligible to participate in Tuākana, the academic and mentoring support programme offered within the Faculty of Engineering.

For further information, see www.engineering.auckland.ac.nz/maptes

It's time to apply

It's a two-step process to apply for and enrol in your chosen programme.

Apply

You can apply using our Application for Admission at apply.auckland.ac.nz

For a step-by-step guide for applications, admission and enrolment, see www.apply.auckland.ac.nz

To be considered under the Māori and Pasifika Targeted Entry Scheme (MAPTES), select the appropriate option.

Documents we require from you can be identified in your acknowledgement email or in the "Things you need to do" section of your Application for Admission.

If you applied for the next semester intake, 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). Some documents may take longer to process than others.

When a decision is made, the status will show under the "Your applications" section of your Application for Admission.

**For some programmes, you may be required to submit supplementary information (eg, a portfolio of work, referee reports, an online form) or to attend an interview.*

***If you are not offered a place in the programme(s) of your choice, you will receive an email outlining alternative options. Your final offer of a place depends on two things: your admission to the University (which for school leavers may depend on your final school results) and your assessment by the relevant faculty.*

Enrol

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, take an online tutorial at www.auckland.ac.nz/enrolment.

To find out more about the courses you'll need to enrol in for your engineering degree, go to www.engineering.auckland.ac.nz/enrolment

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

If you feel stuck at any point in the process, you can find answers to your questions at www.askauckland.ac.nz

There's also someone who can help during business hours at **0800 61 62 63** or email studentinfo@auckland.ac.nz

*Disclaimer: Although every reasonable effort is made to ensure accuracy, the information in this document is provided as a general guide only for students 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 2017.*

Money matters

The table below is based on the 2017 fees schedule for a first-year BE(Hons) student enrolled in a full-time load of 120 points and should be used as a guide only. Fees for 2018 will be set later in 2017.

For updated fees information, refer to www.auckland.ac.nz/fees

Domestic student (2017)	\$6,785 – \$9,926
International student (2017)	\$42,606

All fees are charged on a per point basis. Part-time students taking fewer than 120 points will pay proportionately lower fees. Workshop practice course fees are not included in the above. In addition to tuition fees, a Student Services Fee is also charged. Students studying full-time (120 points) in 2017 paid \$765.60. The fee for 2018 will be set later in 2017.

Dates to remember

Events in 2017

Enginuity Day	6 July 2017
Engineering Futures Evening – Auckland	2 and 9 August 2017
Engineering Futures Evening – Wellington	4 August 2017



COURSES & CAREERS OPEN DAY
Saturday 2 September 2017
www.openday.ac.nz

Closing dates for applications for admission in 2018

MAPTES	24 November 2017
BE(Hons) Semester One entry	8 December 2017
BE(Hons) Semester Two entry	4 July 2018

Some late applications may be accepted after 2017 school results are received. It is advisable, however, 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 2017 academic results are available.

Academic year 2018

Summer School	Thursday 4 January to Wednesday 14 February
Semester One	Monday 26 February to Monday 25 June
Semester Two	Monday 16 July to Monday 12 November

**Contact**

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