INNOVATION

UNSW ENGINEERING

NO. 1 IN AUSTRALIA

TOP 50 IN THE WORLD
In the 2018 QS World rankings for subjects, these UNSW Engineering subjects rank in the top 50: Minerals and Mining, 9th in the world; Civil Engineering, 15th in the world, and 1st in Australia; Chemical Engineering, 36th in the world; Computer Engineering, 41st in the world; Electrical Engineering, 36th in the world.

INFLUENTIAL ENGINEERS
22% of Australia’s most influential engineers are from UNSW, the most of any Australian university. Top 100 Most Influential Engineers, 2016.
Meeting global challenges

Through world-class education and research, UNSW Engineering brings passion and creativity to meet global challenges. We combine the world’s best facilities and research with an exciting and connected education experience to open doors for our graduates.

Real-world engineering

One of the most exciting opportunities at UNSW Engineering are our Student-led Projects. Each activity offers its own opportunities, allowing you to challenge yourself and have fun with practical, real-world engineering all while completing your degree. These student-led projects will look great on your resume!

More degrees, more choice

We have more engineering degree specialisations than anywhere else. At UNSW you can explore 20 undergraduate engineering degrees, and that’s before you add any double degrees.

Women in Engineering

The Women in Engineering Development Program at UNSW provides female engineering students with a sense of community, as well as providing opportunities to build important skills for academic and career success.

In addition to workshops and networking events, the program provides students with the opportunity to give back through volunteering. Together, WIE volunteers dream up new activities to inspire teenagers so they can better consider a future in engineering. These are then delivered to school groups. WIE is a great way to make friends through teamwork, to share your enthusiasm for engineering, and to strengthen your own commitment to changing the world. Visit engineering.unsw.edu.au/about-us/initiatives/women-in-engineering

Student opportunities

- Student exchange with overseas partners
- Internships and industry placements
- Mentoring programs – to help you with your transition to university.
- Scholarships and awards – rewarding excellence and making university life accessible to students from all walks of life.
- Societies and clubs – over 300 Clubs & Societies to choose from!
From smartphones to search engines and driverless cars to artificial intelligence, Computer Scientists are society’s modern-day inventors who theorise, design, develop, and apply software and hardware to create the innovation that improve our quality of life. Computer Scientists specialise in the design, analysis and implementation of computational systems.

Career opportunities
- Design and building of software
- Data transfer and storage
- Digital security
- Robotics and artificial intelligence
- Networking
- System analysis
- Programming
- Database administration

This degree is professionally recognised.

Bachelor of Science (Computer Science)

- **Duration**: 3 years
- **2018 Lowest Rank**: 92.00
- **2019 GE Rank**: 93.00
- **Assumed knowledge**: Mathematics Extension 1

**Career opportunities**
- Design and building of software
- Data transfer and storage
- Digital security
- Robotics and artificial intelligence
- Networking
- System analysis
- Programming
- Database administration

Possible minor in Accounting, Finance, Information Systems, Marketing, Maths, Psychology

Structures

- Check out the subjects you will study in this degree

→ 16 computer courses + Elective/general education course (8 courses)

Bachelor of Engineering (Honours)

- **Duration**: 4 years
- **2018 Lowest Rank**: 92.00
- **2019 GE Rank**: 93.00
- **Assumed knowledge**: Mathematics Extension 1 and Physics

**Career opportunities**
- Space industry
- Consulting
- National security
- Transportation
- Airlines
- Maritime construction

**Flexible first year stream**
The Bachelor of Engineering (Honours) program includes a Flexible First Year stream. This stream is designed for those students who wish to study engineering but would like to delay their choice of which branch of engineering to study until the end of Year 1. The first year of engineering study has a common core of courses, plus a wide choice of electives which allows you to study a number of areas that appeal to you without making a formal commitment until the end of your first year. This is ideal for students who know they want to be an engineer, but are unsure which direction to take.

Structures

- Check out the subjects you will study in this degree

First year design challenge (Eng 1000) A team project over a ten week period to solve a practical problem + 60 days of industrial training to get you work ready! → Final year thesis project

Disciplines

- **Aerospace Engineering**
  - As an aerospace engineer, you’ll be a pioneer of exploration and innovation. Aerospace engineering graduates can select from an enormous variety of roles within multi-national corporates, or in research for civilian, education or defence purposes.
  - **Career opportunities**
    - Space industry
    - Consulting
    - National security
    - Transportation
    - Airlines
    - Maritime construction

- **Bioinformatics Engineering**
  - Fancy curing cancer or solving the global energy crisis? Bioinformaticians use creativity and technology to trawl the ocean of genetic data available today to improve human health and endeavour.
  - **Career opportunities**
    - Pharmaceutical
    - Agrotech
    - Banking and finance
    - Education
    - Health
    - Computer security
    - Bioinformatics
    - Big Data
    - Digital Services
    - Consulting

- **Chemical Engineering**
  - Chemical Engineers get enormous job satisfaction from transforming raw materials into useful products that improve the lives of people every day. As technology advances, so do the innovations the chemical engineering industry is able to forge.
  - **Career opportunities**
    - Food and drink
    - Environmental management
    - Mining and minerals
    - Oil and gas
    - Paper and packaging
    - Pharmaceuticals
    - Water treatment and recycling
Civil Engineering
Civil Engineers work to improve lives through developing a sustainable physical environment. From major infrastructure programs - bridges, airports, tunnels, railway lines, dams, etc. - to entire systems such as water supply, graduates will be at the forefront of the world’s most exciting projects.

Career opportunities
- Professional consulting firms
- Construction companies
- Large public companies
- Government organisations
- Financial and management consultancies

We are ranked 15th in the world, and 1st in Australia for Engineering - Civil and Structural. QS World University Rankings by Subject, 2018.

Environmental Engineering
From clean water and sustainable waste disposal to innovative recycling and alternative energy solutions - there is no profession as vital to thriving societies and a liveable planet as Environmental Engineering.

Career opportunities
- Water
- Construction
- Energy
- Manufacturing
- Government
- Humanitarian Engineering
- Sustainability

Mechanical Engineering
The influence, role and importance of the Mechanical Engineer is expanding more quickly than almost any other specialisation. All machinery, devices and products, from the traditional to the high-tech and even to the yet-to-be-created, rely on those with the talent and knowledge offered by a Mechanical Engineering degree.

Career opportunities
- Power generation
- Transport
- Construction
- Mining
- Manufacturing
- Building services

Mechatronic Engineering
As society embraces automation by robots and artificial intelligence systems, mechatronics engineers command great responsibility and great opportunity as they change the ways humans work with machines.

Career opportunities
- Mining
- Automotive
- Agriculture
- Aerospace & Defence
- Government
- Technology

Mining Engineering
As well as underpinning the future of technological progress and ensuring the planet’s resources are sustainably managed, mining engineering is an exciting career where virtually no place on earth is off limits.

Career opportunities
- Drilling
- Project management
- Finance and banking
- Sustainability
- Community relations
- Management consulting
- Government
- Investment firms
- Quarry and tunnelling

We are ranked 9th in the world for Engineering - Mineral and Mining. QS World University Rankings by Subject, 2018.

Petroleum Engineering
Petroleum engineers apply knowledge of chemistry, physics, geology and economics to the discovery, development and production of energy and material resources below the Earth’s surface. Major studies include petroleum geology and geophysics, reservoir characterisation, drilling and completion, and oil and gas production.

Career opportunities
- Oil and gas industry
- Oil service companies
- Reservoir development
- Computer-generated modelling
- Environmental organisations
- Banking and Finance

Photovoltaics and Solar Energy
UNSW is a world leader in the field of photovoltaic engineering. This degree provides education in photovoltaic (PV) technology development, PV device manufacturing, PV system design and maintenance, and the use of other renewable energy technologies. The program includes courses in technology development, manufacturing, quality control, reliability, cell interconnection and encapsulation, policy development, life-cycle analysis, system design and more.

Career opportunities
- Manufacturing
- Quality control and reliability
- Computer-aided design of devices and systems
- Policy formation
- Programs for developing countries
- Solar cells
- Research organisations
- System design
- Integration companies

Renewable Energy Engineering
This degree explores the best ways to make use of renewable energy technologies, including solar thermal systems, photovoltaics, wind and biomass. This degree looks beyond the sun as a source of energy, encompassing a wider range of technologies and their uses. It also addresses the important areas of solar architecture and the design of energy efficient buildings and appliances.

Career opportunities
- Manufacturing
- Quality control and reliability
- Computer-aided design of devices and systems
- Policy formation
- Programs for developing countries
- Energy utilities

Chemical Product Engineering
This degree equips students with the entrepreneurial skills needed to innovate, develop, and design novel chemical and consumer products for large and small employers. Fostering a collaborative and innovative culture, this degree shifts the focus from process to product design and development.

Career opportunities
- Chemical and Materials Engineers
- Chemical Engineer
- Chemist
- Chemists, and Food and Wine Scientists
- Design, Engineering, Science and Transport Professionals
- Engineering Manager
- Engineering Professionals
- Production Manager (Manufacturing)
- Production or Plant Engineer
- Product Tester
- Research and Development Manager

We are ranked 36th in the world for Engineering – Chemical. QS World University Rankings by Subject, 2018.

Computer Engineering
Computer Engineers are the intersection between technology and innovation. From super computers to robotics, electronic prostheses to aircraft design - whatever your interest, there will be a course to match.

Career opportunities
- Research laboratories
- Technology manufacturers
- Health industry companies
- Digital consulting firms
- Agrotech businesses
- Banking and finance
- Education
- VLSI Design
- Embedded systems
- Digital Services
- IT

Electrical Engineering
Electrical Engineers offer incredible benefits to society. From smartphones to power networks, and from medical equipment to robotics; in today’s technology-driven world, it’s a profession we just simply couldn’t do without.

Career opportunities
- Electronics
- Quantum computing
- Networking
- Power distribution
- Robots and control

We are ranked 36th in the world for Engineering – Electrical. QS World University Rankings by Subject, 2018.
Bringing some of the engineering world’s most powerful degrees together, this five-year integrated degree program includes a compulsory minor in a discipline outside electrical engineering and telecommunications, further broadening the knowledge, experience and career prospects of graduates.

Career opportunities
- Telecommunications and electricity authorities
- Biomedical sector
- Private industrial groups such as Thales, Alstom, BHP, Boeing Australia, Honeywell, Dolby Australia, IBM and Google
- Science fiction is much less fictional once you step into the amazing world of the biomedical engineer. From bionic eyes to artificial hearts to swallowable cameras, biomedical engineers are pioneering the future of medical advances.

Disciplines
- Bioinformatics Engineering
- Chemical Engineering
- Computer Engineering
- Electrical Engineering
- Mechanical Engineering
- Mechatronic Engineering
- Software Engineering
- Telecommunications

Career opportunities
- Pharmaceutical companies
- Hospitals
- Scientific research institutions
- Medical device manufacturing
- Biotechnology
- This degree is professionally recognised.

First year design challenge (Eng 1000) A team project over a ten week period to solve a practical problem

60 days of industrial training to get you work ready!

A specialised and flexible elite program where you work right at the industry’s cutting edge on your fourth and fifth year projects and electives.
Bachelor of Engineering (Civil Engineering with Architecture) (Honours)

**Career opportunities**
- Engineering consultancies
- Construction and contracting companies
- Government organisations
- Airport and harbour authorities
- Project development
- Financial and management consultants

**Assumed knowledge** Mathematics Extension 1, Physics

**First year design challenge**
(Eng 1000) A team project over a ten week period to solve a practical problem

**60 days of industrial training**
get you work ready!

**Final year thesis project**

Bachelor of Food Science (Honours)

**Career opportunities**
- Food Technologist
- Quality Assurance Manager
- Dietitian
- Product Tester
- Product Quality Controllers
- Production Managers
- Laboratory Manager
- Technical Sales Representatives
- Safety Inspector
- Supply and Distribution Manager
- Research and Development Manager

**Assumed knowledge** Mathematics Extension 1, Physics, Chemistry. Biology is recommended

**Majors**
- Food Science and Technology
- Food Science and Nutrition

**First year design challenge**
(Eng 1000) A team project over a ten week period to solve a practical problem

**60 days of industrial training**
get you work ready!

**Final year thesis project**

**Engineering double degrees**

<table>
<thead>
<tr>
<th>Degree</th>
<th>2018 lowest rank*</th>
<th>2019 GE rank</th>
<th>2019 IB Diploma</th>
<th>No. of years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science/Arts</td>
<td>92.00</td>
<td>93.00</td>
<td>35</td>
<td>4F</td>
</tr>
<tr>
<td>Computer Science/Engineering (Hons)</td>
<td>92.00</td>
<td>93.00</td>
<td>35</td>
<td>5F</td>
</tr>
<tr>
<td>Computer Science/Media Arts</td>
<td>92.00</td>
<td>93.00</td>
<td>35</td>
<td>4F</td>
</tr>
<tr>
<td>Computer Science/Science</td>
<td>92.00</td>
<td>93.00</td>
<td>35</td>
<td>4F</td>
</tr>
<tr>
<td>Engineering (Hons)/Arts</td>
<td>92.00</td>
<td>93.00</td>
<td>35</td>
<td>5–5.5F</td>
</tr>
<tr>
<td>Engineering (Hons)/Commerce</td>
<td>96.50</td>
<td>97.00</td>
<td>39</td>
<td>5.5F</td>
</tr>
<tr>
<td>Engineering (Hons)/Computer Science</td>
<td>92.00</td>
<td>93.00</td>
<td>35</td>
<td>5F</td>
</tr>
<tr>
<td>Engineering (Hons)/Engineering Science (Civil/Mining or Mining/Civil)</td>
<td>92.00</td>
<td>93.00</td>
<td>35</td>
<td>5F</td>
</tr>
</tbody>
</table>
How to apply

Getting offered a place is competitive and entry into our undergraduate degrees is based on academic merit. Entry is assessed by your performance in a qualification such as the HSC, VCE, IB or any other recognised qualifications. For more information visit

futurestudents.unsw.edu.au/how-to-apply

Alternate pathways to UNSW Engineering

The 2018 Guaranteed Entry Rank for engineering degrees at UNSW are among the highest in the country. If you don’t achieve the selection rank required for Guaranteed Entry, you have alternatives:

Faculty of Engineering Admission Scheme (FEAS)

If your 2018 Guaranteed Entry Rank (or equivalent including applicable adjustment factors) is between 83.00 to 92.95, there’s still a chance you can enrol at UNSW Engineering. We strongly encourage you to put in an application under FEAS and show your passion and suitability for studying at UNSW.

Visit engineering.unsw.edu.au/study-with-us/feas

Domestic applicants

(AUS Citizen and PR, NZ Citizen)

All domestic applicants must apply through the Universities Admissions Centre (UAC). Visit uac.edu.au.

As a domestic student you may be eligible for adjustment factors including HSC Plus, and Elite Athletes & Performers (EAP). We also have an Education Access Scheme. Visit futurestudents.unsw.edu.au.

Guaranteed Entry Rank (lowest selection rank + adjustment factors) allows us to tell you what selection rank will guarantee you a place in a particular degree at UNSW. Visit unsw.edu.au/ge.

Get in touch with UNSW Engineering

Ask a question unsw.edu.au/ask

Call 1300 UNI NSW (1300 864 679)

Visit engineering.unsw.edu.au

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NOTES

* The 2018 Lowest Rank is the adjusted rank (ATAR plus adjustment factors, more commonly known as bonus points) you would have needed to gain entry to this degree in 2018. To see a complete picture of UNSW offer data, visit unsw.edu.au/degrees

1 For more information on Guaranteed Entry, please visit unsw.edu.au/ge