AUT

TE WĀNANGA ARONUI
O TĀMAKI MAKAU RAU

ENGINEERING, COMPUTER & MATHEMATICAL SCIENCES

UNDERGRADUATE
PROGRAMME GUIDE
2024

TOP 50
WORLDWIDE
Young University

AUCKLAND
UNIVERSITY
OF TECHNOLOGY

Nau mai, haere mai ki AUT
WELCOME TO AUT

E ngā mana, e ngā reo
E te iti, e te rahi
E ngā mātāwaka o ngā tōpito o te ao
Ngā mahuetanga iho e kawe nei i ngā
moemoeā o rātou mā
Tēnā koutou katoa

To the prestigious, the many voices
The few, the great
To those of all races and creeds
We who remain to fulfil the dreams and
aspirations of the ancestors
Greetings one and all

Piki mai rā, kake mai rā,
Nau mai, haere mai ki tēnei o ngā wānanga
Whakatau mai i raro i te korowai āhuru o Te Wānanga
Aronui o Tāmaki Makau Rau

Climb, ascend
Embark on the journey of knowledge
Let us at AUT embrace and empower you
To strive for and achieve excellence

Te whakatupu i te kōunga, i te mana taurite me ngā tikanga matatika, i ngā pūkenga ako, i ngā pūkenga whakaako me te āta rangahau hei hāpai i ngā hāpori whānui o te motu, otirā, o te ao.

To foster excellence, equity and ethics in learning, teaching, research and scholarship, and in so doing serve our regional, national and international communities.

Cover
Top 50 Worldwide Young University: AUT is ranked 41st in the world based on the quality of our teaching, research, citations, international outlook and industry income (Times Higher Education World University Rankings 2023).

Image 3 on page 35 and the image on page 37 by Jason Mann. Image 7 on page 35 by Dr Stefan Marks.

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He aha ai e ako ki AUT?

WHY STUDY AT AUT?

1 2

1 AUT City Campus is close to many Auckland attractions including the Sky Tower, cinemas, restaurants and bars
2 & 3 You'll have access to modern facilities and equipment in the Ngā Wai Hono (WZ) building – home to engineering, computing and mathematical sciences 4 Our student support services include course guidance, mental health support, peer mentors, and Māori and Pacific support

New Zealand's leading modern university

AUT is proud to be one of the world's best modern universities. Times Higher Education has ranked us in the top 50 universities under 50 years of age, and among the top 1% (251–300) of universities in the world and second in New Zealand. Engineering New Zealand recognises our Bachelor of Engineering (Honours) as meeting the Washington Accord and the Bachelor of Engineering Technology as meeting the Sydney Accord. The maritime majors at the Australian Maritime College are accredited by Engineers Australia, and IT Professionals NZ (ITPNZ) recognises our Bachelor of Computer and Information Sciences as meeting the Seoul Accord. Collaboration and partnership underpin everything we do and we're connected to an extraordinary range of organisations worldwide; sharing expertise and resources, collaborating on groundbreaking research, and connecting students with industry leaders and employers.

Widely known for academic excellence

AUT's mission is to create great graduates, and we offer exceptional learning experiences that prepare our students to be successful wherever in the world their career may take them. Our courses encourage innovation and entrepreneurship, and the ability to explore new technologies, challenge routine thinking and make a difference. Workplace experience is at the heart of our degrees, and in your final year you complete a research and development project that could involve creating a commercial solution for an industry client. These are all reasons why our students make a difference in the world, whether that is during their time at AUT or as they embark on their future career.

Scan this QR code for details about courses, where your study could lead and stories about our great graduates and students.

3 4

An innovative teaching and learning environment

AUT's university campuses feature modern buildings that don't just win architecture awards but also offer excellent environments where students can collaborate and develop skills that help them stand out in their future careers. Our state-of-the-art buildings were created using sustainable principles, and feature inviting and functional lecture theatres, auditoriums and research spaces. This includes the Ngā Wai Hono (WZ) building – the home for our engineering, computer and mathematical sciences programmes – which can be used as a teaching tool and 'living lab' where students can get hands-on experience. AUT's success in creating transformational educational spaces has been recognised with a five-star ranking for teaching and facilities, awarded by the world university rankings organisation QS.

Research that shapes tomorrow

AUT is ranked first in New Zealand by Times Higher Education for the number of times our research is cited globally. We have several internationally renowned research institutes and labs, and there are many opportunities for students to work with academic staff in these groups. Data science, health technologies, robotics, networking and security, and power and energy research are just some of the diverse research areas covered. The unique combination of engineering, computer and mathematical sciences within one school stimulates interdisciplinary research across and beyond traditional boundaries. Our research also feeds back into the classroom, and students can contribute to and learn from our research discoveries.

Oranga Tauira

STUDENT LIFE

AUT is a modern and innovative university with endless opportunities, and a supportive culture that celebrates diversity and is committed to improving our local and global communities. Our students are at the heart of everything we do, and we're proactive in enabling them to succeed and be ready for any challenge in front of them.

Our Student Hubs – your place to get the support you need

AUT offers some of the most comprehensive student support services in New Zealand, and our Student Hub is where you can learn more about these services. Our professionally qualified staff include social workers who can look after and support our diverse student community. Our Student Hubs are available both online and across our campuses, so you can get help and support when and where you need it.

Getting you started on your uni journey

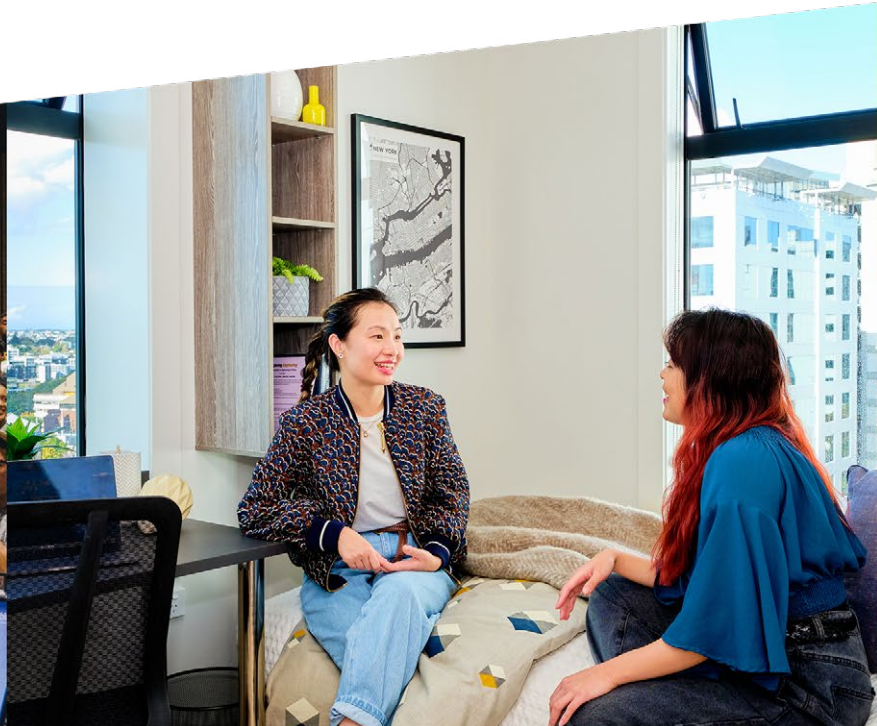
Studying at university is exciting and can be quite an adjustment. That's why AUT helps new students transition to university life by delivering a wide-ranging orientation programme at the start of each semester. We also offer activities throughout the semester to transition you into university life. AUT's app also provides up-to-date news, events, and information about AUT anytime, anywhere.

Helping you achieve your academic goals

We do everything we can to help you achieve your academic goals and set you up for a successful career. You'll have access to all the people, resources and technology you need to make the most of your learning opportunities. Our services include academic skills support through our library and their learning services, peer mentoring for help with assessments, childcare, free technology access and financial assistance, as well as tailored support for our postgraduate research students.

Supporting your wellbeing

Our students' health and wellbeing are our highest priority, and AUT is experienced in delivering support to aid students' overall wellbeing. This includes services like 24/7 security on campus; peer support from over 300 student ambassadors, navigators, peer advisors and RUOK advisors; financial assistance; medical, learning and systems access support, as well as physical and mental wellbeing support. We actively encourage students to be aware of their wellness needs – mind, body, and spirit. As an AUT student you have access to free and confidential counselling sessions, peer support and programmes to develop better self-knowledge and resilience.



Enabling opportunities for a vibrant uni experience

We want you to make the most of university life, and have fun and grow during your time with us. That's why we offer a range of spaces and initiatives for students including clubs, events, sporting opportunities and state-of-the-art recreational facilities. Our clubs are student-led and cover social, sustainability, cultural and academic interests. If you can't find something you enjoy, you're always welcome to create something new!

Celebrating our people

We celebrate diversity and our commitment to Te Tiriti o Waitangi with passion, curiosity and pride. We have a strong commitment to Māori and Pacific community advancement, and have dedicated teams to support all students at AUT. We were the first university in New Zealand to achieve the Rainbow Tick. We're committed to equity of access and opportunity for students, staff and visitors, and support the principles of Kia Ōrite: Code of Practice for an inclusive tertiary environment.

Our dedicated teams include disability services, and rainbow and international student support. Our Student Association (AUTSA) advocates and represents the interests of all AUT students, and shares students' voices through its Debate magazine.

Beyond learning and into employability

Our services, competitions and awards offer you enriching life experiences that will support your career once you graduate. These opportunities can help you gain an edge in the marketplace through workplace experience, international exchanges, industry connections, and CV and interview preparation for when you're ready to start your career. Our CO.STARTERS@AUT programme, X Challenge competition or AUT Ventures Ltd are also a great incubator for your entrepreneurial ideas and can help you bring your ideas to market.

BEng(Hons) | AK3751

Bachelor of Engineering (Honours)
Overview

As an engineer you address the key issues we face today, like access to clean water, sustainable energy systems, waste management, recycling and environmental pressures. The Bachelor of Engineering (Honours) prepares you for a rewarding career in engineering. It's accredited by Engineering New Zealand, and prepares you for Engineering New Zealand membership. You learn to formulate models and analyse, predict and monitor engineering systems – essential skills in professional engineering. Through engineering projects and other practical courses you have plenty of opportunities to apply what you have learnt in class.

QUICK FACTS

Level	8
Points	480
Duration	4 years full-time, part-time available
Campus	City[1]
Starts	26 Feb & 15 July 2024

Entry requirements

Minimum entry requirements

University Entrance or equivalent including:

- **NCEA:** At least 14 level 3 credits in each of Calculus and Physics
- **CIE:** A level Mathematics and a minimum of AS in Physics OR A level in Physics and a minimum of AS in Mathematics
- **IB:** A grade of 4 or better in Mathematics and Physics

Applicants without UE must demonstrate competency in Calculus and Physics to at least level 3 or equivalent.

Guaranteed entry

Applicants will automatically be offered a place in this programme if they have a rank score of 250 or higher, along with 14 NCEA level 3 credits in each of Calculus and Physics or CIE A levels in Mathematics and Physics. All other applicants who have met the admission requirements will be considered on a case-by-case basis.

Useful New Zealand school subjects

Chemistry, Digital Technologies, English, Maths, Physics

English language requirements

IELTS (Academic) 6.0 overall with all bands 5.5 or higher; or equivalent.

1. Maritime engineering (Marine and Offshore Engineering, Naval Architecture, Ocean Engineering) students study the first two years at AUT, and the last two years at Australian Maritime College (AMC) in Launceston, Tasmania.

"I want to help build better places where people can work, visit and live. I chose to study at AUT because of its kind, friendly, and diverse group of students and staff. As a student, I received so much encouragement and support. I found the classes engaging and could ask for help when I needed it. Plus, there are so many great university clubs to join. I loved doing my final-year industrial project and bringing together everything I had learnt during the degree to deliver a final group research report and presentation. I also appreciated the flexibility of the classes, which enabled me to work as an intern and gain industry experience while studying full-time. I'll always look back and remember my time at AUT fondly."

Sabrina Naseem
Graduate Civil/Structural Engineer, AECOM
Bachelor of Engineering (Honours) in Construction Engineering

Scan this QR code for details about courses, where your study could lead, and stories about our great graduates and students.

What this qualification covers

Through engineering projects and other practical courses you have plenty of opportunities to apply what you've learnt in class. You also need to complete 800 hours of planned, supervised work experience to graduate, in addition to completing all your courses.

YEAR 1

Students in all majors do the same courses in the first year, giving you a solid understanding of different engineering disciplines and preparing you for the more advanced courses in the next three years of your study.

YEAR 2

You'll learn to apply mathematical and engineering sciences across different engineering disciplines. You'll also start to specialise in your chosen major.

YEAR 3

You further develop what you've learnt in Year 2, and work on a piece of engineering design and analysis under the guidance of an academic supervisor. Maritime engineering students move to Tasmania this year.

YEAR 4

In your final year you complete an individual industrial project, working on a piece of engineering design and analysis for an organisation.

	YEAR 1	YEAR 2	YEAR 3[3]	YEAR 4[3]
SEMESTER 1	Introduction to Engineering Design 15 PTS	Engineering Mathematics II 15 PTS	Major course 15 PTS	Major course 15 PTS
	Electrical Principles A 15 PTS	Major course 15 PTS	Major course 15 PTS	Major course OR elective course 15 PTS
	Engineering Mathematics I 15 PTS	Major course 15 PTS	Major course 15 PTS	Major course OR elective course 15 PTS
	Mechanical Principles A 15 PTS	Major course 15 PTS	Major course 15 PTS	Industrial Project 30 PTS
SEMESTER 2[2]	Introduction to Computing 15 PTS	Major course 15 PTS	Major course 15 PTS	
	Electrical Principles B 15 PTS	Major course 15 PTS	Major course 15 PTS	Major course OR elective course 15 PTS
	Engineering Materials I 15 PTS	Major course 15 PTS	Major course 15 PTS	Major course OR elective course 15 PTS
	Mechanical Principles B 15 PTS	Major course 15 PTS	Major course 15 PTS	Major course OR elective course 15 PTS

Core courses **PTS**: Points

2. All students also complete Engineering Workshop Practice in the second semester of Year 1.
3. Maritime engineering students are at AMC in Tasmania in Year 3 and 4 so courses will differ from those above.

Bachelor of Engineering (Honours)
Overview continued

Majors

Your major is the subject area you want to specialise in. Choose one of these majors as part of your degree:

- Architectural Engineering
- Construction Engineering
- Electrical and Electronic Engineering
- Maritime Engineering (Marine and Offshore Engineering, Naval Architecture, Ocean Engineering)
- Mechanical Engineering
- Mechatronics Engineering
- Software Engineering

Maritime majors

This joint venture between AUT and the Australian Maritime College (AMC) at the University of Tasmania (UTAS) enables New Zealand students to study maritime engineering.

"During my time at AUT, I got a true glimpse of how unlimited the scope of learning is; ranging from full stack development to user experience research projects, from AI computer vision projects to creative game design in virtual reality. I particularly enjoyed the freedom to choose my final-year project, where I was able to work with a company called Method, developing a computer vision solution on unreleased virtual reality hardware. I would absolutely recommend the Bachelor of Engineering (Honours) in Software Engineering. It's a great environment for learning, and there is a lot of encouragement to pursue an area you're passionate about within the degree."

Michelle Extross
QA Engineer, Canva, Brisbane
Bachelor of Engineering (Honours) in Software Engineering

Bachelor of Engineering (Honours)

Architectural Engineering

Scan this QR code for course details and graduate stories.

Businesses, tenants and homeowners expect more from the buildings they work and live in. They want buildings that are energy efficient and more sustainable, comfortable to live and work in, offer more services and are fit for purpose, now and in the future. Architectural engineers help make this happen.

What this major covers

YEAR 1

All students do the same courses this year. Courses this year cover mathematics and computational techniques, as well as the communication and teamwork skills that are essential for the team environment engineers work in.

YEAR 2

You become familiar with construction materials, structural engineering, building construction, and quantity surveying. You also develop your analytical and engineering management skills.

YEAR 3

This year focuses on specialist architectural engineering courses, including geotechnical engineering, structural analysis, architectural design and development, and the specifics of building subsystems, including illumination engineering and heating, ventilation and air-conditioning (HVAC) systems, and architectural design and sustainability.

YEAR 4

In your final year, you'll have a supervised programme of industrial-focused project experience, where you put into practice your understanding of management techniques, project planning and development, research application and design. You'll work on a project for organisations like Fletcher Building, Hawkins, Naylor Love Ltd, Auckland Council, Beca or Jasmax. You also complete courses that cover advanced analytical thinking and research experiences.

Workplace experience

You also need to complete a minimum of 800 hours of planned supervised work placement to graduate. Work experience aims to expose you to common engineering practices in the industry and help you gain knowledge of engineering procedures, engineering responsibilities, engineering management practices, health and safety practices, and an understanding of practical engineering.

Career opportunities

- Architectural design engineer
- Building services engineering
- Project management
- Building Information Management (BIM) specialist

This is an engineering qualification. Graduates will not be architects or qualified to register as architects.

"AUT fit perfectly with my learning style – learning through collaboration, engagement with lecturers and plenty of workshops. The forward-thinking nature of the courses that delivered what the industry wanted was also a huge upside of AUT, and I began to appreciate it more as my degree went on. When I went into the job market, I was constantly hearing 'Wow, you learned that at uni?' from interviewers. They were surprised that some incredibly in-demand skills that are often overlooked by universities were captured by the AUT courses. I now work as an assistant project manager at Beca and was particularly proud when we reached the practical completion of the Southeast Asian Precinct at Auckland Zoo."

Josh Laloli
Assistant Project Manager, Beca
Bachelor of Engineering (Honours) in Architectural Engineering

Bachelor of Engineering (Honours)

Construction Engineering

Scan this QR code for course details and graduate stories.

Designing safe, cost effective and environmentally sustainable buildings and infrastructure is essential to our society. Professional construction engineers are involved with the design, planning and construction of the physical infrastructure that surrounds us. AUT's construction engineering programme will help you develop skills in structural engineering, materials technologies, construction systems, productivity improvement and waste reduction strategies.

What this major covers

YEAR 1

All students do the same courses this year. Courses this year cover mathematics and computational techniques, as well as the communication and teamwork skills that are essential for the team environment engineers work in.

YEAR 2

This year you become familiar with construction materials, structural engineering, building construction and quantity surveying. You also develop engineering management and analytical skills.

YEAR 3

This year focuses on specialist construction courses, including geotechnical engineering, structural analysis and construction planning. You also explore the design of concrete and steel structures.

YEAR 4

In your final year you complete an individual industry project, which is your opportunity to gain real-life industrial experience in organisations like Fletcher Building, Hawkins, Naylor Love Ltd, NZ Strong Ltd and Auckland Council. You also study compulsory and optional courses that cover advanced analytical thinking and research experiences.

Workplace experience

You also need to complete a minimum of 800 hours of planned supervised work placement to graduate. Work experience aims to expose you to common engineering practices in the industry and help you gain knowledge of engineering procedures, engineering responsibilities, engineering management practices, health and safety practices, and an understanding of practical engineering.

Career opportunities

- Construction design engineer
- Construction delivery systems
- Site engineer
- Project and construction management

"What I enjoyed most about my time at AUT was learning and acquiring knowledge from lecturers who are not only knowledgeable on different aspects of construction engineering, but also very generous with their time. I also enjoyed studying and using the facilities at the new engineering building; the final-year project rooms are convenient and quiet, with computers that provide access to all the engineering software needed. I want to relate the knowledge and skills I've developed in New Zealand to the work I'll be doing towards the development of Kiribati's construction sector."

Annajane Leslie Schutz
Kiribati
Graduate Structural Engineer, Ministry of Infrastructure and Sustainable Energy, South Tarawa, Kiribati
Bachelor of Engineering (Honours) in Construction Engineering

Bachelor of Engineering (Honours)

Electrical and Electronic Engineering

Scan this QR code for course details and graduate stories.

Electrical and electronic engineers work for industries that focus on creating tomorrow's solutions for everything from must-have leisure gadgets to new power and energy sources, and medical and lifesaving equipment. The field of electrical and electronic engineering is a multi-billion dollar industry with limitless career opportunities. You study a wide range of hardware and software theory at AUT. At the end of the programme you will be a creative engineering designer who can solve complex problems across power engineering, control engineering, telecommunications engineering and embedded system engineering.

What this major covers

YEAR 1

All students do the same courses this year. Courses this year cover mathematics and computational techniques, as well as the communication and teamwork skills that are essential for the team environment engineers work in.

YEAR 2

You explore computers and microcontrollers, signals and systems and circuit theory. You also study engineering mathematics and management.

YEAR 3

This year focuses on advanced topics including power engineering and power electronic systems, embedded digital systems and instrumentation and control systems. Year 3 also includes a design project that increases your ability to design and build engineering (hardware and software) solutions.

YEAR 4

In your final year you complete an individual industry project, which will help you gain real-life industrial experience in an engineering environment, under the guidance of an experienced supervisor. You work on a project for organisations like Mighty River Power, Genesis Energy, Contact Energy, Fisher & Paykel Appliances, Spark and Auckland Airport. You also study compulsory and optional courses that cover the recent advancements in your chosen field.

Workplace experience

You also need to complete a minimum of 800 hours of planned supervised work placement to graduate. Work experience aims to expose you to common engineering practices in the industry and help you gain knowledge of engineering procedures, engineering responsibilities, engineering management practices, health and safety practices, and an understanding of practical engineering.

Career opportunities

- Electrical or electronic engineer
- Embedded system engineer
- Power engineer
- Engineering consultant
- Telecommunications engineer
- Aeronautical or aerospace engineer
- System engineer
- Automation engineer

"Working on next generation opportunities in the telecommunications market is what I'm most proud of. The products I'm responsible for have been designed into the largest global manufacturers of 5G radio units, small cells, and edge data centres. I still remember the engineering programmes I studied well, and the highlights of my studies would have to be doing project work, as it involved me and my peers working together towards a shared goal. That was a real bonding moment with the team as we understood how to work together efficiently and effectively on a project."

Percy Kapadia
Product Manager, Rakon Limited
Postgraduate Diploma in Business Administration student
Master of Engineering with First Class Honours
Bachelor of Engineering (Honours) in Electrical and Electronic Engineering with Second Class Honours

Bachelor of Engineering (Honours)

Maritime Engineering

Scan this QR code for course details and graduate stories.

Maritime engineering is critical. Across the globe a web of offshore infrastructure supports the delivery of oil and gas supplies that power the world's transportation. Maritime engineers keep these vital vessels and systems working. Through a joint venture with Australian Maritime College (AMC), New Zealand students can study maritime engineering[1]. You start with two years of study at AUT and then transfer to the AMC in Tasmania for your final two years. There is no other programme of this kind in New Zealand.

What this major covers

YEAR 1

All students do the same courses this year. Courses this year cover mathematics and computational techniques, as well as the communication and teamwork skills that are essential for the team environment engineers work in.

YEAR 2

This year covers the tools to apply mathematical and engineering sciences to different engineering disciplines. You also become familiar with hydrostatics and fluid mechanics, ship production and design, thermodynamics, and offshore and maritime engineering.

YEAR 3 & 4

You transfer to the Australian Maritime College, University of Tasmania[1] where you study one of: Marine and Offshore Engineering, Naval Architecture or Ocean Engineering. Scan the QR code at the top of this page for more details.

Workplace experience is a key component of the degree, and you gain exposure to the maritime industry in companies like Alloy Yachts, Babcock Engineering, Marine Industrial Design and Transfield Worley.

Workplace experience

You also need to complete a minimum of 12 weeks of planned supervised work placement to graduate. Work experience aims to expose you to common engineering practices in the industry and help you gain knowledge of engineering procedures, engineering responsibilities, engineering management practices, health and safety practices, and an understanding of practical engineering.

Career opportunities

Graduates of the programme may be eligible for membership of:

- Engineers Australia (as a Graduate Professional Engineer)
- Royal Institution of Naval Architects
- The Institute of Marine Engineering, Science and Technology

"There's a huge need for maritime engineers in New Zealand and the world, so jobs are lucrative and pay well. As a naval architect, there are so many different areas I can work in, and the company I work for is wanting me to move to their Australian office to work on a big project in the works. With maritime engineering, there's endless potential to grow into the sort of engineer you want to be. The Bachelor of Engineering (Honours) in Maritime Engineering is the only degree offered in New Zealand for maritime engineering. I love boats and the maritime world, so it was a good fit for me."

Tristan Gill
Naval Architect, Marine Industrial Design
Bachelor of Engineering (Honours) in Maritime Engineering (Marine and Offshore Engineering)

1. Maritime majors are only open to New Zealand citizens.

Bachelor of Engineering (Honours)

Mechanical Engineering

Scan this QR code for course details and graduate stories.

Mechanical engineers work with advanced technology across many fields – from transportation to energy systems, home appliances to robotics, manufacturing machinery and processes to medical technologies. In a world where global warming and environmental degradation are critical issues, mechanical engineers play a key role in developing new sustainable technologies.

What this major covers

YEAR 1

All students do the same courses this year. Courses this year cover mathematics and computational techniques, as well as the communication and teamwork skills that are essential for the team environment engineers work in.

YEAR 2

Courses cover solid mechanics, mechanisms and dynamics of machinery, engineering design methodology, fluids and thermodynamics and manufacturing technology. You also further your analytical engineering, management and teamwork skills.

YEAR 3

This year covers higher level dynamics, solid mechanics, materials, and thermodynamics and heat transfer. You also explore the role and working environment of professional engineers.

YEAR 4

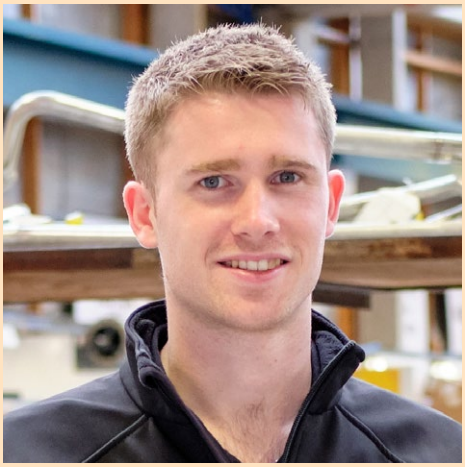
In your final year you complete an individual industry project, as well as courses that cover advancements in your field. Your individual industry project is your opportunity to gain real-life industrial experience in an engineering environment, under the guidance of an experienced supervisor. You work on a project for organisations like Mighty River Power, Genesis Energy, Contact Energy, Fisher & Paykel Applicances, Spark and Auckland Airport.

Workplace experience

You also need to complete a minimum of 800 hours of planned supervised work placement to graduate. Work experience aims to expose you to common engineering practices in the industry and help you gain knowledge of engineering procedures, engineering responsibilities, engineering management practices, health and safety practices, and an understanding of practical engineering.

Career opportunities

- Engineer and general manager
- Manufacturing engineer
- Mechanical engineer
- Product designer
- Project manager



"When I was on the hunt for a university that checks all the boxes, it became clear that AUT has a fast growing, good reputation. Coming from a small rural school, at first I found the transition to AUT a bit daunting, but I was quickly won over by the overall approach and atmosphere. AUT has given me the ability to think outside the box. I leverage the technical knowledge I've gained to tackle challenging issues that I face at work. Studying engineering is challenging but rewarding. The knowledge that you gain not only provides a strong foundation to support your career, but it also equips you with a powerful toolset for everyday challenges."

Danny Blakeman
Rotating Plant Engineer, ProGen Ltd, Hamilton
Bachelor of Engineering (Honours) in Mechanical Engineering

Bachelor of Engineering (Honours)

Mechatronics Engineering

Scan this QR code for course details and graduate stories.

Mechatronics engineers design and develop smart products and processes. They use principles of mechanical, electrical and electronics engineering, and computer science to create solutions and systems that are effective and viable. With the Mechatronics Engineering major in the Bachelor of Engineering (Honours) you develop professional skills in several engineering disciplines, including complex technical, business and project management techniques.

What this major covers

YEAR 1

All students do the same courses this year. Courses this year cover mathematics and computational techniques, as well as the communication and teamwork skills that are essential for the team environment engineers work in.

YEAR 2

This year introduces you to microcontrollers, solid mechanics, electronics, engineering management and mechatronics design. You also further your engineering mathematics skills.

YEAR 3

You learn about embedded digital systems, fluids and thermodynamics, instrumentation and control and software construction. You also take part in a software team project.

YEAR 4

In the final year you grow your understanding of the engineering industry, robotics and automation, advanced control systems and embedded software engineering. Your individual industry project in Year 4 is your opportunity to gain real-life industrial experience in an engineering environment, under the guidance of an experienced supervisor.

Workplace experience

You also need to complete a minimum of 800 hours of planned supervised work placement to graduate. Work experience aims to expose you to common engineering practices in the industry and help you gain knowledge of engineering procedures, engineering responsibilities, engineering management practices, health and safety practices, and an understanding of practical engineering.

Career opportunities

- Design of smart products
- Process and service design
- Systems integration
- Design of medical and sports devices
- Design of mechanical or electronics products
- Software engineering
- Embedded systems engineering
- Project engineer
- Design team leader
- Project management

"Mechatronics is a combination of mechanical engineering, designing, computer programming and electronics. The field is new, and gives you ample knowledge and practical skills for designing, prototyping, programming, troubleshooting, communicating and managing projects. Every company likes people who are flexible, mouldable and have the basic knowledge for most things. Over my four years of study, leadership and connections are the main skills I've developed, both through academic projects and by working with industry in internships and work experience. AUT has given me a lot of different opportunities to connect with people, work with them, and build personal and close connections."

Prayag Shethia
India
4th-year student, Bachelor of Engineering (Honours) in Mechatronics Engineering

Bachelor of Engineering (Honours)

Software Engineering

Scan this QR code for course details and graduate stories.

Professional software engineers are responsible for constructing, deploying and maintaining high-quality software in a systematic, timely and disciplined manner. Software engineers must be technically proficient and work effectively in teams and with multiple stakeholders. In this major you learn to design, develop, test and maintain software. To prepare you for a career as a professional engineer you also develop your communication and teamwork skills.

What this major covers

YEAR 1

All students do the same courses this year. Courses this year cover mathematics and computational techniques, as well as the communication and teamwork skills that are essential for the team environment engineers work in.

YEAR 2

Topics cover data structures and algorithms, software theory and construction, data and process modelling and database design. You will also further your engineering mathematics skills.

YEAR 3

This year you learn about software engineering and undertake a software team project. Topics also cover user interface design, engineering management and highly secure systems.

YEAR 4

In the final year you grow your understanding of the engineering industry, interface design, engineering management, and choose from a range of elective courses. Your individual industry project is your opportunity to gain real-life industrial experience in an engineering environment, under the guidance of an experienced supervisor.

Workplace experience

You also need to complete a minimum of 800 hours of planned supervised work placement to graduate. Work experience aims to expose you to common engineering practices in the industry and help you gain knowledge of engineering procedures, engineering responsibilities, engineering management practices, health and safety practices, and an understanding of practical engineering.

Career opportunities

- Software engineer
- Database programmer and architect
- Software tester
- Software development project manager
- Embedded software designer or developer
- Mobile apps designer or developer
- Cloud applications developer
- Solutions architect

"I really enjoyed doing multiple software development projects as part of my AUT degree. This has allowed me to gain valuable experience, not just in the technical areas, but also develop important soft skills like communication and teamwork skills. I'm now working at the Commonwealth Bank of Australia, which has one of the largest internal technology teams in Australia. I started in February 2021 and have been loving every second. Getting to work on software that will be used by millions of customers is honestly a bit mind-blowing! I'm learning a lot and am loving the opportunity to build on the skills I learned at university."

Sherin Jacob
Software Engineering Graduate, Commonwealth Bank of Australia, Sydney
Bachelor of Engineering (Honours) in Software Engineering

BEngTech | AK3719

Bachelor of Engineering Technology
Overview

Engineering technologists focus on practical design and applied technology, working across a wide range of engineering disciplines. The Bachelor of Engineering Technology prepares you for these diverse careers. It's accredited by Engineering New Zealand and prepares you for Technical Membership of Engineering New Zealand. You learn to make engineering judgements, solve problems creatively and ethically and design for sustainability.

You develop strong interpersonal and teamwork skills, and communicate technical and non-technical information. Our close links with companies like Fisher & Paykel, Beca, Opus, Spark, Vodafone, Sky TV and Contact Energy can help you gain valuable workplace experience as part of your studies.

QUICK FACTS

Level	7
Points	360
Duration	3 years full-time, part-time available
Campus	City
Starts	26 Feb & 15 July 2024

Entry requirements

Minimum entry requirements

University Entrance or equivalent including:

- **NCEA:** 14 credits or more at level 2 or above (including AS91261 and AS91262) OR NCEA level 3 in Maths, Stats or Calculus, AND 14 credits or more at NCEA Level 2 or above in Physics
- **CIE:** A D grade or better in Mathematics and Physics at AS level
- **IB:** Passes (level 4) in both Mathematics and Physics

Applicants without UE must demonstrate competency in Mathematics (algebra) and Physics to at least level 2 or equivalent.

Useful New Zealand school subjects

Digital Technologies, English, Technology

English language requirements

IELTS (Academic) 6.0 overall with all bands 5.5 or higher; or equivalent.

"I enjoyed the diverse atmosphere, particularly meeting friends from different ethnicities, interests, walks of life and ages; all of whom have become really good friends. I'd most definitely recommend the electronics, engineering or IT programmes if you have the interest and love the challenge. I now work for Avaroa Cable Limited, the newest wholesale telecommunications provider for the Cook Islands in the South Pacific. I'm part of the network engineering team that procured, installed and now operates the Manatua Cable on behalf of the Cook Islands. I have counterpart engineers in Samoa, Niue, French Polynesia and beyond. My role enables me to build on the skills I gained from AUT while applying them in a field that is constantly evolving."

Tania Apera
Cook Islands
Lead Systems Engineer, Avaroa Cable Limited, Rarotonga, Cook Islands
Bachelor of Engineering Technology in Electronic Engineering

Scan this QR code for details about courses, where your study could lead, and stories about our great graduates and students.

What this qualification covers

YEAR 1

You study eight courses that build the foundation for your chosen major. Courses this year are a mix of common courses as well as courses related to your chosen major. See the degree planner below for more information.

YEAR 2 & 3

In your second year you begin to specialise in your chosen major. In Year 3 you further advance your knowledge of your major and undertake valuable workplace experience, working on an industry-based project related to your major. You also need to complete a minimum of 600 hours of planned supervised work experience to graduate, in addition to completing all your courses.

Majors

Your major is the subject area you want to specialise in. Choose one of these majors as part of your degree:

- Electrical Engineering
- Mechanical Engineering

	YEAR 1	YEAR 2	YEAR 3
SEMESTER 1	Engineering Mathematics 15 PTS	Major course 15 PTS	Major course(s) OR elective course 15 PTS
	Introduction to Engineering Design 15 PTS	Major course 15 PTS	Elective course 15 PTS
	Electrical Engineering Principles 15 PTS	Major course 15 PTS	Elective course 15 PTS
	Major course 15 PTS	Major course 15 PTS	Specialisation Project 30 PTS
SEMESTER 2	Engineering Mathematics I OR Mathematics for Engineering Technology 15 PTS	Engineering Management I 15 PTS	
	Major course 15 PTS	Major course 15 PTS	Engineering Management II 15 PTS
	Major course 15 PTS	Major course 15 PTS	Major course(s) OR elective course 15 PTS
	Major course 15 PTS	Major course 15 PTS	Elective course 15 PTS

Core courses **PTS**: Points This chart is for guidance only. There could be some variation depending on which major you choose.

Bachelor of Engineering Technology

Electrical Engineering

Scan this QR code for course details and graduate stories.

Interested in the electrical, control and power industry? Electrical engineers keep the power running for businesses and our communities. The Electrical Engineering major equips you with the skills to design, implement, and maintain power and utility systems. You also learn about electrical power engineering circuits, process control systems and programmable logic displays. In your final year you specialise in building services, power or control.

What this major covers

YEAR 1

This major shares some of the first year courses with the other major in the Bachelor of Engineering Technology. Electrical engineering students also explore computer systems, digital devices and programming.

YEAR 2

The focus this year is power and control engineering. This year also introduces you to management and project management skills, and includes a compulsory practical project.

YEAR 3

This year covers power systems engineering, distributed and alternative generation, and management topics like ethics and sustainability.

You also complete a full-year industry project, which is completed over two semesters. This supervised project helps you develop new skills which include design and production techniques. You'll work as individuals or as part of a team, and critically reflect on the relationship between your academic studies and engineering workplace practice, test theories and identify gaps in your knowledge to enhance your understanding of practical engineering matters.

Workplace experience

You also need to complete a minimum of 600 hours of planned supervised work placement to graduate. Work experience aims to expose you to common engineering practices in the industry and help you gain knowledge of engineering procedures, engineering responsibilities, engineering management practices, health and safety practices, and an understanding of practical engineering.

Career opportunities

- Control system engineer
- Lighting and building services engineer
- Power systems engineer
- Electrical, lighting, building and power industries
- Armed Forces

"From a young age I've had a deep love for technology and how things worked, as well as problem-solving and puzzles. I knew that becoming an engineer in Samoa would allow me to work with new technology and contribute to the development of my country. I strongly believe in sustainability, so the best way for me to promote sustainability was to become an electrical engineer and help Samoa and other Pacific nations develop towards a sustainable future with renewable energy. So many of my AUT engineering lecturers were very passionate about what they taught and about their students' future careers, and they had a lot of life experience to share in class."

Luna-Rossa Lomitusi-Ape
Samoa
Graduate Electrical Engineer,
Electrical Power Corporation, Vaitele, Samoa
Bachelor of Engineering Technology
in Electrical Engineering

Bachelor of Engineering Technology

Mechanical Engineering

Scan this QR code for course details and graduate stories.

What do food processing, plastics manufacturing, metal machining and mechanical design have in common? They're all career options for skilled mechanical engineering technologists. The Mechanical Engineering major prepares you for careers as an engineering technologist in mechanical engineering, and production or manufacturing engineering.

What this major covers

YEAR 1

You explore engineering mechanics, statics and dynamics and further your understanding of mathematics. You also develop an understanding of engineering materials and processes along with practical workshop, drawing, CAD and computer skills.

YEAR 2

You advance your knowledge of mechanics, design, thermodynamics, fluid mechanics and mathematics. You also become familiar with manufacturing technology and engineering management.

YEAR 3

This year you study one compulsory management course and complete a full-year industry project, which is completed over two semesters. This supervised project helps you develop new skills which include design and production techniques. You'll work as individuals or as part of a team, and critically reflect on the relationship between your academic studies and engineering workplace practice, test theories and identify gaps in your knowledge.

You also choose five elective courses from a selection of key mechanical engineering topics to advance your skills in a specific area (eg mechanics or thermodynamics) or give yourself a broad range of mechanical engineering skills.

Workplace experience

You also need to complete a minimum of 600 hours of planned supervised work placement to graduate. Work experience aims to expose you to common engineering practices in the industry and help you gain knowledge of engineering procedures, engineering responsibilities, engineering management practices, health and safety practices, and an understanding of practical engineering.

Career opportunities

- Maintenance engineer
- Mechanical design engineer
- Mechanical engineer
- Product development engineer
- Production/manufacturing engineer
- Project management

"I enjoy using technology to solve business challenges. I'm responsible for all the IT systems, teams and hardware for my company. I'm also leading the company-wide digital transformation, and modernising our systems and processes. I do this by analysing our current systems and ways of working, and coming up with a strategy to remove any blockers to growth and mitigate any potential risk. I initially chose to study engineering at AUT because of its reputation for producing graduates who are 'job ready', but one of the things I've enjoyed most about my studies was how my degree taught me to look at problems and break them down."

Avinash de Silva
Technology & Platforms Manager, Fresh Direct Ltd
Bachelor of Engineering Technology in Mechanical Engineering

Bachelor of Computer and Information Sciences
Overview

BCIS | AK3697

QUICK FACTS

Level	7
Points	360
Duration	3 years full-time, part-time available
Campus	City
Starts	26 Feb & 15 July 2024

Study computer and information sciences with us and choose from a wide range of programmes that prepare you for careers spanning everything from telecommunications to education, and healthcare to finance. The Institute of IT Professionals NZ (IITP) accredits our Bachelor of Computer and Information Sciences as meeting the Seoul Accord.

You benefit from our outstanding facilities and industry connections, including our ICT and Engineering Careers Fair where you can meet representatives from New Zealand's biggest and most exciting companies. Pair this with the industry research project in your final year, and you have the perfect foundation to launch your career in computer and information sciences.

Entry requirements

Minimum entry requirements

University Entrance or equivalent

Useful New Zealand school subjects

Calculus, Digital Technologies, Mathematics, Statistics

English language requirements

IELTS (Academic) 6.0 overall with all bands 5.5 or higher; or equivalent

IT INDUSTRY IT Professionals NEW ZEALAND ACCREDITED

DEGREE ACCREDITED BY IT PROFESSIONALS NEW ZEALAND

"I chose to study the Bachelor of Computer and Information Sciences because I knew that AUT specialised in different technologies in the first year. I liked that I was exposed to different areas, including computer science, artificial intelligence, information science and software development. My lightbulb moment was when I was in my second year at AUT and doing work for the AUT Oceanian Leadership Network to encourage more Māori and Pacific people to get involved in science, technology, engineering and maths. Seeing my people discover that they too can be in technology sparked something in me. Learning how to code is great but using your skill for people is even better. My tautua (service) to my family and community has led me to where I am today."

Eteroa Tusipepa Lafaele
Developer Evangelist, Xero
Bachelor of Computer and Information Sciences in Software Development

Scan this QR code for details about courses, where your study could lead and stories about our great graduates and students.

What this qualification covers

The Bachelor of Computer and Information Sciences is highly flexible and you can build your degree in a way that suits you and your interests.

To graduate with a Bachelor of Computer and Information Sciences you need to complete:

Core courses (120 points)

These are courses all students in this degree need to take. These courses cover foundation knowledge in computing and IT, and help you decide which subject to focus on later in your studies. One of the core courses is the research and development project you complete in your third year.

Your chosen major (120 points)

Your major is the subject area you want to specialise in. This makes up one third of your degree, and usually consists of eight courses related to your chosen subject. You can view the list of majors in this degree on page 22.

Flexible component (120 points)

You can choose one of the following options

- Two minors (60 points each); or
- A minor (60 points) and elective courses (60 points); or
- A second major (120 points)

Your second major, minor(s) and elective courses can be from computing or from different AUT degrees.

Bachelor of Computer and Information Sciences
Overview continued

Majors

Choose one of these majors as part of your degree:

- Data Science
- Digital Services
- Networks and Cybersecurity
- Software Development

Refer to pages 23 to 26 for more details on each of these majors.

If you want to include a second major in your degree, you can choose another subject from the list above or can see more options from different AUT degrees on **aut.ac.nz/majors-minors**

Minors

A minor is smaller than a major. It usually consists of four courses.

If you decide to include a minor in your degree, you could choose from:

- Artificial Intelligence
- Data Science
- Digital Services
- Networks and Cybersecurity
- Software Development

For more information on each of these minors and to see even more minors from other subjects visit **aut.ac.nz/majors-minors**

Build your degree on our website

Visit our website to build your own degree and see what your three years of study could look like. Simply scan the QR code on page 21.

Possible combinations include:

- Bachelor of Computer and Information Sciences in Networks and Cybersecurity with minors in Finance and Economics (one major, two minors)
- Bachelor of Computer and Information Sciences in Software Development with a minor in Artificial Intelligence (one major, one minor, plus elective courses of your choice)
- Bachelor of Computer and Information Sciences in Data Science and Software Development (two majors)

Bachelor of Computer and Information Sciences

Data Science

Scan this QR code for course details and graduate stories.

Advances in big data analytics are already driving businesses and organisations towards increasing levels of automated decision-making through sophisticated machine learning software. As a graduate of this major you'll be ready to design and implement data-driven solutions for a range of problems.

What this major covers

YEAR 1

You'll study six core courses that cover foundational computing knowledge, as well as a course on data analytics, covering basic data analysis techniques and the computing tools to apply such techniques. You also take the first course for your second major, minor or elective courses.

YEAR 2

Courses include data science, forecasting, structures and algorithms. You also take courses for your chosen second major, minor(s) or elective courses.

YEAR 3

Courses this year are related to nature inspired computing, AI, data mining and knowledge engineering. You also take courses for your chosen second major, minor(s) or elective courses.

Workplace experience

The Research and Development Project course in your final year brings together the skills you've developed throughout your degree. You apply what you've learnt in a project for an industry client or research centre, under the guidance of an experienced supervisor.

Career opportunities

- Data analyst
- Data scientist
- Data engineer

"I always enjoyed the labs the most. They gave us the opportunity to collaborate, share ideas and opinions about the week's work, and they were also where I met most of my university friends. Another highlight for me was the final-year research and development project. That was a good test to apply what I had learnt over the course of my studies at AUT. Since graduating, I got a six-month internship with WorkSafe after they were impressed with my work on the final-year project at AUT. I then landed a job as a software developer for Launch Agent, and have even managed to sign WorkSafe on as a customer for Launch Agent."

Jarryd Martin
Software Developer, Launch Agent
Bachelor of Computer and Information Sciences in Analytics

Bachelor of Computer and Information Sciences

Digital Services

Scan this QR code for course details and graduate stories.

Technology is vital in our day-to-day lives but the digital technology we rely on needs to be secure, well-designed and fit for purpose. With the Digital Services major you learn to analyse, design, procure and implement information technology solutions.

What this major covers

YEAR 1

You'll study six core courses that cover foundational computing knowledge, as well as a course on digital services and their role in the development and provision of IT services. You'll become familiar with the foundations of IT services and IT services management, including relevant processes, practices and techniques. You also take the first course for your second major, minor or elective courses.

YEAR 2

Courses this year cover needs analysis, acquisition and training; modelling, microservices, program design and construction, and information security technologies. You also take courses for your second major, minor(s) or elective courses.

YEAR 3

You complete courses related to service innovation and design, internet of things and applications, and information security management. You also take courses for your chosen second major, minor(s) or elective courses.

Workplace experience

The Research and Development Project course in your final year brings together the skills you've developed throughout your degree. You apply what you've learnt in a project for an industry client or research centre, under the guidance of an experienced supervisor.

Career opportunities

- Call centre manager
- Database administrator
- Information analyst and designer
- IT support role
- Logistics analyst
- Network and systems administrator
- Outsourced IT services co-ordinator
- Solutions architect
- Integration and functional consultant
- IS operational manager
- IT service supervisor

"The programme provides a good structure for students wanting a career in computer science or information technology. Throughout the degree students can also meet New Zealand IT professionals, which is essential for networking and career prospects. Students also engage with an industry organisation during the final-year project. I was particularly grateful for the immense support within AUT, and I've appreciated learning from academic staff who are well-informed in their areas of expertise in the IT industry. At AUT you'll meet people from all around the world and gain a new perspective of life. Expect to embark on an adventure of a lifetime."

Vanessa Simbiken
Papua New Guinea
Digital Transformation Associate, PwC, Port Moresby, Papua New Guinea
Bachelor of Computer and Information Sciences in IT Service Science

Bachelor of Computer and Information Sciences

Networks and Cybersecurity

Scan this QR code for course details and graduate stories.

Information is often an organisation's most precious asset – but it's also one of its most vulnerable assets. In this major you study the basics and infrastructure of networking, and learn to configure, implement and analyse network devices. This includes information network administration and cybersecurity to an advanced level.

What this major covers

YEAR 1

You'll study six core courses that cover foundational computing knowledge. You also become more familiar with networks and the internet, exploring data communications and computer networking principles in a network environment. You also take the first course for your second major, minor or elective courses.

YEAR 2

Courses include network and system administration, applications, and operating systems. You also take courses for your chosen second major, minor(s) or elective courses.

YEAR 3

This year you complete courses related to network security, network technologies, enterprise networks, secure systems, and information security management. You also take courses for your chosen second major, minor(s) or elective courses.

Workplace experience

The Research and Development Project course brings together the skills you've developed throughout your degree. You apply what you've learnt in a project for an industry client or research centre, under the guidance of an experienced supervisor.

Career opportunities

- IT security analyst
- Network analyst
- Network designer
- Systems and network administrator

"I had been working in IT on and off for 10 years, and I wanted my degree to focus on an area I've always had a passion for. I'd like to work for the cyber-crimes division or doing penetration testing for a company or government to detect any weaknesses in their systems. Among the highpoints for me were meeting like-minded people who have become good friends, and being able to communicate with my lecturers as well as express my thoughts and opinions. I'd recommend this degree if you're interested in cybersecurity; I've learnt a lot not just about security but about programming as well."

Rafael Dos Santos Augusto
Master of Cyber Security and Digital Forensics student
Bachelor of Computer and Information Sciences in Networks and Cybersecurity

Bachelor of Computer and Information Sciences

Software Development

Scan this QR code for course details and graduate stories.

Demand for new technology is constantly increasing. Technological solutions could lead to advances in areas as diverse as biomedicine, communications, business and entertainment. Software developers play a role in those advances. This major prepares you for these diverse and exciting roles.

What this major covers

YEAR 1

You'll study six core courses that cover foundational computing knowledge, as well as a course on programming, covering the processes of program design and implementation using object-oriented programming. You also take the first course for your second major, minor or elective courses.

YEAR 2

Courses include software development practice, program design and construction, data structures, operating systems, and algorithms. You also take courses for your chosen second major, minor(s) or elective courses.

YEAR 3

Complete courses related to human computer interaction, issues in software engineering, distributed and mobile systems, and web development. You take courses for your chosen second major, minor(s) or elective courses.

Workplace experience

The Research and Development Project course brings together the skills you've developed throughout your degree. You apply what you've learnt in a project for an industry client or research centre, under the guidance of an experienced supervisor.

Career opportunities

- Computer programmer
- Mobile/app developer
- Software developer, engineer or tester
- Systems analyst or architect
- Technology consultant
- Web developer
- Project manager

"I came to AUT because, after some research and chatting with friends, I found that AUT is best for its practical teaching mode. What that means is that the software development degree can prepare students at a professional level, and students can get more than enough practical training to prepare them before they go into the workplace. My job now involves building ELT/ETL pipelines with Azure Data Factory to bring data from other sources to our cloud data warehouse. I also construct solutions for our clients to visualise the data models. I work among an agile team, which helps with manging the tasks."

Matthew Fan
China
Data Engineer, Spark New Zealand
Bachelor of Computer and Information Sciences in Software Development

The AUT City Campus in the heart of Auckland City

Bachelor of Science
Overview

BSc | AK1041

QUICK FACTS

Level	7
Points	360
Duration	3 years full-time, part-time available
Campus	City
Starts	26 Feb & 15 July 2024

Studying a Bachelor of Science is guaranteed to ignite your passion for knowledge about the world, and will be the start of a lifelong career in science. The rapid evolution of technology makes studying analytics, or mathematical modelling and computation an exciting and demanding career option – one with huge job opportunities. Study with us and you have access to some of the best lecturers in New Zealand, and state-of-the-art equipment. Our strong links with the scientific community extend right across the world; making it easy for you to transition from university to your career.

Entry requirements

Minimum entry requirements

University Entrance or equivalent

Useful New Zealand school subjects

Calculus, Mathematics, Physics, Statistics

English language requirements

IELTS (Academic) 6.0 overall with all bands 5.5 or higher; or equivalent

Scan this QR code for details about courses, where your study could lead and stories about our great graduates and students.

What this qualification covers

The Bachelor of Science is highly flexible and you can build your degree in a way that suits you and your interests.

To graduate with a Bachelor of Science you need to complete:

Core courses (120 points)

These are courses all students in this degree need to take. These courses give you a basic understanding of different areas of science, and help you decide which subject to focus on later in your studies.

One of the core courses is the capstone project, a research or industry project you complete in your third year.

Your chosen major (120 points)

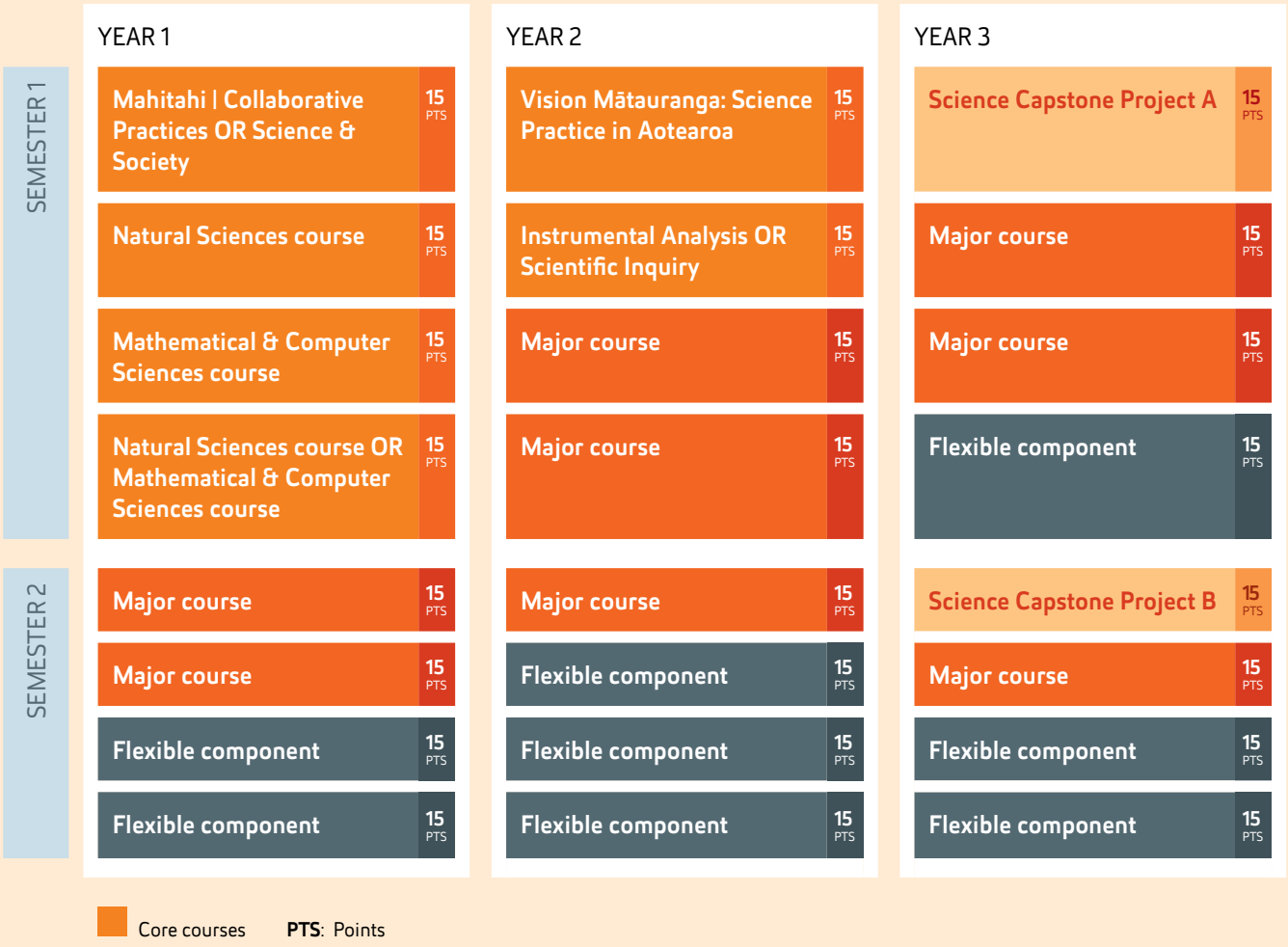
Your major is the subject area you want to specialise in. This makes up one third of your degree, and usually consists of eight courses related to your chosen subject. You can view the list of majors in this degree on page 30.

Flexible component (120 points)

You can choose one of the following options

- Two minors (60 points each); or
- A minor (60 points) and elective courses (60 points); or
- A second major (120 points)

Your second major, minor(s) and elective courses can be from science or from different AUT degrees.



Bachelor of Science
Overview continued

Majors

Choose one of these majors as part of your degree:

- Analytics
- Mathematical Modelling and Computation

Refer to pages 31 to 32 for more details on each of these majors.

If you want to include a second major in your degree, you can choose another subject from the list above or you could choose from other subjects in the Bachelor of Science:

- Biological Science
- Biomedical Science
- Chemistry
- Environmental Science
- Food Science
- Marine Science

Scan the QR code on page 29 to see more info on these science majors.

To see more options from different AUT degrees visit **aut.ac.nz/majors-minors**

Minors

A minor is smaller than a major. It usually consists of four courses. If you decide to include a minor in your degree, you could choose from:

- Analytics
- Astronomy and Space Science
- Bioanalytical Chemistry
- Biochemistry
- Biodiversity Conservation
- Biomedical Science
- Chemical Science
- Earth System Science
- Environmental Science
- Environmental Sustainability
- Food Science
- Food and Environmental Safety
- Geospatial Science
- Marine Science
- Mathematical Modelling and Computation
- Microbiology
- Molecular Genetics
- Pharmaceutical Formulation
- Psychology

For more information on each of these minors and to see even more minors from other subjects visit **aut.ac.nz/majors-minors**

Build your degree on our website

Visit our website to build your own degree and see what your three years of study could look like. Simply scan the QR code on page 29.

Possible combinations include:

- Bachelor of Science in Analytics with minors in Psychology and Economics (one major, two minors)
- Bachelor of Science in Analytics with a minor in Geospatial Science (one major, one minor, plus elective courses of your choice)
- Bachelor of Science in Mathematical Modelling and Computation & Environmental Science (two majors)

Bachelor of Science

Analytics

Scan this QR code for course details and graduate stories.

Analytical skills are essential in today's business environment, in New Zealand and around the world. The Analytics major is a statistics-based subject. If you major in analytics, you'll develop an understanding of the mathematical and statistical concepts that underpin statistical analysis techniques. You'll gain the knowledge to apply statistical analysis techniques and also develop new techniques. You learn about stochastic modelling, which can be used to help business make decisions under uncertainty, and become familiar with computing techniques to extract and analyse data.

What this major covers

YEAR 1

In your first year you can choose from a range of core courses covering computer and mathematical sciences, and natural sciences. You also study courses on algebra and calculus, and introductory probability and statistics. You also take the first courses for your second major, minor or elective courses.

YEAR 2

You become familiar with forecasting, statistical interference and statistical data analysis. You also take courses for your second major, minor(s) or elective courses.

YEAR 3

You explore advanced topics in analytics, including stochastic modelling, industry and business analysis, and multivariate data analysis. In your final semester, you also complete a research or industry project in an area related to analytics. This project gives you an important competitive edge for your career, and is good preparation for postgraduate study. You also take the final courses for your second major, minor(s) or elective courses this year.

Career opportunities

- Analytics and insights specialist
- Data analyst
- Data analytics specialist
- Data scientist
- Actuarial analyst
- Financial and marketing analyst
- Portfolio manager
- Performance analyst

Bachelor of Science

Mathematical Modelling and Computation

Scan this QR code for course details and graduate stories.

The Mathematical Modelling and Computation major will give you the skills to carry out modelling research and the analysis of problems in many industries. Mathematical modelling tells us about our world and helps predict what will happen next. Whether you want to look at global warming patterns, figure out the structural integrity of a building or forecast economic trends – it all relies on mathematical modelling. With skills in mathematical modelling and computation you can be part of the solution to a vast array of complex issues facing the world.

What this major covers

YEAR 1

In your first year you can choose from a range of core courses covering computer and mathematical sciences, and natural sciences. You also study courses on algebra and calculus, and introductory probability and statistics. You also take the first courses for your second major, minor or elective courses.

YEAR 2

This year courses focus on algebra and calculus, modelling and differential equations, and quantitative decision analysis. You also take courses for your second major, minor(s) or elective courses.

YEAR 3

In your third year, you study mathematical computation, and modelling and differential equations. You also choose to focus on mathematical modelling for either business, or health and biology. You also complete a research or industry project in an area related to mathematical modelling and computation. This project gives you an important competitive edge for your career, and is good preparation for postgraduate study. You also take the final courses for your second major, minor(s) or elective courses.

Career opportunities

- Actuary
- Control buyer/purchasing agent
- Industrial engineering scientist
- Market and financial analyst
- Mathematician
- Research analyst and associate
- Secondary teacher[1]

1. After an additional year of teacher training

Graduate Diploma in Science

Graduate Certificate in Science

Scan this QR code for course details and where these qualifications could lead you.

Gain advanced expertise and knowledge in mathematical sciences through study at graduate diploma and graduate certificate level. These qualifications are aimed at professionals, including secondary school teachers, who want to update their knowledge of current technologies and applications of mathematical sciences.

Entry requirements

Minimum entry requirements

- A bachelor's degree OR
- Relevant professional qualification or experience approved by the Dean (or representative) to be equivalent to a bachelor's degree

English language requirements

IELTS (Academic) of 6.5 overall with all bands 6.0 or higher; or equivalent.

What these qualifications cover

Graduate diploma

You choose courses from the Bachelor of Science to make up a total of 120 points. At least 75 points must be at level 7. You can include 30 points from any other bachelor's degree (with the approval from your programme leader).

Graduate certificate

You choose courses from the Bachelor of Science to make up a total of 60 points. At least 45 points must be at level 7.

Graduate Diploma in Science
GradDipSc | AK1042

QUICK FACTS

Level	7
Points	120
Duration	1 year full-time, part-time available
Campus	City
Starts	26 Feb & 15 July 2024

Graduate Certificate in Science
GradCertSc | AK1043

QUICK FACTS

Level	7
Points	60
Duration	½ year full-time, part-time available
Campus	City
Starts	26 Feb & 15 July 2024

Career opportunities

These programmes prepare you for postgraduate study in your chosen field or to advance your career.

Graduate Diploma in Computer and Information Sciences

Graduate Certificate in Computer and Information Sciences

Scan this QR code for course details and where these qualifications could lead you.

Develop a sound technical understanding of computing and information technology with the Graduate Diploma and Graduate Certificate in Computer and Information Sciences. Throughout your studies you gain the ability to plan, develop and apply appropriate technologies and tools to frame and solve computing problems.

Entry requirements

Minimum entry requirements

- A bachelor's degree OR
- Relevant professional qualification or experience approved by the Dean (or representative) to be equivalent to a bachelor's degree

English language requirements

IELTS (Academic) of 6.5 overall with all bands 6.0 or higher; or equivalent.

What these qualifications cover

Graduate diploma

You choose courses from the Bachelor of Computer and Information Sciences to make up a total of 120 points. At least 75 points must be at level 7. You can include 30 points from any other bachelor's degree (with the approval from the programme leader).

Graduate certificate

You choose courses from the Bachelor of Computer and Information Sciences to make up a total of 60 points. At least 45 points must be at level 7. You can include 15 points from any other bachelor's degree (with the approval from the programme leader).

Graduate Diploma in Computer and Information Sciences

GradDipCIS | AK3698

QUICK FACTS

Level	7
Points	120
Duration	1 year full-time, part-time available
Campus	City
Starts	26 Feb & 15 July 2024

Graduate Certificate in Computer and Information Sciences

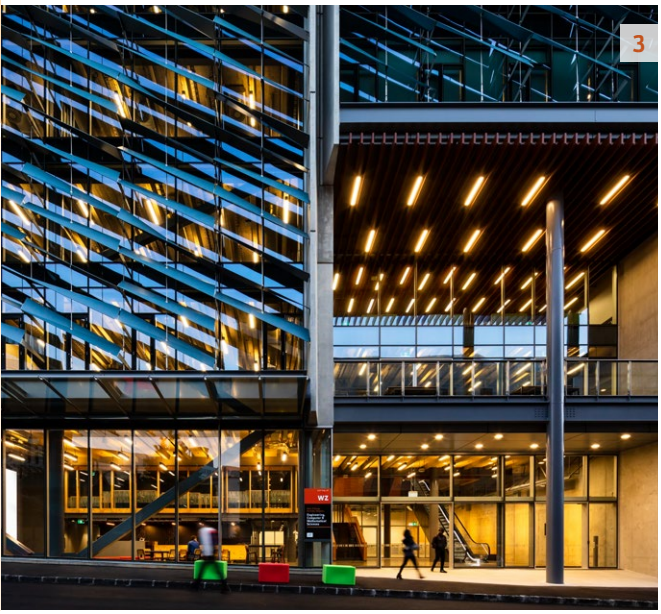
GradCertCIS | AK3756

QUICK FACTS

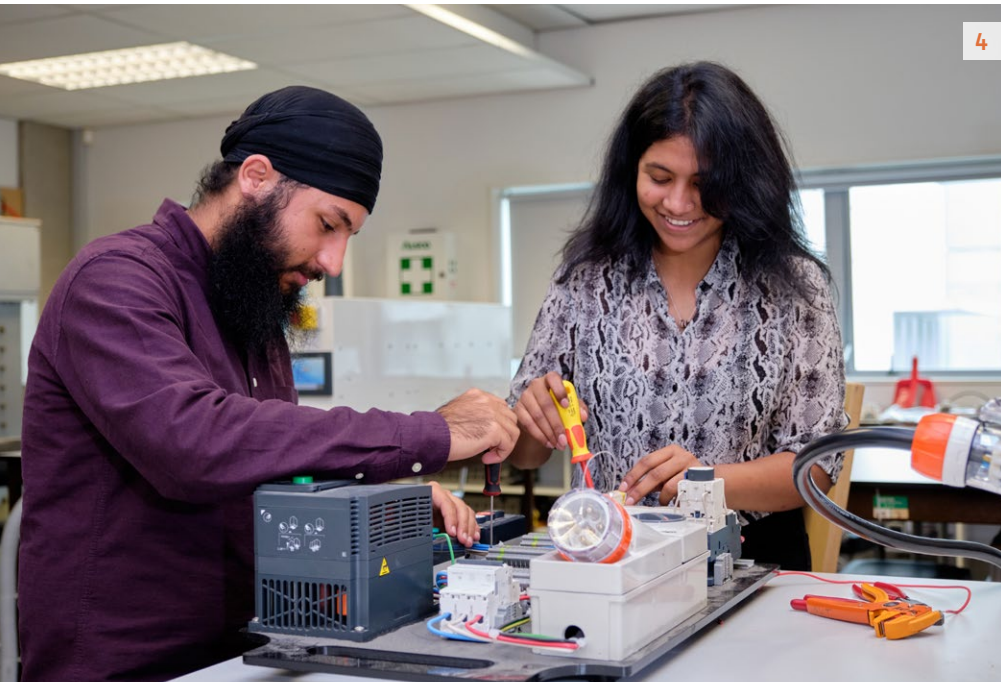
Level	7
Points	60
Duration	½ year full-time, 1 year part-time
Campus	City
Starts	26 Feb & 15 July 2024

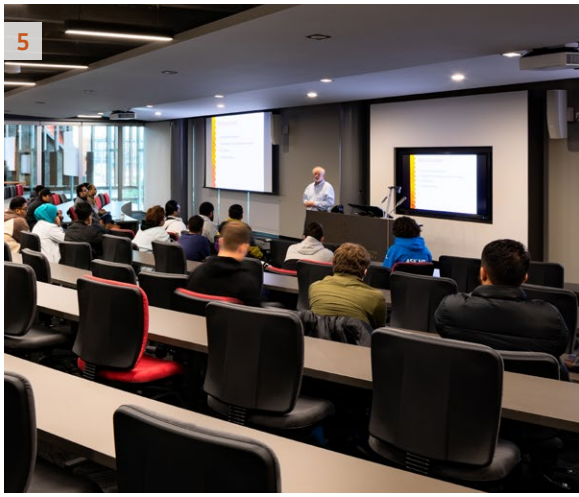
Career opportunities

These programmes prepare you for careers in a wide range of fields in computing and information technology.



1 At our open day, AUT LIVE, you can explore our excellent engineering facilities 2 & 5 You'll have access to modern computer labs and spacious lecture theatres in WZ building 3 The Ngā Wai Hono (WZ) building is home to engineering and computing at AUT and is a 'living lab' 4 Collaborate with your classmates on projects 6 The 3D Printing Lab can help you create 3D parts, objects and prototypes from digital designs 7 Learn how to use 3D visualisation to transform data into stories and experiences 8 The AUT City Campus is in the heart of central Auckland





Overview of postgraduate qualifications

AUT is Aotearoa New Zealand's fastest growing postgraduate study destination. We offer a wide range of postgraduate programmes to help you achieve your goals and progress your career. Our world-leading academics are research-active experts at the forefront of their disciplines, and our research centres and networks give you access to transformational research projects.

All study areas

Master of Philosophy

The Master of Philosophy is a one-year research-only master's degree. It gives you the opportunity to undertake a research project of an applied or professional nature, under the supervision of AUT staff. It can also serve as a pathway to more advanced research at doctoral level.

Doctor of Philosophy

The Doctor of Philosophy (PhD) is a thesis-based research degree that leads to advanced academic and theoretical knowledge in a specialist area. It's the highest qualification offered at a university. It enables you to make an original contribution to understanding in your chosen field, and meet recognised international standards for such work. You work closely with a supervisor to prepare a thesis, which is then examined by independent experts applying contemporary international standards.

Engineering

Postgraduate Diploma and Postgraduate Certificate in Engineering

These coursework-based qualifications are for students who want advanced study in mechanical, electrical or electronic engineering. They can serve as a pathway for Bachelor of Engineering Technology graduates who want to progress to the Master of Engineering.

Master of Construction Management

The Master of Construction Management has been developed in partnership with construction industry leaders to meet the demand for professionals who can manage modern construction projects. It's aimed at construction professionals including engineers, quantity surveyors and architects.

Master of Engineering

The Master of Engineering is designed to develop your research skills and enhance your knowledge in a specialised area of engineering. You build on the knowledge from your undergraduate degree and have the opportunity to undertake a research project. You can choose between two pathways: research pathway (includes a thesis) or coursework pathway (includes a research project).

Master of Engineering Project Management

The Master of Engineering Project Management provides an exciting career opportunity for practising engineering project managers aspiring to senior positions, and equips recent graduate engineers with business and project management skills for modern engineering companies.

Computer and Mathematical Sciences

Postgraduate Diploma and Postgraduate Certificate in Computer and Information Sciences

These coursework-based qualifications include courses from the Master of Computer and Information Sciences. Courses focus on advanced analytical, planning and critical thinking skills, broadening your knowledge within specialist fields of computer and information sciences. The programmes can serve as a pathway to further study at master's level.

Postgraduate Diploma and Postgraduate Certificate in Science

These coursework-based qualifications include courses from the Master of Science. Courses cover advanced knowledge and skills in applied mathematics, analytics or applied probability. The programmes can serve as a pathway to further study at master's level.

Scan this QR code for more details about postgraduate programmes.

Master of Analytics

The Master of Analytics addresses the global demand for professionals who can help organisations organise, store and manipulate data. It caters for students from a variety of disciplines, as well as professionals already working in the industry. Courses cover advanced analytics and database skills and the latest theory and techniques for statistical modelling and mathematical simulation.

Master of Computer and Information Sciences

The Master of Computer and Information Sciences is for those looking to advance their undergraduate qualification, improve their career opportunities, or explore a specialist area of interest. The master's thesis, a significant research project, is at the heart of the programme. You develop the skills and judgement to manage and lead teams of information and communication technology professionals. The programme can serve as a pathway to further study at doctoral level.

Master of Cyber Security and Digital Forensics

The Master of Cyber Security and Digital Forensics is designed for people interested in protecting computer systems and recovering evidence from compromised systems. Courses cover the skills to secure systems from attackers and analyse storage media including computer hard drives, solid state drives and networks.

Master of IT Project Management

With the Master of IT Project Management you gain the skills to design, implement and manage software development projects throughout their life cycle. You develop project management skills in planning, team facilitation, risk and change management for IT projects. Practical components like the Research and Development Project will give you opportunities to apply what you learn in class to the real world.

Master of Science

The Master of Science focuses on original research in applied mathematics, analytics, applied probability, modelling or astronomy. You work with researchers active in your chosen field and write a thesis on a topic of current research interest within the field of computer and mathematical sciences.

Whakauru whare wānanga

UNIVERSITY ENTRANCE

University admission to AUT bachelor's degrees

For New Zealand citizens and residents and international students studying in a high school in New Zealand

To gain admission to bachelor's degrees, you must have met the requirements for University Entrance plus any specified admission requirements for a programme, such as specific subjects, portfolios and interviews.

For more information on entry requirements, including entry requirements for international students visit **aut.ac.nz/entryrequirements**

Admission categories

You may be granted University Entrance under one of the following categories:

- NCEA University Entrance
- Ad Eundem Statum admission (at an equivalent level) – this includes Cambridge International Examinations (CIE) and International Baccalaureate Diploma Programme (IB)
- Discretionary Entrance
- Special Admission

Visit **aut.ac.nz/entryrequirements** to find out more details about these admission categories.

Common University Entrance requirements

Where programmes require a specific subject, it is expected that a student will have achieved a minimum of 14 NCEA credits in that subject (or equivalent), unless indicated otherwise. For a list of NCEA approved subjects for University Entrance visit the NZQA website, **nzqa.govt.nz**

	NCEA	CIE	IB[3]
Overall	Require NCEA level 3 certificate which consists of 80 credits, including at least 60 credits at level 3 or higher. Can include up to 20 credits at level 2. Note: Credits to achieve NCEA level 3 may include unit standards from non-approved subjects. **Subject credits** Total of 42 level 3 credits including: • 14 credits from one approved subject • 14 credits from a second approved subject • 14 credits from a third approved subject	A minimum of 120 points on the New Zealand CAIE Tariff[1] at A or AS level from an approved list (equivalent to NCEA approved subject list). Must include at least three subjects (excluding Thinking Skills) with grades D or above.	IB Diploma with minimum 24 points
Numeracy	At least 10 level 1 (or higher) numeracy credits (can be achieved through a range of subjects)	A minimum grade of D in IGCSE[2] mathematics or any mathematics subject at AS or A level.	Any mathematics subject – IB Group 5
Literacy	Total of 10 level 2 (or higher) literacy credits including: • 5 reading credits • 5 writing credits From specific standards in a range of NZQA English language rich subjects	A minimum grade of E in English Language and/or English Literature subject at AS or A level.	Literature or language and literature (SL or HL) – IB Group 1, with English as the language

1. NZ Tariff (based on old UCAS Tariff) = system which converts AS and A level grades into points.
2. IGCSE = International General Certificate of Secondary Education.
3. New Zealand residents who have taken IB but have not been awarded the Diploma may apply for discretionary entrance.

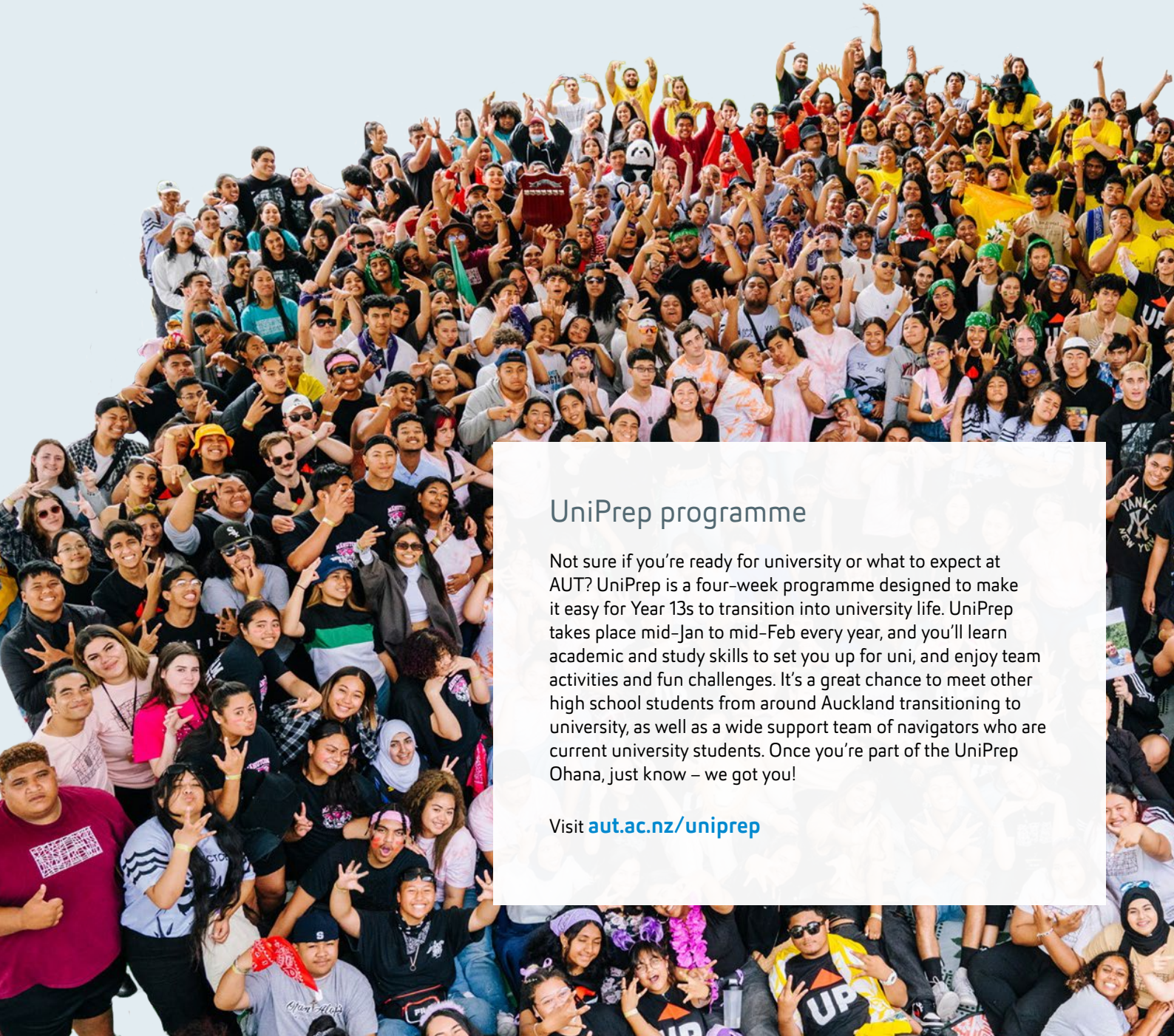
English language requirements

If you don't have English as your first language, you may have to show evidence of your English language skills. Visit **aut.ac.nz/englishrequirements** for details about English language testing and recognised English tests.

International students

Contact us for information regarding studying at AUT if you're not a citizen or permanent resident of New Zealand or Australia, or a citizen of the Cook Islands, Niue or Tokelau islands.

Visit **aut.ac.nz/int/entryrequirements** for entry requirements for specific countries. If you have any questions, you can contact us at **aut.ac.nz/enquire**



UniPrep programme

Not sure if you're ready for university or what to expect at AUT? UniPrep is a four-week programme designed to make it easy for Year 13s to transition into university life. UniPrep takes place mid-Jan to mid-Feb every year, and you'll learn academic and study skills to set you up for uni, and enjoy team activities and fun challenges. It's a great chance to meet other high school students from around Auckland transitioning to university, as well as a wide support team of navigators who are current university students. Once you're part of the UniPrep Ohana, just know – we got you!

Visit **aut.ac.nz/uniprep**

Ngā utu whakauru, ngā karahipi

FEES & SCHOLARSHIPS

Cost is an important factor when thinking about university study. This page gives you an idea of the approximate tuition fees at AUT, and different options to help you fund your education including scholarships, student loans and allowances.

To give you an idea of approximate costs, the 2023 tuition fees are shown below (based on full-time study and completing 120 points per year). All fees are in NZ dollars and include GST. The 2024 tuition fees will be advertised on **aut.ac.nz/fees** as soon as they have been set. You may also need to pay additional fees for course materials or elective courses (check with your faculty if there are additional fees for your programme).

Domestic student tuition fees

First-time domestic students are entitled to one year of fees free.

Undergraduate programmes

Fee (per year):	$4,083 (for 60 points) – $10,277 (for 120 points)[1] ($3,546–$9,203 tuition fees + $537–$1,074 student services levy)

1. Part-time students pay a proportion of the fee based on the number of academic points they are studying.

International student tuition fees

Undergraduate programmes

Fee (per year):	$18,537 (for 60 points) – $44,774 (for 120 points) ($18,000–$43,700 tuition fees + $537–$1,074 student services levy)

Please note that you must pay your fees in full by the date specified on your fees invoice.

To find out more about fees call **+64 9 921 9779** or **0800 AUT AUT** (0800 288 288).

Free fees for your university study[1]

Eligible domestic students starting tertiary education receive one year of full-time study fees-free.
To check if you're eligible for fees-free study in 2024 visit **aut.ac.nz/fees**

Student loans and allowances[1]

If you're a full-time domestic student, you may qualify for a student loan or allowance. Student loans and allowances are administered and paid by StudyLink. The application process can take some time, so it's a good idea to apply early. You can apply for a student loan or student allowance before your enrolment at AUT is complete.

To find out more call **0800 88 99 00** or visit **studylink.govt.nz**

1. Domestic students only, not available to international students.

Financial assistance

We know that sometimes things happen and financial stress can impact your academic success. That's why we offer financial support that ranges from offering grocery or fuel vouchers, to helping with that unexpected bill.

StudyLink

Visit **studylink.govt.nz** for tools, tips and information to help you plan and understand the costs you will have while studying.

Scholarships and awards

Scholarships and awards are a great way to fund your university study. There is a wide range of scholarships and awards available to AUT students at all stages of their study including the Welcome to Auckland scholarship and Find Your Greatness scholarship (details below).

Visit the scholarships website for a full current list of scholarships offered by AUT and external funders, as well as application forms and closing dates. You can also contact AUT's Scholarships Office for advice on scholarships, awards and the scholarship application process.

2024 AUT Welcome to Auckland Scholarships

Because we recognise the challenges students may face when moving to Auckland, AUT's three-year Welcome to Auckland scholarships make a contribution towards students' accommodation and study fees. These scholarships recognise high-achieving secondary school students living outside of Auckland who intend to enrol in bachelor's degree study commencing in 2024.

2024 AUT Find Your Greatness Scholarships – School Leaver

AUT's Find Your Greatness undergraduate scholarships for school leavers reflect our commitment to creating great graduates. These three-year scholarships recognise students' academic achievement, as well as students' potential leadership ability and contribution to their school or community, cultural pursuits or sport at a representative level.

The Find Your Greatness scholarships are offered in the four categories below for study commencing in 2024:

- Academic Excellence
- All Rounder
- Hiki Ake (Lift Up)
- Kiwa (Māori and Pacific students)

Applicants will be considered in all categories for which they are eligible.

To find out more call **+64 9 921 9837**
or visit **aut.ac.nz/scholarships**

Accommodation

Check out our student accommodation – a comfortable and convenient option whether you're a first-year or postgraduate student, new to Auckland, or living away from home for the first time. AUT's student accommodation is modern and secure, offering a social community just a few minutes' walk away from our City or North Campus. You may even be eligible for a scholarship to go towards your accommodation costs.

Visit
aut.ac.nz/accommodation

He pēhea te tono

HOW TO APPLY

Below is the step-by-step guide to the application process.
For more information visit aut.ac.nz/apply

1 APPLY EARLY

Places are limited. Submit your application well before the semester starts.

APPLYING FOR 2024

- Semester 1
  – apply by 4 December 2023
- Semester 2
  – apply by 6 May 2024

2 COMPLETE THE APPLICATION FORM

- Apply online
- Indicate your programme(s) of choice and major (if known)

International students can also apply using an AUT approved international agent. For a list of AUT registered agents visit aut.ac.nz/international-agents

SUBMIT YOUR APPLICATION

WE ACKNOWLEDGE YOUR APPLICATION

- We will send you an acknowledgment email, which explains how to check the status of your application
- We will contact you if we need more information

Ready to apply?
apply.aut.ac.nz

WE ASSESS YOUR APPLICATION

- We assess your application to ensure you have met the entry criteria for the programme(s) you are applying for
- We consider your academic history and relevant experience to ensure you can succeed in your programme
- We let you know if your application has been successful

POSSIBLE OUTCOMES

CONFIRMED We would like to offer you a place to study at AUT

PROVISIONAL You have met some of the criteria for entry to your chosen programme of study and we would like to offer you a provisional place to study at AUT. If you don't meet the rest of the requirements, then this offer will be withdrawn

CONDITIONAL You have to meet the conditions and approvals listed in your conditional offer to be able to secure a formal offer of place

DECLINED If you don't meet the entry requirements or all places are taken, we may offer you an alternative programme

3 ACCEPT YOUR OFFER

It's important that you respond as soon as possible, particularly if you've been offered a place in a programme with limited places.

Ētahi atu kōrero

FIND OUT MORE

aut.ac.nz

Need some help?

Visit **aut.ac.nz/enquire**, ask us your question and we'll call you back. Or you can phone **0800 AUT AUT** (0800 288 288) to speak to one of our friendly advisors. We can help with any questions you may have, and you could also book a course counselling session or a campus tour.

Campuses

City Campus
55 Wellesley Street East, Auckland Central

North Campus
90 Akoranga Drive, Northcote, Auckland

South Campus
640 Great South Road, Manukau, Auckland

Connect with us now:

AUT LIVE

Join us at our open day, AUT LIVE, on the City Campus and see everything AUT has to offer to help you make an educated decision about university study.

aut.ac.nz/live

ENGINEERING, COMPUTER & MATHEMATICAL SCIENCES 2024

AUT

0800 AUT AUT (0800 288 288)
Auckland University of Technology
Auckland, New Zealand
aut.ac.nz

Enquire now
aut.ac.nz/enquire

Connect with us now:

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This booklet is printed on Satin matt paper which is certified to the Forest Stewardship Council® (FSC®) standard as an FSC Mix paper from well managed forests and other responsible sources.

We print using BIO-inks that contain materials that are based on renewable resources including wood resin (rosin, colophony), and vegetable oils, linseed oil and soybean oil and the printing company is FSC certified.

12/2022 – 9,000