A MESSAGE FROM THE DEAN

During times of great change, communities and economies look to their leaders. The problem-solvers, who are prepared to break new ground and forge a different path ahead. Engineers.

Across IT, the energy sector, medicine, business and construction, engineers are leading our transition to the high-tech world of the future. They are behind the development of renewable energy sources, the restoration of human sight, the delivery of clean drinking water and the computer technology that is revolutionising science.

The UNSW Faculty of Engineering is proud to be helping produce such progressive leaders. We attract brilliant minds – from our students through to our innovative academic and professional staff and industry partners.

Our world-class undergraduate degrees engage students in the latest research, stimulate hands-on discoveries, and inspire the analytical thinking that is just as valued in boardrooms as manufacturing workshops. Our engineering graduates have extensive workplace experience and commercial know-how. Some establish start-up companies even before they graduate.

As UNSW launches Australia’s only nuclear engineering degree and ventures into space engineering education, we continue to encourage our students to challenge, influence and change the world. Join UNSW Engineering and help us lead the way.

PROFESSOR GRAHAM DAVIES
Dean, UNSW Faculty of Engineering
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WHAT IS ENGINEERING?

Engineering is embedded in our lives – in our water, our food, our computers, our homes and even our medical treatment. Engineers are game changers. They employ the latest science to devise products and solutions that we rely upon every day – creating technologies and approaches that make our lives safer, easier, happier. Engineers shape our world in remarkable ways.

UP FOR THE CHALLENGE?

If you are reading this right now, chances are you excel at maths and science and revel in solving complex problems. Typically, you are fascinated by how things work and have prepared your own blueprints for improvements. You may even have a deeper ambition to leave the world a better place.

Engineers are thinkers and creators at the forefront of research and innovation. They see a need and work doggedly to fill that need, plus countless others that they discover along the way. Engineers experiment. Engineers set new standards. Engineers get things done.

At UNSW, the entry requirements for our engineering courses are high – deliberately. We attract the best and brightest students with the potential and drive to meet the challenges of the future, today.

Almost one-quarter of Australia’s 100 most influential engineers launched their careers at UNSW. Like you, they sought expert guidance on how to channel their passions and energy, and to develop the skills to solve real-world problems. Join us and you’ll join the ranks of Australia’s finest minds.

WHY CHOOSE UNSW?

We’re big – big on providing world-class facilities, excellence in teaching, and producing engineers that can hit the ground running. Ours is the largest engineering faculty in Australia, with the widest range of undergraduate engineering degrees, so your hardest decision will be which one to choose.

Whatever your interest, you’ll find that studying engineering at UNSW opens up a world of possibilities. We have long-held partnerships with some of the globe’s leading companies and our top-flight research centres are supported by academic and industry partners here and overseas. All of which translates into internships, well-paying jobs and unparalleled international experience.

So whether it’s space technology, alternative fuels, nanotechnology or humanitarian aid that pushes your buttons, UNSW is the perfect launchpad. Our students, academics and researchers are bold and enterprising. Together, we are tackling the most complex issues of our time.

UNSW engineering students, researchers and graduates are improving lives by:

• Developing wound-healing bandages
• Teaming with NASA to launch Earth observation satellites
• Delivering better sanitation to communities in Cambodia
• Revolutionising drug delivery in cancer treatments
• Helping switch on the Southern Hemisphere’s largest solar photovoltaic power station
• Enhancing the taste, nutrition and safety of our foods
• Adopting artificial intelligence to improve our transport networks
• Developing a watch for the elderly that contains a fall detection alarm
• Helping to restore degraded wetlands
• Pioneering a robotic tractor and seeding machine
• Launching a low-cost wastewater treatment system built entirely from recycled materials.

AT THE CUTTING EDGE

UNSW engineering students, researchers and graduates are improving lives by:

• Developing wound-healing bandages
• Teaming with NASA to launch Earth observation satellites
• Delivering better sanitation to communities in Cambodia
• Revolutionising drug delivery in cancer treatments
• Helping switch on the Southern Hemisphere’s largest solar photovoltaic power station
• Enhancing the taste, nutrition and safety of our foods
• Adopting artificial intelligence to improve our transport networks
• Developing a watch for the elderly that contains a fall detection alarm
• Helping to restore degraded wetlands
• Pioneering a robotic tractor and seeding machine
• Launching a low-cost wastewater treatment system built entirely from recycled materials.
UNSW FACULTY OF ENGINEERING ADMISSIONS

To maintain high standards within the Faculty of Engineering we need to be selective about the students we admit into our undergraduate programs. As well as proving you have the academic runs on the board, you will have to satisfy some strict entry requirements and demonstrate that you are well suited to tertiary study. English language requirements also apply. For more information on the language criteria, visit unsw.edu.au/elp

DOMESTIC STUDENTS (Australian permanent residents and citizens and New Zealand citizens) need to apply through the Universities Admission Centre. Your ATAR will be used to gain entry into university. Apply at uac.edu.au

INTERNATIONAL STUDENTS apply directly to UNSW and should visit international.unsw.edu.au Not those students who are doing Australian Year 12.
RECOMMENDED SUBJECTS
Developing some technical knowledge at high school, explained here in terms of the NSW HSC, is a terrific preparation for studying engineering with us.

It is assumed that you will have studied HSC Mathematics Extension 1 and Physics. However, there are a few exceptions:
- Bioinformatics requires HSC Mathematics Extension 1 and Chemistry
- Software Engineering requires HSC Mathematics Extension 1
- Industrial Chemistry requires HSC Mathematics Extension 1, Physics and Chemistry
- Computer Science requires HSC Mathematics Extension 1
- Food Science and Technology requires HSC Mathematics and Chemistry.

It is recommended that you will have studied some of the following HSC subjects: HSC Mathematics Extension 2, Chemistry, Engineering Studies, Software Design and Development, Information Processes and Technology, and/or Biology. Applicants are expected to have achieved a level of performance at Band 4 or higher in each subject. This is for entry to UNSW in 2015.

ONCE YOU HAVE RECEIVED YOUR OFFER
If you are made an offer and don’t have the expected assumed knowledge there are preparation courses available. UNSW offers bridging courses in mathematics, physics and/or chemistry. For more information, visit science.unsw.edu.au/bridging

CUT-OFFS
Our cut-offs are determined by the demand for places and the strength of applicants’ qualifications. They will not be set until January 2015.

Use the 2014 cut-offs detailed on each program page as a guide. For details on International Baccalaureate and other cut-offs, visit eng.unsw.edu.au

IMPRESS US
Achieving excellence in the HSC stands you in good stead under our UNSW HSC Plus scheme. The Faculty of Engineering awards bonus points to students who achieve outstanding results in relevant HSC subjects, namely 2 Unit Mathematics, Mathematics Extension 1 and 2, Physics and Chemistry (some programs only). HSC Plus points are not used for Combined Law. For details, visit unsw.edu.au/HSCPPlus

SCHOLARSHIP SUPPORT
Financial pressures sometimes weigh heavily on prospective students, but the Faculty of Engineering does what it can to help through a range of scholarships. Various criteria apply – from academic, rural and sporting grants to women and equity – and application closing dates vary. Check out pages 46 and 47 of this guide or visit engineering.unsw.edu.au undergraduate-engineering-scholarships for more information.

EXCEL IN MORE WAYS THAN ONE
UNSW understands that elite athletes or performers may find secondary and tertiary education a struggle which is why we support those students by offering flexible entry and study arrangements through our Elite Athletes and Performers Program. This program awards up to five bonus points to students who have excelled in sport, academia, performance, leadership, and/or music at a national or international level in Years 11 and 12. For more information visit unsw.edu.au/eap

Enrolment flexibility, cross-institutional study options and leaves of absence for travel are other ways that we support eligible current students in all degrees to integrate their studies with their other pursuits. UNSW also offers a number of sports scholarships and NSW Institute of Sport-acccredited training facilities. For more information, visit sportandrec.unsw.edu.au/Elite

A SECOND CHANCE
Don’t despair if you have been disadvantaged during your secondary education. Our ACCESS Scheme gives us a little latitude to take personal circumstances into account when offering places in our undergraduate programs. So if financial or personal hardship, your refugee status, language difficulties, a disability or a long-term medical condition have made your Year 11 and/or Year 12 studies a challenge, you are encouraged to apply. For details, visit unsw.edu.au/access

THE COMPLETE PICTURE
At UNSW we like to see the whole person, not just the results you achieve. Under the Faculty of Engineering Admission Scheme (FEAS) you may still be considered for admission even if your ATAR is (or you expect it to be) lower than our cut-off. We recognise that your marks may not reflect your true potential and we give applicants the chance to put a case for why their design and problem-solving skills, attitude and motivation are geared to engineering studies. Applicants can submit an application, load supporting documents and apply for an interview by visiting engineering.unsw.edu.au

A DIFFERENT PATHWAY
Those students eligible for our ACCESS scheme who don’t meet the cut-off for degree entry might find an alternative pathway to a degree via our UNSW Prep Program. It gives engineering students 18 months to develop their academic skills (including maths skills, if needed) by way of degree-level courses. If you do well in these courses you can earn course credit towards your degree and it’s both a realistic and a supportive introduction to university study.

Students who do not meet the entry requirements of their preferred UNSW program can apply to complete a combination of academic skills, mathematical and relevant discipline-based courses. For more information, visit unsw.edu.au/upp17-19

CHANGED YOUR MIND?
Enrolled undergraduate students sometimes discover that their first program choice may not have been their wisest. UNSW gives you the chance to transfer between programs, within the same faculty and between single and dual degree programs generally in Semesters 1 and 2. Performance-based criteria apply and transfers are subject to availability, but in most cases you do not have to apply through the Universities Admissions Centre. For more information, visit unsw.edu.au/ipt
STUDYING ENGINEERING AT UNSW

Engineers see the world differently – not how it is right now, but how it could be. And they possess the talent to realise these visions – often in ways previously unimaginable. Engineers don’t wait around for tomorrow’s big breakthrough; they’re testing the limits of creativity today. It’s a philosophy that embodies everything we do at UNSW Engineering.

AHEAD OF THE CURVE

From our practical programs and field trips to our staff and facilities, UNSW’s Faculty of Engineering is dedicated to keeping ahead of the curve. In fact, we’re redrafting the precise arc of that curve as we speak!

Students who join our faculty soon discover that they are in the box seat to take the theoretical knowledge they are learning and apply it in mind-boggling ways. Our labs, design studios and equipment are second-to-none. And some of the best lessons are learnt through sheer hard work as part of fabulous student-led projects, where imagination and ingenuity really take flight.

At UNSW we also invest heavily in industry partnerships that pave the way for work placements and jobs of the highest calibre. So whether you want to solve the world’s energy crisis, ensure fresh drinking water in developing countries or launch satellites into space, UNSW is the place to make it happen. What are you waiting for?

TAKE YOUR DEGREE FURTHER

An overseas study posting is a fantastic way to take your UNSW degree further. Visiting countries in Asia, North America and Europe, especially where English is not the first language, gives our students the chance to see where they can make a world of difference. As well as meeting new people and experiencing other cultures, our students even add another language to their list of credentials. And you can receive full credit towards your degree while you gain important international experience in your chosen field. Better still, UNSW offers a number of scholarships to help cover the costs of this opportunity of a lifetime.

READY TO GO

Our mission is to launch the careers of the next generation of bright minds. So it goes without saying that industry exposure and training is fundamental to all UNSW Engineering programs. Our graduates prove, time and again, that they are well-equipped to take on the toughest assignments in the workforce.

It is a requirement for our students to participate in at least 60 days (or 80 in Mining) of work experience. This is usually, but not always, done during the summer break at the end of their third year. Students are encouraged to find their own work placements as part of the work experience process. UNSW has strong links with industry and often companies send advertisements to us looking for students. Other support is available from UNSW Careers and Employment and the industrial training co-ordinator in each School. Students can also talk to their lecturers, many of whom have wide ranging industry contacts or attend industry networking events organised by the Faculty or their School. Industrial training is a great opportunity to develop a good relationship with a potential employer and many of our students find their first graduate position this way.

RESPONSIVE TO INDUSTRY NEEDS

Our faculty takes the UNSW tag line “Never Stand Still” seriously. We recognise that engineers work in a dynamic space – and that we must be able to adapt swiftly to changing industry and society needs. So when major employers told us that they needed engineers with greater creativity and problem-solving skills, we jumped into action.

Our compulsory first-year course Engineering Design and Innovation is now helping our students to think like real engineers. Given a budget, deadline and finite resources, teams design and build a solution to a set problem. It’s a fantastic way to develop key practical skills – like concept development, critical thinking and evaluation, research and communication – which make or break future careers.
STEVEN HANANI  
BACHELOR OF MINING ENGINEERING/
BACHELOR OF CIVIL ENGINEERING

"My combined Civil and Mining degree allows me flexibility to consider entry to both industries, depending on job opportunities and my interests. The one extra year of study to gain another degree was very appealing. UNSW is a fantastically diverse place to be and study, with great learning facilities and many communities and groups you can join."

SAM PATERSON  
PROJECT DIRECTOR - SUNSWIFT, BACHELOR OF MECHANICAL ENGINEERING

"Studying at UNSW is not just about books; it is about real-life experiences, which I treasure. I had unreliable access to electricity during my childhood in Burma. This inspired me to study Electrical Engineering and to work towards creating a brighter future for my country. UNSW has one of the best engineering schools in the world. If you are passionate about engineering, this is the place to kick-start and create your dreams."

ARKAR SINGH  
BACHELOR OF ELECTRICAL ENGINEERING

"I’ve been fortunate enough to be involved with Sunswift which is the premier solar car racing team in Australia, and compete against world class institutions such as MIT, Cambridge and Stanford in the World Solar Challenge. The vehicle has four wheels and is designed to be safer and more practical. It departs from the typical spaceship design of most solar cars and looks like an actual car. My role has allowed me to develop my business acumen and be at the forefront of my field."

CURIOUS MINDS

Curiosity in the world around us and inspired research will produce the next wave of engineering devices and solutions. Only by testing and retesting the most promising scientific advances will engineers be able to transform ideas into workable innovations. And one way that we encourage our students to experience the wonder of research is through our Taste of Research Summer Scholarship.

This scholarship gives third-year engineering and science students a taste of what research is all about, and the chance to develop critical skills and knowledge. They undertake a 12-week project with an existing research team within our faculty over the summer break and receive a tax-exempt allowance of $479 a week. It’s money well spent when you consider some of the extraordinary findings our students have made.

"I’ve been fortunate enough to be involved with Sunswift which is the premier solar car racing team in Australia, and compete against world class institutions such as MIT, Cambridge and Stanford in the World Solar Challenge. The vehicle has four wheels and is designed to be safer and more practical. It departs from the typical spaceship design of most solar cars and looks like an actual car. My role has allowed me to develop my business acumen and be at the forefront of my field."
He may operate in the “crazy world” of quantum physics, but Associate Professor Andrea Morello has his feet firmly on the ground teaching within the School of Electrical Engineering and Telecommunications. “Quantum physics is all about the search for answers to fundamental questions,” he said. “I am driven by a curiosity to understand where the transition lies between quantum and non-quantum behaviour, which is very much in the realm of science philosophy.”

An electrical engineer and quantum physicist, Andrea has earned critical international acclaim for his cutting-edge quantum research. He shared the Eureka Prize for Scientific Research in 2011 and last year (2013) won the Malcolm McIntosh Prize for Physical Scientist of the Year for creating the world’s first working quantum bit based on a single atom in silicon. This accomplishment opens the way for powerful quantum computers of the future – computers capable of complex calculations in medical research, data security and modelling biological molecules and drugs. “We will soon be making quantum systems in computers that can detect magnetic fields and convert light into electricity,” he said.

Andrea delights in sharing his research findings with students at UNSW, which he describes as the “quantum capital of the world”. “People in Europe and the US regard us as the leaders. We have people visiting all the time, which opens up all sorts of possibilities for international collaboration.”

MAKING OUR FOODS SAFER...

from allergens, pathogens and chemicals – is all part of the daily research diet for Dr Alice Lee, a Senior Lecturer with the Food Science and Technology Group within the School of Chemical Engineering. And with rising rates of life-threatening allergies and intolerances in Australia, her team’s work has never been more important.

Dr Lee is currently working with Korea’s National Institute of Animal Science (NIAS) to better understand the allergenic proteins in milk to help, among others, those twenty per cent of Australian infants born with milk allergies. She is studying how high-pressure processing affects milk proteins and how these allergens impact on the human immune system. “This will hopefully put us in a better position to develop milk products or formulas that are low in allergens,” Dr Lee said.

Using nanotechnology to detect micro-organisms, allergens and chemical traces in our foods is another important strand of Dr Lee’s work. She hopes, one day, to devise a rapid test for pathogens like E. coli and salmonella – a breakthrough that could potentially save millions of lives.
CAREERS IN ENGINEERING?

UNSW graduates are the complete package. They are prized for their technical skills and practical knowledge, but also for their ability to solve problems and manage complex teams. Our programs equip you to tackle real-world challenges and provide the perfect springboard for rewarding professional opportunities locally and internationally. UNSW engineers are making their mark and enjoying great success.

UNSW Faculty of Engineering graduates are hot property. Almost one-quarter of the top 100 most influential Engineers in Australia hail from our University and many are active on the international stage. You’ll find them providing strategic support to peacekeepers, heading up one of China’s largest water treatment membrane technology companies, building the world’s longest trafficable bridge (in ultra-high performance concrete) and leading the international engineering giant Alstom.

UNSW partnerships with the likes of Google, Leightons, Shell, Qantas and ANSTO have guaranteed students priceless industry experience and, perhaps best of all, full-time jobs. Some of our more enterprising students have flexed their entrepreneurial muscles independently, too. A Venture Space created in the School of Computer Science and Engineering is helping to mentor and develop new start-up companies, giving our students the unique opportunity to develop real business experience and a vast library of commercially valuable technology.

A FITTING REWARD

Our engineering graduates command some of the industry’s highest salaries – in fact, our average starting salaries are the best of the prestigious Group of Eight. Median wages start at about $57,000* and rise quickly to $80,000–$110,000* or more in disciplines experiencing skills shortages. Petroleum and mining graduates can earn upwards of $95,000* a year. Opportunities – and lucrative packages – abound in the following fields: electrical, photovoltaics and renewable energy, bioinformatics, biomedicine, naval architecture, computer and software engineering, and surveying and geoinformation systems.

PROFESSIONAL INTEGRITY

All undergraduate engineering degrees at UNSW are accredited by Engineers Australia via the Washington Accord. Recognition of your qualification overseas means there is no barrier to you pursuing an international career. In fact, many of our graduates secure postings abroad even before they graduate.

*Australian Graduate Survey 2012.
GRADUATE PROFILES
WHERE ARE THEY NOW?

Our engineering graduates are in demand, nationally and internationally, and go on to forge diverse and stimulating careers.

A highlight of my job as a Systems Engineer at Cochlear is the close contact I have with the end-users of our products – the clinicians, recipients, carers and surgeons. It is very important to understand how people actually use our devices so that we can continuously strive to make the experience more seamless. Music is my other passion, and it is amazing to work in a field that gives others the gift and pleasure of sound. We are helping to improve the quality of lives every day.

“"All the work I do at the Water Research Laboratory, within the UNSW Water Research Centre, is exciting. I conduct physical and numerical modelling, contaminant fate and transport (tracer) studies, estuarine and wetland projects and groundwater quality and monitoring programs. The lab is considered the birthplace of coastal engineering in Australia and has an international reputation. You won’t look back after completing a BE (Civil) degree at UNSW. This program provides all the tools and stepping stones you need.”

“I was working for a small Sydney software start-up, whose engineering staff consisted entirely of UNSW alumni, when I was recruited by Google in New York. Our team is responsible for keeping data safe and secure, and access fast and reliable for all Google products, including GMail, satellite imagery for Google Maps and YouTube. My credentials from UNSW, both academic results and extracurricular activities, attracted recruiters from several big tech companies, including Microsoft, Google, Facebook, Twitter and LinkedIn. More than just a piece of paper, my BSc from UNSW demonstrates to potential employers that I have what it takes to produce high-quality work and bring innovative ideas to the table.”

“My work as a graduate engineer with Cochlear is challenging, interesting, and lots of fun. I have worked on several wireless technology development projects that may find their way into future products. This involves designing and building hardware and firmware, which is the part of engineering I most enjoy. I attended the NASA Ames Academy for 10 weeks over the US summer, and was exposed to many facets of the US Space Program. It was amazing to work with several very talented rotorcraft researchers looking at an auto-rotating Samara-seed probe for the unpowered, controlled descent on Venus.”
RESEARCH CAREERS

Learning never stops at UNSW. Many of our undergraduates embark on a PhD in Engineering to further their research career. Their inquiries, using the latest thinking and technologies, are bringing rich rewards for our communities and our environment.

JOSEPH GAUTHIER
BACHELOR OF SURVEYING AND GEOSPATIAL ENGINEERING

“I am working on highly precise synchronisation using GPS receivers, which could have many everyday uses, such as in mobile phone base stations or the space industry. It’s pretty cool to think that something you’re working on is going to go up in space!”

YILIU
BACHELOR OF COMPUTER SCIENCE AND ENGINEERING

“UNSW is very good for engineering. It’s not only science, it’s kind of art – you can have a big picture of the globe and we can make maps and animations. And I like the working environment. As a researcher, I am very flexible. I can come in at any time and don’t have to wear a tie.”

BERNHARD MITCHELL
BACHELOR OF PHOTOVOLTAIC AND RENEWABLE ENGINEERING

“The photovoltaic market is going to be one of the biggest industries in the world, so a very small change in efficiency or material utilisation will make a big difference. We’re talking about markets valued at multi-billions of dollars. Even an improvement of 0.1% can make a difference worth hundreds of millions of dollars. When you do solar research, you know you’re making a difference to the world.”

THIVYA KANDAPPU
BACHELOR OF ELECTRICAL ENGINEERING

“I wanted to work in the area of online privacy, and this work is particularly important for surveys of health and other private matters. Spending just $30, I couldn’t believe how much information I could find out about people. So I developed a privacy App called Loki, which protects the privacy of those who fill in surveys. The surveyor still gains the information they need, but can’t identify individual responses.”

MEGANNE CHRISTIAN
BACHELOR OF CHEMICAL SCIENCES

“It’s really exciting to be working at the forefront of research to help solve the energy crisis. I’m passionate about it because energy is one of the most important issues facing us. We’re developing tiny storage tools that will help make hydrogen a major source of renewable energy. It’s getting really close to being practical.”
STUDENT PROJECTS

We don’t just imagine a better world; our students create it. We know that theoretical knowledge is only half the story, that putting theory into practice is just as important — and generally a great deal of fun. Allowing students to lead and manage projects that span such diverse areas as electronics, photovoltaics and artificial intelligence enable our engineers to truly shine. Together, through teamwork, planning and communication, they are engineering the impossible on the world stage.

EARTH TO BLUESAT

An off-world rover capable of exploring another planet and a low-earth-orbit digital amateur radio satellite may sound like blue sky devices, but our engineers see no such limitations. UNSW’s BLUEsat team has designed, built and is about to test a stratospheric balloon that may one day be used to conduct experiments from the heavens above. Students with a passion for space engineering are also about to design a rover as part of another project to produce real-world space hardware and software, and collaborate with people around the world, including the European Space Agency. Check out the project by visiting bluesat.unsw.edu.au

REDBACKS BITE

Take a tight 1-kilometre racing circuit with 90 turns, add a group of techno-savvy rev-heads and a sleek vehicle, and what do you get? The UNSW Redback Racing Team. Every year since 2000 the team has tested its mettle in the challenging Formula SAE-Australasian competition run by the Society of Automotive Engineers to showcase the latest in open-wheeled racing car design and technology. Engineering, industrial design and business students put their heads together to design, manufacture and build the race car; then are judged according to its performance, fuel consumption, design, cost to manufacture and commercial viability. The Redback team have raced their way to several top-five finishes and in 2012 came sixth overall in a competitive field, clocking speeds of up to 150km per hour. En route, students gain valuable manufacturing experience, but also put their design theory into practice and develop leadership, management and communication skills. For more information, visit redbackracing.unsw.edu.au

ON THE EVE OF A SOLAR REVOLUTION

“Does it come in red?” asked one admirer of the head-turning vehicle that the UNSW Solar Racing Team took to the World Solar Challenge last year (2013). And just to prove that looks do count, stylish eVe was first and fastest across the finish line in Adelaide. While it was not enough to secure the title, and the Sunswift team had to be content with third overall, the new prototype — the only solar cell-powered sports car — certainly attracted a lot of attention during its sizzling debut in the cruiser class. More than 100 students from a variety of disciplines helped to keep eVe on track and she was clocked outside Alice Springs at a top speed of 128km/h. Now that’s swift! Race in to see their latest achievements at sunswift.com
ROBOTS SCORE

The international competition may be described as friendly, but competition each year in the RoboCup is anything but as fully autonomous robots take to the field. UNSW Computer Science and Engineering students were among 2,500 competitors from 40 countries who last year pitted their robotic teams against the best in the world in scintillating games of soccer in The Netherlands, eventually taking fourth place. Our software engineers also entered the rescue robot category, which in recent years produced a Japanese robot that was used to explore the damaged Fukushima nuclear power plant without putting human lives at risk. The practical applications of these technologies are endless. Visit sydney.robogals.org.au to see some of the competition action.

INSPIRED BY NATURE

Bees, birds and insects have inspired a swarm of unmanned aircraft within the School of Mechanical and Manufacturing Engineering. The MAVSTAR (Micro Aerial Vehicles for Search, Tracking And Reconnaissance) project has produced a number of designs that use human and artificial intelligence. These clever contraptions can be flown indoors or outside and may soon be used to identify and locate targets, monitor utilities and measure airborne pollution. When fitted with miniature cameras, these aircraft will have a number of important applications in search and rescue and even military reconnaissance. For more details, contact http://www.robotics.unsw.edu.au/mavstar/

HELPING THE MOST NEEDY

Finding sustainable solutions to some of the world’s most pressing problems inspires members of the UNSW chapter of Engineers Without Borders (EWB). This model of humanitarian engineering enables students to align their university study with community needs and to play a part in ensuring clean water, sanitation and sustainable energy. Through a wonderful outreach program, UNSW students have been demonstrating how engineering can make a profound difference in biomedicine – by challenging high school students to make prosthetic limbs out of everyday products. To get involved, go to ewb.org.au

LET’S HEAR IT FOR THE GIRLS

Traditional stereotypes still prevail within some fields of engineering. But not if Robogals UNSW can help it. This student-run organisation promotes female participation in engineering by showing just how much fun and rewarding engineering careers can be. Robogals run LEGO robotics workshops for female primary and secondary school students and have, in the past, co-ordinated a mass robot dance and mentored teams in LEGO robotics competitions. Now they’re taking their positive messages further – to female students in country NSW. See sydney.robogals.org.au
THE UNSW CAMPUS

Embrace campus life and you will get the most out of your university experience. And with the broad range of activities available at UNSW, there really are no excuses. Whether you’re into sport, music, meditation or simply enjoy hanging out, our friendly and well-appointed campus caters to everyone. So embark on your great big adventure with us today!

“From a young age I always enjoyed the challenges presented by maths and physics. It was this passion that led me to study engineering, and why not at the most renowned university for engineering in Australia? By making the move from Queensland all the way to campus at UNSW I have been able to meet a wide variety of students from many different backgrounds who share my interests and ideals. Throughout my degree I have been lucky enough to hold the Leighton Holdings rural scholarship which has led to three industrial placements. These placements have helped reinforce my passion in engineering and I have never looked back.”

EDWARD HYLAND
BACHELOR OF CIVIL ENGINEERING
FIND YOUR FEET
The main UNSW campus is at Kensington, which is less than 10 kilometres from Sydney’s CBD and within a stone’s throw of several beautiful eastern suburbs beaches. Our sprawling 38-hectare site (yes, it’s so big that the campus has its own postcode!) is easily accessible by public transport. Express buses depart frequently from Central Station, connecting with train and ferry services.

While the campus has car parking, we actively encourage walking, cycling and carpooling. There are racks for almost 600 bicycles scattered around the university and the UNSW Bike Club holds weekly bike repair workshops. You can even borrow a bike for a year and really get into shape.

One of the best ways to orientate yourself is to enjoy a free one-hour campus tour, conducted each Friday afternoon during university semesters by our well-informed student ambassadors. Visit campustours.unsw.edu.au to register.

AT YOUR FINGERTIPS
Nearby Randwick has a host of amenities but most of what you need is within easy reach on campus. It’s easy to take a break from study and relax with friends at one of our cafes, food and retail outlets or bar, and UNSW also has bank outlets, a bookshop, newsagency and post office.

Our medical and dental centres, pharmacy and optometry clinic will meet most of your health needs and students can even avail themselves of free counselling.

In addition to our excellent library, the shared space known as The Hub gives our students a place to meet for study and group work activities, or to catch up with friends. And it’s here that you will also find our professional student participation advisors, who can also help with welfare, study and uni-related matters.

ALL THE COMFORTS OF HOME
Student accommodation at UNSW suits all tastes and budgets. The UNSW Colleges complex has just undergone a two-year redevelopment and now offers catered accommodation for almost 1,200 students and some of the best views in Sydney. Student lounges, free Wi-Fi and rooftop gardens are among the attractive new appointments.

UNSW also offers self-catered accommodation in several apartment complexes on and near the campus. All UNSW colleges have live-in staff who provide academic and personal support.

If private accommodation is more your style, there are rental properties in surrounding suburbs, as well as numerous short-term options.

A HELPING HAND
We appreciate that it’s a big step starting university and the Faculty of Engineering pulls out all stops to support new students. Our peer mentoring program, during which we partner you with a mentor for the first month of Semester 1, is a fantastic way to make new friends and ease into uni life.

The School of Computer Science and Engineering has its own student network and matches mentors from second year or above with new students to help you tap into the very best that uni has to offer. UNSW also supports first-year students with careers and employment advice, and workshops and seminars to help you develop valuable academic and life skills.

GET INVOLVED
Learning how to strike a balance between study and sanity is one of university’s greatest challenges. The temptations are certainly great at UNSW, starting with O-Week festivities and extending right through to graduation.

From parties and live gigs to sporting competitions and volunteer placements, the social scene on campus is a smorgasbord of fun. And some of the people you meet will become lifelong friends. Check out the latest at studentlife.unsw.edu.au

ROLL UP, ROLL UP
Students are spoiled for choice when it comes to recreational options on campus. UNSW’s student organisation Arc supports over 100 clubs and joining one of them is a great way to make friends who share your interests and really become a part of the campus community. From poker and Pokemon to Bollywood and circus, there is something to suit every passion.

You automatically become a member of your school society when you enrol but Arc membership also entitles you to discounts on and off campus and much more. For full details, visit arc.unsw.edu.au

CHAMPION CENTRE
Keeping your body in great shape for study is easy at the UNSW Sport and Recreation Centre. Equipped with an indoor heated pool, steam room, gym, various fitness and training studios, tennis courts and squash courts, our centre is a winner, and offers competitive membership options. It’s also the headquarters for a variety of sporting clubs, from rugby union and rowing to archery and athletics, Frisbee and fencing. Sign on to a team today at sportandrec.unsw.edu.au

“I transferred from chemical engineering to bioinformatics at the end of first year after doing my first computing course. My dual degree combines computer science, biology and biomedical applications. It allows me to learn broadly in each of these fields as well as giving me enough electives to study areas that I particularly like in-depth. Each semester I learn more about software design, computing and biology, and the variety keeps me fully engaged.”

VIVIAN HO
BACHELOR OF BIOINFORMATICS/ MASTER OF BIOMEDICAL ENGINEERING
Ask any civil engineer – every structurally sound building needs a strong foundation. It’s the same with every engineering degree. Our foundation courses provide the solid footings from which you can build your engineering career. But that’s not to say that the finished product will lack flair. UNSW offers plenty of scope for you to design a degree that reflects your personal interests and passions.
I still enjoy every single day of my study at UNSW. In order for me to be a good engineer, I felt that I needed business fundamentals as well, which is why I elected to combine the degrees. I really enjoy the balance between the hardcore mathematics and physics, and the business thinking. Going on a student exchange overseas was fantastic and I came back with great memories and friends I’ll never forget. There are endless opportunities at UNSW, each leading to new and exciting challenges.

JACK ZHANG
bachelor of civil engineering/bachelor of commerce

YEAR 1
All first-year engineering students (except Bioinformatics, Civil with Architecture, and Software Engineering) study five common subjects to gain the same basic engineering science knowledge: mathematics (two subjects), physics, computing and engineering design.

Those enrolled in a specific engineering degree complete one additional core subject and two electives, while Flexible First Year students (see below) complete three electives.

YEAR 2
Engineering degrees begin to diverge in second year, when you start to focus on the core principles of your chosen discipline. Subjects consolidate the essential skills gained in first year but also introduce new concepts and practical skills used later in the course.

YEAR 3
Third year expands on core engineering subjects and introduces a major design project. You also start to choose further electives and specialise.

The design project provides valuable experience in project management, problem-solving, marketing, budgeting and teamwork - all necessary skills of a good engineer. At the end of third year you usually undertake 60 days of industry training. This is a requirement for all engineering degrees except Mining Engineering, which requires 80 days.

YEAR 4
A thesis project is the main component of your final year. This is typically a year-long engineering project on a topic that you and your academic supervisor have agreed upon. Engineering management and ethics subjects are usually taken in the final year. You may also choose professional electives to develop areas of specialisation.

INTERNAL TRANSFER
With so many exciting career options available, it can be difficult to decide what kind of engineer you want to be straight from school. Sometimes you need to try before you buy.

At the end of first year, UNSW’s internal transfer program allows students to apply to transfer from one engineering discipline to another, subject to availability and grades. For later years its also available, however you may not complete your studies within the minimum timeframe but could discover a career path better suited to your strengths and talents.

FLEXIBLE FIRST YEAR
Enrolling in the engineering discipline that most closely matches your interests and ambitions is the preferred approach. That way you can hit the ground running – and avoid a whole lot of extra paperwork – as you work toward achieving your future career goals.

However, if you are genuinely confused about which area of specialisation to choose, students still have the option to enrol in the Flexible First Year. As well as core subjects, students can choose electives that appeal to them, without committing to a specific discipline until the end of the first year. For more information, see page 45.
POSSIBLE DEGREE COMBINATIONS

Combining engineering degrees is a great way to enhance your career prospects without extending your studies too long. Depending on the field you choose, it takes five to six years to complete a dual degree but the decision may put you at a distinct advantage when applying for management and consulting positions.

Dual degrees add another dimension to your engineering study and are especially suited to those who have enjoyed a range of disciplines at high school.

**BACHELOR OF ENGINEERING / BACHELOR OF ARTS**

**UAC CODE:** 425850  
**2014 CUT-OFF:** 91.00  
**PROGRAM LENGTH:** 5-5.5 years

The program offers the opportunity to combine structured and technical studies in engineering with the broad and flexible options of an arts degree. The communications skills acquired in an arts degree complement the vocational skills gained in engineering, and together expand your career options in the humanities, social sciences, creative and performing arts, and technology sectors. Pursuing academic interests outside the engineering field helps to produce an all-round professional. The Bachelor of Arts offers a range of courses, including languages, history, philosophy, politics, music, and much more.

**BACHELOR OF ENGINEERING / BACHELOR OF SCIENCE IN COMPUTER SCIENCE (BSC)**

**UAC CODE:** 425850  
**2014 CUT-OFF:** 91.00  
**PROGRAM LENGTH:** 5 years

Computer Science degree programs emphasise the mathematical and theoretical foundations of computing. When combined with a degree in engineering, students gain skills relevant to a number of engineering, science and technology-based roles, thereby ensuring excellent career prospects. The additional programming skill helps graduates to find jobs in systems analysis and design or as software programmers in industry, commerce or government.

Bachelor of Science in Computer Science (BSc) can also be combined with:

- **COMMERCE**  
  **UAC CODE:** 424100  
  **2014 CUT-OFF:** 96.30

- **MEDIA ARTS**  
  **UAC CODE:** 425800  
  **2014 CUT-OFF:** 91.00

- **SCIENCE OR ARTS**  
  **UAC CODE:** 425800  
  **2014 CUT-OFF:** 91.00

- **LAW**  
  **UAC CODE:** 426000  
  **2014 CUT-OFF:** 99.70

* Dependent on subject selection.

Engineers have unique problem-solving skills. When these are combined with a science specialisation, it can create a valuable qualification for many industries, government positions and research careers. The Bachelor of Engineering degree emphasises practical aspects of science and technology, while the Bachelor of Science degree emphasises fundamental principles. The Bachelor of Science can be combined with any engineering course and is a popular choice.
BACHELOR OF ENGINEERING / MASTER OF BIOMEDICAL ENGINEERING
UAC CODE: 425950
2014 CUT-OFF: 91.05
PROGRAM LENGTH: 5 years

This dual degree is specifically designed for undergraduate students wishing to pursue a career in biomedical engineering. Biomedical engineering is the application of engineering principles to technologies and solutions in a range of healthcare-related fields; for example, implantable bionics, drug delivery systems, medical imaging, radiotherapies, orthopaedic devices, telemedicine, robotic surgery, cell and tissue engineering, records management, physical rehabilitation, and others. This program provides fundamental engineering skills through a focus on one of the available engineering programs and specialist postgraduate training in biomedical engineering.

BACHELOR OF ENGINEERING / MASTER OF ENGINEERING IN ELECTRICAL ENGINEERING (WITH MINOR)
UAC CODE: 425150
2014 CUT-OFF: 95.45
PROGRAM LENGTH: 5 years

This innovative new program allows students to complete integrated Bachelors and Masters degrees in electrical engineering. The ability to study a minor in an area outside of electrical engineering allows graduates to accelerate their career path into senior engineering and management roles. More information on the BE ME can be found at eet.unsw.edu.au

**NOTE:** THE FOLLOWING CANNOT BE COMBINED WITH ANY OTHER DEGREE:
- BE (Civil with Architecture)
- BSC (Food Science and Technology)
- BE (Materials Science) in the Faculty of Science

FIND OUT MORE
For more detailed information on combined degrees, please refer to the unsw online handbook at handbook.unsw.edu.au

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>MASTERS OF BIOMEDICAL ENGINEERING</th>
<th>ARTS</th>
<th>COMMERCE</th>
<th>LAW</th>
<th>SCIENCE Includes Advanced Science and Advanced Maths</th>
<th>MUSIC</th>
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<tr>
<td>Flexible First Year</td>
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<td>Aerospace Engineering</td>
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<td>Geoinformation Systems</td>
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<td>Mechanical Engineering</td>
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<td>Naval Architecture</td>
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<td>Petroleum Engineering</td>
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<td>Photovoltaics and Solar Energy</td>
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<td>Software Engineering</td>
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<td>Telecommunications</td>
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YOUR CAREER: THE JOURNEY STARTS HERE

An engineering degree at UNSW sets you up for a rich and challenging experience on all levels. Be surrounded by engineering students and teaching staff who are inspiring, passionate, and driven.

OUR ENGINEERING SCHOOLS

UNSW Engineering is the largest of all the engineering schools in Australia. We offer the widest range of engineering degree course specialisations in the country through our nine engineering faculties.
### WHAT DOES IT INVOLVE?

LENGTH OF STUDY: 4 years  
2014 CUT-OFF: 91.00  
Aerospace Engineering courses include aerodynamics, flight mechanics, propulsion, and structures and systems. These are complemented by two advanced design courses. Students in the school of Mechanical and Manufacturing Engineering share the first two years of their undergraduate degree.  

The third and fourth years cover the analysis, design and operation of aircraft and spacecraft. The final-year design course involves a team design project integrating all aspects of aircraft design to meet a defined mission specification.

### CAREER OPPORTUNITIES

You could use your skills in the design and manufacture of light aircraft, passenger aircraft, military jets or supersonic aircraft; in the airline industry in aircraft acquisitions, maintenance or configuration; or in the space industry providing infrastructure for civil and defence satellites.

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"Originally, my dream job was to become a Formula 1 aerodynamicist. During the course of my degree, I have delved deeper into engineering disciplines and developed a greater understanding of my strengths and interests. This has led me to the spacecraft engineering industry. I hope to move to Germany to help design satellites, spacecraft and launch-vehicle structures."
I have always been interested in biology and engineering and did not want to give up either. UNSW was the only university that offered a biomedical engineering/bioinformatics plan and my program combines biology and engineering. At UNSW I have had access to all the resources I have needed to excel in my degree. After graduating I will have opportunities to work in a variety of fields.
“I chose the biomechanical side of engineering because I am interested in designing devices and seeing how they might work inside the human body. UNSW has given me the skills to secure an internship at Westmead Children’s Hospital, where I will be doing biomedical engineering work within the hospital environment. I am so excited, as I think it will be an amazing learning and practical engineering opportunity.”
## CHEMICAL ENGINEERING

> **UAC CODE 425550**

CHEMICAL ENGINEERS design, create and optimise the systems and equipment used in chemical, industrial, biological and environmental processes. They produce a range of materials, from fuels and fertilisers to processed foods, beer and wine, polymers, and pharmaceuticals.

### WHAT DOES IT INVOLVE?

**LENGTH OF STUDY:** 4 years  
**2014 CUT-OFF:** 91.00

Chemical Engineering bridges the study of the chemical and physical sciences with engineering.

The major areas of Chemical Engineering activities are: the design and development of chemical processes and equipment; optimisation and control of industrial operations; plant operation and management; and environmental management and pollution control.

Management, critical analysis and economics are very important components of the undergraduate training.

### CAREER OPPORTUNITIES

**You could work in water treatment and recycling, environmental management, energy and petrochemical industries, research, from molecular level up to full heavy-industry scale.**

Chemical engineers may be involved in the manufacture and commercialisation of products such as nanomaterials, energy, food and clean water, or in designing systems and processes to manage environmental impacts.

### YEAR 1*

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<th>Course</th>
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<tbody>
<tr>
<td>Mathematics x 2</td>
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<tr>
<td>Physics</td>
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<tr>
<td>Chemistry or Engineering Materials and Design x 2</td>
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<tr>
<td>Engineering Design</td>
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<tr>
<td>Computing for Engineers</td>
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<td>Plus one elective</td>
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### YEAR 2*

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<th>Course</th>
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<tr>
<td>Material and Energy Systems</td>
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<td>Fluid and Particle Mechanics</td>
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<td>Heat and Mass Transfer</td>
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<td>Industrial Chemistry for Chemical Engineering</td>
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<td>Chemical Reaction Engineering</td>
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<td>Engineering Mathematics</td>
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<tr>
<td>Numerical Methods and Statistics</td>
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<td>General Education</td>
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### YEAR 3*

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<th>Course</th>
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<tr>
<td>Process Modelling and Analysis</td>
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<td>Advanced Thermodynamics and Separation</td>
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<td>Experimental Practice</td>
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<td>Chemical Engineering Lab</td>
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<tr>
<td>Process Equipment Design</td>
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<tr>
<td>Process Plant Design</td>
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<td>Process Dynamics and Control</td>
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<td>General Education</td>
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### YEAR 4*

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<th>Course</th>
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<tr>
<td>Environment and Sustainability</td>
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<td>Process Design Project</td>
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<tr>
<td>Thesis</td>
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<tr>
<td>Plus three professional electives</td>
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</table>

*sample degree structure

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### WHAT DO YOU THINK?

**Stephanie Domanski**  
**Bachelor of Chemical Engineering**

"The Faculty of Engineering at UNSW is known for producing excellent graduates. It has great facilities, including access to online databases, study areas, meeting rooms and careers advice. Third and fourth-year subjects are the best part of my program and give students a practical taste of what is expected in industry. Completing a thesis is a great way to learn about research and to develop communications skills in an area of interest."
CIVIL ENGINEERING

> UAC CODE 425400

CIVIL ENGINEERS design, construct, manage, maintain, and assess sustainability of modern infrastructure such as buildings, bridges, roads, tunnels, airfields, dams, ports, railways, new mines, water supply and sewerage schemes, irrigation systems, and flood mitigation works.

WHAT DOES IT INVOLVE?
LENGTH OF STUDY: 4 years  
2014 CUT-OFF: 91.20

The Civil Engineering degree provides students with an excellent grounding in civil engineering fundamentals and applications.

The degree includes subjects in structural engineering, geotechnical engineering, transport engineering, water engineering, and construction and management.

CAREER OPPORTUNITIES

Civil engineers investigate, plan, design and manage projects, which may involve both office and field work. A broad range of exciting and rewarding career opportunities are available in Australia and around the world, including employment with specialist consulting firms; construction companies; large public companies; government organisations which construct, manage and maintain public utilities; financial and management consultants; and many more.

YEAR 1*
Mathematics x 2  
Physics  
Engineering Mechanics  
Engineering Design  
Computing for Engineers  
Plus two electives

YEAR 2*
Engineering Computations  
Engineering Construction  
Sustainable Transport and Highway Engineering  
Mechanics of Solids  
Structural Analysis and Modelling  
Principles of Water Engineering  
Engineering Mathematics  
General Education

YEAR 3*
Civil Engineering Practice  
Engineering Operations  
Applied Geotechnics and Engineering Geology  
Steel Structures  
Concrete Structures  
Soil Mechanics  
Water Resources Engineering  
Water and Wastewater Engineering

YEAR 4*
Thesis or Elective  
Design Practice  
General Education  
Plus five electives

* sample degree structure

FIND OUT MORE

civeng.unsw.edu.au  
cven.enquiries@unsw.edu.au  
+61 2 9385 5033/4198

“Aaron Hargraves
Bachelor of Civil Engineering

“The thing I like most about UNSW is its industry connections. The large number of industry partners gives students a lot of opportunities to get involved and these partnerships are a great help in securing graduate roles. I received a rural engineering scholarship sponsored by Parsons Brinckerhoff, which has provided me with three summer industrial training placements.”
CIVIL ENGINEERING WITH ARCHITECTURE

WHAT DOES IT INVOLVE?
LENGTH OF STUDY: 4 years

2014 CUT-OFF: 95.00

This degree provides civil engineers with an appreciation and understanding of architectural principles. Creativity and inventiveness are the key attributes of this degree.

The ultimate aim is to help students become great engineers and conceptual thinkers, with an appreciation for beauty, and the mathematical ability to challenge the traditional boundaries of structural design.

CAREER OPPORTUNITIES

You could work with specialist structural engineering consultants; construction and contracting companies; federal, state and local government organisations; airport and harbour authorities; project developers; and financial and management consultants in large corporations both in Australia and overseas.

Graduates will be well qualified to collaborate with architects, artists and other professionals in multidisciplinary built environment teams to produce integrated and sustainable designs.

YEAR 1*

- Mathematics x 2
- Physics
- Enabling Skills
- Engineering Mechanics
- Engineering Design
- Plus two electives

YEAR 2*

- Architectural Design Studio 1
- Architectural Communications
- Engineering Computations
- Engineering Construction
- Soil Mechanics
- Mechanics of Solids
- Structural Analysis and Modelling
- Engineering Mathematics

YEAR 3*

- Architectural Design Studio 2
- Principles of Water Engineering
- Engineering Operations
- Applied Geotechnics and Engineering Geology
- Steel Structures
- Concrete Structures
- Water Resources Engineering
- Water and Wastewater Engineering

YEAR 4*

- Architectural Design Studio 3
- Thesis or Elective
- Design Practice
- Plus electives in Engineering and FBE

* sample degree structure

FIND OUT MORE

civeng.unsw.edu.au
cven.enquiries@unsw.edu.au
+61 2 9385 5033/4198

JESSICA ZHANG
BACHELOR OF CIVIL ENGINEERING WITH ARCHITECTURE

“My interest in science and maths led me to major in engineering. I also enjoy painting and being creative. My program offers a logical side in civil engineering and a creative side through architecture. There is a variety of programs for students to choose from at UNSW. Make sure to follow your heart and find your passion.”
"I initially chose Electrical Engineering as my undergraduate degree, however I found that I really enjoyed the introductory computing courses, so I transferred to Computer Engineering. My program has been challenging and rewarding; there are so many interesting areas of computing to study. I have particularly enjoyed Algorithms and Programming Techniques, which focuses on problem-solving. I am being taught how to think rather than what to think."
COMPUTER SCIENCE

> UAC CODE 425800

COMPUTER SCIENCE is concerned with the core principles and technologies that make up the entire range of computer-based systems. It studies the principles underlying computer hardware, algorithms, operating systems, networks, databases, graphics and artificial intelligence, and also the practice of building these systems.

WHAT DOES IT INVOLVE?

LENGTH OF STUDY: 3 years
2014 CUT-OFF: 91.00

Computer Science is the most flexible computing degree. One-third of the subjects are free electives, which means you can easily combine your study in computing with other areas including law, languages, philosophy, sciences and commerce.

Computer Science focuses on the design and development of hardware and software tools that are used to develop computer applications, rather than the applications themselves. Particular emphasis is given to understanding the basic principles behind computing tools, operating systems, compilers and translators, and computer hardware.

CAREER OPPORTUNITIES

You could work in software companies, commercial institutions, internet-related companies or IT units of most private sector and government organisations.

The most common job classification is programmer or analyst/programmer, but some graduates prefer to work more closely with people in user support, or network administration.

Computer Science graduates also work in gaming and software development, robotics and artificial intelligence as well as in research.

YEAR 1*

Computing x 2
Discrete Mathematics
Mathematics x 2
Plus three electives

YEAR 2*

Software Construction
Microprocessors and Interfacing
Engineering Design in Computing
General Education
Plus four electives

YEAR 3*

Management and Ethics
General Education
One elective and five year 3/4 Computing Electives

YEAR 4 HONOURS (OPTIONAL)

Thesis
Plus five year 3/4 Computing Electives

* sample degree structure

WHAT DOES IT INVOLVE?

LENGTH OF STUDY: 3 years
2014 CUT-OFF: 91.00

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YEAR 1*

Computing x 2
Discrete Mathematics
Mathematics x 2
Plus three electives

YEAR 2*

Software Construction
Microprocessors and Interfacing
Engineering Design in Computing
General Education
Plus four electives

YEAR 3*

Management and Ethics
General Education
One elective and five year 3/4 Computing Electives

YEAR 4 HONOURS (OPTIONAL)

Thesis
Plus five year 3/4 Computing Electives

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CAREER OPPORTUNITIES

You could work in software companies, commercial institutions, internet-related companies or IT units of most private sector and government organisations.

The most common job classification is programmer or analyst/programmer, but some graduates prefer to work more closely with people in user support, or network administration.

Computer Science graduates also work in gaming and software development, robotics and artificial intelligence as well as in research.

YEAR 1*

Computing x 2
Discrete Mathematics
Mathematics x 2
Plus three electives

YEAR 2*

Software Construction
Microprocessors and Interfacing
Engineering Design in Computing
General Education
Plus four electives

YEAR 3*

Management and Ethics
General Education
One elective and five year 3/4 Computing Electives

YEAR 4 HONOURS (OPTIONAL)

Thesis
Plus five year 3/4 Computing Electives

* sample degree structure

WHAT DOES IT INVOLVE?

LENGTH OF STUDY: 3 years
2014 CUT-OFF: 91.00

Computer Science is the most flexible computing degree. One-third of the subjects are free electives, which means you can easily combine your study in computing with other areas including law, languages, philosophy, sciences and commerce.

Computer Science focuses on the design and development of hardware and software tools that are used to develop computer applications, rather than the applications themselves. Particular emphasis is given to understanding the basic principles behind computing tools, operating systems, compilers and translators, and computer hardware.

CAREER OPPORTUNITIES

You could work in software companies, commercial institutions, internet-related companies or IT units of most private sector and government organisations.

The most common job classification is programmer or analyst/programmer, but some graduates prefer to work more closely with people in user support, or network administration.

Computer Science graduates also work in gaming and software development, robotics and artificial intelligence as well as in research.

YEAR 1*

Computing x 2
Discrete Mathematics
Mathematics x 2
Plus three electives

YEAR 2*

Software Construction
Microprocessors and Interfacing
Engineering Design in Computing
General Education
Plus four electives

YEAR 3*

Management and Ethics
General Education
One elective and five year 3/4 Computing Electives

YEAR 4 HONOURS (OPTIONAL)

Thesis
Plus five year 3/4 Computing Electives

* sample degree structure
**ELECTRICAL ENGINEERING**

> UAC CODE 425100

ELECTRICAL ENGINEERS design and develop intelligent hardware and software systems and devices, which contribute to our quality of life. Many are engaged in communications, smart energy systems, embedded systems, robotics, speech, video and image processing, and integrated electronics.

**WHAT DOES IT INVOLVE?**

LENGTH OF STUDY: 4 years  
2014 CUT-OFF: 91.00

The focus in Electrical Engineering is on design, development, manufacturing, and management of complex hardware and software systems and reliable cost-effective devices, many involving the use of new information and computer-intensive technologies.

The degree includes subjects in telecommunications, photonics, systems and control, energy systems, microelectronics, and signal processing, opening up a huge range of challenging and rewarding career paths.

**CAREER OPPORTUNITIES**

Potential employers include service industries such as Telstra, iiNet and electricity authorities; and large private industrial groups such as Thales, Alstom, BHP, Boeing Australia, Honeywell, Dolby Australia, IBM, Google and Alcatel-Lucent.

You could also work for firms specialising in the application of new technologies to new products and services, in a range of areas such as telecommunications and wireless electronics, internet services, biomedical instrumentation, and many more.

---

YEAR 1*
Mathematics x 2  
Physics x 2  
Computing x 2  
Engineering Design  
Electrical Circuits

YEAR 2*
Mathematics x 2  
Circuits and Signals  
Analogue Circuits  
Digital Circuit Design  
Embedded System Design  
General Education x 2

YEAR 3*
Digital Signal Processing  
Electronics  
Electromagnetic Engineering  
Electrical Energy  
Systems and Control  
Electrical Engineering Design  
Plus two electives

YEAR 4*
Thesis  
Strategic Leadership and Ethics  
Electrical Engineering  
Design Proficiency  
Plus four electives

* Sample degree structure

---

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---

**JAKE LINNENBANK**
Bachelor of Engineering  
And Master of Engineering  
in Electrical Engineering

*The best part of my program is being able to see the theory that we learn in lectures applied in real-life scenarios. We can physically experience these new ideas and develop a much better understanding of both the topics and our role as engineers. There is a great social atmosphere at UNSW – it is so diverse and multicultural. Both staff and students are really friendly and it is a really nice place to be.*
ENVIRONMENTAL ENGINEERING

> UAC CODE 425470

ENVIRONMENTAL ENGINEERS work to protect and improve human health and safety and the natural environment. They apply their broad knowledge of engineering and environmental processes in developing effective solutions to environmental problems and the provision of sustainable infrastructure.

WHAT DOES IT INVOLVE?

LENGTH OF STUDY: 4 years
2014 CUT-OFF: 92.25

Environmental Engineering embraces aspects of civil engineering including management, systems design, water, geotechnical and transport engineering, together with elements of chemical engineering, applied and biological sciences, and environmental studies.

The degree places an emphasis on sustainability, environmental processes, environmental management, planning projects to reduce environmental impact, and rehabilitation of environmental damage.

CAREER OPPORTUNITIES

A broad range of exciting and rewarding career opportunities are available across the water, construction, energy, and manufacturing industries, as well as within all levels of government.

You might find yourself working with a water company on water loss initiatives, consulting on major tender projects such as recycling or desalination plants, working in wastewater treatment plants, planning sustainable infrastructure, working on environmental impact assessments, or on water use in developing countries with international aid groups.

YEAR 1*

- Mathematics x 2
- Physics
- Engineering Design
- Computing for Engineers
- Chemistry
- Plus two electives

YEAR 2*

- Ecology and Sustainability
- Mass and Energy Balances
- Transport and Environmental Sustainability
- Principles of Water Engineering
- Water and Atmospheric Chemistry
- Engineering Computations
- Engineering Mathematics
- General Education

YEAR 3*

- Engineering Operations
- Applied Geotechnics and Geology
- Soil Mechanics
- Water Resources Engineering
- Water and Wastewater Engineering
- Environmental Frameworks and Law
- Solid Waste and Containment Transport
- Environmental Practice

YEAR 4*

- Thesis or Elective
- Design Practice
- Sustainable Infrastructure
- General Education
- Plus four electives

* sample degree structure

What Does it Involve?

LENGTH OF STUDY: 4 years
2014 CUT-OFF: 92.25

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Year 1*

- Mathematics x 2
- Physics
- Engineering Design
- Computing for Engineers
- Chemistry
- Plus two electives

Year 2*

- Ecology and Sustainability
- Mass and Energy Balances
- Transport and Environmental Sustainability
- Principles of Water Engineering
- Water and Atmospheric Chemistry
- Engineering Computations
- Engineering Mathematics
- General Education

Year 3*

- Engineering Operations
- Applied Geotechnics and Geology
- Soil Mechanics
- Water Resources Engineering
- Water and Wastewater Engineering
- Environmental Frameworks and Law
- Solid Waste and Containment Transport
- Environmental Practice

Year 4*

- Thesis or Elective
- Design Practice
- Sustainable Infrastructure
- General Education
- Plus four electives

* sample degree structure

Sarah Hayes
Bachelor of Environmental Engineering/Bachelor of Commerce

“UNSW is a highly progressive, dynamic university that teaches not only the basics but cutting-edge theories and practices as well. I am very interested in environmental issues and want to use my analytical skills to do something about the things I care about. I started out wanting to work for a development non-government organisation; now I think I want to go into academia and teach.”
“Food Science and Technology allows me to further my fascination for food and chemistry, and lets me study the combined physical, biological, chemical, nutritional and engineering aspects of food. Site visits to the factories of large food manufacturing companies have given me insights into the food industry and the Industry Mentoring Program has provided valuable industry exposure.”

YEAR 1*
Molecules, Cells and Genes
Introduction to Food Science
Sustainable Food Manufacturing
Mathematics for Life Sciences
Stats for Life and Social Sciences
Fundamentals of Physics
Chemistry x 2

YEAR 2*
Fundamentals of Biochemistry
Fundamentals of Molecular Biology
Microbiology
Food Chemistry
Food Processing Principles
Food Microbiology
Instrumental Analysis
General Education

YEAR 3*
Food Preservation
Food Science and Technology Laboratory
Food Safety and Quality Assurance
Nutrition
Unit Operations in Food Processing
Product Design and Development
Food Toxicology
General Education

YEAR 4*
Thesis or Industry Practicum
Advanced Food Chemistry
Industry Liaison
Plus four electives

* sample degree structure

WHAT DOES IT INVOLVE?
LENGTH OF STUDY: 4 years
2014 CUT-OFF: 91.00

Food Science and Technology builds on fundamental knowledge in sciences such as chemistry, microbiology, biochemistry, and biotechnology to optimise the quality and safety of foods through appropriate processing and packaging for a wide variety of food markets, both national and international.

Students are encouraged to obtain as much professionally oriented or industrial experience as possible before the completion of the degree.

CAREER OPPORTUNITIES
You could work in areas as diverse as processing and production; research and development and quality assurance, information technology and service; nutrition; fitness; or management within companies or state and federal governments.

You could also work in product design and development or in research in agriculture or aquaculture. You could work with ingredient manufacturers, in the food industry’s retail sector, in marketing or PR, or in consumer education and community nutrition.
GEOINFORMATION SYSTEMS

> UAC CODE 425500

GEOINFORMATION SYSTEMS (GIS) technologies link information in space and time, utilising satellites, laser scanners and GPS; as well as IT tools for the spatial analysis of everything that can be mapped – cities, vegetation or populations.

WHAT DOES IT INVOLVE?
LENGTH OF STUDY: 4 years
2014 CUT-OFF: 91.00
The undergraduate degree in Geoinformation Systems is the pathway to an amazing range of careers. It focuses on GIS, spatial analysis, satellite imagery and Earth observation and includes a significant component of Computer Science subjects.

The geospatial revolution has created a skills shortage globally. We offer excellent scholarships.

CAREER OPPORTUNITIES
GIS professionals are highly employable in a growing variety of careers using GPS, geodatabase systems, geoinformation technology, satellite imagery, and remote sensing. GIS is increasingly being integrated into business, government and personal decision-making. GIS specialists are in great demand in areas ranging from emergency services, urban planning and health to management of natural resources and the environment. You could work for the United Nations, Google or invent your own high-selling app.

YEAR 1*
Mathematics x 2
Physics
Higher Computing
Engineering Design
Surveying and GIS
Plus two electives

YEAR 2*
Engineering Design in Computing
GIS in Practice
Surveying Computations and CAD
Data Analysis by Least Squares
Geodesy and Spatial Reference
Numerical Methods and Statistics
Plus two electives

YEAR 3*
Field Projects
Geoinformation Science
Cadastral Surveying and Land Law
Earth Observation Systems and Applications
Precise GPS Positioning
General Education Elective
Plus two electives

YEAR 4*
Undergraduate Project Thesis x 2
Field Projects
Business Management
Plus four electives

* sample degree structure

Daniel Smith
Bachelor of Geoinformation Systems Engineering

“Prior to joining UNSW, I completed a two-year TAFE diploma in surveying. However, in order to become a registered surveyor, I needed to further my studies and chose UNSW due to its outstanding reputation in the industry. Since starting my degree I have turned my focus to emerging technologies in the spatial industry. There have been huge technological advances and I think the future of the industry is very exciting.”

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+61 2 9385 4319

"UNSW attracts a high calibre of academics and researchers. Once the subjects get more specialised, their passion and level of expertise comes to the fore. Prospective students should look into the subjects within the programs they have in mind and do a little research. I initially wanted to do research into biofuels, but now I have an internship in the renewable energy division at a consulting firm and can see myself working in a similar environment."
MECHANICAL AND MANUFACTURING ENGINEERING

> UAC CODE 425050

MANUFACTURING ENGINEERS take charge of the entire product cycle – from efficient design and manufacture to the control and operation of all systems used.

WHAT DOES IT INVOLVE?

LENGTH OF STUDY: 4 years
2014 CUT-OFF: 91.00

Mechanical and Manufacturing Engineering is designed to provide the appropriate academic training for a mechanical engineer to specialise in manufacturing, or a manufacturing engineer to specialise in the mechanical area, both of which could be associated with the aerospace, mechatronics or shipbuilding industries.

In the third and fourth years of the degree the focus is on applications of engineering with emphasis on management, the operation of systems, economics, product design, and manufacturing technology. Each student is required to submit a thesis at the end of the final year and to deliver a seminar on the topic of the thesis.

CAREER OPPORTUNITIES

You could work in companies involved in product design and development; manufacturing companies of all types; service providers such as banks or forwarding agencies; distribution companies; warehousing and logistics, or consulting companies; undertaking a variety of tasks such as the economic analysis, planning and implementation of strategies and technologies.

Manufacturing management skills are also valued in service industries such as banking and transport.

I knew from early on that engineering was for me. I chose Manufacturing Engineering because it offered a highly practical and versatile set of skills that can be applied to many industries outside of traditional manufacturing. It involves a lot more day-to-day problem-solving and conceptual design of products or processes, which appeals to my creative side. I was fortunate enough to receive a UNSW Co-op Scholarship. I was able to gain 18 months, industry experience with three world-class companies before graduating.
"The best part of my studies is that I get to work on a real industry project. I'm currently working with Caterpillar on automating the drilling process of mining equipment and have secured a graduate position with Rio Tinto."

MECHANICAL ENGINEERING

> UAC CODE 425050

MECHANICAL ENGINEERING addresses the design of all types of mechanical plants; the supervision of construction, operation and maintenance; and the planning and supervision of large engineering projects. Mechanical engineers also design simple devices like door locks and fishing reels. In fact, mechanical engineers play a role in most of the things that people drive, play with, or live in.

WHAT DOES IT INVOLVE?

LENGTH OF STUDY: 4 years
2014 CUT-OFF: 91.00

Mechanical Engineering is the broadest of the disciplines in the School of Mechanical and Manufacturing Engineering. In second and third year of the degree, students take specialised Mechanical Engineering courses including fluid dynamics, mechanics of solids, thermodynamics and heat transfer, power generation, noise and vibration, and composite structures. Students also learn computer-aided design and computer-aided manufacturing and undertake design projects.

CAREER OPPORTUNITIES

You can find jobs in a variety of professions from the mining, civil and environmental sectors to the automotive industry (design and production). You could also work in building services; acoustics consultancies; structural design of cranes; design of railway vehicles and rail systems; design of consumer goods; manufacturing technology, including robotics and automation; management consultancies; power generation; refineries; or insurance industries.

YEAR 1*

- Mathematics x 2
- Physics
- Computing for Engineers
- Engineering Mechanics 1
- Introduction to Engineering Design and Innovation
- Plus two Year 1 electives

YEAR 2*

- Design and Manufacturing
- Mechanics of Solids 1
- Thermodynamics
- Engineering Mathematics
- Engineering Mechanics 2
- Fluid Mechanics
- Engineering Design 2
- Electrical and Telecommunications Engineering

YEAR 3*

- Mechanics of Solids 2
- Linear Systems and Control
- Numerical Methods and Statistics
- Mechanical Design 1
- Advanced Thermofluids
- Professional Engineering and Communication
- General Education x 2

YEAR 4*

- Mechanical Design 2
- Thesis
- Plus five professional electives

* sample degree structure

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JOANNA ISKANDAR
BACHELOR OF MECHANICAL ENGINEERING

"The best part of my studies is that I get to work on a real industry project. I’m currently working with Caterpillar on automating the drilling process of mining equipment and have secured a graduate position with Rio Tinto."

DEGREE: MECHANICAL ENGINEERING

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YEAR 1*

- Mathematics x 2
- Physics
- Computing for Engineers
- Engineering Mechanics 1
- Introduction to Engineering Design and Innovation
- Plus two Year 1 electives

YEAR 2*

- Design and Manufacturing
- Mechanics of Solids 1
- Thermodynamics
- Engineering Mathematics
- Engineering Mechanics 2
- Fluid Mechanics
- Engineering Design 2
- Electrical and Telecommunications Engineering

YEAR 3*

- Mechanics of Solids 2
- Linear Systems and Control
- Numerical Methods and Statistics
- Mechanical Design 1
- Advanced Thermofluids
- Professional Engineering and Communication
- General Education x 2

YEAR 4*

- Mechanical Design 2
- Thesis
- Plus five professional electives

* sample degree structure

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YEAR 1*

- Mathematics x 2
- Physics
- Computing for Engineers
- Engineering Mechanics 1
- Introduction to Engineering Design and Innovation
- Plus two Year 1 electives

YEAR 2*

- Design and Manufacturing
- Mechanics of Solids 1
- Thermodynamics
- Engineering Mathematics
- Engineering Mechanics 2
- Fluid Mechanics
- Engineering Design 2
- Electrical and Telecommunications Engineering

YEAR 3*

- Mechanics of Solids 2
- Linear Systems and Control
- Numerical Methods and Statistics
- Mechanical Design 1
- Advanced Thermofluids
- Professional Engineering and Communication
- General Education x 2

YEAR 4*

- Mechanical Design 2
- Thesis
- Plus five professional electives

* sample degree structure

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WHAT DOES IT INVOLVE?

LENGTH OF STUDY: 4 years
2014 CUT-OFF: 91.00

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CAREER OPPORTUNITIES

You can find jobs in a variety of professions from the mining, civil and environmental sectors to the automotive industry (design and production). You could also work in building services; acoustics consultancies; structural design of cranes; design of railway vehicles and rail systems; design of consumer goods; manufacturing technology, including robotics and automation; management consultancies; power generation; refineries; or insurance industries.
**MECHATRONIC ENGINEERING**

> UAC CODE 425020

MECHATRONIC ENGINEERING is concerned with the creation, design and building of intelligent machines, ranging from automated wheelchairs to robotic fruit harvesters. Many modern machines have a significant mechatronic component and are increasingly being used in the mining, agriculture and manufacturing industries.

**WHAT DOES IT INVOLVE?**

**LENGTH OF STUDY:** 4 years

**2014 CUT-OFF:** 91.35

The Mechatronic Engineering degree combines mechanical design skills, computing skills, and knowledge of control systems, microprocessors and electronics to design and build smart, efficient and intelligent machines. In the third and fourth years of the degree, students develop a deeper understanding of the principles supporting the conception, design, construction, maintenance, integration, and repair of intelligent machines.

**CAREER OPPORTUNITIES**

You could work in one of the many industries where automation is in demand, such as manufacturing, automotive, mining, cargo-handling, and agriculture. You could also work in companies that design and manufacture consumer machines, or specialised industrial machines, or as a consulting engineer dealing with complex project management across a range of engineering disciplines.

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**YEAR 1**

- Mathematics \(x\) 2
- Physics
- Computing
- Engineering Mechanics 1
- Introduction to Engineering Design and Innovation
- Plus two Year 1 electives

**YEAR 2**

- Design and Manufacturing
- Mechanics of Solids 1
- Engineering Mathematics
- Engineering Design 2
- Computing for Mechatronic Engineers
- Engineering Mechanics 2
- Electrical Circuits
- General Education

**YEAR 3**

- Linear Systems and Control
- Digital Circuit Design
- Numerical Methods and Statistics
- Modelling and Control of Mechatronic Systems
- Microprocessors and Interfacing
- Professional Engineering and Communication
- Computer Applications in Mechatronic Systems
- General Education

**YEAR 4**

- Advanced Autonomous Systems
- Process Modelling and Simulation
- Robotics
- Thesis
- Robot Design
- Plus two professional electives

* sample degree structure

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**DEGREE:** MECHATRONIC ENGINEERING

**UAC CODE 425020**

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**FIND OUT MORE**

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**SAM MARDEN**

BACHELOR OF MECHATRONIC ENGINEERING / BACHELOR OF COMMERCE

“I enjoyed playing with LEGO and robots from a young age, and the Mechatronics degree has allowed me to continue this interest, particularly in terms of designing and constructing autonomous systems capable of thinking and acting for themselves. I have had the opportunity to participate in robotics competitions and research, which has not only provided invaluable learning experiences, but has also given me the opportunity to travel around Australia and overseas.”
**FIND OUT MORE**

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---

**MINING ENGINEERING**

> **UAC CODE 425300**

MINING ENGINEERING is concerned with the planning, design, operation, management and sustainability of mines. Mining engineers are responsible for the safe, economic and environmentally sound extraction of minerals and resources.

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**WHAT DOES IT INVOLVE?**

**LENGTH OF STUDY:** 4 years  
**2014 CUT-OFF:** 91.00

Studying Mining Engineering at UNSW means students have access to world-class lecturers, industry experts and experience innovative learning methods in a 3D environment. Students receive practical hands-on experience with field trips and industrial training also forming an important part of the curriculum.

A UNSW Mining Engineering degree provides a comprehensive understanding on how complex mining systems work together to service the global need for minerals. The degree covers mining fundamentals including mine design and planning, mining systems, geotechnical engineering, mining technologies including ventilation rock, breakage, mine management, sustainability and a research project.

**CAREER OPPORTUNITIES**

Mining Engineering offers a diverse graduate career path as a global profession that encompasses a wide range of activities involving technology, people, financial resources, community, and government.

Mining engineers are in great demand both locally and internationally and have the opportunity to work in Australia and overseas. UNSW Mining graduates are highly sought after by the mining industry, business consulting organisations, service supply companies and government.

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**YEARS 1 & 2**

<table>
<thead>
<tr>
<th>YEAR 1*</th>
<th>YEAR 2*</th>
</tr>
</thead>
</table>
| Mathematics x 2  
Physics  
Engineering Design  
Computing for Engineers  
Engineering Mechanics  
Plus two electives |
| Mining Services  
Engineering Mathematics  
Numerical Methods and Statistics  
Mining Project Development  
Mechanics of Solids  
Introduction to Fluid Flow and Heat Transfer  
Minerals and Processing  
General Education |

**YEARS 3 & 4**

<table>
<thead>
<tr>
<th>YEAR 3*</th>
<th>YEAR 4*</th>
</tr>
</thead>
</table>
| Resource Estimation  
Mine Planning  
Mining Geomechanics  
Mining Systems  
Mine Ventilation  
Rock Breakage  
Socio-Environmental Aspects of Mining  
Plus one elective or General Education |
| Hardrock Feasibility Project  
Coal Feasibility Project  
Mine Geotechnical Engineering  
Mining Research Project  
Mine Management  
Plus one elective or General Education |

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* sample degree structure

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**ANNETTE AU**

**BACHELOR OF MINING ENGINEERING**

“I’ve always had a strong interest in minerals and geology, and was inspired by a senior lecturer from UNSW Engineering who visited my high school to encourage young women to study engineering. My program is very industry, management and process-specific. The School of Mining Engineering has an interactive, three-dimensional, floor-to-ceiling Virtual Reality Simulator, which gives us amazing insights into mining operations.”

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**FIND OUT MORE**

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**DEGREE: MINING ENGINEERING**

**37**
NAVAL ARCHITECTURE

> UAC CODE 425050

NAVAL ARCHITECTURE is concerned with the design, construction and operation of all types of ships and marine vehicles, including commercial, recreational and military vessels. Naval architects ensure their fitness-for-purpose, seaworthiness, efficiency, and environmental friendliness.

WHAT DOES IT INVOLVE?

LENGTH OF STUDY: 4 years
2014 CUT-OFF: 91.00

Students are introduced to Naval Architecture with industry visits to see first-hand the design, maintenance and operation of ships. Naval Architecture courses include hydrostatics and hydrodynamics, ship structures, marine engineering, resistance and propulsion, and contracts and tendering.

The first two years of the undergraduate degree in the School of Mechanical and Manufacturing Engineering are the same for all five degree streams. In Years 3 and 4 of the Naval Architecture degree, you undertake the specialised Naval Architecture courses including, in the final year, the design of yachts and high-speed craft as well as your own ship design project.

CAREER OPPORTUNITIES

You could work in ship design, shipbuilding, ship repair, research and development, regulatory activities, ship classification, or offshore engineering.

You could work for Naval Architecture firms and consultants, government, defence, ship classification societies, ship management, or shipowner organisations. You could also design high-speed ferries or high-performance yachts.

YEAR 1*

- Mathematics x 2
- Physics
- Computing for Engineers
- Engineering Mechanics 1
- Introduction to Engineering Design and Innovation
- Plus two Year 1 electives

YEAR 2*

- Design and Manufacturing Mechanics of Solids 1
- Thermodynamics
- Engineering Mathematics
- Fluid Mechanics
- Engineering Design 2
- Electrical and Telecommunications Engineering
- General Education

YEAR 3*

- Ship Design and Propulsion
- Ship Structures 1
- Ship Hydrodynamics
- Ship Hydrostatics and Practice
- Ship Standards and Marine Engineering
- Numerical Methods & Statistics
- Professional Engineering and Communication
- Mechanics of Solids 2

YEAR 4*

- Linear Systems and Control
- Ship Design Project
- Thesis
- General Education
- Plus 2 professional electives

* sample degree structure

FIND OUT MORE
mech.unsw.edu.au
mech@unsw.edu.au
+61 2 9385 4093

GEORGIA MCLINDEN
BACHELOR OF
MECHANICAL ENGINEERING
(NAVAL ARCHITECTURE)

“I attended an all-girls school in Perth, where there was limited variety in people’s backgrounds. UNSW is a great place to meet an amazing array of different people and to learn about experiences other than your own. The university culture is strong. People aren’t just here to attend classes - uni is just as much a social and recreational place as it is educational.”
# PETROLEUM ENGINEERING

> UAC CODE 425650

PETROLEUM ENGINEERING is concerned with the recovery of gas and oil from the earth in an efficient, safe and environmentally responsible manner, to satisfy the world’s ever-increasing energy needs for many decades to come.

## WHAT DOES IT INVOLVE?

**LENGTH OF STUDY:** 4 years  
**2014 CUT-OFF:** 91.40

The Petroleum Engineering degree is internationally accredited and prepares graduates for work in all aspects of oil and gas development and production, coal seam gas production, geothermal energy, and carbon dioxide capture and sequestration. Major studies include computer modelling, conventional and unconventional oil and gas, formation evaluation, oil and gas production, petroleum economics, petroleum geology and geophysics, and reservoir engineering.

## CAREER OPPORTUNITIES

There are exceptional career opportunities available for Petroleum Engineering graduates due to the massive resources boom. You could work in the production of oil and gas resources, unconventional gas resources, coal seam gas production, geothermal energy production, or carbon dioxide sequestration.

Increasing numbers of roles will also be available in financing, banking, legal and environmental areas that support these major resource and infrastructure developments.

---

**YEAR 1**

- Mathematics x 2  
- Physics  
- Engineering Design  
- Computing for Engineers  
- Engineering Materials and Chemistry  
- Plus two electives

**YEAR 2**

- Chemical Engineering Fundamentals  
- Fundamentals of Petroleum Geology  
- Engineering Mathematics  
- Introduction to Petroleum Industry  
- Business Practices  
- Introduction to Petrophysics  
- Reservoir Engineering  
- General Education

**YEAR 3**

- Reservoir Engineering  
- Reservoir Characterization and Simulation  
- Field Development Geology and Geophysics  
- Well Drilling Equipment and Operations  
- Petroleum Engineering Design Project  
- Formation Evaluation  
- Petroleum Economics  
- Plus one elective

**YEAR 4**

- Oil and Gas Field Evaluation Thesis  
- Enhanced Oil and Gas Recovery  
- Well Technology  
- Natural Gas Engineering  
- Petroleum Production Engineering  
- General Education  
- Plus one elective

*sample degree structure

---

**FIND OUT MORE**

petrol.unsw.edu.au  
peteng@unsw.edu.au  
+61 2 9385 5189

---

**DECLAN STOKES**

**BACHELOR OF PETROLEUM ENGINEERING**

“I attended the Honeywell Engineering Summer School at the end of Year 11 and UNSW blew me away. UNSW offers Australia’s premier Petroleum Engineering course and it appealed to me because future careers would offer me travel, excellent career growth and a combination of multiple engineering and geoscience disciplines.”
PHOTOVOLTAICS AND SOLAR ENERGY ENGINEERING

> UAC CODE 425200

PHOTOVOLTAICS ENGINEERING focuses on the manufacture and use of photovoltaic solar cells, to generate electricity from sunlight and use that energy to power practically any electrical load.

WHAT DOES IT INVOLVE?
LENGTH OF STUDY: 4 years
2014 CUT-OFF: 91.00

The Photovoltaics and Solar Energy degree provides education in Photovoltaic (PV) technology development, PV device manufacturing, PV system design and maintenance, and the use of other renewable energy technologies. It also allows for specialisation in a second strand of study. UNSW is a world leader in the field of photovoltaic engineering.

CAREER OPPORTUNITIES

You could work with manufacturers of solar cells, research organisations, system design and integration companies, energy utilities, and communications companies.

This is a rapidly expanding field with an increased need for specialised photovoltaics engineers and there are constantly new opportunities arising. Your career can take you to a number of exciting places both in Australia and overseas and can see you working on cutting-edge projects.

YEAR 1*
Mathematics x 2
Physics x 2
Engineering Design
Computing for Engineers
Plus two electives

YEAR 2*
Electrical and Telecommunications Engineering
Numerical Methods and Statistics
Engineering Materials and Chemistry
Project in Photovoltaics and Solar Energy
Sustainable and Renewable Energy Technologies
Introduction to Electrical Devices
Applied Photovoltaics

YEAR 3*
Photovoltaics Technology and Manufacturing
Low Energy Buildings and Photovoltaics
Solar Cells
General Education
Plus four electives

YEAR 4*
Strategic Leadership and Ethics
Grid-Connect Photovoltaics Systems
Thesis
General Education
Plus three electives

* sample degree structure

"The focus on solving real-world problems in engineering really attracted me to this course. The work placements I’ve had through my Co-op Scholarship have given me a much better perspective on my degree and made me even more interested in what I’m doing. I love the variety and flexibility in my program. I’d really love to move into the project development area of large-scale renewable energy projects or work in renewable energy policy.”

OSCAR WILKIE
BACHELOR OF PHOTOVOLTAICS AND SOLAR ENERGY ENGINEERING

FIND OUT MORE
pv.unsw.edu.au
pv.course@unsw.edu.au
+61 2 9385 6848
“UNSW is one of the few universities in Australia offering an undergraduate program in Renewable Energy Engineering. Renewable Energy research is at the forefront of innovation. At its heart are engineers using new technology and ideas to solve a big problem for which there is no clear answer. We not only need to develop these technologies, but also to understand the way society interacts with them and how to commercialise them.”
SOFTWARE ENGINEERING

> UAC CODE 425750

SOFTWARE ENGINEERING concentrates on the processes, methods and tools for the design and development of high-quality, reliable software systems. This involves the study and application of software specification, design, implementation, testing, and documentation.

WHAT DOES IT INVOLVE?
LENGTH OF STUDY: 4 years
2014 CUT-OFF: 91.05

Students will develop strong skills in software design and development and gain a thorough grounding in fundamental Computer Science. There will also be substantial exposure to applications, giving a broad experience in aspects of software systems from the machine level to applications in business and industry. A feature of the degree is a software engineering workshop, which spans the first three years and enables students to work in teams and gain hands-on experience in software development.

CAREER OPPORTUNITIES

The software industry is one of the fastest-growing industries in the world. Apart from software development and computing, work opportunities include telecommunications, defence, security finance, and electronics.

You could work in the business sector, designing advanced information systems; building technical systems for the medical, power and transport industries; or in telecommunications, exploiting or developing new network technologies.

YEAR 1*
Computing x 2
Mathematics x 2
Engineering Design
Discrete Mathematics
Software Engineering Workshop 1
Plus one free elective

YEAR 2*
System Modelling and Design
Engineering Design in Computing
Two Software Engineering Workshops
Microprocessors and Interfacing
Probability, Statistics and Information
Finite Mathematics
Software Construction
Plus one free elective

YEAR 3*
Software System Design and Implementation
Software Engineering Workshop 3
Computer Networks and Applications
Database Systems
Two General Education
Plus two electives

YEAR 4*
Professional Issues and Ethics
Thesis
Plus four electives

* sample degree structure

WHAT DOES IT INVOLVE?
LENGTH OF STUDY: 4 years
2014 CUT-OFF: 91.05

Students will develop strong skills in software design and development and gain a thorough grounding in fundamental Computer Science. There will also be substantial exposure to applications, giving a broad experience in aspects of software systems from the machine level to applications in business and industry. A feature of the degree is a software engineering workshop, which spans the first three years and enables students to work in teams and gain hands-on experience in software development.

CAREER OPPORTUNITIES

The software industry is one of the fastest-growing industries in the world. Apart from software development and computing, work opportunities include telecommunications, defence, security finance, and electronics.

You could work in the business sector, designing advanced information systems; building technical systems for the medical, power and transport industries; or in telecommunications, exploiting or developing new network technologies.

YEAR 1*
Computing x 2
Mathematics x 2
Engineering Design
Discrete Mathematics
Software Engineering Workshop 1
Plus one free elective

YEAR 2*
System Modelling and Design
Engineering Design in Computing
Two Software Engineering Workshops
Microprocessors and Interfacing
Probability, Statistics and Information
Finite Mathematics
Software Construction
Plus one free elective

YEAR 3*
Software System Design and Implementation
Software Engineering Workshop 3
Computer Networks and Applications
Database Systems
Two General Education
Plus two electives

YEAR 4*
Professional Issues and Ethics
Thesis
Plus four electives

* sample degree structure

FIND OUT MORE
computing.unsw.edu.au
undergrad@cse.unsw.edu.au
+61 2 9385 4329

SAM LI
BACHELOR OF SOFTWARE ENGINEERING/ BACHELOR OF COMMERCE

“The people and the fantastic community environment have been the highlight of my UNSW experience. Everywhere I go, whether it’s to Central Park in New York or on a shuttle in San Francisco or at work, I meet incredibly friendly people from UNSW. Being co-president of CSESoc allowed me to give back to the University community and to help other students have an awesome University life. It also gave me an opportunity to develop and exercise my creativity and leadership skills.”
UNSW offers flexible entry and study options, professional as well as social networking and industrial training opportunities, and impressive student-led engineering projects. I thoroughly enjoy the balance of outdoor and office work, which combines working on-site (including awesome four-wheel-driving and sight-seeing opportunities), analytical thinking and challenging mathematical problem-solving. The small, interactive classes at UNSW have enhanced my learning experience.

SURVEYING

> UAC CODE 425500

SURVEYING uses hi-tech tools to precisely map the natural and built environment. Surveyors work with other engineers, environmentalists, architects and developers to establish legal boundaries and support the construction and development of everything from infrastructure to mines.

WHAT DOES IT INVOLVE?

LENGTH OF STUDY: 4 years

2014 CUT-OFF: 91.00

The undergraduate degree in Surveying leads to registration in NSW as a cadastral or mining surveyor, with more focus on land management, town planning, modern satellite positioning, and options for transport, construction and water engineering. Major studies include surveying for land development and management, land law, engineering and mining surveying, industrial surveying, offshore and hydrographic surveying, precise GPS surveying and navigation, and the preparation of maps and other digital products.

CAREER OPPORTUNITIES

Surveying is a global profession facing a major skills shortage, with excellent opportunities within the industries that underpin land markets, urban and rural development, and engineering construction.

Some of the many roles available include establishing legal land boundaries as a land surveyor, defining and positioning new construction as an engineering surveyor, optimising mining operations as a mining surveyor, or mapping marine areas as a hydrographic surveyor.

YEAR 1*

Mathematics x 2
Physics
Engineering Design
Computing for Engineers
Surveying and Geoinformation Systems
Plus two electives

YEAR 2*

Electronic Survey Instruments
Geospatial Information Systems in Practice
Surveying Computations and CAD
Data Analysis by Least Squares
Integrated Surveying Techniques
Geodesy and Spatial Reference Frames
Numerical Methods and Statistics
General Education

YEAR 3*

Surveying Applications and Design
Field Projects
Cadastral Surveying and Land Law
Precise GPS Positioning
Plus four electives

YEAR 4*

Undergraduate Thesis Project x 2
Field Projects
Land Management and Development Design x 2
Survey Business Management
Plus two electives

* sample degree structure

SURVeying

UAC CODE 425500

SURVEYING uses hi-tech tools to precisely map the natural and built environment. Surveyors work with other engineers, environmentalists, architects and developers to establish legal boundaries and support the construction and development of everything from infrastructure to mines.

FIND OUT MORE

civeng.unsw.edu.au
cven.enquiries@unsw.edu.au
+61 2 9385 5033/4198

AMANDA NICHOLAS

BACHELOR OF ENGINEERING
(SURVEYING)

"UNSW offers flexible entry and study options, professional as well as social networking and industrial training opportunities, and impressive student-led engineering projects. I thoroughly enjoy the balance of outdoor and office work, which combines working on-site (including awesome four-wheel-driving and sight-seeing opportunities), analytical thinking and challenging mathematical problem-solving. The small, interactive classes at UNSW have enhanced my learning experience."
TELECOMMUNICATIONS

> UAC CODE 425100

TELECOMMUNICATIONS ENGINEERING is concerned with the design, development, testing, and maintenance of all aspects of voice and data communications systems; from satellite and optical fibre networks to data encoding, compression and encryption.

WHAT DOES IT INVOLVE?
LENGTH OF STUDY: 4 years
2014 CUT-OFF: 91.00
Telecommunications is concerned with communicating information at a distance. The telecommunications degree will appeal to you if you are interested in satellite communications; signal and image processing; optical fibres and photonics; mobile and satellite communications; data networks; data coding, compression, encryption and transmission; software systems including e-commerce; microelectronic devices and systems; and real-time embedded systems.

CAREER OPPORTUNITIES
You could work for telecommunications service providers such as iiNet or Skype, major equipment and device manufacturers such as Cisco, Apple or Huawei; and a wide range of start-up companies such as Airhop Communications, Cloudscaling, Devicescape or UNSW’s own Zedelef.

Demand for telecommunications engineers is boosted by huge infrastructure projects like the National Broadband Network.

YEAR 1*
Mathematics x 2
Physics x 2
Computing x 2
Engineering Design
Electrical Circuits

YEAR 2*
Mathematics x 2
Circuits and Signals
Analogue Circuits
Digital Circuit Design
Embedded System Design
General Education x 2

YEAR 3*
Digital Signal Processing
Electronics
Electromagnetic Engineering
Systems and Control
Telecommunications Engineering Design
Network Technologies
Analogue and Digital Communications
Trusted Networks

YEAR 4*
Thesis
Strategic Leadership and Ethics
Telecommunications Design Proficiency
Plus four electives

* sample degree structure

WHAT DO YOU THINK?

Raymond Allotta
Bachelor of Telecommunications Engineering

“The best part of my degree has been the hands-on design courses. Being given the knowledge, tools and support to design, build and market a radio communication device from scratch was a really engaging and educational experience. I can definitely use all the practical skills I have acquired in my future career.”

FIND OUT MORE
eet.unsw.edu.au
eet@unsw.edu.au
+61 2 9385 4000

PUT YOUR NAME ON IT
WHAT DOES IT INVOLVE?
LENGTH OF STUDY: First year of a 4 year degree
2014 CUT-OFF: 91.00

This is the degree where you can explore a number of areas before deciding upon your final specialisation. The first year of engineering study has a core of common subjects, plus a wide choice of electives, which allows you to study a number of areas that appeal to you without making a formal commitment to a specific engineering degree until the end of your first year.

Flexible First Year students need to enrol in five core subjects. You are then encouraged to select your electives from those listed as required in the degree you are considering for future years. Upon successful completion of your Flexible First Year, you can articulate to any of the engineering degrees on offer, subject to available places and grades.

CAREER OPPORTUNITIES
From your second year you can specialise in a particular field of engineering, which will open a range of careers to you. Due to the core of common subjects in the first year of any engineering degree, you will complete your degree in the same time and will graduate fully qualified in the area of your choice with as much in-depth knowledge as those who have chosen this path from year one.

Refer to the various degree pages for more details on career opportunities.

FIND OUT MORE
engineering.unsw.edu.au/flexible-first-year-program  
eng.faculty@unsw.edu.au  +61 2 9385 6437

"If you are looking to study engineering but you’re unsure about which discipline to choose, I recommend the Flexible First Year program. It enabled me to learn more about the different paths I could take as an engineer and you can transfer straight into your favourite discipline at the end of the year. I feel as though I have weighed up every option and made an educated decision for my future."

GEORGE CHARD  FLEXIBLE FIRST YEAR
The Faculty of Engineering and UNSW offer many scholarships to our students, based on criteria ranging from academic, rural and sporting grants, to women, equity and many more.

We understand that despite really wanting to be here, it’s just not always possible without some help. We hope the support from a scholarship will allow you to focus on your studies and participate in uni life, relieving the pressure to work long hours to support yourself.

The scholarships are for students starting first year in 2015. These are only a snapshot of what is available, so make sure to visit scholarships.unsw.edu.au and remember applications close at the end of September.

Remember as well that many scholarships and prizes are awarded to students in second year and above, so keep an eye on the website to see if something new becomes available.

<table>
<thead>
<tr>
<th>SCHOLARSHIP NAME</th>
<th>VALUE</th>
<th>TENURE</th>
<th>PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Engineering Rural Scholarships</td>
<td></td>
<td></td>
<td>Various Faculty of Engineering programs. Please see the website for more information.</td>
</tr>
<tr>
<td>Up to 20 scholarships available, including:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• BHP Billiton Mitsubishi Alliance (BMA) Rural Scholarships in Mining Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Dean’s Rural Engineering Scholarship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Leighton Holdings Engineering Rural Scholarship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NSK Australia Rural Engineering Scholarship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Stanhall Rural Scholarship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Mitsubishi Rural Scholarship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philip Baxter Rural Engineering Residential</td>
<td>$3,000 credit for accommodation at Philip Baxter College</td>
<td>1 year</td>
<td>Bachelor of Engineering program</td>
</tr>
<tr>
<td>Warrane College Rural Engineering Residential</td>
<td>$2,000 credit for accommodation at Warrane College</td>
<td>1 year</td>
<td>Bachelor of Engineering program</td>
</tr>
</tbody>
</table>

Note: Rural is defined by the Commonwealth Accessibility/Remoteness index of Australia
# FACULTY OF ENGINEERING SCHOLARSHIPS

<table>
<thead>
<tr>
<th>SCHOLARSHIP NAME</th>
<th>VALUE</th>
<th>TENURE</th>
<th>PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNSW Co-op Program (Engineering)</td>
<td>$16,750 pa</td>
<td>5 years</td>
<td>Specific undergraduate programs</td>
</tr>
<tr>
<td>Malcolm Chaikin Engineering Scholarship</td>
<td>$15,000 pa</td>
<td>4 years</td>
<td>Most undergraduate programs in the Faculty of Engineering</td>
</tr>
<tr>
<td>NICTA-UNSW Undergraduate Research Scholarship</td>
<td>$12,000 pa</td>
<td>4 years</td>
<td>BE or BSc in the School of Computer Science and Engineering; or BE or BE ME in the School of</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Electrical Engineering and Telecommunications</td>
</tr>
<tr>
<td>Glencore Undergraduate Engineering Scholarship</td>
<td>$10,000 pa</td>
<td>4 years</td>
<td>BE in Mining Engineering</td>
</tr>
<tr>
<td>UNSW Indigenous Engineering Scholarship</td>
<td>$10,500 pa</td>
<td>4 years</td>
<td>Bachelor of Engineering Program</td>
</tr>
<tr>
<td>Emeritus Professor Peter Oxley Memorial Scholarship</td>
<td>$8,500 pa</td>
<td>4 years</td>
<td>BE in School of Mechanical and Manufacturing Engineering</td>
</tr>
<tr>
<td>Honourable Jack Beale Award</td>
<td>$6,000</td>
<td>1 year</td>
<td>Bachelor of Engineering program</td>
</tr>
<tr>
<td>FH Reuter Undergraduate Scholarship in Food Science and Technology</td>
<td>$6,000</td>
<td>1 year</td>
<td>BSc in Food Science and Technology</td>
</tr>
<tr>
<td>FTAA Undergraduate Award in Food Science and Technology (two available)</td>
<td>$6,000</td>
<td>1 year</td>
<td>BSc in Food Science and Technology</td>
</tr>
<tr>
<td>Bega Award in Civil Engineering for ACCESS students</td>
<td>$1,700</td>
<td>1 year</td>
<td>BE in Civil Engineering</td>
</tr>
<tr>
<td>NSW Institution of Surveyors Award</td>
<td>$1,500</td>
<td>1 year</td>
<td>BE in Surveying and Geospatial Engineering</td>
</tr>
<tr>
<td>UNSW Computing Leadership Award</td>
<td>$2,000</td>
<td>1 year</td>
<td>BE in School of Computer Science and Engineering</td>
</tr>
<tr>
<td>Transport NSW Scholarship in Electrical Engineering</td>
<td>$13,500</td>
<td>up to 3 years</td>
<td>BE in Electrical Engineering</td>
</tr>
<tr>
<td>Transport NSW Scholarship in Mechatronic Engineering</td>
<td>$13,500</td>
<td>up to 3 years</td>
<td>BE in Mechanical Engineering</td>
</tr>
</tbody>
</table>

## UNSW SCHOLARSHIPS (NOT SPECIFIC TO ENGINEERING)

<table>
<thead>
<tr>
<th>SCHOLARSHIP TYPE</th>
<th>SCHOLARSHIP NAME</th>
<th>VALUE</th>
<th>TENURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity</td>
<td>Vice Chancellor's Equity Scholarship</td>
<td>$5,000</td>
<td>Duration of program</td>
</tr>
<tr>
<td>Equity</td>
<td>Alumni Association Equity Scholarship</td>
<td>$5,000</td>
<td>Duration of program</td>
</tr>
<tr>
<td>Equity</td>
<td>Vice Chancellor's Alumni Appeal Scholarship</td>
<td>$5,000</td>
<td>Duration of program</td>
</tr>
<tr>
<td>Equity</td>
<td>U Committee Scholarship</td>
<td>$5,000</td>
<td>Duration of program</td>
</tr>
<tr>
<td>Equity</td>
<td>Access Assist Scholarship</td>
<td>$10,000</td>
<td>Duration of program</td>
</tr>
<tr>
<td>Female Applicants</td>
<td>DSTO Undergraduate Scholarship for Females in Science and Engineering</td>
<td>$10,000</td>
<td>up to 4 years</td>
</tr>
<tr>
<td>General Applicants</td>
<td>UNSW All-Rounder Scholarship</td>
<td>$5,000</td>
<td>1 year</td>
</tr>
<tr>
<td>General Applicants</td>
<td>UNSW High Achiever Scholarship</td>
<td>$5,000</td>
<td>1 year</td>
</tr>
<tr>
<td>General Applicants</td>
<td>Shelley Phillips Scholarship</td>
<td>$5,000</td>
<td>duration of program</td>
</tr>
<tr>
<td>General Applicants</td>
<td>Alumni Association Scholarship</td>
<td>$5,000</td>
<td>up to 3 years</td>
</tr>
<tr>
<td>General Applicants</td>
<td>Sir Arthur and Lady Renee George Scholarship (St Spyridon College)</td>
<td>$5,000</td>
<td>1 year</td>
</tr>
<tr>
<td>General Applicants</td>
<td>NSW Chinese Community Award</td>
<td>$5,000</td>
<td>1 year</td>
</tr>
<tr>
<td>General Applicants</td>
<td>Co-op Scholars Charitable Society Award (ASB and Engineering)</td>
<td>$5,000</td>
<td>1 year</td>
</tr>
<tr>
<td>General Applicants</td>
<td>Sir Arthur and Lady Renee George Scholarship</td>
<td>$6,000</td>
<td>Duration of program</td>
</tr>
<tr>
<td>General Applicants</td>
<td>John Niland Scholarship</td>
<td>$6,000</td>
<td>1 year</td>
</tr>
<tr>
<td>Indigenous</td>
<td>Indigenous Commonwealth Accommodation Scholarships</td>
<td>$4,500 - 5,000</td>
<td>4 years</td>
</tr>
<tr>
<td>Indigenous</td>
<td>Indigenous Commonwealth Enabling Accommodation Scholarships</td>
<td>$4,500 - 5,000</td>
<td>1 year</td>
</tr>
<tr>
<td>Rural Applicants</td>
<td>William McIlrath Rural Scholarship</td>
<td>$10,000/$4000</td>
<td>up to 4 years</td>
</tr>
<tr>
<td>Sports Applicants</td>
<td>Randwick Rugby Club / St Hilliers Scholarship</td>
<td>$6,000</td>
<td>1 year</td>
</tr>
<tr>
<td>Sports Applicants</td>
<td>Ben Lexcen Sports Scholarship</td>
<td>$7,500</td>
<td>1 year</td>
</tr>
</tbody>
</table>

**Note:** Scholarships below $5,000 are not listed above and can be found on the Scholarships Website.
GET INVOLVED AT HIGH SCHOOL

Trying to decide what and where to study can be overwhelming. Visiting university campuses, talking to academics and attending as many events as possible will help make the right choice of degree and university for you.

This is a snapshot of some of the events we run – but the best places to keep up-to-date are the What’s On website: whatson.unsw.edu.au and the Faculty of Engineering Facebook page.

**19TH MARCH**

**Engineering Student-Parent Information Evening**
This evening will include talks and a career market, giving students and parents the opportunity to talk directly to academics from each Engineering School. Register online from February through engineering.unsw.edu.au

**APRIL + DECEMBER**

**Engineering Autumn and Summer Schools**
These week-long programs run by Engineers Australia are aimed at year 11 students. The students visit 4-5 engineering universities, industry site tours and are provided with the opportunity to talk one-on-one with engineers at a careers expo.

**22ND MAY**

**High School Information Day 1**
Try out several types of engineering over one day at UNSW. Visit the labs, talk to current students and ask lots of questions. Attendance is free. Morning tea and lunch are provided. Schools can register up to 8 students online from 17 February engineering.unsw.edu.au/news-events

**SEVERAL DATES IN MAY**

**UNSW Year 10 Information Evenings**
Talk to academics and current students to work out the recommended subjects for year 11 and 12. Register online through whatson.unsw.edu.au

**JUNE**

**UNSW Scholarships Evening**
Register online through whatson.unsw.edu.au

**Civil and Environmental Engineering (CVEN) Work Experience Week**
This program for year 10 allows students to learn about engineering projects first-hand on site tours and the UNSW campus. Email p.tesoriero@unsw.edu.au for an application form.

**JULY SCHOOL HOLIDAYS**

**UNSW Computing Winter School**
Attend classes on programming, game design and other CSE topics over one week in the school holidays. Attendance is free. Register online before June, visit computing.unsw.edu.au/school-programs

**6TH SEPTEMBER**

**UNSW Minerals Summer School (UMSS)**
This exciting four-day residential camp for students interested in mining combines workshops at UNSW with visits to mine sites in the Hunter Valley. Applications open in July – visit engineering.unsw.edu.au/mining-engineering

**SEPTEMBER SCHOOL HOLIDAYS**

**Women in Engineering Camp (WIEC)**
This five-day residential camp will give year 11 and 12 female students the opportunity to explore the amazing world of engineering. Applications open in July – visit engineering.unsw.edu.au/news-events

**30TH OCTOBER**

**UNSW Computing Summer Workshop**
This four-day workshop will give year 11 and 12 students the opportunity to explore the evolving world of computing. Applications open in November visit computing.unsw.edu.au/school-programs

**EARLY JANUARY**

**UNSW Computing Summer Workshop**
This four-day workshop will give year 11 and 12 students the opportunity to explore the evolving world of computing. Applications open in November visit computing.unsw.edu.au/school-programs

**MID JANUARY**

**UNSW Open Day openday.unsw.edu.au**

**Taste of Electrical Engineering Workshops**
Three days of hands-on electrical activities and workshops at UNSW for year 10 and 11 students. Apply online through engineering.unsw.edu.au/electrical-engineering before 31 August.

**High School Information Day 2**
A repeat of the May event. Schools can register up to 8 students online from August through engineering.unsw.edu.au/news-events
Many of our engineering schools also offer courses and competitions that run over a few months. Check out some of the following if you’re a keen bean.

**ALL YEAR**

**FIRST ROBOTICS TEAM**

Compete with teams of high school students all across the world as you design and construct a robot. The UNSW team needs students aged between 14-18 who can attend weekly meetings on campus from 6pm-9pm. Joining the team is free. Visit [first.unsw.edu.au](http://first.unsw.edu.au)

**FEBRUARY-JUNE**

**HIGH SCHOOL COMPUTING**

Do a first year course while still at school. Watch COMP1917 lectures remotely and attend weekly tutorials at UNSW or other selected locations. No previous programming experience is required. Register online through [computing.unsw.edu.au](http://computing.unsw.edu.au)

**JULY-SEPTEMBER**

**PROGCOMP**

This competition has teams of students completing programming tasks as fast as possible over two rounds. The first round is held in schools and the second at UNSW Open Day. First prize is $5,000 and winning team members who enrol in CSE at UNSW also receive a $3,000 scholarship. Register online at [computer.unsw.edu.au/school-programs](http://computer.unsw.edu.au/school-programs)

**NOVEMBER-FEBRUARY**

**HIGH SCHOOL ELECTRICAL ENGINEERING**

The School of Electrical Engineering offers two first-year courses to current high school students. These are Electrical Telecommunications Engineering and Digital Circuits. Email Ray Eaton [r.eaton@unsw.edu.au](mailto:r.eaton@unsw.edu.au)

**JOIN US AT OPEN DAY** 6 SEPTEMBER 2014 – [openday.unsw.edu.au](http://openday.unsw.edu.au)

**FIND OUT WHY:**

- UNSW is the first university in the world to be awarded the QS 5 Star plus badge for excellence*
- Our undergraduates are in the top 5% of any Australian university for median salary**
- We’re ranked 5 stars for graduate employment***
- Our staff are at the forefront of their fields
- We offer world class facilities.

*QS Top Universities Worldwide University Rankings 2013 ** The Australian Graduate Survey 2012 *** 2014 Good Universities Guide- awarded the maximum 5-star rating for getting a job and starting salaries