

Bachelor of Engineering (Honours)
Bachelor of Engineering (Honours) and Master of Engineering
Bachelor of Engineering (Honours) / Dual Degree

Electrical Engineering Specialisation

First Year Study Pathways and Information Guide



What is Electrical Engineering?

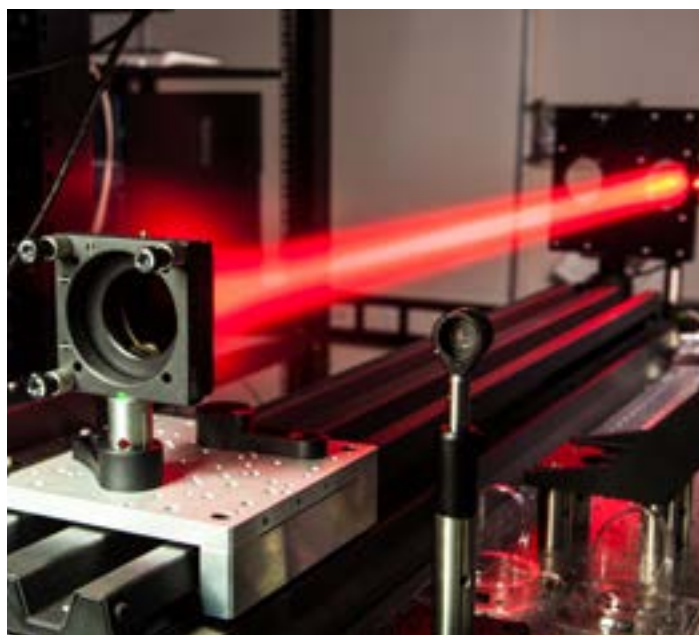
Electrical engineering is the study, design, and application of equipment, devices, and systems that use electricity, electronics, and electromagnetism

As an essential field powering modern society, electrical engineering spans physical machinery, embedded systems, and advanced technologies across virtually every major sector.

Electrical engineers work on a wide range of technologies, from power grids and renewable energy systems to electric vehicles, telecommunications, robotics, and smart devices. Additionally, the field plays a vital role in healthcare innovation by creating sophisticated medical imaging technology and life-saving biomedical equipment. They use science, mathematics, and problem-solving skills to develop innovative solutions to real-world challenges.

Ultimately, electrical engineering equips professionals to solve complex technological challenges, transform energy systems, advance biomedical technologies, and design the next generation of connected, intelligent systems that power, improve, and connect the world.

"Electrical Engineering is where curiosity meets innovation, creating technologies that power, connect, and improve our world"



What You'll Experience

Studying Electrical Engineering at The University of Queensland offers a flexible, hands-on degree focused on practical learning

You will develop specialist technical skills using state-of-the-art facilities and gain real world experience through laboratory work, design projects, and a final year engineering thesis.

A key feature of the program is its emphasis on collaborative, project-based learning. In Team Project I, you will work in small groups to design, build, test, and program a functional product integrating electronics and software. In Team Project II, you will tackle more advanced industry-style challenges requiring technical design, project management, and systems integration.

You can tailor your studies through general Electrical Engineering pathways or specialize with majors in Biomedical Engineering or Computer Engineering, complemented by minors such as Artificial Intelligence, Computing, Data Science, or Design.

Beyond the classroom, student societies, industry engagement, and strong graduate employment outcomes prepare you for careers in energy, telecommunications, healthcare technology, computing, transport, and advanced manufacturing.

First Year

Core Courses



Second Year

You MUST declare your specialisation at the start



Third Year

If you're choosing one, start taking your majors courses



Fourth year +

Your major must be declared now, Advanced courses, thesis, capstone etc



3 Essential Tips for Your Final Year:

1. Secure an Industry Placement

Gain real-world experience and build crucial professional networks before graduation.

2. Choose a High-Impact Thesis

Pick an industry-relevant thesis topic that showcases practical problem-solving to potential employers.

3. Audit Your Degree Requirements

Double-check your completed courses against program rules to ensure you meet all graduation criteria on time.

After You Graduate

Electrical engineers are at the forefront of developing the technologies that power and connect modern society

Electrical engineers are at the forefront of developing the technologies that power and connect modern society. As an Electrical Engineering graduate, you will have opportunities across a diverse range of industries including renewable energy, power systems, telecommunications, biomedical technology, defence, mining, advanced manufacturing, transport, and smart infrastructure.

You will be well prepared for roles such as Electrical Engineer, Power Systems Engineer, Electronics Engineer, Communications Engineer, Control and Automation Engineer, Biomedical Engineer, Embedded Systems Engineer, Systems Engineer, Project Engineer, or Energy Engineer. Electrical engineers design, develop, test, and manage technologies ranging from renewable energy systems and electricity networks to medical devices, communication systems, intelligent control systems, and embedded electronics.

The versatile skills developed during your degree, including design, programming, testing, project management, systems integration, automation, and problem-solving, are highly valued across industry. Career pathways can lead to positions in engineering design, operations, consulting, research and development, asset management, project delivery, and technology leadership.

Electrical engineers don't just use technology; they create the systems that power, connect, and improve our world.

The 2026 Average Annual Salary for Electrical Engineers is between:

\$95K-\$125K

seek.com.au with higher salaries available in sectors such as mining, resources, and energy.



Graduate Spotlight

Esandi Kalugalage – Graduate Engineer, Energy Queensland

Esandi Kalugalage graduated from UQ in 2023 with a Bachelor of Engineering (Honours) specialising in Electrical and a minor in Data Science. During her studies, she developed a strong foundation in power systems and data analytics, while building the problem-solving and critical thinking skills that continue to support her career today.

As a Graduate Engineer at Energy Queensland (Ergon Energy and Energex), Esandi has had the opportunity to work across a range of disciplines through the graduate program's rotational structure. Her experience includes data analytics, grid planning, substation standards, field support, protection design, and asset maintenance. Working in these diverse areas has reinforced that no two engineering challenges are the same, and that effective solutions require both technical knowledge and the ability to adapt to changing circumstances.

One of the most valuable aspects of her degree was learning how to approach complex problems in a structured and analytical way. Through design courses, technical subjects, and team-based projects, she developed skills in collaboration, communication, and creative problem-solving that translate directly to the workplace.

Esandi also completed her honours thesis in collaboration with Powerlink Queensland, investigating weather station ranking for allocation to dynamically rated transmission feeders. The project provided an opportunity to work on a real-world power systems challenge while still at university, with support from both UQ academics and industry mentors helping to bridge the gap between theory and practice.

Reflecting on her experience, Esandi believes an electrical engineering specialisation provides a versatile foundation for a wide range of industries. Beyond technical knowledge, it develops analytical thinking, collaboration, and problem-solving skills that equip graduates to tackle new challenges throughout their careers.

"Studying engineering at UQ has been an awesome experience. The degree has given me a strong platform for a career in the power industry, with subjects I enjoyed and great lecturers and tutors I learned a lot from. Some of my best experiences at UQ came from saying yes to opportunities outside the classroom and meeting great people along the way."

Matthew Butters
Current student,
Bachelor of Engineering (Honours)
(Electrical Engineering)

Find Your Community

UQ has 200+ clubs and societies, including groups connected to Electrical Engineering.

Student clubs and societies provide a voice for the student community and bring students together through networking and social events. They also provide valuable opportunities to engage with industry, enhance your leadership skills and make long-lasting friendships.

Student societies related to Electrical Engineering include:

- EBESS - Electrically Based Engineering Student Society
- IEEE - Institute of Electrical and Electronics Engineers UQ student branch
- IEEE-Eta Kappa Nu (IEEE-HKN) Mu Kappa Chapter - Institute of Electrical and Electronics Engineers Honours Society UQ chapter

Electrical Engineering related student clubs include:

- UQ Racing: Top ranked team in Australia, and 11th out of over 400 teams globally

Electrical Engineering Study Pathways

You can tailor Electrical Engineering towards your interests through majors and minors.

Majors Include:

- No Major
- Biomedical Engineering Major
- Computer Engineering Major

Minors Include:

- Artificial Intelligence Minor
- Computing Minor
- Design Minor
- Data Science Minor

Electrical Engineering Study Plans

Here are the resources available to help you plan your degree

There is a specific order that we recommend you take your courses in. These study plans are designed to ensure that you meet your prerequisites and can take the courses in the semester that they are offered.



For more information

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<https://www.eait.uq.edu.au/study-plans/undergraduate/electrical-engineering>