

Electrical Engineering

Postgraduate coursework programs

Never Stand Still

Engineering

Electrical Engineering and Telecommunications

YOUR FUTURE. YOUR CHOICE.

Postgraduate study in electrical engineering allows students to consolidate a specialisation from an undergraduate degree, change direction to a new area of engineering or accelerate towards careers in R&D.

Through developing skills in analysis and problem-solving, enhancing strategy and management ability and enriching the depth of learning through research, students gain an invaluable set of skills which they can immediately apply to their careers.

SCHOOL OF ELECTRICAL ENGINEERING AND TELECOMMUNICATIONS

With a 60 year track record, the School of Electrical Engineering and Telecommunications courses are renowned for being on the very cusp of research innovation and contemporary industry practice. According to the 2014 QS Rankings by subject, we are number 33 in the world, up from 44 in 2013.

Staff interests cover an extraordinary range of theoretical, practical and management areas. Active industry involvement, state-of-the-art facilities, cutting-edge research and an ongoing course review and enhancement program ensure that our courses are at the forefront of global education in electrical engineering and telecommunications.

Our courses are taught using flexible delivery modes including open online lectures that incorporate educational technology developed at the School.

COURSEWORK PROGRAMS

- Master of Engineering Science (Electrical Engineering)
- Graduate Diploma of Engineering Science (Electrical Engineering)
- Master of Engineering Science (Systems and Control)
- Master of Engineering (Electrical Engineering).

MASTER OF ENGINEERING SCIENCE

THE DEGREE OF CHOICE FOR THE ENGINEERING PROFESSIONAL

The **Master of Engineering Science** program at UNSW Engineering is designed especially for graduate engineers seeking to develop or enhance their careers through cross-training, re-training and specialisation.

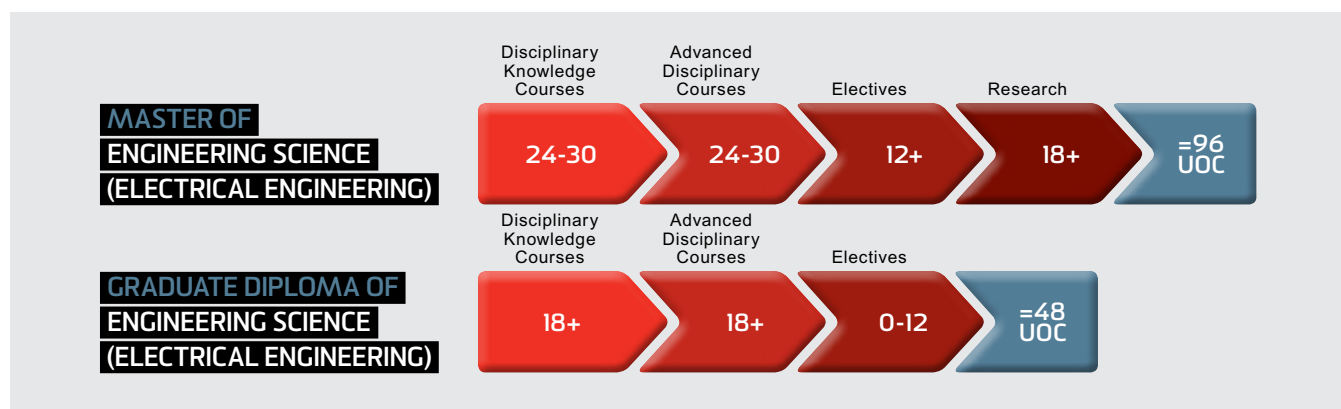
An extensive research component ensures every graduating student is armed with the practical and analytical skills only possible through this high standard of education. Qualified students can choose to enter at Masters level, but those who have less time (or who would like just a taste of postgraduate study) can begin with the Graduate Diploma.

PROGRAM OPTIONS	PROGRAM CODE	UNITS OF CREDIT	DURATION*	COMMENCE
Master of Engineering Science (Electrical Engineering)	ELECBS8338	96	2 years	Feb, Jul
Master of Engineering Science (Systems and Control)	ELECP8338	96	2 years	Feb, Jul
Graduate Diploma of Engineering Science (Electrical Engineering)	ELEQS5341	48	1 year	Feb, Jul

* Eligible students may apply for credit for up to eight courses (48 UOC) of the Master of Engineering Science or four courses (24 UOC) of Graduate Diploma programs depending on previous study and professional experience. This can reduce the time taken by up to a year.

TYPICAL PROGRAM STRUCTURE - ELECTRICAL ENGINEERING

The electrical engineering specialisation is designed especially for practising electrical engineers who wish to upgrade their skills and knowledge in engineering. Through elective choice, students can structure their program to provide a good depth in one area or take a multidisciplinary approach. Qualified students can choose to enter at Masters level, but those who have less time (or who would like just a taste of postgraduate study) can begin with the Graduate Diploma.



DISCIPLINARY KNOWLEDGE COURSES

Students can select from:

Microelectronics

- ELEC4601 Digital and Embedded Systems Design
- ELEC4602 Microelectronics Design and Tech
- ELEC4603 Solid State Electronics
- ELEC4604 RF Electronics.

Energy Systems

- ELEC4611 Power System Equipment
- ELEC4612 Power System Analysis
- ELEC4613 Electrical Drive Systems
- ELEC4614 Power Electronics.

Signal Processing

- ELEC4621 Advanced Digital Signal Processing
- ELEC4622 Multimedia Signal Processing.

Control Systems

- ELEC4631 Continuous-Time Control System Design
- ELEC4632 Computer Control Systems
- ELEC4633 Real-Time Engineering.

Telecommunications

- PHTN4661 Optical Circuits and Fibres
- TELE4642 Network Performance
- TELE4651 Wireless Communication Technology
- TELE4652 Mobile and Satellite Communications System.

ADVANCED DISCIPLINARY KNOWLEDGE COURSES

Students may choose from:

- ELEC4617 Power System Protection
- ELEC9701 Mixed Signal Microelectronics Design
- ELEC9702 Radio Frequency Integrated Circuits
- ELEC9703 Microsystems Design and Technology
- ELEC9704 VLSI Technology
- ELEC9705 Quantum Devices
- ELEC9711 Power Electronics for Renewable and Distributed Generation
- ELEC9712 High Voltage Systems
- ELEC9713 Industrial and Commercial Power Systems
- ELEC9714 Electricity Industry Planning
- ELEC9715 Electricity Industry Operation
- ELEC9716 Electrical Safety
- ELEC9721 Digital Signal Processing Theory and Applications
- ELEC9722 Digital Image Processing
- ELEC9723 Speech Processing
- ELEC9731 Robust and Linear Control Systems
- ELEC9732 Analysis and Design of Non-linear Control Systems
- ELEC9733 Real Time Computing and Control
- ELEC9781 Special Topics in Electrical Engineering 1
- ELEC9782 Special Topics in Electrical Engineering 2.

TYPICAL PROGRAM STRUCTURE - SYSTEMS AND CONTROL

The Systems and Control specialisation offers a broad range of theoretical and applications-based electives within the discipline of control systems engineering, including robust linear control, non-linear control systems, real-time computing and control, and computer vision.



DISCIPLINARY KNOWLEDGE COURSES

Students must take three Core courses:

- ELEC4631 Continuous-Time Control System Design
- ELEC4632 Computer Control Systems
- ELEC4633 Real-Time Engineering.

Plus choose one or two courses from:

- ELEC4601 Digital and Embedded Systems Design
- ELEC4602 Microelectronic Design and Tech
- ELEC4603 Solid State Electronics
- ELEC4604 RF Electronics
- ELEC4611 Power System Equipment
- ELEC4612 Power System Analysis
- ELEC4613 Electrical Drive Systems
- ELEC4614 Power Electronics
- ELEC4621 Advanced Digital Signal Processing
- ELEC4622 Multimedia Signal Processing
- PHTN4661 Optical Circuits and Fibres
- TELE4642 Network Performance
- TELE4651 Wireless Communication Technologies
- TELE4652 Mobile and Satellite Communication System.

ADVANCED DISCIPLINARY COURSES

Students must take three Core courses:

- ELEC9731 Robust and Linear Control Systems
- ELEC9732 Analysis and Design of Non-linear Systems
- ELEC9733 Real Computing and Control.

Plus choose one or two courses from:

- COMP9517 Computer Vision
- COMP9814 Artificial Intelligence
- ELEC9721 Digital Signal Processing Theory and Applications
- GSOE9141 Smart Grids and Distribution Networks.

ELECTIVES (BOTH SPECIALISATIONS)

At least one course (6 UOC) must be taken from the approved list of Engineering and Technical Management Courses. All other electives may be chosen from Disciplinary or Advanced Disciplinary Knowledge Courses from this specialisation or another specialisation within the Master of Engineering Science program as long as the student is eligible to enrol.

A full and current list of courses is available online in the UNSW Handbook.

RESEARCH (BOTH SPECIALISATIONS)

Students must complete a research component that gives them the opportunity to broaden their understanding of something that they are passionate about through practical application with the close support of a practicing engineering researcher.

- ELEC9771 Project Report A
- ELEC9772 Project Report B
- Plus GSOE9010 Engineering Postgraduate Coursework Research Essentials.

ENTRY REQUIREMENTS

Masters: Students need a recognised four year Bachelor degree in an appropriate area of engineering with Honours II/2 or equivalent. Relevant disciplines considered for entry include electrical engineering, as well as electrical engineering (for Systems and Control, or a mechatronic engineering degree including Control Systems).

Graduate Diploma: Students need a three or four year degree in electrical engineering or a related discipline of engineering or science plus relevant professional experience. The Graduate Diploma is a common pathway to the Masters.

EXEMPTIONS OR ADVANCED STANDING

Students may be granted credit for some courses. Those with a four year honours degree (for example in Electrical Engineering) can apply for credit for up to 48 UOC for the Masters (effectively reducing it to one year full time) or up to 24 UOC for the Graduate Diploma. Full details can be found on the program handbook page.

DELIVERY MODE

While face-to-face teaching is our strength, we have a strong focus on flexible teaching, such as open online lectures, with the use of cutting-edge educational technology developed in-house.

STUDENT TESTIMONIAL

"It was the global reputation of UNSW that first drew my attention to the Master of Engineering program. I was impressed by the flexibility of subject choices, plus the program offered a design course and industrial training which are both crucial for an engineer. UNSW Engineering has the best professors teaching this course and they offer continuous guidance to students. The splendid campus and facilities were just a bonus."

SHAH APURVA

**MASTER OF ENGINEERING
(ELECTRICAL ENGINEERING)**



MASTER OF ENGINEERING

STEP UP YOUR ENGINEERING KNOWLEDGE

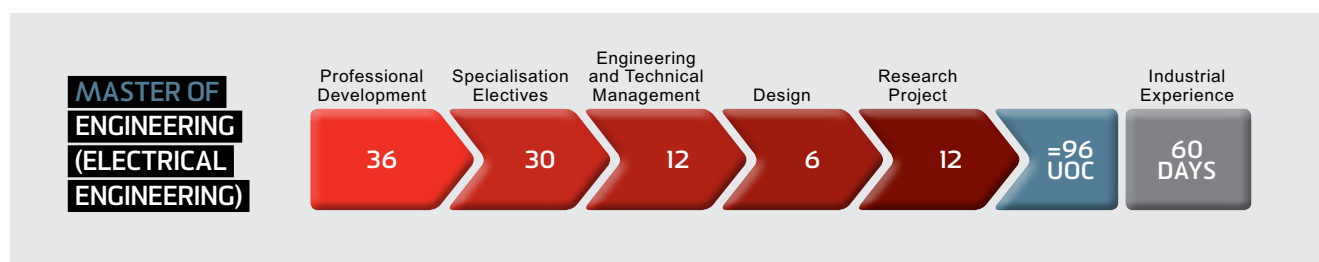
The **Master of Engineering** program provides a perfect avenue for those wanting to enter the engineering profession or for currently practicing engineers who wish to gain accreditation, expand their knowledge and skills in engineering management, acquire an in-depth knowledge of a particular discipline, gain technical confidence, or simply meet the continuing professional development standards.

PROGRAM OPTIONS	PROGRAM CODE	UNITS OF CREDIT	DURATION*	COMMENCE
Master of Engineering (Electrical Engineering)	ELECAS8621	96	2 years	Feb, Jul

*No advanced standing will be granted for the Master of Engineering.

TYPICAL PROGRAM STRUCTURE

Flexibility and choice are maintained throughout the program as many elective courses are offered. Students can specialise and gain depth of knowledge across a broad range of areas, including signal processing, energy systems, control systems, microsystems and photonics.



16 COURSES (96 UOC)

PROFESSIONAL DEVELOPMENT

Students choose six courses from a range of topics including Microelectronics, Energy Systems, Signal Processing, Control Systems and Engineering and Technical Management.

These include:

- ELEC4601 Digital and Embedded System Design
- ELEC4602 Microelectronic Design and Technology
- ELEC4603 Solid State Electronics
- ELEC4611 Power System Equipment
- ELEC4613 Electrical Drive Systems
- ELEC4614 Power Electronics
- ELEC4622 Multimedia Signal Processing
- ELEC4632 Computer Control Systems
- ELEC4633 Real-Time Engineering
- ELEC4445 Entrepreneurial Engineering.

SPECIALISATION ELECTIVES

Students choose five courses from a list including:

- ELEC9701 Mixed Signal Microelectrical Design
- ELEC9702 Radio Frequency Integrated Circuits
- ELEC9703 Microsystems Design and Technology
- ELEC9704 VLSI Technology
- ELEC9705 Quantum Devices
- ELEC9711 Advanced Power Electronics
- ELEC9712 High Voltage Systems
- ELEC9722 Digital Image Processing
- ELEC9723 Speech Processing
- ELEC9731 Robust and Linear Control Systems
- ELEC9732 Analysis and Design of Non Linear Control.

ENGINEERING AND TECHNICAL MANAGEMENT

Students choose two courses from:

- GSOE9420 Project Management
- GSOE9510 Ethics and Leadership in Engineering
- GSOE9747 Successful Innovation
- GSOE9820 Project Management.

DESIGN

- ELEC9123 Design Proficiency.

RESEARCH PROJECT

- ELECT9120 ME Project A
- ELECT9121 ME Project B.

+ 60 DAYS OF WORK EXPERIENCE

Students must also complete 60 days of Electrical Engineering related industrial experience.

ENTRY REQUIREMENTS

Entry is open to students with a four year non-accredited (under the Washington Accord) Bachelor of Engineering degree or equivalent. Alternatively, eligible applicants include those who hold a three year Engineering Science degree, at least equivalent to the first three years of a relevant Engineering degree accredited under the Washington Accord.

PROFESSIONAL RECOGNITION

The two year Masters of Engineering in Electrical Engineering has received professional accreditation by Engineers Australia.

WHY UNSW ENGINEERING?

UNSW Engineering is the largest Engineering Faculty in Australia. We continue to foster and develop elite-level engineers across a broad range of disciplines exposing them to world-class innovation, cutting-edge research and dedicated teaching staff. As such, we are recognised as Australia's top Engineering university.*

WHY NOT JOIN US?

- **Cutting-edge programs** – be inspired by our research-led, industry-relevant curriculum.
- **Real-world focus** – continually updated programs ensure graduates are armed with the very latest knowledge and techniques to be able to stand at the top of their field.
- **Flexibility** – programs can be tailored to suit your interests, entry points twice a year, out-of-hours classes and distance learning options.

TAKING THE NEXT STEP

HOW TO APPLY

To gain entry to UNSW you'll need to successfully meet both the academic entry requirements and the English language requirements. For assistance with the application process, contact a UNSW official representative at international.unsw.edu.au/contact-us

Apply online at apply.unsw.edu.au

The UNSW Apply Online service has quick links to key information for applicants, including the application tracking service which allows you to check the progress of your application.

Closing Dates

Semester One (February): Applications must be lodged by 30 November.

Semester Two (July): Applications must be lodged by 30 May.

Not all programs have a Semester Two start date.

Late applications

Late applications will be accepted after the closing dates subject to the availability of places. Please note that whilst UNSW endeavour to process applications as quickly as possible, due to time constraints it cannot be guaranteed that a late application will be processed in time for semester commencement.

International Students

Applications are made directly to UNSW Australia, via our Apply Online portal at apply.unsw.edu.au For more information on what you need and how to apply go to international.unsw.edu.au

Most international students will require a student visa to study in Australia (application and processing of this visa may take some time). More information can be found at international.unsw.edu.au/living-sydney/visas/

SCHOLARSHIPS

There are a number of scholarships available for eligible students. To find out more about available postgraduate scholarships, eligibility and application process go to scholarships.unsw.edu.au

FEES

A postgraduate coursework fee calculator for both domestic and international students can be found at apply.unsw.edu.au

ACCOMMODATION

UNSW offers a range of accommodation options, visit housing.unsw.edu.au for full details.

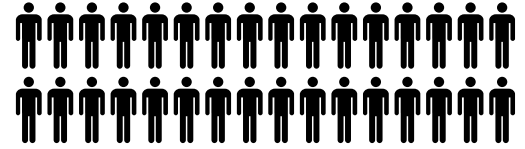
STUDENT LIFE

At UNSW there is an abundance of support available to students. To find out more about studying at UNSW, visit unsw.edu.au and search for Student Life.

* Shanghai Jiao Tong University's Academic Ranking of World Universities in Engineering/Technology and Computer Sciences 2014.



in Australia according to Shanghai Jiao Tong University's Academic Ranking of World Universities in Engineering/Technology and Computer Sciences 2014.



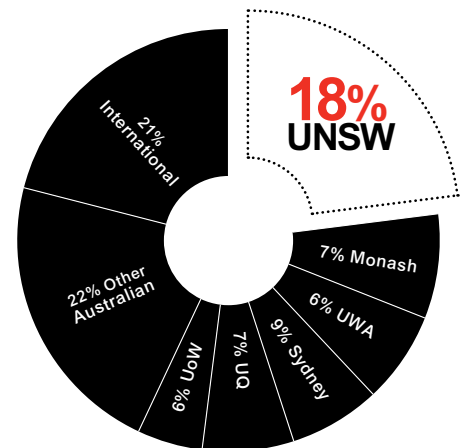
More technology entrepreneurs

than any other university in Australia.
(Crunchbase Report 2013)



QS World University Rankings by Subjects 2014

18th in Civil, 29th in Computing, 33rd in Electrical, 37th in Mechanical and 46th in Chemical.



18% of the **top 100** most influential engineers in Australia are UNSW Graduates*

*Engineers Australia Top 100 list in 2014

CONTACT US

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