In his work, Bachelor of Electrical and Electronic Engineering (Honours) student Sam combines empathy and empowerment with engineering. As an intern at NASA, Sam built software to expand human understanding of aerospace technology. And as an exchange student at The University of Pittsburgh, he studied devices that decode a patient’s brain activity to control prosthetics — groundbreaking technology that could potentially give people who have lost function of their limbs life-changing independence and access. In his final year project, he’ll use the University’s world-class facilities and technology to further his understanding of what he calls “the most complicated electrical circuit on the planet” — the human brain.

Sam
Bachelor of Electrical and Electronic Engineering (Honours)
The role of an engineer is ever-changing. From building complex computer systems and influencing the infrastructure we use every day, to finding new ways to harness energy or even designing prosthetic limbs to help amputees – engineers play a critical role in overcoming the challenges our world faces. Challenges like food and water security, climate change, data protection and the increasing impact growing populations have on society. As a global leader in engineering higher education, including being ranked Top 8 in the world for Automation and Control engineering, this is the place to develop world-changing solutions.

newcastle.edu.au/study/engineering
YOUR JOURNEY STARTS HERE

LIFESTYLE
Our coastline is world famous. Enjoying downtime at one of Newcastle’s pristine beaches and three coastal baths is made easy with long stretches of uncrowded sand, accessible public transport, and plenty of free parking. A creative hub, Newcastle is home to the bright ideas of countless innovators and entrepreneurs. Enjoy all that Newcastle has to offer – a dynamic art and music scene, chilled-out cafes, eclectic markets, micro-breweries and small bars. The people are friendly, the beaches are picture perfect and the coffee culture is taken seriously.

CAMPUS LIFE
On campus, you have access to a wide range of cafes, food outlets and bars. The University is also home to over 150 clubs, societies and social groups – giving you the chance to regularly participate in fun activities.

Callaghan has an on-campus gym – The Forum – which also features a secondary location just 500 metres from NeW Space. Facilities across both sites include a 50-metre indoor pool, cardio and strength training zones, rock climbing wall, cycle zone, group fitness classes and multi-purpose courts.

The new covered outdoor recreation area (CORA) at the Central Coast campus provides a great place for students to be active, social and engaged all year round.

ACCOMMODATION
While the thought of moving away from your home town to study might seem daunting, we’re here to make this transition as easy as possible. We offer students secure, affordable and comfortable accommodation while studying.

YOUR PATHWAYS
We’re proud to be the largest provider of enabling programs in Australia.

If you don’t have the qualifications required for direct entry, you can still have the opportunity to access university studies, regardless of your background or level of previous education, through our pathway programs. The programs are offered free of charge and upon successful completion, you’re guaranteed entry to selected undergraduate degrees at the University of Newcastle.

• Newstep
If you were unable to complete Year 12 or missed the chance to get the marks needed for university entry, our Newstep program offers another pathway for you.

• Open Foundation
If you are seeking a new career direction, considering attending university after time in the workforce or looking to further pursue your interests, our Open Foundation program can help make this happen. Study online, part-time or full-time.

• Yapug - Aboriginal and/or Torres Strait Islander Students
Yapug is a pathway program designed to help Aboriginal and/or Torres Strait Islander people gain skills for entry into undergraduate degrees.

YEAR 12 SUBJECT SPOTLIGHT EARLY ENTRY PROGRAM
We believe that your ATAR doesn’t define who you are – it is your unique passions, abilities and ambitions that matter. Our Year 12 Subject Spotlight program rewards you with an early offer for your hard work and strong results in individual subjects related to your degree. So, you can take some of the stress out of your final school exams, knowing your ATAR isn’t all that matters. There is no separate application for the program – simply apply through UAC to qualify.

You can find more information on subjects aligned to specific degrees online.

newcastle.edu.au/enabling

newcastle.edu.au/subject-spotlight
STUDY ABROAD
Are you keen to take your studies around the world?
When you study here, you’ll have the chance to travel and get credit for your degree at the same time. There are opportunities for international experiences across every area of study, whether it’s an overseas exchange program, study tour or work placement. Discover new cultures, try new food, and make friends from all over the world. With more than 100 partner universities spanning all major continents, it really is the chance of a lifetime.
newcastle.edu.au/studyoverseas

GRADUATE WORK READY
Sometimes it’s best to dive straight in. That’s why exciting industry experience and work-integrated learning is at the core of all our degrees. Our strong partnerships with local and global organisations ensure everything you study is shaped by the real world and you graduate ready for a career in your field. Our Career Services Team are also on hand to help you out with everything from resumes and employment workshops to advice on your career goals.

SCHOLARSHIPS
Our University is home to many talented, enthusiastic and diverse students – just like you – and providing equity of access to higher education is fundamental to who we are. It doesn’t matter what your background is or what your circumstances are, we want to give everyone the chance to go to, and thrive, at university.

Our scholarship programs provide:
• scholarships for academic achievement
• support for individuals with financial hardship and educational disadvantage
• support for Indigenous students
• opportunities to travel, perform, play sport, relocate, or gain global experience.
newcastle.edu.au/scholarships

THE MA & MORLEY SCHOLARSHIP PROGRAM
Bachelor of Renewable Energy Engineering (Honours) student Jasmine is passionate about creating environmental change. She believes that creating a more sustainable and just world is not only about grand gestures from powerful leaders, but rather ordinary people stepping up and creating change in their community. At school, she got behind many local and global issues-based campaigns, including Waterwatch, Earthwatch and other leadership activities to promote environmental awareness. In 2016, Jasmine built a tiny house out of waste materials for the Transition Newcastle Fair Share Festival – challenging people to rethink their views on ‘waste’. She has also volunteered at the Living Smart Festival with Upcycle Newcastle and continues to work with others on political, environmental and social goals which she hopes to further develop through her studies.
Jasmine
Bachelor of Renewable Energy Engineering (Honours) Ma & Morley Scholar

SHAPING FUTURES SCHOLARSHIPS
The Shaping Futures Scholarship Fund provides support for students who are most in need – helping them to overcome disadvantage to pursue and maintain their achievements.

Scholarships are offered to academically gifted students facing educational disadvantage such as financial hardship, relocation from a regional or remote area, a long term or recurrent medical condition or illness, carer or sole parenting responsibilities, an asylum seeker recently completing a University of Newcastle enabling program, or a combination of these factors.

ABORIGINAL AND/OR TORRES STRAIT ISLANDER SCHOLARSHIPS
The Aboriginal and/or Torres Strait Islander Scholarships were established through contributions from the University, industry donors, community organisations and the annual Reconciliation Scholarship Dinner Dance.

These scholarships provide Australian Aboriginal and/or Torres Strait Islander students financial support to assist with completing their studies.
newcastle.edu.au/scholarships
COMMENCING STUDENT SCHOLARSHIPS

At the Faculty of Engineering and Built Environment, we want to help you realise your potential. That’s why we offer a range of scholarships to help you make the transition to university.

newcastle.edu.au/febescholarships

WHY ENGINEERING?

Engineers apply maths and science to find creative solutions to complex problems and bring exciting innovations to life. They are the people who make great ideas happen – finding quicker, better and more efficient ways to do things.

There is a world of opportunity out there as engineering is one of only a few fields that the Australian Bureau of Statistics predicts to keep growing into 2020 and beyond.

Engineers work on a huge range of tasks in industries like electronics, energy, biomedics and construction. You could work for yourself, a big company, the government or a research organisation like CSIRO. You also have the flexibility to choose the kind of work you do, be it fieldwork on-site, design and development, or a corporate leadership role managing people and projects. Remarkably engineering is the most commonly held degree among the highest performing Fortune 500 CEOs – think Google, Microsoft, PayPal and Tesla Motors.

Engineering touches many parts of modern life and there is a need for a range of different professional specialisations. From chemical to civil, environmental to electrical and electronic engineering - there’s an area to match your passion.

ARE YOU LOOKING FOR

• An in-demand profession with fast progression
• Average starting salaries of $80,000+5
• Opportunities to solve the world’s biggest problems
• Flexibility to work in and out of the office

Engineering could be the industry for you.

COMMENCING STUDENT SCHOLARSHIPS

At the Faculty of Engineering and Built Environment, we want to help you realise your potential. That’s why we offer a range of scholarships to help you make the transition to university.

newcastle.edu.au/febescholarships

1 The Guardian 2015
2 World Economic Forum 2016
3 PricewaterhouseCoopers 2015
4 Business Insider
5 Engineers Australia 2017
NEW DEGREES

Our innovative engineering degrees offer exciting learning opportunities that are future-focused and related to real-world challenges.

The unique structure of our programs offers opportunities and experiences unlike any other Australian university. Through this training, University of Newcastle engineering graduates become bold, agile and entrepreneurial. They’re big-picture thinkers who are equipped to help solve the world’s greatest challenges.

YEARS 1–4
Bachelor Degree (Honours)

BUILD AN ENGINEERING KNOWLEDGE-BASE
Lay the foundation for your future career with fundamental engineering and practice knowledge – a core requirement for professional recognition with Engineers Australia.

EXTEND YOUR PROFESSIONAL SKILLS
Our professional practice courses will prepare you for the professional world. Inbuilt into each year of your degree, they help you develop critical thinking, complex problem solving, communication skills and entrepreneurism.

Learn project management through case studies delivered entirely by guest lecturers from companies like Aurecon, Ampcontrol, Bluezone, Laing O’Rourke and BAE Systems.

BROADEN YOUR KNOWLEDGE
Choose elective pathways to complement your engineering knowledge and diversify your skills. Future-proof your career with complementary studies in design, computer science or entrepreneurship. Or go on international exchange and strengthen your global employability.

GET HANDS-ON EXPERIENCE
Not only will you learn hands-on from day one with our professional practice courses, but you’ll be able to put your learning into practice through 12 weeks of industry experience. Take up free membership with Engineers Australia and be paired with a mentor or attend their networking events. Plus, you could choose to take an international humanitarian engineering internship or apply for a summer research scholarship.

PROJECT-BASED LEARNING
Put your engineering and high level problem-solving skills into practice with our capstone project courses. At the end your degree you will test your skills with an experimental or theoretical investigation or develop a solution to an engineering design problem.

YEAR 5
Masters (Optional)

PROGRESS YOUR CAREER
You can choose to add only one extra year of study and graduate with your Master of Professional Engineering. This is an exciting opportunity for anyone who wants quick career progression.

* This pathway is not yet available for Aerospace Engineering, Medical Engineering and Renewable Energy Engineering.
AEROSPACE SYSTEMS ENGINEERING (HONOURS)

newcastle.edu.au/degrees/bachelor-of-aerospace-systems-engineering-honours

Aerospace engineering involves a systems approach to the design, efficient operation and modification of high-tech devices for the aeronautical and defence industries.

A key challenge for the development of aerospace systems is the need to be as lightweight as possible, yet highly reliable. Aerospace engineers need to understand and control the response of aerospace structures to complex interactions using a broad range of technologies. Students can focus on design and high-performance materials or concentrate on the control of complex interacting aerospace systems.

2019 SELECTION RANK
80.10 | Median 91.55

CAREER EXAMPLES
• Aerospace Engineer
• Satellite Engineer
• Systems Engineer
• Various positions within aircraft design and manufacturing companies, Australian and international airlines, airworthiness organisations and the Australian Defence Force.

ACCREDITATION
Accreditation for this program will be sought from Engineers Australia.

REAL-WORLD EXPERIENCE
All University of Newcastle engineering students must complete 12 weeks of professional practice during their degree. Through your work placement you’ll build important professional networks and put your learning into practice.
The aerospace companies who maintain and upgrade Australia’s new F-35 Joint Strike Fighters are based in Newcastle.

This degree was designed in collaboration with industry partners to serve the unprecedented local demand for specialist aerospace engineering skills.

POWERFUL ADVANCEMENTS FOR SMALL WIND TURBINES

From turbines to Tasmanian tigers, Associate Professor Phil Clausen is proof that the field of engineering knows no bounds.

Through the design of a high efficiency, lightweight blade, his research is making small wind turbines just as powerful as their larger counterparts. And when he’s not busy helping create cheaper, more accessible renewable energy technology, Associate Professor Clausen is using computational biomechanics to learn more about the evolution of skeletal morphology. From investigating how the dingo outlived the Tasmanian tiger on mainland Australia, to modelling the bite force in great white sharks, to researching skull mechanics of the Komodo dragon – there’s never a dull day.

Associate Professor Clausen has been instrumental in getting this new and exciting degree off the ground.

Associate Professor Phil Clausen
School of Engineering (Mechanical Engineering)
Want to use mathematics, science and creativity to overcome challenges and find solutions?

Chemical engineers help develop everyday products like toothpaste, puff pastry, chocolate, lipstick, paracetamol and petrol. You might work as part of a team developing high-efficiency insulation products that improve heating and cooling. You could work on biofuel production in remote communities, assisting with both waste disposal and energy production. Or, you might work in the food industry, refining products for people with special dietary needs. The possibilities are diverse and exciting.

2019 SELECTION RANK
81.35 | Median 99.95

CAREER EXAMPLES
• Biotechnology Engineer
• Chemical Safety Manager
• Environmental Remediation Engineer
• Mineral Processing Engineer
• Nuclear Engineer
• Water Treatment Designer

ACCREDITATION
Professional recognition through Engineers Australia qualifies you as a professional engineer who can work almost anywhere in the world.

COMBINE THIS DEGREE WITH
• Bachelor of Business
• Bachelor of Mathematics
• Bachelor of Science

8TH
in Australia for Chemical Engineering

1 QS World University Rankings by Subject 2019
Currently completing her fourth year of a Bachelor of Engineering (Chemical), Janita is driven by a desire to create change and make the world better.

“I think the most exciting thing about my degree is that as an engineer, I will be in the perfect position to help people.”

The University’s focus on networking and real-world experience has allowed her to thrive – and even helped her secure an internship with Hunter Water. She has also embraced the opportunity to take her studies global – last July she spent a month studying at one of the University’s partner institutions in Lyon, France.

“I studied project management and innovation with a group of international students, teaching me how to work with a multicultural group of people – while learning the importance of global collaboration,” Janita said.

Janita
Bachelor of Chemical Engineering (Honours)
Civil engineers are responsible for the physical infrastructure that enables modern societies to function. Buildings, highways and railways, tunnels, airports, power generation facilities and harbour facilities are all designed, built and managed by civil engineers. At the University of Newcastle, we educate our engineers to meet the global challenges of the future. You could engineer energy efficient buildings or help develop sustainable and resilient infrastructure in developing countries. You might even design Australia’s first high-speed train network to connect communities and reduce carbon emissions.

2019 SELECTION RANK
79.30 | Median 87.73

CAREER EXAMPLES
• Civil Engineering Designer
• Geotechnical Engineer
• Stormwater Engineer
• Structural Engineer
• Transport Systems Engineer
• Urban Development Engineer

ACCREDITATION
Professional recognition through Engineers Australia qualifies you as a professional engineer who can work almost anywhere in the world

COMBINE THIS DEGREE WITH
• Bachelor of Business
• Bachelor of Environmental Engineering (Honours)
• Bachelor of Mathematics
• Bachelor of Surveying (Honours)

TOP 150
in the world for Civil and Structural Engineering1

1 QS World University Rankings by Subject 2018
TARA’S STORY

Tara is proving that it doesn’t have to be one or the other when it comes to study and elite sport. The Newcastle Jets Westfield W-League midfielder recently graduated from a Bachelor of Civil Engineering (Honours) and she wants to inspire other young women to consider engineering as a career path.

Tara’s passion for understanding how things work started early on. She loved helping her dad with maintenance jobs around the house and once she realised civil engineering incorporated her passion for maths, science and hands-on problem solving, she decided it was the right degree for her.

After completing a professional placement course with Australian Rail Track Corporation (ARTC), Tara was offered a three-year graduate engineer position with the corporation. Working with ARTC, Tara will continue to broaden her engineering experience while working on real-world projects.

Tara
Bachelor of Civil Engineering (Honours), 2019
Electrical and electronic engineers design and build systems and machines that generate, transmit, measure, control and use electrical energy essential to modern life.

As an electrical and electronic engineer, you could help develop precision agriculture technology to increase food production efficiency and even build smart grid systems to help manage alternative energy resources. Or, follow in the footsteps of our team of researchers and develop life-changing medical technology – like the artificial pancreas currently under development at the University of Newcastle.

**2019 SELECTION RANK**
81.35 | Median 94.55

**CAREER EXAMPLES**
- Automatic Systems Designer
- Biomedical Instrumentation Designer
- Electrical Design Engineer
- Robotics Engineer
- Telecommunications Equipment Designer

**ACCREDITATION**
Professional recognition through Engineers Australia qualifies you as a professional engineer who can work almost anywhere in the world

**COMBINE THIS DEGREE WITH**
- Bachelor of Business
- Bachelor of Computer Systems Engineering (Honours)
- Bachelor of Mathematics
- Bachelor of Mechatronics Engineering (Honours)
- Bachelor of Science (Physics)

---

1 Shanghai Ranking’s global ranking of academic subjects 2018
ANDREAS’S STORY

Andreas has made his mark on Australia’s burgeoning space programs, finding an innovative way to make affordable satellites.

It all started with Andreas applying entrepreneurial thinking to his final year electrical engineering project which saw him develop startup business – Obelisk Systems. Andreas and his team also helped create hands-on technologies to bring science, technology, engineering and maths (STEM) industries into the classroom to inspire future generations. It was a natural progression for Andreas, who helped run STEM education activities while he was studying at the University of Newcastle.

Now, with a keen focus still set on space operations, Andreas is helping reduce the barriers to space – making it more accessible to people on Earth as a Lead Avionics Engineer at Saber Astronautics.

Andreas
Bachelor of Engineering (Electrical and Electronic) (Honours)/Bachelor of Business, 2016
As an environmental engineer you could help rehabilitate land damaged by mining, or work on the clean-up of an oil spill that threatens ecosystems.

You could even help prevent inundations on some of the world’s fast-growing cities. Environmental engineers apply their knowledge of chemistry, geomechanics, hydrology and land surface processes to find solutions for complex environmental problems. With a Bachelor of Environmental Engineering (Honours), you’ll be responsible for developing sustainable engineering practices that have a profound impact on health and quality of life – working with other specialists to optimise the use of resources and minimise long-term environmental impacts.

2019 SELECTION RANK
81.35 | Median 94.55

CAREER EXAMPLES
• Environmental Impact Consultant
• Environmental Remediation Technician
• Sustainable Fisheries Consultant
• Toxic Materials Control Engineer
• Water Reclamation Project Designer

ACCREDITATION
Professional recognition through Engineers Australia qualifies you as a professional engineer who can work almost anywhere in the world

COMBINE THIS DEGREE WITH
• Bachelor of Civil Engineering (Honours)
• Bachelor of Science
RUBY’S STORY

It was a combination of factors that led Ruby on her path to studying a combined degree in civil and environmental engineering. Her love of maths and design and passion for the environment meant the double degree was the perfect fit – allowing her the freedom of a diverse career once she graduates.

As a New Colombo Plan Scholarship recipient, Ruby was able to see how engineering practices were being applied in different countries. Not only did she complete an exchange program with leading university KAIST in South Korea, but she also gained key experience through an industry placement with international engineering firm, AECOM in Indonesia.

Now, with a more in-depth understanding of how she can better serve communities, Ruby is looking to pursue a career in humanitarian engineering programs such as Engineers Without Borders, so she can ensure basic human necessities are met for all.

Ruby
Bachelor of Civil Engineering (Honours) / Bachelor of Environmental Engineering (Honours)
Mechanical engineers design, manufacture and optimise specialist machines and processes. They solve important problems using robotics, new advanced materials, the fundamental laws of energy generation and transmission and the computer control of physical systems – from nano to mega-tonne scale. They work on everything from power plants, to air conditioners, aircraft engines and race cars. With a Bachelor of Mechanical Engineering (Honours), you could design self-driving farm machinery for ultra-efficient food production, or build revolutionary biomechanical solutions for people with disabilities.

2019 SELECTION RANK
80.05 | Median 86.50

CAREER EXAMPLES
• Engineering Project Manager
• Mechanical Engineering Designer
• Mechanical Systems Supervisor
• Mechanical Technology Engineer
• Operating Plant Manager

ACCREDITATION
Professional recognition through Engineers Australia qualifies you as a professional engineer who can work almost anywhere in the world

COMBINE THIS DEGREE WITH
• Bachelor of Business
• Bachelor of Mathematics
• Bachelor of Mechatronics Engineering (Honours)
• Bachelor of Science

You could design, build and race your own formula style race car on the UON Mu Racing Team.

TOP 200
in the world for Mechanical Engineering¹

¹ Shanghai Ranking’s global ranking of academic subjects 2018
ALEX’S STORY

With a penchant for tweaking tones and self-crafted pedal boards, guitarist and mechatronics student Alex is proof that when you combine technical skills with a lifelong passion, great things can happen.

While studying, Alex co-founded Z² DSP – a tech startup that designs high quality digital guitar effects pedals for a boutique market. The business targets guitar enthusiasts and audiophiles like Alex, so he understands his customer base implicitly.

Alex’s path shows you don’t need to wait until graduation to start pursuing your passion. Your pursuit of new can begin right now.

Alex
Bachelor of Mechanical Engineering (Honours)/Bachelor of Mechatronics Engineering (Honours)
The Bachelor of Mechatronics Engineering (Honours) is concerned with the synergy of electrical, computer and mechanical technologies that lead to new solutions to industrial problems. You might create robots, an unmanned aircraft, bionic implants or an energy harvester. Mechatronics engineers are involved in the technical design, automation and operational performance of the electromechanical systems used in industries such as defence, advanced manufacturing, mining and health.

2019 SELECTION RANK
80.90 | Median 84.15

CAREER EXAMPLES
- Avionics Engineer
- Data Communications Engineer
- Industrial Automation Engineer
- Robotics Designer
- Smart Infrastructure Designer

ACCREDITATION
Professional recognition through Engineers Australia qualifies you as a professional engineer who can work almost anywhere in the world

COMBINE THIS DEGREE WITH
- Bachelor of Business
- Bachelor of Electrical and Electronic Engineering (Honours)
- Bachelor of Mathematics
- Bachelor of Mechanical Engineering (Honours)
- Bachelor of Science (Physics)

Join the Maritime RobotX Challenge team and develop systems for an autonomous boat.

No.8 in the world for Automation and Control
No.1 in Australia for Automation and Control

1 Shanghai Ranking’s global ranking of academic subjects 2018
SAHIL’S STORY

Bachelor of Engineering (Mechatronics) (Honours) alumnus Sahil is bringing to life new technologies that improve the world we live in.

While studying, Sahil took advantage of the University’s entrepreneurial and networking opportunities – undertaking leadership courses at the Three76 Innovation Hub, going on exchange to Germany, and becoming President of the University of Newcastle’s Exchange Student Network.

With a focus on autonomous vehicle control, Sahil co-founded Elite Robotics. The startup designs mobile service robots for commercial lawnmowers, land surveying and package delivery systems – with a vision to eliminate life’s most tedious and repetitive tasks.

Sahil
Bachelor of Engineering (Mechatronics) (Honours), 2016
Medical engineers take new technology and create health-oriented solutions.

With a Bachelor of Medical Engineering (Honours), you’ll apply engineering principles and design processes to find innovative solutions to healthcare’s biggest challenges. As a medical engineer, you’ll strive to make medical treatment more effective, efficient, safer and affordable. You might work on the development of life-saving artificial organs, design more advanced surgical equipment, prosthetic limbs, or electrical and computing systems for radiotherapy or dialysis. Our graduates are uniquely placed to save and improve lives around the world.

2019 SELECTION RANK
78.05 | Median 94.85

CAREER EXAMPLES
Depending on your area of specialisation, your could work with:
• artificial organs
• biomechanical devices
• electrical and computing systems for radiotherapy, respiration or dialysis
• nanotechnology drugs and tests
• prosthetic limbs
• surgical equipment

ACCREDITATION
Accreditation for this program will be sought from Engineers Australia.

A UNIQUE LEARNING EXPERIENCE
This program is the only Medical Engineering degree offered in NSW.
Growing up, Jessica was certain that she wanted to help people and make the world a better place. As a young social justice leader, she was twice awarded the Australian Defence Force Long Tan Leadership Award and enjoyed taking part in many advocacy and volunteering initiatives.

After attempting to complete a Bachelor of Nursing despite significant health problems, Jessica made the difficult decision to change career paths. She went on to complete the intensive Open Foundation course at the University’s Central Coast campus and is now studying a Bachelor of Medical Engineering (Honours).

For Jessica, the most important leadership qualities are empathy and commitment. Motivated by her own experience, she is driven to help alleviate the suffering that can be caused by illness and to make a difference to others.

Jessica
Bachelor of Medical Engineering (Honours)
Ma & Morley Scholar
One of the biggest challenges humankind faces is the transition to a renewable energy economy.

The success of this evolution depends on the creative solutions of a new generation of renewable energy engineers with specialised skills. Spanning the disciplines of chemical, electrical and mechanical engineering, this degree will equip you to work across the whole spectrum of technologies for renewable energy capture, conversion, storage, delivery and management. You’ll also choose courses in related areas of climate change policy, law and economics and environmental sciences.

2019 SELECTION RANK
83.75 | Median 92.65

CAREER EXAMPLES
• Energy Accounting/Auditing
• Energy Management Consultant
• Energy Policy Development Officer
• Renewable Energy Engineer
• Renewable Energy Innovation
• Renewable Energy Systems Design

ACCREDITATION
This program has been granted provisional accreditation through Engineers Australia

REAL-WORLD EXPERIENCE
All University of Newcastle engineering students must complete 12 weeks of professional practice during their degree. Through your work placement you’ll build important professional networks and put your learning into practice.
FINDING SOLUTIONS TO OUR GLOBAL WATER CRISIS

Sometimes it takes a team approach. Led by Professor Behdad Moghtaderi, the University’s Hydro Harvest Operation is set to solve the planet’s global water shortage crisis.

Made up of Professor Moghtaderi, Dr Priscilla Tremain, Dr Andrew Maddocks, Dr Cheng Zhou and Associate Professor Elham Doroodchi, they were recently announced as the only Australian team to reach the finals of the worldwide Water Abundance XPRIZE competition. The two-year competition challenges teams to create decentralised access to water, with a goal to give people the power to access fresh water wherever it is needed.

Hydro Harvest Operation is working to develop a low-cost, energy-efficient prototype that will be able to convert the air’s humidity into drinkable water. The team’s ambition is that the technology will be able to work anywhere in the world without being bound to climate – transforming the future of water generation around the globe. Through collaboration with like-minded people, you too can make a global impact.

Team Hydro Harvest Operation
Professor Behdad Moghtaderi, Dr Priscilla Tremain, Dr Andrew Maddocks, Dr Cheng Zhou and Associate Professor Elham Doroodchi
Software engineering is behind much of the everyday technology we take for granted – from our iPads, computer software and mobile phones, through to digital televisions, computer games and online banking.

With this degree you might develop software for digital forensics analysis to help fight crime, or work in the defence industry to combat cyber attacks. You could design wearable health management devices, write the software that powers robotically-assisted surgery or something new entirely.

2019 SELECTION RANK
82.15 | Median 89.45

CAREER EXAMPLES
• Applications Designer
• Control Systems Engineer
• Internet and Web Engineer
• Software Development Manager
• Telecommunications Engineer

ACCREDITATION
Professional recognition through Engineers Australia and the Australian Computer Society means graduates will be qualified as professional engineers who can work almost anywhere in the world.

24.6% EMPLOYMENT GROWTH
Employment in computer system design and related services industries is forecasted to grow by 24.6% by 2022.

1 Department of Jobs and Small Business
Virtual reality expert Dr Shamus Smith is exploring the reuse of gaming technologies for hazardous environment simulation and healthcare.

Dr Smith is specifically interested in advanced software interfaces – and the interaction opportunities such systems enable. His current research interests include the evaluation of in-situ user experiences, the impact of virtual reality technology, simulation and serious games, and eHealth.

A software engineer, Dr Smith takes his research and applies it to the real world through interdisciplinary and industry-based research collaborations.

Dr Shamus Smith
Senior Lecturer
School of Electrical Engineering and Computing
(Computer Science and Software Engineering)
Surveyors specialise in the measurement, management, analysis and display of spatial information describing the Earth and its physical features.

The work of surveyors knows no bounds and could see you play an important role both locally and globally. With the Bachelor of Surveying (Honours), you could be involved in projects like preparation for building of a new tunnel, or mapping of flood areas for disaster preparedness. Your work as a surveyor could see you involved in the prediction of earthquakes and mapping of the ocean floor.

2019 SELECTION RANK
78.75 | Median 90.88

CAREER EXAMPLES
• Engineering or Mining Surveyor
• Geospatial Specialist
• Hydrographic Surveyor
• Registered Land Surveyor
• Town Planner

ACCREDITATION
This degree program is accredited by the Board of Surveying and Spatial Information of NSW (BOSSI) and meets the requirements of the Council of Reciprocating Board of Surveyors of Australia and New Zealand (CRSBANZ). This degree program is also accredited and recognised by the Land Surveyors Board, Malaysia.

COMBINE THIS DEGREE WITH
• Bachelor of Business
• Bachelor of Civil Engineering (Honours)

SEARCHING FOR CLIMATE CHANGE ANSWERS IN THE SEA

With research projects funded by the likes of NASA, the European Space Agency and French government space agency, Associate Professor Xiaoli Deng is improving satellite radar data in coastal zones.

Through the development of altimetry waveform re-tracking algorithms, Dr Deng also specialises in monitoring sea levels around Australia, and investigating the influence on climate change. With her team of three PhD students, she is breaking new ground in coastal altimetry and its applications, sea level change, satellite geodesy in natural hazard mitigation, and the marine gravity field.

Associate Professor Xiaoli Deng
School of Engineering (Surveying)
Bachelor of Surveying (Honours) student Elizabeth is making her mark on the surveying and engineering industries and wants to inspire other women to do the same. Awarded the 2018 NSW Surveyor General’s Women in Surveying Undergraduate Scholarship, Elizabeth hopes she can be a role model for women wanting to pursue a career in the engineering sector.

"Having strong female leaders and mentors in engineering gives women an avenue to start the conversation without fear of judgement, whilst encouraging an honest and empowering environment."

When Elizabeth set out on her journey to further study, she wanted something that would be challenging, growing, and diverse. And that’s just what she found – cementing her decision to pursue a career in surveying. Through her scholarship, Elizabeth is engaging with industry contacts and women making an impact in engineering – hoping that she, too, can encourage other young females to forge a path in surveying or engineering.

Elizabeth
Bachelor of Surveying (Honours)
Mining engineering is the design, supervision and management of coal, mineral and metal mines and their associated infrastructure, with minimal damage to environments.

You will gain an understanding of civil and mining engineering concepts in preparation for a career as a professional engineer. The mining engineering program involves two years of study at the University of Newcastle, with the remaining two years undertaken at the University of New South Wales (UNSW) or the University of Wollongong (UOW).

2019 SELECTION RANK
80.95 | Median 86.65

CAREER EXAMPLES
• Development Superintendent
• Mining Engineer
• Mining Superintendent
• Strategic Mine Planning Engineer
• Underground Mining Engineer

ACCREDITATION
Once you complete your Bachelor of Engineering (Honours) (Mining) at UNSW or UOW, you will qualify for professional recognition through Engineers Australia.

No.26 in the world for Mineral and Mining Engineering¹
No.8 in Australia¹

¹ Shanghai Ranking’s global ranking of academic subjects 2018
NEW EXPERIENCES

University of Newcastle Engineering students have access to a whole range of rich experiences during their studies, from overseas tours and collaborative projects, to robotics groups and challenges.

ENGG1500

All engineering students have the opportunity to complete this first-year professional practice course. Tackling large-scale global issues from the start, students work in teams to develop, pitch and create a project that will help solve real problems.

NEWCASTLE UNIVERSITY WOMEN IN ENGINEERING (NUWIE)

If you’d like to meet like-minded people and be part of a broader network of female engineers, NUWIE hosts a range of activities and communicates a variety of opportunities, such as seminars with female graduates and site visits.

ROBOTX CHALLENGE

Join the Maritime RobotX Challenge team and develop systems for an autonomous boat. You could travel overseas to complete against robotics enthusiasts from Pacific Rim countries.

GET HACKING

Get involved with a hackathon and develop your teamwork, ideation and pitching skills. Sow the seeds for your own startup.

MAKERSPACE

If creative projects are your thing then get involved with the University of Newcastle’s Makerspace. This is where students work on their own projects, share ideas, equipment and technical knowledge.

THE ART OF PROBLEM SOLVING

Our student showcase exhibition shares some of the University’s most exciting engineering and computing innovations - from sensor gloves that teach sign language to satellites that map the effects of climate change, this event is not to be missed.

GO GLOBAL

Join a study tour and explore another country with your fellow students. You’ll get insight into another culture and improve your global employability.
RELATED DEGREES

You may also be interested in one of the following degrees that touch on the Engineering study area.

BACHELOR OF TECHNOLOGY (RENEWABLE ENERGY SYSTEMS)

This pathway program will allow you to build on the knowledge gained from your TAFE Associate Degree of Engineering (Renewable Energy Technologies), and finish with a bachelor degree after one year of university study. For further information on this program refer to the Computing, Maths and Technology brochure or visit newcastle.edu.au/study/computing-maths-and-technology

BACHELOR OF BACHELOR OF COMPUTER SYSTEMS ENGINEERING (HONOURS)

Computer systems engineers combine creativity with technology to develop solutions to some of the world’s greatest challenges. They are essential in a wide range of industries like computer design, defence applications, communication networks and internet development. For further information on this program refer to the Computing, Maths and Technology brochure or visit newcastle.edu.au/study/computing-maths-and-technology

CONNECT WITH OUR GLOBAL ALUMNI NETWORK

Spanning 134 countries, the University of Newcastle’s global alumni network is making a positive difference to the world. This diverse group of global professionals provide invaluable support for our students by sharing their time and expertise. Whether it’s through a mentoring program, industry experience or attending a networking event, you’ll be inspired and empowered by those who have blazed the trail before you. And, when you graduate, you too will join this outstanding group of over 143,000 alumni around the world. Because wherever you are, whatever you’re doing, you are always part of our global alumni community. newcastle.edu.au/alumni

IF YOU’RE READY TO CHASE YOUR DREAMS AND THRIVE, NOW IS THE TIME. FIND YOUR NEW.

For full information and to find out how to apply, visit newcastle.edu.au/study