

Postgraduate Prospectus 2024

Faculty of Engineering
Te Herenga Mātai Pūkaha



**UNIVERSITY OF
AUCKLAND**
Waipapa Taumata Rau
NEW ZEALAND

Gain knowledge and create a better world



Engineering is increasingly ubiquitous – both in its variety and visibility. Our postgraduate programmes are designed to develop your abilities to solve problems, innovate and create positive change in our ever-evolving technological landscape.

We all approach postgraduate study for different reasons, but are united in the challenges and thought-provoking questions that we share. As a faculty, we are willing to satisfy intellectual curiosities, contribute to the ongoing developments in our fields and potentially create new knowledge. We welcome you to join us on our ongoing journey to do the same.

Te Herenga Mātai Pūkaha's research is varying and diverse, with much of it having a tangible impact on our daily lives. This also means that you will get the chance to learn from globally-recognised experts whose influence extends to decisions outside the classroom. We boast strong collaborations with industry and other research organisations, and work in increasingly cross-disciplinary fields – all these ensure that we're creating knowledge pathways towards intellectual independence, practical skills and an empathy to understand our world.

You will join the Faculty at an exciting time, following recent revitalisation of University and Faculty Research Centres. Recognising that major research breakthroughs come from combining ideas from cross-disciplinary teams, the Faculty and its five departments host 17 Research Centres engaged in ground-breaking activity in areas that address tomorrow's global challenges - from environmental sustainability and structural safety, to the design of software and advanced medical systems.

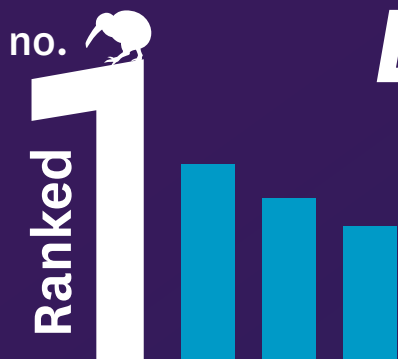
To realise this potential, we are committed to fostering collaborative environments for all our students, regardless of their professional and research backgrounds.

www.auckland.ac.nz/foe-research-centres

Congratulations for taking a step towards becoming part of our outstanding whānau. We look forward to seeing you apply your passions to better academia, industry and society.



PROFESSOR GERARD ROWE
Dean of Engineering
The University of Auckland



Leading the way

New Zealand's highest-ranking
University and Engineering faculty

Top University in New Zealand for Employability

According to the Times Higher Education World University Rankings 2022, QS World University Rankings 2022 and QS Graduate Employability Rankings 2022.

Our departments



Chemical and
Materials
Engineering



Electrical, Computer,
and Software
Engineering



Civil and
Environmental
Engineering



Engineering
Science



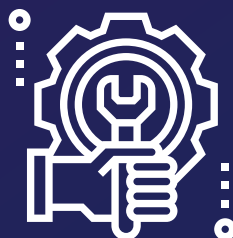
Mechanical
Engineering

First in NZ in Chemical, Electrical & Electronic, Civil & Structural, and Mechanical Engineering according to the QS World University Rankings by Subject 2022.

We also offer



Student clubs, associations
and networks



Specialised
facilities



Tailored postgraduate
programmes

Teaching Excellence and Transformational Learning

Our new engineering building was shortlisted for an Engineering New Zealand award.

This new building and our facilities represent a sustained commitment to providing a state-of-the-art home for our staff, students and researchers.

The University of Auckland is consistently ranked as New Zealand's leading tertiary education provider, both in general rankings and in specific criteria like employability and sustainability. We've also become home to industry partners through co-location and hotdesking opportunities at our Newmarket Innovation Precinct.
nip.auckland.ac.nz

Our Newmarket Campus houses many of our cutting-edge research centres like the Structures Testing Laboratory, the Wind Tunnel, and the Creative Design and Additive Manufacturing Lab

Our research collaborations extend far beyond our campuses. They encompass other faculties, government organisations, private companies and other research institutions. These connections reinforce our status as a faculty with a global reach.

Postgraduate students studying at the University of Auckland have access to our facilities and a wealth of knowledge from our staff.



Career outcomes after Postgraduate Study

Our postgraduates have gone on to work at top companies in New Zealand and around the world, often with social and environmental responsibility in mind.

Our postgraduate programmes are designed for employability. Our postgraduates have gone on to work at Beca, Downer, HEB Construction, EnviroNZ, Ernst & Young, Vector, Broad Solutions LTD, Auckland Council, Weta Digital, Serato, Rocket Lab, the Ministry of Energy and Mineral Resources, and more companies in New Zealand and abroad.

Our graduates put their efforts towards redressing inequity. Marina Drazba worked for the UN, teaching residents in landslide-prone areas to recognise and prepare for earthquakes. While Nona Hohepa-Taute aims to facilitate more efficient collaboration between Māori communities and non-Māori parties to utilise and develop geothermal resources.

Some of our postgraduate students go on to start their own businesses and others stay at the University as postdoctoral fellows and pursue cutting-edge research funded by the University of Auckland and industry partners.



Research and Taught Masters: Compared and Contrasted

We offer two types of postgraduate degrees at the University of Auckland, research and taught.

TAUGHT

Taught programmes focus on classroom-based studies, and will give you advanced specialist knowledge in your field. These are usually completed via coursework, although some taught programmes can include a research project. Taught programmes are popular with students who want to advance their career prospects in New Zealand and overseas. Graduates from these programmes are confident and well-rounded individuals. They leave the University with a broad range of technical and interpersonal skills that they can use to solve problems and deliver solutions.

RESEARCH

Our research degrees provide you with the opportunity to develop advanced research skills and present your findings in a thesis or dissertation. These projects can range from building robots, to creating liquid smoke, or modeling for financial operations or for traffic patterns.

The University of Auckland is New Zealand's premier research institution, and has earned a great reputation for delivering academic and research excellence within a supportive learning environment. Your research will make an independent contribution to learning, or offer a critical perspective on existing scholarship or methodology. We also offer opportunities to commercialise your research with UniServices, the University of Auckland's commercialisation arm, or with other industry partners.

uniservices.co.nz



Continuous Learning with the Graduate School of Engineering

The Graduate School of Engineering delivers a postgraduate experience that will propel students to excellence both in research and in industry.

The Graduate School of Engineering offers a range of postgraduate taught programmes to help students progress in their careers. Graduates from the GSE cite the practical experience of their supervisors, teachers, and industry guest lecturers as key aspects of their learning. This connection with real-world outcomes is essential for developing engineers who are ready for the workforce.

GSE programmes fall into the following categories to help engineers plan for their desired career paths.

Knowledge development programmes

Knowledge development programmes allow you to cultivate advanced knowledge in a chosen specialisation, like the Master of Engineering Studies. They're suitable for recent Bachelor of Engineering graduates, returning students who wish to specialise further, or people who wish to study a new specialisation.

Short study programmes

Short study programmes encompass most of our postgraduate certificates. They allow you to upskill on a flexible schedule and can also be used as pathways into longer degrees, if you don't meet the entry requirements for direct entry into our masters programmes.

Engineering leadership and management programmes

Engineering leadership and management programmes will give you the knowledge you need to lead and manage engineering projects. These programmes, which include the Master of Engineering Project Management Health Specialisation and the Master of Infrastructure Asset Management, are well-suited to returning students who are early/mid-career and young professionals.

Sector specific programmes

Sector specific programmes draw together multiple disciplines to create effective engineers who are experts in their field. They include the Master of Energy, the Master of Robotics and Automation, and the Master of Aerospace Engineering.



Industry Partnerships

We have formed strong relationships with domestic and international companies thanks to our highly-skilled faculty, world-class research facilities and hardworking students.

Companies regularly commission our academics and students for research. Our postgraduate students have worked to reduce landfill emissions and detoxify waste for EnviroNZ, have received funding from the Ministry of Business Innovation and Employment to figure out how to track farm animals with biodegradable RFID tags and have partnered with the Environmental Defence Fund to launch satellites to track dangerous space debris.

Companies also look to the University of Auckland for its technical expertise and world-class facilities. Fisher & Paykel used our Newmarket Innovation Precinct facilities to develop environmentally friendly air circulation products, and Blunt Umbrella used our wind tunnel to test their famed umbrella strength. Other companies co-locate their businesses at Newmarket, allowing postgraduate students to make industry connections.

Discover some of the companies and organisations we've worked with who provide career opportunities in engineering.

AECOM	McConnell Dowell
Air New Zealand	Milmeq
Auckland Transport	New Zealand Defence Force
Aurecon	New Zealand Space Agency
Auckland District Health Board	Oji
Baldwins	Opus
Beca	Pattle Delamore Partners Ltd (PDP)
Coffey	Power by Proxi
Compac	Prendos
Cubic	Rocket Lab
Downer	Society of Fire Protection Engineers
Ergo Consulting	Synergine
EROAD	Tonkin+Taylor
EnviroNZ	Transpower
Ernst & Young	TDG
Fisher & Paykel Healthcare	Trustpower
Fletcher Construction	Veriphi/Klien Medical
Fonterra	Vista
Fulton Hogan	Vodafone
Genesis Energy	Watercare
GHD	WorleyParsons
Harrison Grierson	
HEB Construction	
Holmes Consulting Group	
Honeywell	
Jacobs	

Jessica Vien S. Mandi

Master of Infrastructure
Asset Management

Jessica Vien S. Mandi's research aims to guide investment decisions for infrastructure developments in the Philippines, which would alleviate large-scale vulnerabilities, leading to longer lasting infrastructure and ultimately reducing climate change vulnerabilities.

“Working on my Masters not only enables expertise but also adds confidence to my way of living. I enrolled in a masters to further learn about the concept and best practices of disaster management. I feel that disasters are the most difficult problems to solve and that by studying disaster management and resilience I can make a difference.”

“Given the prevailing COVID-19 pandemic restrictions all of my research meetings and deliverables were accomplished online. As I worked remotely from the Philippines I was able to assist my associate professor as an international consultant. I helped in preparing a diagnostic report in participation with a World Bank Technical Assistance project. The work experience was invaluable and I was easily able to allot time for the work while keeping up with my requirements for my postgraduate study.”

“I believe that resilient infrastructure could lead to a resilient economy, a resilient society and a resilient environment.”





Antonella Caldaralli

PhD candidate conjoint
Aerospace Engineering
& Physics

Antonella Caldaralli, a PhD candidate in Aerospace Engineering conjoint with Physics, is researching Thrust Vectoring of Plasma Thruster. She is studying a new type of electric propulsion system called radio-frequency plasma thruster, and is doing a focus on controlling the plasma direction through external magnetic fields for Attitude and Orbit Control (AOC) manoeuvres of spacecraft.

“I am originally from Italy and I chose the University of Auckland because while New Zealand is still a relatively new country to the space industry, it is growing fast. There are so many directions you can go for your research. I am one of two people researching radio frequency plasmas and plasma thrust vectoring, which can be frustrating at times, but it also grants you the freedom to explore your interests.”

“During my PhD I designed a plasma reactor with a vacuum chamber, with my lab partner, so we could regularly use it in our experiments. We have named it Moa.”

“It is also exciting that I can do my Aerospace Engineering PhD as a conjoint with Physics. I have two PhD supervisors and can use both facilities.”

A photograph showing three people in a laboratory setting. Two women and one man are gathered around a table, looking at a tablet held by one of the women. They appear to be engaged in a collaborative activity. The background is filled with acoustic foam panels, suggesting a soundproofed environment. A blue chair is visible on the right side of the frame.

Research at the Faculty of Engineering

Our engineering research programmes allow you to develop advanced research skills and present your findings in a scholarly thesis or dissertation. You can also commercialise research or create spin-off companies with the assistance of UniServices, the University's commercialisation arm.

The University of Auckland has a great reputation for delivering academic and research excellence within a supportive learning environment. We give you the opportunity to learn from and collaborate with outstanding academic staff from New Zealand and around the world.

The University has also built strong research relationships with government and industry. Our students have conducted research to help with flood hazard mapping, landslide prevention, landfill detoxification, worked on capturing methane emissions to help the environment, built autonomous robots to help on the factory floor and more. Check out some of our engineering research options.

Doctor of Philosophy (PhD)

The PhD involves undertaking independent and original research. You will be able to pursue a specialisation of your choice under the supervision of our world-class academics. This can help you gain the advanced knowledge you need for specialised industry, consulting positions, teaching or academia. It is the best route to become an expert in your field.

Guaranteed scholarships are available to domestic research students and PhD applicants with a qualifying programme from a New Zealand university who meet GPA requirements.

Sector specific programmes

These programmes are designed in conjunction with government & industry needs, and aim to fill jobs that need high-level, specific engineering expertise. [Master of Aerospace Engineering](#), [Master of Earthquake Engineering](#), [Master of Robotics and Automation](#)

Master of Engineering (ME)

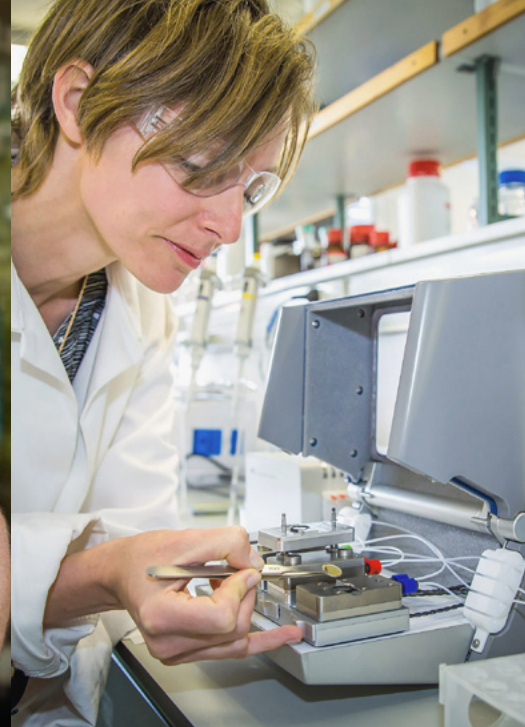
With a Master of Engineering, you'll undertake stimulating research to solve real-world problems at the cutting edge of engineering. Our programmes also equip you for a career in industry, open the potential for further study or lead to entrepreneurial opportunities.

Master of Engineering students have done research that range across all ten engineering specialisations, from building autonomous robots, to denaturing whey protein so dairy can be safely disposed of.

Applied-knowledge programmes

These programmes are particularly good for helping students hone their managerial skills, training them to lead and manage projects and engineering organisations.

[Master of Energy](#), [Master of Operations Research](#), [Master of Project Management](#)



ASSOCIATE PROFESSOR CATHERINE WATSON investigates language development, pronunciation recognition and vocal health by applying signal processing techniques.

PROFESSOR CHARLES CLIFTON is leading the way in structural steel innovations for earthquake-proofing and improved fire safety.

ASSOCIATE PROFESSOR JENNY MALMSTROM is making advancements in fundamental research for smarter regulation of stem cells to improve cancer treatment.

Our research centres

We have 17 world-class research centres that enable the best engineering and cross-disciplinary research in New Zealand. They range across all our specialisations and include wind tunnels, 3D printing labs and Australasia's largest 'strong wall' to test civil structures. Learn more about how you can work with our facilities.

The Acoustics Research Centre is the premier acoustics research group in New Zealand, committed to undertaking high-quality fundamental, theoretical and experimental research, and seeks opportunities to create meaningful impact across the nation.

The Advanced Thermal Engineering and Aerodynamics (ATHENA) Centre develops clean energy technology to enable a sustainable net-zero carbon future. We undertake cutting-edge research in the areas of thermal engineering, aerodynamics, fluid mechanics and wind engineering for energy production, conversion and efficient utilisation of renewable sources.

The Centre for Advanced Materials Manufacturing and Design (CAMMD) addresses the global challenges of energy efficiency, low emissions and sustainability in manufactured products through increasing innovation and productivity within the knowledge-intensive, advanced manufacturing sector.

The Centre for Automation and Robotic Engineering Science (CARES) is an interdisciplinary centre which is committed to creating new robotic, automation and sensing (RAS) technologies that improve societal wellbeing, and inspire and train the next generations of RAS researchers.

The Centre for Intelligent Manufacturing and Mechatronics (CIMM) is comprised of two themes, Factories of the Future (FoF), and Intelligent Mechatronics and Biomechanics (IMB), the centre relies strongly on shared fundamental sciences such as machine learning, artificial intelligence, robotics, automation, sensors and actuators.

The Centre of Neural Engineering and Cell Technologies (CoNECT) focuses on the issue of the health and wellbeing of a rapidly growing and ageing population, health inequities for Māori, and seeks to advance and enhance human health by 'connecting' through neural integration with technology.

The CIRCUIT Centre More than 90% of the materials used in the global economy are utilised only once, then thrown away. The CIRCUIT Centre looks at all aspects of transitioning towards a circular economy.

The Engineering Education Research Centre plays a leading role in the research of engineering education through teaching innovations and outreach activities. Engineers shape our world, and we shape engineers.



ASSOCIATE PROFESSOR SAEID BAROUTIAN believes in a circular economy and has figured out a way to turn non-recyclable personal protective PPE equipment into water and vinegar



PROFESSOR OLAF DIEGEL creates award-winning 3D-printed anatomical models for surgical planning at the Creative Design and Additive Manufacturing Lab. His four-elements collection of 3D printed guitars, were created and printed there.

Engineering Solutions for Natural Hazards Mitigation aims to develop analysis, design and decision-making methods to support the assessment of built environment components and systems in the context of natural hazards.

The Geothermal Institute (GI) was established in 1978, and is one of the world's premier centres for geothermal research, education, training, testing and consulting.

The Green Energy Engineering Centre is driven by the purpose to carry out research to assist New Zealand in achieving a zero-carbon economy through increased investment in renewable energy.

The Infrastructure for Community Futures Research Centre (ICFRC) collaborates across disciplines within the University and externally to understand the complex interactions between society, infrastructure, the natural environment and the implications for future infrastructure decision-making.

The Māori and Pasifika Engineering Research Centre (MPERC) provides a hub for Māori and Pasifika researchers to support and nurture Māori and Pasifika research excellence. It also assists non-Māori/Pasifika within the faculty and research centre to meaningfully engage and collaborate with tangata whenua, further expanding and maintaining relationships.

The Pūnaha Ātea | Space Institute is a multi-faculty space science and engineering centre with the purpose of maximising opportunities that arise from the flourishing local space sector.

The Transdisciplinary Modelling and Engineering Research Centre (TME) combines transdisciplinary modelling with engineering to both model complex systems and implement the resulting solutions. The transdisciplinary approach draws together researchers from different disciplines and enables them to explore complex causes and consequences within systems.

The Transportation Research Centre helps to lead and accelerate the transition towards a safer and more sustainable transport system that enables improved social, cultural, economic and environmental outcomes in Aotearoa New Zealand and the world.

The Water Research Centre aims to make water infrastructure resilient to climate change, improve the performance of water and wastewater infrastructure, develop multi-scale integrated modelling frameworks to assess and mitigate future ecosystem threats, and to increase the amount of teaching and research done on water resource management, especially in water allocation, water demand forecasting and water trade.

Discover our research centres:
www.auckland.ac.nz/foe-research-centres

For a list of available postgraduate research opportunities, visit:

engineering.auckland.ac.nz/researchprojects

<https://profiles.auckland.ac.nz/>



Priya Mittal

Master of Engineering in Electrical and Electronic Engineering

Priya Mittal chose to do her Master of Engineering part-time, so she could pursue her passion for research while still working. The University of Auckland's flexible scheduling opportunities allowed her to do that.

“The ability to study part-time was one of the driving factors behind my choice to study at the University of Auckland.”

“I wanted to discover more. With so many new technologies available to us in the market, it's important to consider new ways of working.”

Priya's research investigates the use of 3D printing to manufacture microwave devices. Given 3D printing is an increasingly popular fabrication method, exploring the possibility of new alternatives for prototyping piqued her curiosity. Through the University of Auckland, she gained access to expertise, resources and facilities, and industry contacts.

“It's interesting to see how many opportunities can arise from just a single conversation.”





Julia He

Master of Medical Engineering

Julia He is upskilling. She is doing her Master of Medical Engineering Degree while working as a product manager at Fisher and Paykel

“I love the papers we do. I especially loved ENGGEN 770 Medical Device and Technology Development. It teaches you the clinical and technical aspects of medical device development. You go through the whole product life cycle, from commercialisation to design concept, validation verification, and the regulatory and quality requirements.”

“I believe that the University of Auckland is a strong leader in research. I graduated 10 years ago with a BSc from UoA and, for me, it has always been that mother school that I gravitate towards.”

“As a science grad I had to study the basics of engineering like stress and strain, and what they really meant. It took me about 15-20 hours to complete, but every hour was worth it to understand all the fundamental knowledge needed for my work. This is a great Master’s program for those with both a science and engineering background.”

“The Masters degree offered me a new platform and future to develop my skills into a career I want. With this degree I can get more into the academic and product side of marketing. “

“Having had industry experience and being in the workforce before I enrolled was hugely beneficial as a lot of this degree is practical experience.”

Subject	PGCert	PGDip	Taught masters	Research masters	Doctorate
Aerospace	✓	✓	✓	✓	r
Bioengineering				r	✓
Chemical and Materials Engineering	✓	✓	✓	✓	✓
Civil Engineering	✓	✓	✓	✓	✓
Computer Systems Engineering	✓	✓	✓	✓	✓
Construction Management	✓	✓	✓	r	r
Earthquake Engineering	✓		✓	r	r
Electrical and Electronic Engineering	✓	✓	✓	✓	✓
Energy ¹			✓	✓	r
Engineering Management ¹			✓	r	r
Engineering Science	✓	✓	✓	✓	✓
Environmental Engineering	✓	✓	✓	✓	r
Food Engineering	✓	✓	✓	✓	r
Geothermal Energy Technology	✓		✓	r	r
Geotechnical Engineering			✓	✓	r
Infrastructure Asset Management	✓	✓	✓	r	r
Materials Engineering	✓	✓	✓	✓	r
Mechanical Engineering	✓	✓	✓	✓	✓
Mechatronics Engineering	✓	✓	✓	✓	✓
Medical Engineering	✓	✓	✓	r	r
Operations Research and Analytics ³	✓	✓	✓	✓	✓
Polymers	✓	✓	✓	✓	r
Project Management	✓		✓	r	r
Robotics and Automation	✓	✓	✓	r	r
Software Engineering	✓	✓	✓	✓	✓
Sustainable Resource Recovery	✓	✓	✓	✓	r
Transportation Engineering	✓	✓	✓	✓	r

*1 Interfaculty with Science and Business. 2 Interfaculty with Business. 3 Interfaculty with Science.
r Available as a research area in the associated department*

Our programmes

Our postgraduate programmes reflect the diversity of our faculty and the ever-evolving engineering market. We offer postgraduate certificates, postgraduate diplomas, masters degrees and doctorates, which vary in time commitment to best meet your needs.

Choose from over 20 specialist areas, study full-time or while working, pursue in-depth research by writing a thesis, or expand your practical skills through a coursework-based qualification.

POSTGRADUATE CERTIFICATE PROGRAMMES

Postgraduate certificates are our most flexible option. They can include customisation and the opportunity to learn specialist skills. A postgraduate certificate is 60 points, or one semester of full-time study. Some can be taken part-time and can be used as pathway into masters programmes.

Postgraduate Certificate in Engineering (PGCertEng)

Taught (60 points)

Full-time (6 months) or part-time (2 years)

This certificate provides graduate engineers with advanced technical or management foundations and new industrial perspectives, expanding their employability in their sector of choice. A plastics specialisation is available for those wishing to pursue further career opportunities in materials and processing, and can be completed by distance learning. Also available as Postgraduate Certificate in Engineering, Food Engineering.

<https://bit.ly/PGCertificateEng>

Postgraduate Certificate in Engineering Project Management (PGCertEPM)

Taught (60 points)

Full-time (6 months) or part-time (2 years)

A career-focused qualification that capitalises on New Zealand's position as a cultural force in the world of successful start-ups. The PGCertEPM provides key management practices as you study towards an industry-recognised professional certification.

<https://bit.ly/PGCertEPM>

Postgraduate Certificate in Geothermal Energy Technology (PGCertGeothermTech)

Taught (60 points)

Full-time (6 months) or part-time (2 years)

This world-recognised programme gives engineers and scientists practical and applied skills in the geothermal energy industry, equipping them to pursue diverse roles in this sector. It includes two week-long field trips and a block structure to fit in with work commitments.

<https://bit.ly/PGCertGeothermTech>

Postgraduate Certificate in Earthquake Engineering (PGCertEqEng)

Taught (60 points)

Full-time (6 months)

A coursework-based programme that fulfils increasing industry needs for the next generation of leaders. The PGCertEqEng draws from our internationally-recognised expertise in geotechnical and structural engineering. This course is excellent for people looking to learn quickly and gain practical knowledge.

<https://bit.ly/PGCertEqEng>

Postgraduate Certificate in Operations Research and Analytics (PGCertORAn)

Taught (60 points)

Full-time (6 months)

The PGCertOR gives students from a variety of backgrounds – including arts, commerce, engineering or science – skills in network design simulations and dynamic programming to perform rigorous intellectual analysis, as well as solve complex industry problems in healthcare, transport, finance, energy, telecommunications, government and manufacturing.

<https://bit.ly/PGCertORAn>

Postgraduate Certificate in Infrastructure Asset Management (PGCertInfraAssetMgt)

Taught (60 points)

Full-time (6 months) or part-time (varies)

This course is for those looking to upskill and prepare to take on responsibilities in infrastructure asset management. PGCertInfraAssetMgt graduates will be able to demonstrate knowledge and advanced understanding of the Infrastructure Asset Management discipline.

<https://bit.ly/PGCertInfraAssetMgt>

Postgraduate Certificate in Robotics and Automation Engineering (PGCertRobotEng)

Taught (60 points)

Full-time (6 months)

The PGCertRobotEng is a taught programme directed largely at those who want to put their skills to practice in industry. It's our most flexible option, and allows students to learn practical knowledge about the robotics and automation field to enhance their careers.

<https://bit.ly/PGCertRobotEng>

Postgraduate Certificate in Aerospace Engineering (PGCertAerospaceEng)

Taught (60 points)

Full-time (6 months)

The PGCertAerospaceEng is available to study part-time, and provides students with a pathway towards pursuing the Master of Aerospace Engineering. It is an excellent way to upskill in the Aerospace Engineering field and enhance your employability.

<https://bit.ly/PGCertAerospaceEng>

Postgraduate Certificate in Medical Engineering (PGCertMedicalEng)

Taught (60 points)

Full-time (6 months) or part-time (varies)

Medical technology is getting more complex and the field needs upskilled engineering graduates to help maintain and create it. The PGCert in Medical Engineering is our most flexible option, and is designed to upskill graduates with industry relevant expertise in medical technologies and biomechanical engineering.

<https://bit.ly/PGCertMedicalEng>

Postgraduate Certificate in Engineering, Sustainable Resource Recovery specialisation (PGCertEng)

Taught (60 points)

Full-time (6 months) or part-time (varies)

A PGCert in Engineering with a Sustainable Resource Recovery specialisation gives you exposure to our departmental expertise in areas like resource recovery technologies, bioprocessing, materials processing and characterisation, and process control and optimisation. The postgraduate certificate is our most flexible degree option and is suited for students looking to explore this growing field.

<https://bit.ly/PGSusEng>

Postgraduate Certificate in Materials Engineering (PGCertMaterialsEng)

Taught (60 points)

Full-time (6 months)

Materials engineering challenges us to discover and design new materials for future innovation by developing knowledge and skills used in the materials, manufacturing and energy industries. PGCertMaterialsEng is suitable for those who aspire to a career in materials processing and production, manufacturing, new materials deployment and development disciplines, either in a technical or management role.

<https://bit.ly/PGCertMaterialsEng>

POSTGRADUATE DIPLOMA PROGRAMMES

Postgraduate diplomas build on knowledge you gained as an undergraduate. They're perfect for people looking for a shorter-term commitment than a masters degree and often focus on practical knowledge for enhanced employability. They can also be used as pathways into masters programmes.

Postgraduate Diploma in Engineering (PGDipEng)

Taught (120 points)

Full-time (1 year) or part-time (4 years)

This qualification gives students with a three-year engineering bachelors degree an opportunity to build on their previous skills, resulting in a well-rounded knowledge of the principles, concepts and ideas that underpin a chosen specialisation. It is designed to provide a pathway to further study in a masters programme.

Also available as Postgraduate diploma in Engineering, Food Engineering

<https://bit.ly/PGDipEng>

Postgraduate Diploma in Operations Research (PGDipOR)

Taught (120 points)

Full-time (1 year) or part-time (4 years)

The PGDipOR is offered alongside the Faculty of Science to equip engineers with problem-solving skills in the design and management of large or complex systems in business, industry and government. It is of particular interest to those pursuing roles in predictive or prescriptive analytics in a broad selection of industries.

<https://bit.ly/PGDipORAn>

Postgraduate Diploma in Aerospace Engineering (PGDipAerospaceEng)

Taught (120 points)

Full-time (1 year)

Equip yourself improve your employability in the space and aeronautical sectors, or prepare for further study with the PGDipAerospaceEng, Aotearoa's first dedicated taught diploma programme in aerospace engineering.

<https://bit.ly/PGDipAerospaceEng>

Postgraduate Diploma in Infrastructure Asset Management (PGDipInfraAssetMgt)

Taught (120 points)

Full-time (1 year) or part-time (varies)

The primary goal of the PGDipInfraAssetMgt is to provide a pathway for infrastructure asset managers who are unable to commit to a full masters programme. The programme will allow them to upskill in specific areas of infrastructure asset management and enhance their job prospects in this growing field.

<https://bit.ly/PGDipInfraAssetMgt>

Postgraduate Diploma in Robotics and Automation Engineering (PGDipRobotEng)

Taught (120 points)

Full-time (1 year)

The PGDipRobotEng is a taught programme directed largely at those who want to put their skills to practice in industry. It allows students to upskill in the robotics and automation field, in New Zealand and internationally.

<https://bit.ly/PGDipRobotEng>

Postgraduate Diploma in Medical Engineering (PGDipMedicalEng)

Taught (120 points)

Full-time (1 year) or part-time (varies)

Equip yourself for employment in Aotearoa's rapidly growing Medical Engineering field as it gets more complex. The PGDip in Medical Engineering is designed to help working professionals enhance their careers with practical industry knowledge, based on sectors demonstrated needs.

<https://bit.ly/PGDipMedicalEng>

Postgraduate Diploma in Engineering, Sustainable Resource Recovery specialisation (PGDipEng)

Taught (120 points)

Full-time (1 year) or part-time (varies)

A PGDip in Engineering with a Sustainable Resource Recovery specialisation gives you exposure to our departmental expertise in areas like resource recovery technologies, bioprocessing, materials processing and characterisation, and process control and optimisation. This degree is suited for students looking to upskill professionally.

<https://bit.ly/PGSusEng>

Postgraduate Diploma in Materials Engineering (PGDipMaterialsEng)

Taught (120 points)

Full-time (1 year) or part-time (varies)

The Postgraduate Diploma in Materials Engineering programme offers a balanced understanding of materials design, synthesis and deployment, whilst cultivating management skills. The degree will help you to develop knowledge, skills and competencies that are used in the materials, manufacturing and energy industries, and will open job opportunities in the academic sector.

<https://bit.ly/PGDipMaterialsEng>



MASTERS PROGRAMMES

Our masters programmes allow you to build on your previous study by increasing your knowledge in specific subject areas. Our masters programmes can help enhance your career prospects, teach you transferrable skills and let you research alongside leading academic staff in a top-ranked institution. Masters degrees are offered as research and taught options.

Master of Engineering (ME)

Research (120 or 180 points)

Full-time (1 year or 18 months)

Part-time (2 or 3 years)

Write a thesis under supervision by leading academics and researchers in your chosen specialisation. You will undertake a stimulating mix of theoretical and experimental research to solve real-world problems at the cutting edge of engineering advancement. Our programmes will also equip you for a career in industry or open the potential for further study.

As part of this degree, you can specialise in:

- Bioengineering
- Chemical and Materials Engineering
- Civil Engineering
- Computer Systems Engineering
- Electrical and Electronic Engineering
- Engineering Science
- Environmental Engineering
- Mechanical Engineering
- Mechatronics Engineering
- Software Engineering

<https://bit.ly/MasterofEnergy>

Master of Engineering Management (MEMgt)

Taught (120 points)

Full-time (1 year) or part-time (3 years)

This prestigious programme, offered by the Faculty of Engineering and the University of Auckland Business School, is viewed as 'an MBA for engineers.' It provides you with the technical foundations, project management skills and business acumen needed to pursue leadership roles in technologically-driven companies.

<https://bit.ly/MEMgt>

Master of Engineering Project Management (MEPM)

Taught (120 or 180 points)

Full-time (1 year or 18 months)

Part-time (3 or 4 years)

The MEPM is a career-focused qualification that capitalises on New Zealand's position as a cultural force in the world of successful start-ups. It provides key management practices as you study towards an industry-recognised professional certification.

<https://bit.ly/mprojectmanagement>

Master of Engineering Studies (MEngSt)

Taught (120 or 180 points)

Research (120 points)

Full-time (1 year or 18 months) or part-time (2 or 3 years)

The MEngSt is a taught masters with diverse specialisations, which allows you to tailor your study towards your professional goals and interests. With this programme, you can gain applied knowledge to pursue roles with regulatory, management or product development scopes. A research option is available for the Food Process Engineering and Medical Devices and Technologies specialisations.

<https://bit.ly/MEngSt>

Master of Earthquake Engineering (MEqEng)

Taught (120 points)

Research (120 or 180 points)

Full-time (1 year or 18 months)

This is a coursework-based programme that fulfils industry needs for the next generation of leaders, and draws from our internationally-recognised expertise in geotechnical and structural engineering.

<https://bit.ly/MEqEng>

Master of Energy (MEnergy)

Master of Energy (MEnergy)

Taught (120 or 180 points)

Research (120 points)

Full-time (1 year or 18 months) or

Part-time

This programme is ideal for engineering, science or commerce graduates who want to develop their technical, business or policy-related expertise, leading to global, sustainable career pathways. It can lead to work in fields like energy consulting, project management, or energy modelling analytics.

<https://bit.ly/MasterofEnergy>

Master of Engineering Geology (MEngGeol)

Research (120 and 180 points)

Full-time (varies) or part-time (varies)

By focusing on the development of accurate and reliable geological ground models, you will be well equipped to work within New Zealand's complex environment and contribute to the projected construction boom. This interfaculty programme, between the Faculty of Engineering and the Faculty of Science is for students who want to pursue an industry-relevant programme.

<https://bit.ly/MEngGeol>





Master of Operations Research and Analytics (MORAn)

Taught (120 and 180 points)

Research (120 and 180 points)

Full-time (1 year to 18 months)

The MORAn gives students from a variety of backgrounds – including arts, commerce, engineering or science – skills in network design simulations and dynamic programming to perform rigorous intellectual analysis. It also gives them the tools to solve complex industry problems in healthcare, transport, finance, energy, telecommunications, government and manufacturing.

<https://bit.ly/MORAn>

Master of Civil Engineering (MCivilEng)

Taught (120 or 180)

Research (120 or 180)

Graduates of the Master of Civil Engineering programme will be able to utilise their knowledge and skills in the design and construction of infrastructure like buildings, transportation systems, water & wastewater facilities, ports, bridges and urban environments. This programme teaches students discipline-specific knowledge that will enable them to solve problems and improve people's standard of living.

<https://bit.ly/MCivilEng>

Master of Professional Engineering (MProfEng)

Taught (180 or 240)

The Master of Professional Engineering has been designed to meet the requirements Washington Accord for accreditation, the global standard for engineering degrees. Accreditation against the Washington Accord puts graduates on a pathway towards becoming Chartered Professional Engineers in their future careers, increasing domestic employment prospects. Accreditation is also recognised internationally via mutual recognition agreements, making it valuable for graduates seeking global transferability and for professional engineers who wish to practice internationally.

<https://bit.ly/MProfEng>

Master of Infrastructure Asset Management (MInfraAssetMgt)

Taught (120 or 180 points)

Research (120 or 180 points)

New Zealand's infrastructure is expected to grow dramatically in the next 20 years, our new buildings, roads and water systems are going to need people who know how to take care of them. MInfraAssetMgt is designed to equip students with the skills, knowledge and expertise to get a head in this field. Two specialisations are available, Strategic Asset Management, and Planning and Network Management & Systems. MInfraAssetMgt can also be explored through postgraduate certificates and diplomas.

<https://bit.ly/MInfraAssetMgt>

Master of Engineering Project Management, Health Projects Specialisation (MEPMH)

Taught (120 or 180 points)

Full-time (18 months) or part-time (varies)

This programme provides students with the in-depth knowledge and skills needed to succeed in project management in a variety of industries. Focusing on two key project management practices, Waterfall and Agile, this programme enables students to work towards industry-recognised professional certification. Students will gain sound fundamentals in project management concepts and application.

This degree is also available with a health specialisation, which will prepare students for a career in designing, procuring, constructing and maintaining physical infrastructure in the health sector. This is in response to a need by District Health Boards (DHBs) in New Zealand.

<https://bit.ly/mepmh>

Master of Robotics and Automation Engineering (MRobotEng)

Taught (120 or 180 points)

Full-time (varies)

As the world of work evolves, we see a growing need for expertise in the robotics and automation field – in New Zealand and globally. The MRobotEng aims to produce graduates with the knowledge to develop, deploy and support these technologies at advanced levels for years to come. Many of our teaching staff are well-recognised experts in the field and are a part of the University's Centre for Automation and Robotic Engineering Science who boast collaborations with industry and researchers at a global scale. This ensures that our courses are kept up-to-date with recent real-world applications, as well as containing direct insights into the emerging technologies available here in New Zealand.

<https://bit.ly/MRobotEngineer>



Master of Aerospace Engineering (MAerospaceEng)

Taught (120 or 180 points)

Research (120 or 180 points)

Full-time (varies)

New Zealand's space industry is growing, as is its capacity for innovation in industry and research. Get a head start in your career in this exciting field with the MAerospaceEng, designed to equip students with the skills, knowledge and expertise to be effective employees in a field with increasing national and global economic significance. Our courses in Aerospace Engineering are supported by Te Pūnaha Ōtea/Auckland Space Institute, which aims to enhance the growth of the New Zealand space sector. The institute is led by academics with deep expertise in the aerospace sector, making the University of Auckland ideally placed to deliver an excellent teaching and learning experience for our students. The MAerospaceEng programme has also received additional endorsements from the New Zealand Space Agency, Rocket Lab CEO Peter Beck and the Royal Aeronautical Society.

<https://bit.ly/MAerospaceEng>



Master of Medical Engineering (MMedicalEng)

Taught (120 or 180 points)

Full-time (18 months) or part-time (varies)

Medical technology is getting more complex, and the field needs upskilled engineering graduates to help maintain and create it. Get a head start in this exciting field with the Master's in Medical Engineering, designed to equip students with the skills, knowledge and expertise to be effective employees in an essential field. This degree comes in two specialisations Medical Devices and Technologies, and Biomechanical Engineering.

<https://bit.ly/MMedicalEng>

Master of Engineering Studies in Sustainable Resource Recovery (MEngSt)

Taught (120 and 180 points)

Full-time (varies) or part-time (varies)

A Master of Engineering Studies with a specialisation in Sustainable Resource Recovery gives you knowledge of circular economy, waste minimisation, recycling and resource recovery. It emphasises on critical evaluation of operational practices for waste reduction and resource recovery from technical, economic, environmental and societal perspectives. This programme is all about the practical use of innovation in a way that reduces the environmental impact of waste and shapes the future of sustainability. All these skills are valued in industry and are applicable to fields including waste management, manufacturing, food, pharmaceuticals and more

<https://bit.ly/PGSusEng>

Master of Materials Engineering (MMaterialsEng)

Taught and Research (120 or 180 points)

Graduates of the Master of Materials Engineering programme can gain endorsements in biomaterials engineering, energy and environmental materials, and advanced materials processing. Industry is also looking for candidates willing to develop research projects and portfolios that draw on Māori and Indigenous knowledge, such as novel materials for green energy (e.g. New Zealand plant fibres or biomass-derived graphite) or extracting valuable metals from industry waste.

<https://bit.ly/MMaterialsEng>

PHD PROGRAMMES

Our PhD is a globally recognised postgraduate research degree and is the highest level of degree you can achieve. PhD students are critical, curious and creative thinkers who undertake original research over at least three years. This option is best for students looking to become experts in their field and who want to explore some of engineering's most difficult challenges.

A New Zealand government funding programme enables the University of Auckland to offer PhD study opportunities to international students at a domestic student rate.

Doctor of Philosophy (PhD)

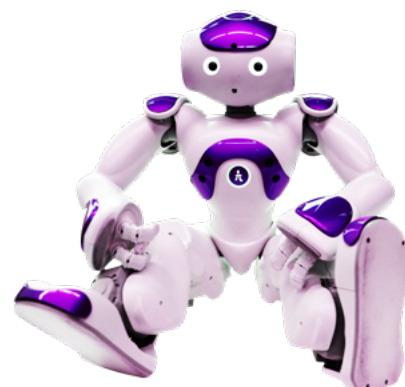
Doctoral research (120 points per year)

Full-time (3-4 years) or

Part-time (6-8 years)

The PhD involves undertaking advanced independent and original research. You will be able to pursue a specialisation of your choice under the supervision of, and by collaborating with, our world-class academics, and gain the advanced knowledge needed for specialised industry, consulting positions, teaching or academia.

auckland.ac.nz/phd



Funding Options



\$40 million

in postgraduate scholarships are offered by the University of Auckland each year

NEARLY

400

POSTGRADUATE SCHOLARSHIPS

OFFERED ACROSS
THE UNIVERSITY

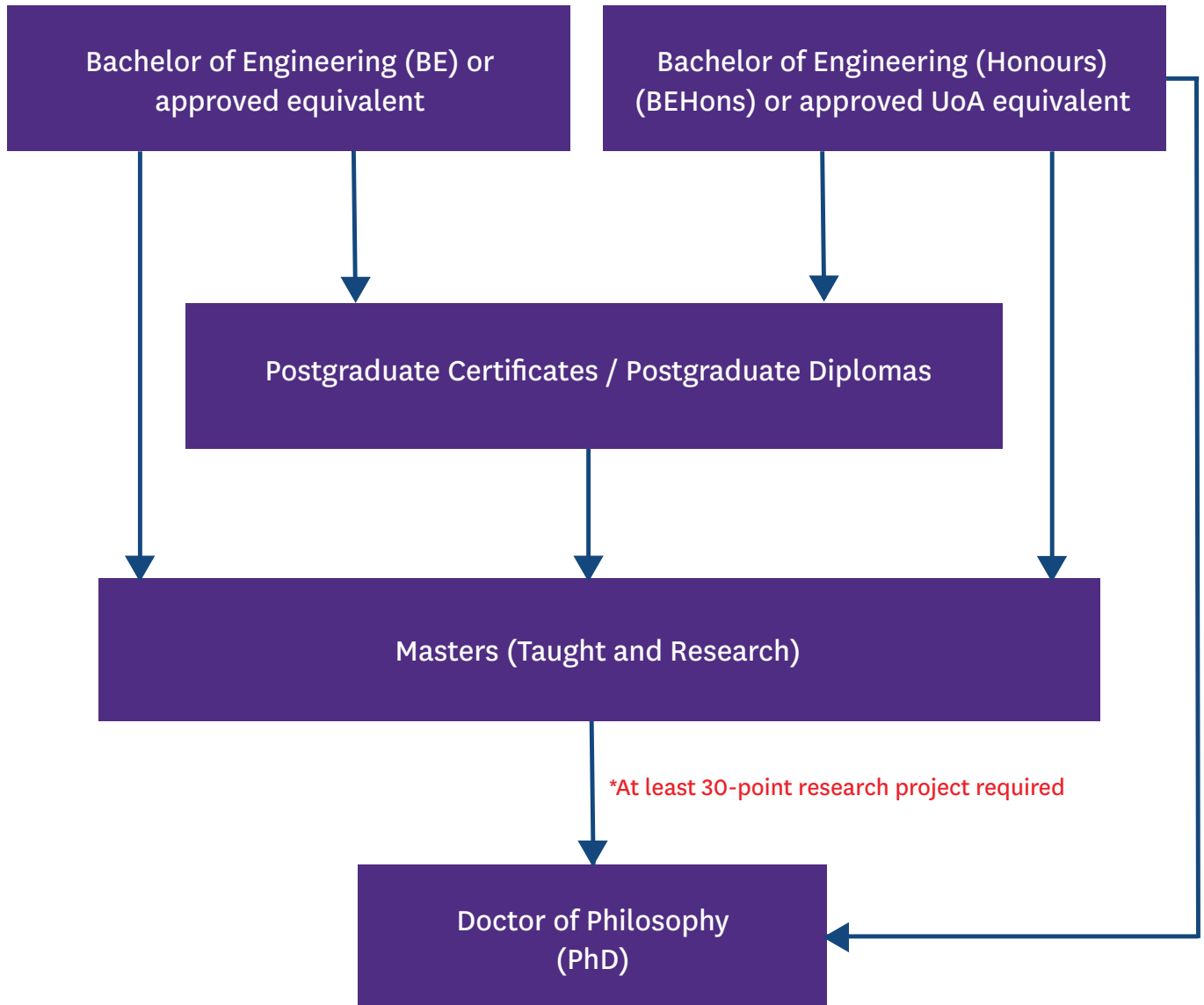
FIND ONE THAT SUITS YOU AT

www.engineering.auckland.ac.nz/scholarships

- Guaranteed scholarships are available to domestic research students and PhD applicants with a qualifying programme from a New Zealand university who meet GPA requirements: auckland.ac.nz/makethegrade
- Summer Research Scholarships give you a \$6,000 tax-free stipend to enhance your CV and gain research experience: summer.ac.nz
- Doctoral students receive an annual stipend paid into their PRess accounts for up to four years to cover direct research costs, such as overseas conferences: www.auckland.ac.nz/press-accounts



General Faculty of Engineering Postgraduate Pathways*



* If you don't see your qualifications listed in the diagram but you're still interested in pursuing postgraduate study with us, please feel free to call our Support Centre at 0800 61 62 65 (domestic), or either +64 9 923 1535 or +64 9 373 7999 (international). One of our representatives will be happy to discuss our options with you.

Admission and application

Admission to postgraduate programmes

- All admissions for 2024 close in December 2023 (Semester One) and July 2024 (Semester Two) with some following exceptions. However, many masters programmes have earlier deadlines. You should check your specific masters programme page for up-to-date application deadlines.
- Eligible candidates can apply for a PhD throughout the year.
- Information on your fees is available at [auckland.ac.nz/fees](https://www.auckland.ac.nz/fees); this is based on your subject choices and workload.
- English language requirements
We require an overall IELTS academic score of 6.5, with no bands below 6.0. See [auckland.ac.nz/pg-english-reqs](https://www.auckland.ac.nz/pg-english-reqs) for approved alternatives to IELTS.
- Grades from previous study
Grades or marks achieved at the University of Auckland are given a grade point average (GPA). Grades obtained at other institutions are converted to grade point equivalent (GPE) on our scale. See [gpecalculator.auckland.ac.nz](https://www.auckland.ac.nz/gpecalculator) for more information.

Entry requirements

Certificate of Proficiency

A Certificate of Proficiency provides you with the opportunity to meet a major requirement or try a subject you're interested in by taking one or two courses at the University of Auckland without committing to a full programme. If you decide you have a taste for learning and want to reassign the points from your COP course to a qualification, our student advisers can help plan the best study option for you.

Postgraduate certificates or postgraduate diplomas

You must have completed an undergraduate degree at a recognised tertiary institution in a field relevant to your specialisation.

Masters degrees

- You will need a GPA or GPE of either 4.0 or 5.0 depending on the programme. Please refer to your specific masters programme page for more details. If you don't meet this criteria, you may begin your pathway into a masters programme by enrolling in one of our postgraduate certificate or postgraduate diploma programmes.

- 120-point programme: a four-year bachelors degree in engineering where the final year consists of postgraduate-level study and an individual research project relevant to your chosen specialisation. Students who have a Washington Accord accredited engineering degree from other institutions are also eligible for 120-point taught masters programmes.
- 180-point programme: an undergraduate degree in engineering at a university (or similar institution) in a field relevant to your chosen specialisation.
- We also consider applicants from cognate degree areas such as science, architecture and other fields. In exceptional circumstances, we consider applicants with relevant industry experience.

Doctoral degrees

You must be able to carry out independent research and have completed a significant research project, dissertation or thesis at university. Acceptance into our doctoral programme is dependent on the availability of supervision and facilities.

- Applicants must have achieved a B+ and have a BE(Hons) or Masters. This applies to both domestic and international students alike.
- To determine whether you're academically eligible for our programmes, you can check out our GPE calculator at [gpecalculator.auckland.ac.nz](https://www.auckland.ac.nz/gpecalculator).

How to apply

Applying for a non-doctoral programme

- Follow the step-by-step guide at www.auckland.ac.nz/pg-admission
- The Application for Admission is available at apply.auckland.ac.nz, where you can also check your application status and see what supporting documents you will need to provide.
- If you applied for an intake in the following semester, a decision will be made within four weeks. Delays may occur for future semester intakes, during peak admission periods, or if documents take longer to process.

Applying for a PhD programme

- Make sure you meet all entry requirements. If you have decided on an area of interest or potential research topic, you can apply at [auckland.ac.nz/applydoctorate](https://www.auckland.ac.nz/applydoctorate).
- Assessment of your doctoral application can take eight weeks or longer. You can check your application status online and see what supporting documents are required.

International students

A copy of your offer of place from the University is required to supplement your visa application. We recommend starting your University application as soon as possible and contacting an overseas representative for help at www.auckland.ac.nz/overseasrep.





**UNIVERSITY OF
AUCKLAND**
Waipapa Taumata Rau
NEW ZEALAND

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Postal

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