



But
seriously,
what is
engineering?



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

Create change

But seriously, what is it?

1. CHEMICAL ENGINEERING

Chemical engineering is all about developing processes that turn raw materials into useful, everyday products - with minimal environmental impact. Many of the items chemical engineers have produced we take for granted, such as the food and drinks we enjoy, to the clothes we wear and the energy we use.

2. CIVIL ENGINEERING

Civil engineering is all about creating beautiful and sustainable infrastructure that can protect and improve our environment, while also meeting the needs of society. Civil engineers work on everything from building bridges, roads and harbours to dams, airports, utility supply and public health.

3. ELECTRICAL ENGINEERING

Electrical engineering is the design, construction, operation and maintenance of electrical energy infrastructures and technologies. From the microchips in your smart phone to the power station generators that run our cities, it's hard to imagine our lives without the impact of electrical engineering.

4. MECHANICAL ENGINEERING

Mechanical engineers control and automate manufacturing systems and are involved in the generation, distribution and application of energy, while maximising the output from the earth's resources. From artificial hearts to the world's largest power stations, mechanical engineering involves anything and everything with moving parts.

5. MECHATRONIC ENGINEERING

Mechatronic engineering integrates mechanical engineering with electronics, computer systems and controls in order to design and construct advanced products and processes. The results are machines such as artificial intelligence systems, robotics, automated industrial machinery and avionics that will pathe the way of the future.

6. MINING ENGINEERING

Mining is essential to the modern lifecycle. Mining engineers extract minerals to create the products we use every day. As a mining engineer you may be given the opportunity to use some of the most cutting-edge technology available due to the industry being highly automated and capital intensive.

7. SOFTWARE ENGINEERING

As our society becomes increasingly reliant on technology and computers become integrated into machines and products, one of our biggest challenges is creating the necessary software to make computers useful. Software engineers are tackling many modern challenges associated with computers, including novel things like developing lens-free cameras and spray-on touch screens.



10 awesome things about engineering at UQ

1. PRACTICAL LEARNING

From day one, you'll gain hands-on experience in all aspects of engineering thanks to our amazing first-year Demo Week! Make new friends instantly on practical projects where you'll design and build things such as autonomous watercraft, bridges and fully-functional mining equipment, while tackling important global issues such as water recycling in Zambia and global warming.

2. FUN UNI LIFE

University isn't just about hitting the books - we have a huge range of extra-curricular activities to make sure you have the best fun at uni, while getting a world-class degree. Get involved in student societies, UQ Racing, UQ Idea Hub, and a huge range of events.

3. EMPLOYABILITY

Ranked #1 in Queensland for graduate employability. Our top priority is to help you enter an exciting career in engineering. We know that having a wide range of employability skills is key to being successful in industry. You'll have access to expert advice and resources such as assistance with interview preparation and resume writing to be career ready.

4. FLEXIBILITY

UQ offers the largest range of engineering specialisations of any Queensland university and has heaps of opportunities to get you out of the classroom and experience life as an engineer first-hand.

5. UQ ABROAD

Make the most of your time at UQ, study overseas and explore the world.

6. INDUSTRY CONNECTIONS

UQ is well connected with industry, so we know what skills they want you to have and what kinds of research will benefit the community. For example, Boeing just moved their Brisbane research and development HQ on campus.

7. SCHOLARSHIPS

UQ's generous industry partners and private donors bring you more than 200 scholarships.

8. WORLD CLASS

We've been ranked as 'world class or above' in all of our engineering disciplines (in the most recent assessment). We are ranked 1st in Queensland for Engineering and Technology, 1st in Australia for Chemical Engineering and 10th in the world for Mineral and Mining Engineering.

9. FACILITIES

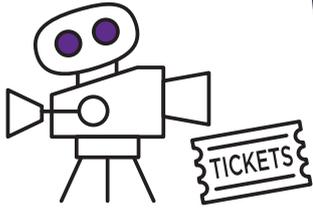
The UQ campus offers the best facilities in town, with the famous Forgan Smith sandstone building, the Lakes and Great Court. We have the purpose-built Advanced Engineering Building, a drone lab, virtual reality immersive learning room, super-speed hypersonic shock tunnels, a race car workshop and a fire lab.

10. WOMEN IN ENGINEERING (WE)

Our world class WE program makes UQ the number one choice for women studying engineering. WE understands the importance of diversity in the workplace and therefore look to inspire young women to consider a career in engineering.

Every industry needs engineers

Did you know that Tiffany Beers, Senior Innovator for Nike, graduated with a plastics engineering degree and was the brains behind the self-lacing shoes first depicted in the 'Back to the Future' movies?



Film and TV production companies need more than just sound and lighting engineers; they hire civil engineers for set design, chemical and mining engineers for explosions and software engineers for computer-generated imagery.



From studying how the dimples on a golf ball affect aerodynamics, to making racing bicycles super light; engineers are essential to the modern athlete.



We have chemical and materials engineers to thank for converting raw resources into our favourite foods and for ensuring their safe, sustainable packaging and production. Phew!

Engineers at Levi's reduced the water consumption of their "worn-in" jean finishing process by 96 per cent through using their Water<Less™ system, which has resulted in saving more than 1 billion litres of water since launching the process in 2011.



Engineers are essential to law and order. Software and mechatronics engineers are developing tools, such as face recognition and motion detector cameras, to prevent local crime, illegal wildlife trade and terrorism.

The mining industry is being made safer thanks to driverless vehicles, which are able to automatically move commodities such as iron ore around mining sites. Not only is this reducing dangerous risks, it's also reducing operating costs.

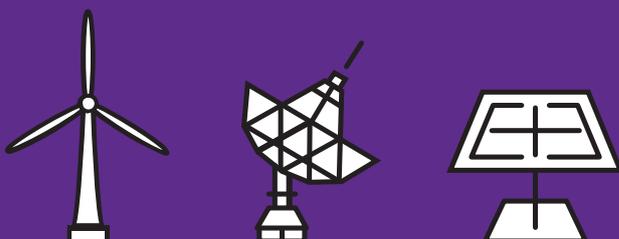


Engineers are essential to our health, happiness and sustainability

Engineer Jacqueline Savage is the founder of MedCorp Technologies, a medical device company developing wearable technologies for the healthcare industry. Jacqueline shadowed over 100 doctors and nurses whilst developing her wearable vest for remote monitoring of oncology patients.

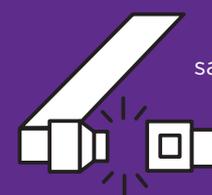


Engineers are responsible for providing our current energy sources, as well as the development of sustainable energy sources such as tidal, solar and wind energy that will power future cities and help reduce greenhouse gas emissions.



Professor Michael Smart from UQ's School of Mechanical and Mining Engineering is redefining space travel with reusable high-speed planes with air-breathing engines.

Through water sanitation and wastewater removal, civil and environmental engineers are as critical to our health as doctors. According to the World Health Organisation, half of the world's hospital beds are filled with people with water-borne illnesses. In underdeveloped countries, the number is closer to 80 per cent.

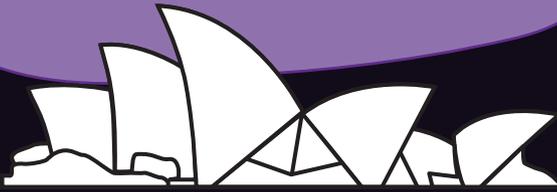


More than 15,000 American lives were saved in 2005 by Nils Bohlin's three point seatbelt device, according to the U.S. Department of Transportation. So buckle up!

Many people attribute computers, WiFi and smart devices to electrical, software and mechanical engineers, but mining engineers ensure that the 20-30 metals and minerals needed within these devices are available to the manufacturers.



Engineers are creative innovators



STRUCTURAL ENGINEER If it were not for engineer Ove Arup, the Sydney Opera house would have never been built!

ELECTRICAL ENGINEER Hollywood's Golden Age movie star, Hedy Lamarr, co-patented a frequency-hopping device that was used on war ships to guide torpedoes. Her technology was later used by electrical engineers to develop GPS, WiFi, and Bluetooth.



BIOLOGICAL ENGINEER UQ's Professor Mark Kendall invented a new method to deliver the polio vaccine. His needle-free Nanopatch requires 40 times less vaccine dosage than the traditional needle and syringe, while producing the same level of immunity.

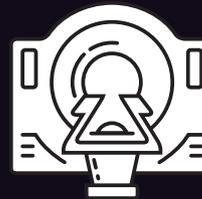
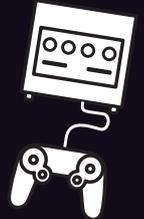


MECHANICAL ENGINEER Using the principles of mechanical engineering, Mary Anderson invented the windshield wiper in 1903, relieving drivers of having to stick their head out the window when travelling in the rain!



CHEMICAL ENGINEER Chemical engineer Erik Rotheim is responsible for aerosol cans, giving life to hair spray, bug repellent, sunblock and deodorants.

SOFTWARE ENGINEER Alexey Pajitnov graduated with a software engineering degree and went on to invent Tetris, providing video game addiction for millions globally.

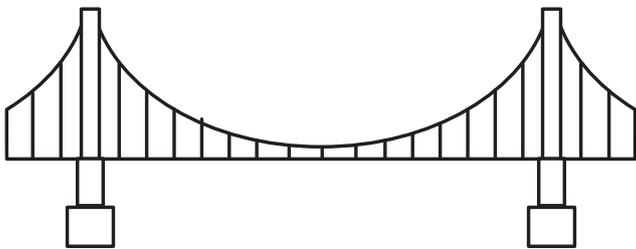


BIOMEDICAL ENGINEER

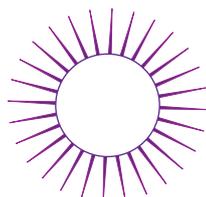
Professor Stuart Crozier, a biomedical engineer from UQ, improved the resolution of MRI machines to enable faster, more accurate images. 60-70 per cent of the world's clinical MRI machines have incorporated this technology in the last 20 years.

The future of engineering is exciting!

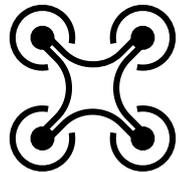
THE FUTURE OF BRIDGES A team led by UQ engineer Dr Dilum Fernando has developed a bridge design that is three times lighter and three times stronger than regular bridges. Using a double skin tubular arch system - it can be constructed in just three days!



THE FUTURE OF SUN SAFETY UQ's software engineering student, Alana Clover has developed a wearable UV exposure-detecting device to help prevent skin cancer.



THE FUTURE OF DRONES Dr Pauline Pounds of UQ's School of Information Technology and Electrical Engineering has developed drone technology that provides safety information on climatic conditions to firefighters, which will save lives.



THE FUTURE OF FARMING Farmers could soon turn to microbial protein to feed their livestock thanks to research undertaken by UQ School of Civil Engineering's Dr Ilje Pikaar. The research looks to replace crops that grow grains and produce for animal feed - a move that would reduce land use, greenhouse gas emissions, and significantly reduce the environmental impact of agriculture.



THE FUTURE OF THE SEA Researchers from UQ's School of Civil Engineering are working to understand the impact of rising sea levels on the people living in the South Pacific.

BACHELOR OF ENGINEERING (Honours)

Duration

4 years full-time

Entry requirements*

Queensland Year 12 or equivalent
English; Mathematics B;
plus one of Physics or Chemistry

QTAC code

717001

Accredited by

Engineers Australia

BACHELOR OF ENGINEERING (Honours) / MASTER OF ENGINEERING

Duration

5 years full-time

Entry requirements*

QTAC: Queensland Year 12 or equivalent
English; Mathematics B;
plus one of Physics or Chemistry

QTAC code

717111

OR

Completion of 1 year within the
Bachelor of Engineering (Honours) at UQ
with a weighted grade point average of 5.0

Accredited by

Engineers Australia

*For the complete list of entry requirements please refer to future-students.uq.edu.au

LOCATION

Faculty of Engineering, Architecture
and Information Technology
Level 2, Hawken Engineering Building (50)
The University of Queensland
Queensland 4072
Australia

OFFICE HOURS

8:30am - 5:00pm
Monday - Friday

STUDENT ENQUIRIES

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Phone number: +61 3346 9872

We're on social media!

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students get to do by finding us on:

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