“Choosing the University of Sydney has definitely been one of the better decisions I’ve made in life. It’s got high academic standards, a great sense of community and culture and an excellent, vibrant campus life. It’s stretched me as a person and challenged me, which is the part that I enjoy most.”

DENIZ OZDIL
ENGINEERING AND MEDICAL SCIENCE
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**CONNECT WITH US**

sydney.edu.au/engineering  @Eng_IT_Sydney  Engineering.IT.Sydney.University
The 2010 Times Higher Education rankings placed us among the top 40 engineering and technology faculties in the world. That’s because we produce graduates with a solid understanding of the fundamentals as well as the skills to lead innovation and shape the future.

If you study with us you’ll develop your skills of analysis and invention so you can effectively design, create and build structures, systems and products that matter. Right now we’re working to develop a greener recycling system, create sustainable energy alternatives and design artificial joints and limbs, among other things. Some of our first-year students are involved with Engineers Without Borders (EWB) Australia in international humanitarian projects, and a team of our honours students developed a miniature aircraft that can fly itself.

That’s right – engineering is not just about building bridges. Information technologies is not just about computing. Our diverse degree options cover robotics, steel structures, space, power, energy technologies, sustainability and high-performance computing, medical imaging, tissue engineering and much more. Our recently introduced bioelectronics degree combines the study of biology and electronics to meet the ever-increasing demand for engineers within the field of medicine.

But you don’t need to commit yourself to one of these specialist areas at the start. If you’re not yet sure how you’d like to specialise, our Flexible First Year program lets you keep your options open while you explore your own strengths and interests before you decide where you’d like to focus.

You might even choose to broaden your career options even more, by combining your engineering or IT degree with studies in architecture, arts, commerce, law, medical science or science. Then you can work as an IT expert with legal expertise in encryption and intellectual property, or set up your own engineering practice with your sound business skills.

However you choose to structure it, your degree will offer you versatility and diversity – one day you might be crunching data from robot trials or testing chemical sprays in a lab, and the next day putting your ideas into practice in a paddock in rural NSW.

And when you graduate, your options will be endless.
Assumed knowledge is what we expect you to already have when you start a particular degree course. It is not required for admission, but it will help you to understand and succeed in your studies. If you don’t have the assumed knowledge you might find it difficult to keep up, as your lecturers will assume that you already have this knowledge.

The following HSC subjects are assumed knowledge for our degree courses.

**Engineering degrees**
- HSC Mathematics Extension 1
- Physics and/or Chemistry

**Information Technologies degrees**
- HSC Mathematics Extension 1

**Combined Engineering and Information Technologies degrees**
- HSC Mathematics Extension 1
- Physics and/or Chemistry

**Project Management degree**
- HSC Mathematics Extension 1

If you are missing this background knowledge for the degree course you’re interested in, you can complete a bridging course to bring you up to speed. The following bridging courses are held in February each year, just before the beginning of Semester One:
- Chemistry
- Mathematics
- Physics.

For more information, visit: sydney.edu.au/science/fstudent/undergrad/entry/bridging
Our location on the University of Sydney’s Darlington Campus couldn’t be more convenient, just a 15-minute bus ride from central Sydney (or a 5-minute walk from the closest train station) and an easy walk to the social hubs of Newtown and Glebe.

The Darlington Campus is just across City Road from the University’s Camperdown Campus, and in many ways these campuses form a small town, with their own health services, shops, banks, cafes, bars, retail outlets, bookshops and post office. There’s even a free security bus to get you around safely at night.

The faculty hosts several student clubs and societies to appeal to a wide range of interests, and the University offers hundreds more. Whatever course you choose to study, there’ll be a related society for you to join where you’ll find plenty of other people who share your interests and can introduce you to new ones. There is also a range of sporting, social and other clubs so you can pursue your other interests outside your area of study.

Combine all this with the many cafes, bars, other food outlets, bands, other entertainment, theatre productions, sporting complexes and sports teams on campus, and you’ll soon be part of Australia’s most vibrant and active student community.
“Every university can give you an education, but the energy and passion that emanates across Sydney distinguishes it from everywhere else.”

DOMINICK NG
INFORMATION TECHNOLOGY

What all our students have in common is a thirst for knowledge and a passion for challenging that knowledge. If you join us, we’ll ask you to reach beyond our campus to think through issues that affect the wider world.

You might do this by spending part of your degree overseas, or you might choose to work with local communities, either as part of your course or in your own time as a volunteer with one of our outreach programs.

Depending on which course you choose, you could start making a real difference while you’re still at uni. For example, in collaboration with the Compass Program, we partner third-year students in our Advanced Engineering program with Year 9 or 10 students from local high schools. Our students go into their classrooms to teach and inspire tomorrow’s young students.

Or you might like to become a student ambassador and inform young people about the possibilities in higher education, promoting the faculty and the University both on and off campus.

However you choose to get involved, you’ll be doing it alongside a passionate group of students who are all interested in making a genuine difference within our own community and beyond.
Because of the exceptional quality of our staff, the University of Sydney consistently ranks among the top three research universities in Australia, and among the top 1 percent of research universities in the world.

Major funding bodies and donors consistently recognise the strength of our researchers, supporting us with millions of dollars to pursue the next cutting-edge breakthrough that will improve and transform all our lives.

As an undergraduate student you’ll be taught by some of these leading researchers, and in some cases you’ll have the chance to contribute to their work. They’ll show you that we should always be ready to challenge the status quo. They’ll push you beyond your comfort zone and help you to expand the frontiers of our knowledge.

OUR TEACHERS

1. Professor Kim Rasmussen, Head of School, Civil Engineering
2. Dr. Fariba Dehghani, Associate Professor in the School of Chemical and Biomolecular Engineering
To do this, we’ll stretch you in your studies and encourage you to take part in the rich intellectual and social life on offer outside the classroom.

We’ll also get you thinking about life after university from your first year of study, with targeted careers fairs and workshops, guest lecturers and one-on-one careers counselling.

Employers want well-rounded individuals who embrace all the opportunities and challenges that come their way. The extracurricular activities you’ll enjoy as a student, together with the opportunities for internships and international exchange, offer you the kinds of different experiences that employers really value.

We want to inspire you to develop creative ways of thinking: as a global citizen with a passion for lifelong learning.
LIFE AT SYDNEY

HOW TO APPLY

HOW TO APPLY: LOCAL STUDENTS

Applications from Australian citizens and permanent residents must be made through UAC – Universities Admissions Centre. Applications for undergraduate courses open on the first day of August and close on the last Friday of September. Late applications may be submitted but a late fee will apply.

Università Commerciale
Quad 2, Australia Centre
8 Parkview Drive,
Homebush Bay NSW 2127 Australia
T +61 2 9752 0200
www.uac.edu.au

Special Admission

Special entry schemes are available for Aboriginal and Torres Strait Islanders, those who have experienced educational disadvantage and those who are of mature age. For more information contact the Special Admissions Officer on +61 2 9351 3615.

Aboriginal and Torres Strait Islander students should contact the Koori Centre on +61 2 9351 2046.

Mid-Year Entry

We have some courses available in the July semester. If you are interested in mid-year entry you should contact UAC.

HOW TO APPLY: INTERNATIONAL STUDENTS

UAC applications

If you are studying one of the following qualifications in 2011, then you should apply through UAC:

- An Australian Year 12 qualification (e.g. NSW HSC, VCE, SA Matriculation) either inside or outside of Australia
- The International Baccalaureate in Australia
- The New Zealand Certificate of educational Achievement (NCEA) Level 3 in New Zealand.

www.uac.edu.au

All other applications

If you are not studying any of the above qualifications, you must apply directly to the University. This includes students who are studying or have completed:

- Secondary (high school) qualifications in another country
- Foundation or TAFE studies in Australia
- Tertiary (university) qualifications

You should lodge a completed, current application form directly to the:

International Office
Level 4, Jane Foss Russell Building (G02)
The University of Sydney
NSW 2006 Australia
T 1800 899 376 (onshore students only)
+61 2 8627 8300 (outside Australia)
F +61 2 8627 8387
E i.o.info@sydney.edu.au
sydney.edu.au/io

Application forms for international students

Application forms for international students can be obtained from:
sydney.edu.au/io/forms

English Language Requirements

If English is not your first language, you must demonstrate English language proficiency before admission can be confirmed. If you are a local student and you have obtained a prior course of study in English, this requirement may not apply.

Unless otherwise stated, the following are the acceptable English language requirements for the Faculty of Engineering and Information Technologies:

- IELTS: Overall band score of 6.5 or better with no band below 6.0
- TOEFL: 577 or better plus Test of Written English (TWE) at 4.5
- CBT (computer-based TOEFL): 233 with an Essay rating of 4.5
- IBT (internet-based TOEFL): 90+ with the Writing Section of 23 and all other sections of 22

Scores over two years old will not be accepted. If you are taking TOEFL, your results must be sent directly to the University of Sydney from TOEFL/TSE Services at Princeton USA and the TWE must also be taken.

With regard to English requirements:

- You should retake the English proficiency test if you last took the test more than two years ago.
- English language requirements are subject to change annually and could be different for individual courses. You should contact the faculty to obtain this information.
- Entry requirements for combined degrees may be higher and you will need to consult the entry requirements of the other faculty.

SCHOLARSHIPS

We want to be a key part of your personal success story and scholarships are just one way the University of Sydney can support your achievements.

The University’s scholarships include Merit ($6000 per year), Entry ($6000 once-off), Access ($6000 per year), Outstanding Achievement ($10,000 per year) and various Commonwealth scholarships. Many more scholarships, prizes and awards are offered by individual faculties and schools.

The Faculty of Engineering and Information Technologies offers five Dean’s Encouragement Awards to students studying engineering or IT ($5000 for the first year). There are 10 Entry scholarships ($6000 each) for electrical engineering students, and four for IT students. Our students are eligible for Tata Consultancy scholarships ($5500 per year), and a Microsoft scholarship (up to $20,000).

Scholarship opportunities are always being updated so visit our website frequently to see what’s on offer.
sydney.edu.au/engineering/scholarships
Engineering and IT degrees can be commenced within the Flexible First Year program, so you can explore a wide range of subject areas before deciding where you’d like to specialise. You can then transfer, either at the end of your first semester or at the end of your first year, to one of the many specialisations we offer. You will still complete your degree in the normal time and will be a fully qualified graduate in the area of your choice with as much in-depth knowledge as those from other less flexible courses.

You may also be able to transfer to a stream requiring a higher ATAR in your second year, depending on your ATAR and your academic performance in your first year. (Generally, you’ll need a Credit (65%) average for streams requiring an ATAR in the low 90s, and a Distinction (75%) average for those requiring an ATAR in the high 90s. But if you’ve already achieved the required ATAR for the stream you want to enter, then entry is assured.)

You can apply for entry to a combined degree (see pages 30-32) and choose to do the Flexible First Year program as the Engineering component of the combined degree. Make sure you apply for the appropriate combined degree via UAC.

Application for the Flexible First Year program is through UAC as usual. All the relevant information is available in the current UAC Guide.

[Sydney.edu.au](http://sydney.edu.au/engineering/apply/flexiblefirstyear)
Aeronautical engineering is concerned with the development and operation of aircraft – from design and manufacture to maintenance and operation – both within the earth’s atmosphere and in space.

A final-year major thesis offers an opportunity to specialise in a particular field, such as helicopter design, structural optimisation or experimental aerodynamics.

There is a strong emphasis on experiential learning throughout the degree program and some students continue to fly and obtain their pilot’s licence.

YOUR STUDIES
This four-year degree program covers all aspects of aeronautical engineering, including:
- aerodynamics
- propulsion
- mechanics of flight and flight control systems
- aircraft structure and materials
- aircraft design
- aerospace technologies
- remotely piloted aircraft (RPA) and autonomous unmanned aerial vehicles (UAVs)
- multidisciplinary design optimisation
- the movement of air around an aircraft, analysed by using CFD and wind tunnel testing
- exposure to the latest software packages used by professional engineers in modern aircraft.

YOUR CAREER
Aeronautical engineering is a global industry and aircraft are the same all over the world, so graduates of this degree have a wide choice of career opportunities and can practise in almost any country. Almost all previous graduates of this degree have found full-time employment within four months of graduation.

You’ll also be well equipped to work in a variety of other areas, including:
- aerospace technologies
- navigation systems
- low-speed aerodynamics, such as automobile design
- structural analysis
- control of machines
- engineering design
- computer operation and software engineering
- communication.

You can expect to be employed in aerospace manufacturing and assembly, design, research or certification positions in Australia or overseas. With initiative, you could go on to a senior management position and become a future leader in this discipline.

You’ll be able to use your practical and theoretical knowledge to design, manufacture, modify, repair, overhaul, operate and certify aircraft.
“I chose aeronautical engineering because I’m fascinated with planes and flight. During my studies I discovered that my interest in flight mechanics and aircraft structures could take me further than I had imagined. I am now looking at a career in the racing car industry because they use aeronautical engineers for the design of the car shape.”
BACHELOR OF ENGINEERING (AERONAUTICAL) (SPACE), (MECHANICAL) (SPACE), (MECHATRONIC) (SPACE)

The space engineering specialisation at the University of Sydney is the only one of its kind in Australia combining an in-depth understanding of the space environment with space engineering fundamentals and hands-on experience.

Two of the faculty’s experimental ‘Mars Rovers’ on display at the Powerhouse Museum (Image: Geoff Friend, Powerhouse Museum)

YOUR STUDIES
This specialisation allows you to study all facets of space engineering, including:
- the fundamentals of engineering, and how they relate to the space environment
- how materials are used in the space environment
- orbital mechanics
- satellite systems engineering
- structural analysis, design and manufacturing of space vehicle systems
- control and modelling of space vehicles
- analysis of the thermodynamic properties of systems such as re-entry vehicles
- the design of software, computing, electronics and sensing devices for space vehicles
- advanced space engineering projects that allow you to get hands-on experience with space robotics and nano-satellite technology.

YOUR CAREER
As a space engineer you’ll have the best of both worlds: knowledge and experience of your main degree stream as well as a specialised understanding of the space environment.

You’ll be able to find employment in the same engineering fields as your colleagues in your main degree, and also take advantage of opportunities in the space industry.

Some of our previous graduates have pursued careers within the aerospace, defence, environmental and research sectors, both nationally and internationally, in areas such as:
- design, analysis and manufacture of rocket propulsion systems, and satellite structures
- design of navigation and flight control systems for space vehicles, and study of their aerodynamic properties of launch vehicles
- design and build of satellite subsytems
- design and analysis of satellite remote sensing systems
- interplanetary space systems design
- space robotic systems.

| BACHELOR OF ENGINEERING (AERONAUTICAL) (SPACE) |
| ATAR | 99.45 |
| UAC code | 511718 |
| Duration | 4 years |

| BACHELOR OF ENGINEERING (MECHANICAL) (SPACE) |
| ATAR | 99.00 |
| UAC code | 511732 |
| Duration | 4 years |

| BACHELOR OF ENGINEERING (MECHATRONIC) (SPACE) |
| ATAR | 99.45 |
| UAC code | 511733 |
| Duration | 4 years |
BACHELOR OF ENGINEERING
(MECHANICAL)

Mechanical engineering is a very broad branch of professional engineering, and mechanical engineers are found in almost every type of engineering activity, from designing and developing to constructing all types of machinery.

YOUR STUDIES
This four-year degree program covers all aspects of mechanical engineering, including:
- power generation
- transport
- building services
- machinery
- manufacturing
- computer-aided design (CAD)
- advanced materials
- environmental studies.

Your studies can include extensive computer use in advanced areas such as finite element analysis and computational fluid dynamics.

You’ll have plenty of opportunities to make contacts from industry and professional practice, and you can choose to specialise in the final year of the course.

YOUR CAREER
As a mechanical engineer you’ll be involved in the design, management and maintenance of a diverse range of mechanical processes, including:
- power generation
- transport systems
- environmental systems
- computing
- biomedical systems
- advanced materials
- management
- manufacturing
- oil and gas exploration
- vehicle and engine design.

The great diversity of applications for mechanical engineers means you’ll be highly sought after in both commercial and industrial fields, so you’ll have a huge range of career options to choose from.
BACHELOR OF ENGINEERING (MECHANICAL) (BIOMEDICAL)

Biomedical engineering is an interdisciplinary branch of engineering that combines knowledge of mechanical, mechatronic, electronic, chemical and materials engineering with the life sciences of medicine, biology and molecular biology.

YOUR STUDIES
This four-year degree program covers all aspects of mechanical and biomedical engineering, including the study of biomedical technology, biomechanics, biomaterials, orthopaedic engineering, tissue engineering, medical regulation, bioelectronics, medical instrumentation, and computational simulation of biomedical systems. Subject matter includes elements of mathematics, chemistry, physics, biology, physiology, solid mechanics, electrical engineering, materials, biomechanics, computer modeling and microscopy.

The study of biomedical engineering complements well with the study of business, sports science, law, pharmacy, dentistry and medicine.

This degree meets the tertiary study entry requirements for the University of Sydney’s graduate-entry medical program.

YOUR CAREER
Biomedical engineering is one of the fastest growing branches of engineering and employment opportunities are very broad.

As a biomedical engineer you might choose to work in a hospital or large medical company, in design, production, sales and marketing, management or research and development. For example, you might find yourself working as a biomedical engineer in a large hospital managing life-support equipment, or for a biotechnology company working on the development of a new joint-replacement device.
BACHELOR OF ENGINEERING (MECHATRONIC)

Mechatronic engineering draws on elements of mechanical engineering, electrical and electronic engineering, systems engineering and computer science. It is a distinct, multidisciplinary engineering field that provides the foundation for robotics, automation, and the ‘intelligent’ products and devices that are ubiquitous in society today.

**YOUR STUDIES**
This degree program integrates mechanical engineering, electrical engineering and mechatronics systems analysis and design over all four years of the program. The course covers all aspects of mechatronic engineering including:
- mechanism and machine analysis and design
- electrical circuit theory and electronics
- digital electronics and computer systems
- power electronics and electrical machines
- software engineering
- systems modelling and simulation
- mechatronic systems analysis, design and prototyping
- embedded and real-time systems
- computer-aided design (cad)
- engineering materials properties and selection
- manufacturing engineering
- robotic systems and science
- thermo-fluid engineering
- biomedical engineering.

**YOUR CAREER**
Mechatronic engineers use their skills in a diverse range of industries including automotive and other transport sectors, mining, stevedoring, construction, agriculture, defence, computer systems and software design. As a mechatronic engineer you will find work in areas related to mechanical, electrical or software engineering, such as:
- automatic control systems
- microprocessors and embedded systems
- product design and development
- instrumentation
- robotics
- automation in industrial or non-traditional fields
- biomedical devices
- computing and networking
- manufacturing
- software design and programming
- technological systems analysis.
BACHELOR OF ENGINEERING
(Chemical and Biomolecular)

Chemical and biomolecular engineers turn raw materials into useful products for everyday life using chemistry, biology and physics. Such materials include fuels, pharmaceuticals and processed foods.

The discipline includes the traditional fields of petrochemicals, plastics, food production and drugs, as well as the environment and information technologies plus the newer fields of nano-technology and molecular biology.

YOUR STUDIES
When you study chemical and biomolecular engineering you’ll learn about the design and operations of both products and processes and research solutions to environmental problems.

Areas of study in the chemical engineering degree include:
- biochemical engineering
- biotechnology engineering
- energy and the environment
- green product and process design
- minerals processing
- process systems engineering
- sustainability.

This course includes the opportunity to undertake a one-year exchange program with a university in Europe, Asia or the US.

YOUR CAREER
Chemical and biomolecular engineers develop creative solutions in the areas of chemical, combustion, environmental, petroleum and/or water treatment engineering, such as reducing the environmental impact of industrial processes and improving the quality of the materials we use every day. You might choose to specialise in one of these areas or work across a range of fields.

Some of the industries you might choose to work in include:
- mining
- oil and gas processing
- coal, paper and chemical production
- petroleum and petrochemical production
- plastic and synthetic rubber manufacturing
- metals and ceramics manufacturing
- cement paints and glass manufacturing
- textile and synthetic fibre manufacturing
- food and beverage production
- pharmaceutical production
- environmental consulting
- process design
- business consulting
- computer programming
- banking and finance
- research and development.

Chemical and biomolecular engineers find creative solutions to a range of problems, such as:
- implementing the benefits of biotechnology discoveries
- reducing the environmental impact of industrial processes
- improving the quality of the materials we use every day.
BACHELOR OF ENGINEERING
(CIVIL)

Civil engineers are concerned with the design and construction of crucial modern infrastructure such as buildings, roads and railways, bridges and tunnels, dams and ports, and systems for managing water, irrigation, sewage and floodwaters. They also manage the environment for sustainable development.

YOUR STUDIES
When you study civil engineering at the University of Sydney, you’ll learn about all aspects of the field before choosing the stream in which you want to specialise.

During the first two years you’ll master the foundations of civil engineering, including the relevant science, maths, computing and introductory civil engineering subjects. There’s also a second-year surveying camp to enhance your practical skills – and make sure you have a good time as well!

At the end of third year you’ll usually undertake practical industry experience, working for about three months in an engineering firm.

In fourth year you’ll specialise further, choosing elective subjects specific to civil engineering. Possible specialisations include sustainable solutions to environmental problems, redevelopment after natural disasters, flood mitigation and wind/pollution control.

YOUR CAREER
As a graduate of this degree you’ll be a highly skilled professional with sound technical, managerial, organisational, financial, environmental and problem-solving skills.

You might choose to work in an office environment, investigating, planning, designing and managing projects, or you might prefer to supervise projects on site.

As a civil engineer you might choose to work in:
- Construction
- Mining
- Resources
- Manufacturing
- Government
- Project management and planning
- Property development
- Professional engineering practices
- Contracting and consulting firms
- Research institutions such as CSIRO.

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BACHELOR OF ENGINEERING (CIVIL) (CONSTRUCTION MANAGEMENT)

Construction engineers are responsible for managing construction projects, including conducting site surveys and materials testing, safety and quality assurance, as well as costing, procurement, budgeting, planning and scheduling of projects.

YOUR STUDIES
This is a civil engineering degree with a specialisation in organisation and management, design and construction, the economics of construction projects and project administration systems. This degree has been designed to produce graduates with sound engineering knowledge and competency in the application of projects and programs in the construction industry. This stream is particularly related to infrastructure and large projects and specialisation in project management including subjects in legal and contractual studies, costing and estimating and quality management.

YOUR CAREER
The construction industry in Australia is large and provides many opportunities. As a civil engineer you might choose to work in:
- construction
- mining
- resource
- industrial or manufacturing firm
- federal, state and local government or public agency
- project manager or planner
- property developer, owner or major client
- professional engineering practice
- contracting or consulting firm
- research institution such as CSIRO.

BACHELOR OF ENGINEERING (CIVIL) (CONSTRUCTION MANAGEMENT)

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BACHELOR OF ENGINEERING (CIVIL) (ENVIRONMENTAL)

Environmental engineers look at the environmental effects of past and current human activities and address any problems they cause. This includes developing effective methods of sustainably using natural resources and of safely treating waste.

YOUR STUDIES
This is a civil engineering degree with a specialisation in the environmental solutions to human-made problems. It focuses on environmental problems, particularly water-related issues, that require a structural or civil engineering solution.

Our undergraduate program includes significant portions of researching and experiencing environmental fluid behaviour.

With the focus on environmental fluids and coastal studies, you’ll be able to dramatically influence the environment after you specialise in your final year.

YOUR CAREER
As an environmental engineer with a solid background in civil engineering your opportunities are endless. You might choose to work in:
- sustainable design
- renewable power
- pollution control
- environmental impact studies
- hydrology
- coastal design engineering
- ocean technology
- wind engineering.

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BACHELOR OF ENGINEERING (CIVIL) (GEOTECHNICAL)

Geotechnical engineers examine the soil and rock layers that make up the earth in order to find out what’s under the surface.

They design road, rail and canal cuttings through soil and rock as well as working off-shore investigating and designing pipelines, cable routes and foundations for oil and gas production facilities.

They plan and organise site investigations and testing to meet project requirements. They also design earth and rock-fill dams, and are involved in protecting the environment by planning landfills for society’s waste products.

Geotechnics is one of the fastest growing disciplines in civil engineering, and Sydney was one of the first universities in the world to include it as a full specialisation. The University is also home to the Centre for Geotechnical Research, a leading international source of training, research, advice and expertise.

YOUR STUDIES
You’ll complete a civil engineering degree with a specialisation in your final year, including advanced study in foundations, computer modelling and environmental geotechnics.

YOUR CAREER
As a graduate of this degree you might find yourself working on a commercial building site in the city one day and the next day you could be drilling at a river crossing in far north Queensland.

As a geotechnical engineer you might choose to:
- investigate various sites to find out what’s under the ground surface
- design foundations, ensuring safety and serviceability
- design road, rail and canal cuttings through soil and rock
- work off-shore, investigating and designing pipelines, cable routes and foundations for oil and gas production facilities
- design earth and rock-fill dams, making sure that they don’t collapse and minimising leakage
- design landfills for society’s waste products, protecting the environment
- carry out remediation of contaminated soil sites, cleaning up the environment.

BACHELOR OF ENGINEERING (CIVIL) (GEOTECHNICAL)

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Structural engineers are responsible for the design of major structures such as high-rise buildings, industrial buildings, bridges, sports stadiums and exhibition centres.

They apply innovation and artistic, creative and technical skills to design, and they must understand the strengths and properties of materials such as steel, concrete and timber.

BACHELOR OF ENGINEERING (CIVIL) (STRUCTURAL)

<table>
<thead>
<tr>
<th>ATAR</th>
<th>95.70</th>
</tr>
</thead>
<tbody>
<tr>
<td>UAC code</td>
<td>511745</td>
</tr>
<tr>
<td>Duration</td>
<td>4 years</td>
</tr>
</tbody>
</table>

Your Studies
You’ll complete a civil engineering degree, specialising in your final year in studies including advanced structural analysis, structural behaviour, materials, structural dynamics and bridge engineering.

You’ll learn about how forces (such as the weight of a building, its contents, and environmental loads such as wind and earthquakes) are resisted by, and transferred through, structures and buildings to the ground.

Your Career
As a structural engineer you might choose to work as a:
- specialist structural design consultant
- technical sales consultant
- bridge engineer
- transport and urban planner
- construction manager
- site engineer
- materials engineer
- consultant to the oil and gas, mining, coastal or industrial sectors.
BACHELOR OF ENGINEERING (ELECTRICAL) (POWER)

Power engineers are responsible for the community’s electricity supply. This includes creating and managing the infrastructure required to supply power to major cities, regional and rural areas, railway lines, homes and businesses.

They also conduct research into fine tuning smart grid intelligence and developing alternative power sources such as solar and wind energy.

YOUR STUDIES
This degree program includes foundation studies in physics, mathematics, computer science and basic electrical engineering principles, on which further studies in electrical circuits, electronics, computer systems, signals and communications, power transmission, distribution and use and management are based. You’ll gain a deep understanding of power engineering at both system and device levels.

The program was designed in consultation with key industrial partners, and is complemented with real-world project work. The projects include the protection of industrial and power plants, transmission and distribution networks.

Areas of study include:
– design of electrical grids
– advanced monitoring
– diagnostics technologies
– renewable energy systems, such as wind and solar
– electronics associated with energy conversion and integration with the electrical grid
– smart grids.

YOUR CAREER
As a power engineer you might choose to work in government or industry, managing the electricity supply in Australia or overseas. Australia has a very high demand for power engineers as major improvements to the power infrastructure are planned over the next decade. Also demand overseas is high as developing countries rely on power infrastructure for their growth and development.

As a power engineer you might choose to work in:
– power generation, transmission and distribution
– grid maintenance and stability
– power electronics
– electrical grid maintenance and protection
– research into intelligent smart grids
– renewable energy systems
– power plant operation and control
– industrial plant management and construction

<table>
<thead>
<tr>
<th>BACHELOR OF ENGINEERING (ELECTRICAL) (POWER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATAR</td>
</tr>
<tr>
<td>UAC code</td>
</tr>
<tr>
<td>Duration</td>
</tr>
</tbody>
</table>

Power engineers are responsible for the community’s electricity supply. This includes creating and managing the infrastructure required to supply power to major cities, regional and rural areas, railway lines, homes and businesses.
They also deal with computer architecture, digital communications, embedded systems, instrumentation, lasers, microelectronics, microwaves and antennas, optical communications, satellite mobile communications, signal processing and systems design.

### Bachelor of Engineering (Electrical) (Telecommunications) (Electronics) (Computer)

**Your Studies**

This degree program includes foundation studies in physics, mathematics, computer science and basic electrical engineering principles, on which further studies in electrical circuits, electronics and computer systems, signals and communications, power systems, energy systems and management are based. Extensive computer-based problem-solving projects, and aspects of modern workplace management, are also features of the program. In your third and fourth years you can choose to specialise in one of the following areas:

- electronics and optics
- computer systems
- electromagnetics
- signal and communication systems
- telecommunications software

**Your Career**

You might choose to work in:

- banking and finance
- power generation and distribution
- industrial electrical plant design and manufacture
- control systems management
- telecom providers
- computer companies
- network management
- multimedia and IT companies
- design of biomedical equipment and telecom devices
- military and defence

-------------------------------------------------------------

**Bachelor of Engineering (Electrical) (Telecommunications) (Electronics) (Computer)**

- **ATAR**: 87.15
- **UAC Code**: 511750
- **Duration**: 4 years

Electrical engineers design, develop, install and maintain systems in areas as diverse as computer systems, electronics and telecommunications.
BACHELOR OF ENGINEERING (SOFTWARE)

Software engineering addresses all aspects of software production from strategy and design to coding, quality and management.

YOUR STUDIES
This degree program includes foundation studies in mathematics, computer science and computer system principles, on which further studies in software design, development, security and management are built, including programming languages, databases, operating systems and enterprise and internet scale systems.

You can expect to study:
– programming and computer languages
– data structures
– algorithms and databases
– data-centric computing
– operating systems
– software project management.

A key feature of this program is that you can start specialising in your first year, by choosing software engineering electives from many different areas, including:
– business software
– systems and hardware
– computer-aided design (CAD)
– multimedia
– biological information.

YOUR CAREER
Australia and the Asia-Pacific region are currently experiencing high demand for software engineers in all industry sectors, and this demand is expected to grow significantly over the next decade.

As a software engineer you might choose a career as a:
– software engineer
– internet or multimedia developer
– web applications developer
– technical software specialist
– software implementation consultant
– internet software specialist
– software contractor
– design team leader
– systems administrator
– analyst programmer
– database application programmer.

You might find yourself designing advanced information systems in the business sector; building technical systems for the medical, power or transport industries; or developing new network technologies in the rapidly growing telecommunications area.
Bioelectronics is concerned with the use of biological materials and processes in electronic devices, and with the use of electronic devices such as image processing and implantable devices in living systems.

BACHELOR OF ENGINEERING (ELECTRICAL) (BIOELECTRONICS)

Bioelectronic engineers use engineering principles to understand, modify, control and interact with biological systems electronically and develop technology to assist in diagnosis and treatment.

This degree meets the tertiary study entry requirements for the University of Sydney’s graduate-entry medical program.

YOUR STUDIES
This degree program progresses from foundations in biology, physics, mathematics, computer science, anatomy, physiology and basic electrical engineering principles in the first two years to specialisations in the third and fourth year. This flexible course allows you to focus in your later years of study on a range of aspects of the application of electronic devices to biomedical engineering. You’ll also be able to concentrate on embedded systems, digital signal processing, biomedical product development and regulatory affairs in the medical industry.

You’ll have the opportunity to undertake electives in management and in high-technology disciplines such as microelectronics, image processing, telecommunications, photonics, power electronics, real-time control, energy and biomedical engineering.

YOUR CAREER
You might choose to work as a bioelectrical engineer or a medical physicist.

Your employment opportunities will include careers in:
– biomedical instrumentation, CT, MRI and related scanning systems
– biomedical products such as pacemakers
– scientific and industrial instrumentation
– electronic systems
– computer and control systems
– software engineering
– artificial intelligence
– digital systems
– sports sciences
– ‘smart’ buildings
– transport.
BACHELOR OF PROJECT MANAGEMENT*  
(CIVIL ENGINEERING SCIENCE), (BUILT ENVIRONMENT), (SOFTWARE)

Project managers help organisations deliver new products, services and infrastructure. They manage and implement new systems and processes and they effect change within organisations.

YOUR STUDIES
This degree is unlike any other project management degree in Australia. Based on a complex systems approach, it uses multidisciplinary theories and methods to investigate a particular phenomenon from a holistic viewpoint. It will provide you with fundamental project management skills that can be applied in volatile situations and unstable environments.

Core subjects include project management, project finance, complex project coordination, analytics, statistics, risk management, organisational behaviour and psychology.

These subjects are integrated with units of study from your chosen stream of Civil Engineering Science, Built Environment or Software from the start of your studies.

This degree is also an ideal complement to the Bachelor of Engineering and is also offered as a combined degree.

YOUR CAREER
Career opportunities are varied as project management skills are transferable across industries. Graduates will be highly sought after and could work in professional and management roles in property development, construction, mining, IT, banking and finance, state or federal government or in consultancy roles in the engineering, water, health or energy sector.

* New in 2012

BACHELOR OF PROJECT MANAGEMENT

<table>
<thead>
<tr>
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<tbody>
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<tr>
<td>Duration</td>
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</tbody>
</table>

Project management is becoming a highly regarded discipline in its own right. ‘On-the-job’ training alone can no longer meet the needs of organisations or provide the fundamental project management skills required in today’s dynamic and complex environment.

Project management skills and methodologies can be applied to a variety of situations, including disease and disaster recovery scenarios where an innovative approach is required.
BACHELOR OF INFORMATION TECHNOLOGY

This degree program has been designed to produce high-quality, multi-skilled graduates for leadership roles within the IT industry.

Information systems involves creating computer systems that satisfy individual and organisational needs. Rather than being about developing and enhancing the performance of computers, it’s about making computer systems work for people. It includes:
- strategic planning
- system development
- system implementation
- network design and management
- operational management
- end-user needs and education.

YOUR STUDIES

In your first two years you’ll devote about a quarter of your time to core studies such as programming, databases, systems analysis and professional IT practice. You’ll choose subjects from a wide range of areas including networking, human-computer interaction, graphics, object-oriented design, internet software platforms, artificial intelligence and e-business analysis and design.

You’ll also be encouraged to explore your other interests by enrolling in units from other disciplines such as psychology, languages, biology, philosophy, geography or commerce. This will give you domain-specific knowledge useful to your application of information technologies in that area.

YOUR CAREER

As a graduate of this course you’ll be an IT specialist with an excellent combination of knowledge and hands-on practical experience. You’ll be able to create and manage business applications, websites, systems and the IT environment for an organisation in any industry.

You’ll be able to choose a career in:
- information and communication technology (ICT) research and development
- government
- marketing and communications
- banking and finance
- education
- biomedicine
- consultancy and change management
- software analysis and development
- computer systems administration.

Graduates of this program are eligible for associate membership of the Australian Computer Society.
These degree programs will prepare you to operate as a professional at the cutting edge of information technology. They offer streams in computer science and information systems.

**BACHELOR OF COMPUTER SCIENCE AND TECHNOLOGY**

**BACHELOR OF COMPUTER SCIENCE AND TECHNOLOGY (ADVANCED)**

You might choose to work as a computer programmer, a computer systems administrator or a computer systems manager.

**BACHELOR OF COMPUTER SCIENCE AND TECHNOLOGY**

**Your studies**
This degree program offers streams in computer science or information systems (for further information please refer to page 25). You’ll be trained to operate at the cutting edge of information technology. During year 1 and 2 you’ll be introduced to programming, the foundations of information technologies and information systems, IT security, data structures and analysis. The final year will see you studying the management of IT projects and systems, analytical methods and information systems, advanced database systems, e-business analysis and design as well as human – computer interaction. An information systems project is also part of the third year.

If you want to gain research experience you may choose to do an additional year to obtain an honours degree.

**Your career**
This degree offers you a broad and varied range of career options in areas such as information and communication technology, research and development, government policy, marketing and communications, finance and banking, education, biomedicine, consultancy, change management, software analysis and development and computer systems administration.

**BACHELOR OF COMPUTER SCIENCE AND TECHNOLOGY (ADVANCED)**

**Your studies**
This is a more challenging variant of the Bachelor of Computer Science and Technology for applicants with substantial programming aptitude and experience and/or a high ATAR.

This degree offers you the same broad and varied range of career options as the regular Bachelor of Computer Science and Technology, but with the added advantage of having undertaken studies at an advanced level. It offers majors in computer science and information systems (see the Bachelor of Information Technology on page 27 for information about these majors). An additional Honours year is available to eligible students.

**Your career**
You’ll be equipped to work in areas such as information and communication technology, research and development, government policy, marketing and communications, finance and banking, education, biomedicine, consultancy, change management, software analysis and development or computer systems administration.
This combined degree program extends the management component of the Bachelor of Engineering to satisfy the increasing demand for engineering professionals with business skills.

You can combine any of the Bachelor of Engineering specialisations with a Bachelor of Commerce. In addition to your engineering specialisation, this program allows you to complete one major and one minor in any area of commerce.

Some units of study are compulsory, including introductory commerce units in accounting, economics and econometrics.

Note: Although you may have achieved the ATAR for the combined degree, you must still achieve the ATAR for the stream of engineering you wish to take as part of the combination.

Subject areas in commerce include:
- accounting
- business information systems
- commercial law
- econometrics
- economics
- finance
- industrial relations and human resource management
- international business
- management
- management decision sciences
- marketing.

Science majors include:
- biochemistry
- biology
- chemistry
- computer science
- geology
- mathematics
- physics
- psychology.

This combined degree program offers you the opportunity to study both civil engineering and architectural design simultaneously over five years.

Your engineering studies will teach you to analyse the forces within a structure and to design its skeleton to support these forces, while your architectural studies will emphasise the conceptual and aesthetical aspects of the design process.

You’ll acquire skills that will make you an asset to both the structural design and architectural professions.

This combined degree program encompasses the core elements of the engineering and medical science degrees, and is designed for people interested in spanning engineering and medical sciences in their future endeavours. Such multidisciplinary study will enable you to adapt to the changing needs of the profession.

This program is also an ideal base for postgraduate research in the biomedical field, or for vocational graduate coursework programs such as in medicine or dentistry.

You can combine any of the Bachelor of Engineering specialisations with a Bachelor of Medical Science.
This combined degree program allows you to complete the Bachelor of Engineering along with any arts subjects. The Bachelor of Engineering emphasises practical aspects of science and technology, while the Bachelor of Arts provides choices to balance and complement your engineering studies. This allows you to pursue your interests or develop your strengths outside the field of engineering, producing engineers with broader capabilities.

You can combine any of the Bachelor of Engineering specialisations with a Bachelor of Arts. You will undertake more engineering subjects in your first three years, and complete your Bachelor of Arts subjects in the later part of the course.

Areas of study in arts include:
- anthropology
- Asian studies
- history
- languages
- philosophy
- statistics.

---

This combined degree provides students with a solid foundation and complementary skills in engineering and project management. Designed in consultation with industry, graduates of this combined degree will be highly sought after due to their ability to understand and grasp the various aspects of project management more quickly than they would with ‘on the job’ training.

You can combine any of the Bachelor of Engineering specialisations with a Bachelor of Project Management. Subjects in the Bachelor of Project Management include:
- project finance
- project-based organisational behaviour
- project coordination
- risk management
- contract negotiation
- sustainability
- international project management
- an industry-based capstone project.

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This combined degree program extends the management component of the Bachelor of Information Technology to satisfy the increasing demand for IT professionals with business skills. You can combine either of the IT majors with a Bachelor of Commerce. In addition to your IT specialisation, this program allows you to complete one major and one minor in any area of commerce. Some units of study are compulsory, including introductory commerce units in accounting, economics and econometrics.

The two IT majors are:
- computer science
- information systems.

Subject areas in commerce include:
- accounting
- business information systems
- commercial law
- econometrics
- economics
- finance
- industrial relations and human resource management
- international business
- management
- management decision sciences
- marketing.
COMBINED DEGREE OPTIONS

**BACHELOR OF INFORMATION TECHNOLOGY/BACHELOR OF MEDICAL SCIENCE**

- ATAR: 93.80
- UAC code: 511763
- Duration: 5 years

This combined degree program is designed for people interested in spanning information technology and medical science in their future endeavours. Such multidisciplinary study will enable you to adapt to the changing needs of the profession.

**BACHELOR OF INFORMATION TECHNOLOGY/BACHELOR OF SCIENCE**

- ATAR: 96.95
- UAC code: 511764
- Duration: 5 years

This combined degree emphasises the natural synergy between information technology and science: all areas of science involve using information technology, and many science graduates work in information technology.

The program allows you to complete majors in two areas of science, chosen from:
- biochemistry
- biology
- chemistry
- computer science
- geology
- mathematics
- physics
- psychology.

**BACHELOR OF INFORMATION TECHNOLOGY/BACHELOR OF ARTS**

- ATAR: 98.20
- UAC code: 511765
- Duration: 5 years

This combined degree program extends the Bachelor of Information Technology to satisfy the increasing demand for employees with both an extensive technical understanding of IT and essential skills in disciplines from the humanities, languages and social sciences.

You can combine any IT major with a Bachelor of Arts. The two IT majors are:
- computer science
- information systems.

**BACHELOR OF ENGINEERING/BACHELOR OF LAWS**

**BACHELOR OF INFORMATION TECHNOLOGY/BACHELOR OF LAWS**

- ATAR: 99.70
- UAC code: 511801
- Duration: 6 years

The Combined Law program allows students to study the Bachelor of Laws (LLB) in conjunction with another degree. It works by spreading out the first year of the Sydney LLB over four years for Engineering. You can combine either of the Engineering majors with the LLB. More details on the Sydney Law School and this degree can be found on sydney.edu.au/law
<table>
<thead>
<tr>
<th>COURSE</th>
<th>YEARS</th>
<th>MAJORS</th>
<th>ASSUMED KNOWLEDGE</th>
<th>ATAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Engineering (Aeronautical)</td>
<td>4</td>
<td>Aerospace technology, control systems, low-speed aerodynamics, materials, structural analysis</td>
<td>Mathematics Extension 1, Physics</td>
<td>91.80</td>
</tr>
<tr>
<td>Bachelor of Engineering (Aeronautical)(Space)</td>
<td>4</td>
<td>Aerospace structures, composite materials, mechanics, propulsion, space electronics, space engineering</td>
<td>Mathematics Extension 1, Physics</td>
<td>99.45</td>
</tr>
<tr>
<td>Bachelor of Engineering (Mechanical)</td>
<td>4</td>
<td>Industrial management, materials, mechanical design, mechanics of solids, system control, thermodynamics</td>
<td>Mathematics Extension 1, Physics</td>
<td>90.05</td>
</tr>
<tr>
<td>Bachelor of Engineering (Mechanical)(Space)</td>
<td>4</td>
<td>Flight mechanics, mechanical dynamics, satellite communications systems, smart materials and structures, space engineering</td>
<td>Mathematics Extension 1, Physics</td>
<td>99.00</td>
</tr>
<tr>
<td>Bachelor of Engineering (Mechatronic)</td>
<td>4</td>
<td>Electronic devices and circuits, industrial management, introductory electrics, mechanical design, power electronics and drives</td>
<td>Mathematics Extension 1, Physics</td>
<td>92.20</td>
</tr>
<tr>
<td>Bachelor of Engineering (Mechatronic)(Space)</td>
<td>4</td>
<td>Computers in real time, mechatronics, satellite communications systems, space engineering</td>
<td>Mathematics Extension 1, Physics</td>
<td>99.45</td>
</tr>
<tr>
<td>Bachelor of Engineering (Mechanical)(Biomedical)</td>
<td>4</td>
<td>Biomedical technology, fundamentals of biomedical engineering, human biology, materials, mechanical design</td>
<td>Mathematics Extension 1, Physics and Chemistry</td>
<td>95.90</td>
</tr>
<tr>
<td>Bachelor of Engineering (Chemical and Biomolecular)</td>
<td>4</td>
<td>Energy and environment, bioengineering, materials engineering, minerals processing, process control and optimisation, oil, gas, petroleum and petrochemicals, food and beverage, biotechnology, sustainable development, business and economics</td>
<td>Mathematics Extension 1, Chemistry</td>
<td>88.15</td>
</tr>
<tr>
<td>Bachelor of Engineering (Civil)</td>
<td>4</td>
<td>Civil engineering design, concrete and steel structures, engineering geology, fluids, introduction to structural concepts, soil mechanics</td>
<td>Mathematics Extension 1, Physics</td>
<td>90.70</td>
</tr>
<tr>
<td>Bachelor of Engineering (Civil)(Construction Management)</td>
<td>4</td>
<td>Project formulation, project management IT, project planning and tendering, structural mechanics, surveying, transport engineering and planning</td>
<td>Mathematics Extension 1, Physics</td>
<td>90.15</td>
</tr>
<tr>
<td>Bachelor of Engineering (Civil)(Environmental)</td>
<td>4</td>
<td>Chemistry, environmental decision making, environmental mechanics, geotechnics, introduction to structural concepts, water resources engineering</td>
<td>Mathematics Extension 1, Physics</td>
<td>96.25</td>
</tr>
<tr>
<td>Bachelor of Engineering (Civil)(Geotechnical)</td>
<td>4</td>
<td>Concrete and steel structures, environmental geotechnics, finite element methods, geology, geotechnical engineering, structural mechanics</td>
<td>Mathematics Extension 1, Physics</td>
<td>99.15</td>
</tr>
<tr>
<td>Bachelor of Engineering (Civil)(Structural)</td>
<td>4</td>
<td>Bridge engineering, concrete structures, introduction to structural concepts, steel structures, structural dynamics, structural mechanics</td>
<td>Mathematics Extension 1, Physics</td>
<td>95.70</td>
</tr>
<tr>
<td>Bachelor of Engineering (Electrical) (Power)</td>
<td>4</td>
<td>Power electronics and drives, engineering and electromagnetics, electrical energy systems and management, digital signal processing, electronic circuit design, communications, embedded computing, management for engineers</td>
<td>Mathematics Extension 1, Physics</td>
<td>95.80</td>
</tr>
<tr>
<td>Bachelor of Engineering (Electrical) (Telecommunications) (Electronics) (Computer)</td>
<td>4</td>
<td>Digital devices and circuits, digital system design, foundation of computer systems, foundations of electrical circuits, software development, circuit analysis, fundamentals of feedback control, operating systems, real-time computing, switching devices and circuits, data communications and the internet, electronic devices and circuits, microcomputer systems, optical systems, satellite systems, signals and systems</td>
<td>Mathematics Extension 1, Physics</td>
<td>87.15</td>
</tr>
<tr>
<td>Bachelor of Engineering (Electrical) (Bioelectronics)</td>
<td>4</td>
<td>Bio-system interfacing, biomedical electronics, bioelectronic systems, electrical engineering, medical imaging, physiological measurements, microelectronics, integrated circuit design, power supplies, radio frequency circuits, digital signal processing, image processing, photonics, automatic control and implantable devices</td>
<td>Mathematics Extension 1, Physics</td>
<td>98.40</td>
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</tbody>
</table>

**COURSES AND CAREERS**

**COURSE INFORMATION**

- **Bachelor of Engineering (Aeronautical)**
  - **Years**: 4
  - **Majors**: Aerospace technology, control systems, low-speed aerodynamics, materials, structural analysis
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 91.80

- **Bachelor of Engineering (Aeronautical)(Space)**
  - **Years**: 4
  - **Majors**: Aerospace structures, composite materials, mechanics, propulsion, space electronics, space engineering
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 99.45

- **Bachelor of Engineering (Mechanical)**
  - **Years**: 4
  - **Majors**: Industrial management, materials, mechanical design, mechanics of solids, system control, thermodynamics
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 90.05

- **Bachelor of Engineering (Mechanical)(Space)**
  - **Years**: 4
  - **Majors**: Flight mechanics, mechanical dynamics, satellite communications systems, smart materials and structures, space engineering
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 99.00

- **Bachelor of Engineering (Mechatronic)**
  - **Years**: 4
  - **Majors**: Electronic devices and circuits, industrial management, introductory electrics, mechanical design, power electronics and drives
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 92.20

- **Bachelor of Engineering (Mechatronic)(Space)**
  - **Years**: 4
  - **Majors**: Computers in real time, mechatronics, satellite communications systems, space engineering
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 99.45

- **Bachelor of Engineering (Mechanical)(Biomedical)**
  - **Years**: 4
  - **Majors**: Biomedical technology, fundamentals of biomedical engineering, human biology, materials, mechanical design
  - **Assumed Knowledge**: Mathematics Extension 1, Physics and Chemistry
  - **ATAR**: 95.90

- **Bachelor of Engineering (Chemical and Biomolecular)**
  - **Years**: 4
  - **Majors**: Energy and environment, bioengineering, materials engineering, minerals processing, process control and optimisation, oil, gas, petroleum and petrochemicals, food and beverage, biotechnology, sustainable development, business and economics
  - **Assumed Knowledge**: Mathematics Extension 1, Chemistry
  - **ATAR**: 88.15

- **Bachelor of Engineering (Civil)**
  - **Years**: 4
  - **Majors**: Civil engineering design, concrete and steel structures, engineering geology, fluids, introduction to structural concepts, soil mechanics
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 90.70

- **Bachelor of Engineering (Civil)(Construction Management)**
  - **Years**: 4
  - **Majors**: Project formulation, project management IT, project planning and tendering, structural mechanics, surveying, transport engineering and planning
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 90.15

- **Bachelor of Engineering (Civil)(Environmental)**
  - **Years**: 4
  - **Majors**: Chemistry, environmental decision making, environmental mechanics, geotechnics, introduction to structural concepts, water resources engineering
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 96.25

- **Bachelor of Engineering (Civil)(Geotechnical)**
  - **Years**: 4
  - **Majors**: Concrete and steel structures, environmental geotechnics, finite element methods, geology, geotechnical engineering, structural mechanics
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 99.15

- **Bachelor of Engineering (Civil)(Structural)**
  - **Years**: 4
  - **Majors**: Bridge engineering, concrete structures, introduction to structural concepts, steel structures, structural dynamics, structural mechanics
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 95.70

- **Bachelor of Engineering (Electrical) (Power)**
  - **Years**: 4
  - **Majors**: Power electronics and drives, engineering and electromagnetics, electrical energy systems and management, digital signal processing, electronic circuit design, communications, embedded computing, management for engineers
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 95.80

- **Bachelor of Engineering (Electrical) (Telecommunications) (Electronics) (Computer)**
  - **Years**: 4
  - **Majors**: Digital devices and circuits, digital system design, foundation of computer systems, foundations of electrical circuits, software development, circuit analysis, fundamentals of feedback control, operating systems, real-time computing, switching devices and circuits, data communications and the internet, electronic devices and circuits, microcomputer systems, optical systems, satellite systems, signals and systems
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 87.15

- **Bachelor of Engineering (Electrical) (Bioelectronics)**
  - **Years**: 4
  - **Majors**: Bio-system interfacing, biomedical electronics, bioelectronic systems, electrical engineering, medical imaging, physiological measurements, microelectronics, integrated circuit design, power supplies, radio frequency circuits, digital signal processing, image processing, photonics, automatic control and implantable devices
  - **Assumed Knowledge**: Mathematics Extension 1, Physics
  - **ATAR**: 98.40
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<td><strong>ENGINEERING AND INFORMATION TECHNOLOGIES</strong></td>
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<tr>
<td>Bachelor of Engineering (Software)</td>
<td>4</td>
<td>Data communications and the internet, network programming, operating systems, signals and systems, software validation and verification</td>
<td>Mathematics Extension 1, Physics</td>
<td>91.05</td>
</tr>
<tr>
<td>Flexible First Year (Bachelor of Engineering), (Bachelor of Computer Science and Technology), (Bachelor of Information Technology)</td>
<td>4</td>
<td>Flexible First Year allows you to decide your eventual engineering specialisation after completing one year of full-time study.</td>
<td>Mathematics Extension 1, Physics and/or Chemistry</td>
<td>89.05</td>
</tr>
<tr>
<td>Bachelor of Computer Science and Technology</td>
<td>3</td>
<td>Computer science, information systems</td>
<td>Mathematics 2 units or Mathematics Extension 1 (depending on subjects chosen)</td>
<td>85.25</td>
</tr>
<tr>
<td>Bachelor of Computer Science and Technology (Advanced)</td>
<td>3</td>
<td>As for Bachelor of Computer Science and Technology (above) but with study at an advanced level. This is a more challenging variant of the Bachelor of Computer Science and Technology for applicants with substantial programming experience and aptitude and/or a high ATAR. It has the same flexible structure as the Bachelor of Computer Science and Technology but students take a significant amount of their study (including half of third year) in advanced units, encompassing more challenging topics and approaches to IT. As part of the third-year advanced study, students undertake a large group development project of industrial relevance. Students who perform well may apply to transfer to the four-year Bachelor of Information Technology (page 57).</td>
<td>Mathematics 2 units or Mathematics Extension 1 (depending on subjects chosen)</td>
<td>92.70</td>
</tr>
<tr>
<td>Bachelor of Information Technology</td>
<td>4</td>
<td>Introduction to programming, data bases, systems analysis in the first two years; networking, human-computer interaction, graphics, object-oriented design, internet software platforms, artificial intelligence and e-business analysis and design</td>
<td>Mathematics 2 units or Mathematics Extension 1 (depending on subjects chosen)</td>
<td>97.50</td>
</tr>
<tr>
<td>Bachelor of Project Management</td>
<td>3</td>
<td>Civil engineering science, built environment and software. Studies include project management, project finance, complex project co-ordination, analytics, statistics, risk management, organisational behaviour and psychology</td>
<td>Mathematics Extension 1</td>
<td>New in 2012</td>
</tr>
</tbody>
</table>
SUPPORT WHILE YOU STUDY

ACADEMIC SUPPORT
We offer plenty of support to help you get used to university study. Services such as the University Library, the Learning Centre and the Mathematics Learning Centre offer workshops, study materials and other support to help you develop the skills you’ll need for successful university study.

At our Summer and Winter schools, you can take intensive versions of full-fee award subjects during the summer and winter breaks. This can help you to speed up the time it takes to complete your degree, repeat units of study or reduce your normal semester workload.

ACCOMMODATION
We can help you out with both on-campus and off-campus accommodation.

If you want to be right at the heart of the University community, then living on either the Camperdown or the Darlington campus is an excellent choice. Both of these campuses are located at the heart of Sydney’s inner-west, so you’ll be surrounded by great cafes, restaurants, bars, bookshops, clothes shops and parks, and there are plenty of accommodation options to choose from.

For those who want to experience the quintessential college lifestyle there are a number of residential colleges on campus. These are a popular choice for students coming to live in Sydney for the first time.

There are also a number of other convenient on-campus accommodation options, including Sydney University Village, offering a wide range of options from one-person studios to five-bedroom apartments.

Note that many on-campus facilities have early application deadlines, so start looking in September if you’d like on-campus accommodation for the following year.

Alternatively, if you’d prefer a bit of distance between your academic and home life, we can help you out with our database of off-campus accommodation including share, rental and full-board accommodation, or by providing information about student hostels. We can also direct you to temporary accommodation options.

sydney.edu.au/accommodation
THINKING OF STUDYING OVERSEAS FOR A SEMESTER OR MORE?

Participating in the Study Abroad and Student Exchange programs is an exciting and challenging way of broadening your horizons.

You can:
- internationalise your engineering and IT educational experience
- experience studying and learning in a new environment with different perspectives
- establish professional and career opportunities through networking
- gain a broader view of the world and of Australia
- improve language skills and cultural understanding
- experience personal growth by developing self confidence and social skills

The International Exchange Program enables you to undertake approved overseas study, with the credit achieved counting towards your degree at the University of Sydney.

You can study at one of the following faculty exchange partners or with almost 260 exchange partners in 30 countries across the University, there is sure to be a program that will suit your academic and personal interests:
- Louisiana State University, USA Engineering (Faculty-wide)
- Imperial College London, UNITED KINGDOM Engineering (Chemical, Mechanical)
- Royal Institute of Technology (KTH), SWEDEN Engineering (Aeronautical, Chemical)
- Korea Advanced Institute of Science and Technology, KOREA Engineering (Aeronautical)
- University of Tokyo, JAPAN Engineering (faculty-wide)
- Institut National Polytechnique de Toulouse (INP) FRANCE Engineering (Electrical, Chemical)

The Study Abroad and Student Exchange Programs are part of the International Office of the University of Sydney. For further information please contact:

International Office
Level 4, Jane Foss Russell Building
City Road
The University of Sydney NSW 2006
AUSTRALIA
(open 9am until 5pm, Monday to Friday)

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