Mechanical Engineering
Postgraduate coursework programs

Never Stand Still | Engineering | Mechanical and Manufacturing Engineering

YOUR FUTURE. YOUR CHOICE.

Mechanical engineering offers unique opportunities to combine various disciplines in an attempt to develop and improve products, processes and systems – thus changing the world for the better.

At UNSW Engineering we offer advanced training in mechanical engineering that provides students with the knowledge, tools and strategies required for designing engineering systems and managing the entire lifecycle of a product.

SCHOOL OF MECHANICAL AND MANUFACTURING ENGINEERING

For more than 60 years we have been a leading provider of Mechanical Engineering education in Australia, and today we are the largest Mechanical Engineering school in Australia with more than 1500 students. We offer a comprehensive range of mechanical engineering courses with a firm emphasis on conceptual and analytical topics plus a project-based component. Our flexible delivery methods are adaptable to busy professionals.

Students benefit from our strong connections with industry in education and research. And with our new state-of-the-art building well under construction, we will soon offer even better facilities including ultra-modern teaching labs and cutting-edge research facilities so the engineers of the future can collaborate, innovate and create like never before.

COURSEWORK PROGRAMS

- Master of Engineering Science (Mechanical Engineering)
- Graduate Diploma of Engineering Science (Mechanical Engineering)
- Master of Engineering (Mechanical 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.

Our courses are packed with stimulating and comprehensive content that will inspire you to learn more and stay connected to your exciting engineering future. An extensive research component ensures every graduating student is armed with advanced practical and analytical skills.

PROGRAM OPTIONS	PROGRAM CODE	UNITS OF CREDIT	DURATION*	COMMENCE
Master of Engineering Science (Mechanical Engineering)	MECHIS8338	96	2 years	Feb, Jul
Graduate Diploma of Engineering Science (Mechanical Engineering)	MECHZS5341	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.

TYPICAL PROGRAM STRUCTURE

This program covers the design, development, construction, operation and maintenance of machines, tools, plants and factories, including power generation, propulsion or manufacture of goods. It thoroughly covers essential topics, methodologies and manufacturing applications. 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 choose from:

- MECH4100 Mechanical Design 2
- MECH4320 Engineering Mechanics 3
- MECH4620 Computational Fluid Dynamics
- MECH4880 Refrigeration and Air Conditioning
- MECH4900 Mechanics of Fracture and Fatigue
- MMAN4410 Finite Element Methods
- MMAN4400 Engineering Management.

ADVANCED DISCIPLINARY KNOWLEDGE COURSES

Students can choose from:

- MANF9543 Computer Aided Design / Computer Aided Manufacture
- MECH9325 Fundamentals of Acoustics and Noise
- MECH9420 Composite Materials and Mechanics
- MECH9650 Introduction to Micro Electromechanical Systems
- MECH9720 Solar Thermal Energy Design
- MECH9761 Automobile Engine Technology
- MTRN9211 Modelling and Control of Mechatronic Systems.

ELECTIVES

Students must include at least one of the Engineering and Technical Management courses from the following list:

- GSOE9340 Life Cycle Engineering
- GSOE9810 Process and Product Quality in Engineering
- GSOE9820 Engineering Project Management
- GSOE9830 Economic Decision Analysis in Engineering
- GSOE9840 Process Improvement and Maintenance Engineering.

Students may choose the remainder of the electives from the Advanced Disciplinary Knowledge Courses listed here, from the Engineering and Technical Management courses and from the list of approved courses from other schools as long as the student is eligible to enrol.

Please note that not all of these courses will be available in each semester. A full and current list of courses is available online in the UNSW Handbook.

RESEARCH

Students must complete a research component of 18 UOC, giving them the opportunity to broaden their understanding of something that they are passionate about through practical application with the close support of a supervisor. Both Masters and Graduate Diploma students are required to take a 6 UOC postgraduate coursework research essentials course.

- GSOE9010 Engineering Postgraduate Coursework Research Essentials
- MMAN9001 MEngSc Project A
- MMAN9002 MEngSc Project B.

ENTRY REQUIREMENTS

Masters: Students need a recognised four year Bachelor degree in an appropriate area of engineering with at least Honours II/2 or equivalent.
Graduate Diploma: Students need a three or four year degree in a relevant discipline of engineering or science plus relevant professional experience. The Graduate Diploma is a common pathway to the Master of Engineering Sciences.

EXEMPTIONS OR ADVANCED STANDING

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

STUDENT TESTIMONIAL

"The Master of Engineering Science offers both a consistent personal challenge (and fulfilment) and a high degree of professional development. The courses are taught by highly trained and motivated staff, and the program encourages independent thinking which has been a considerable asset in furthering my career. During the program, UNSW organised a number of career expos and seminars, plus the lecturers invited a number of industry professionals to speak to us throughout the program. This gave me the chance to provide my resume to a practising engineering professional and led directly to my first part-time job in the field."

DAIPEI LIU
MASTER OF ENGINEERING SCIENCE (MECHANICAL ENGINEERING)

MASTER OF ENGINEERING

STEP UP YOUR ENGINEERING KNOWLEDGE

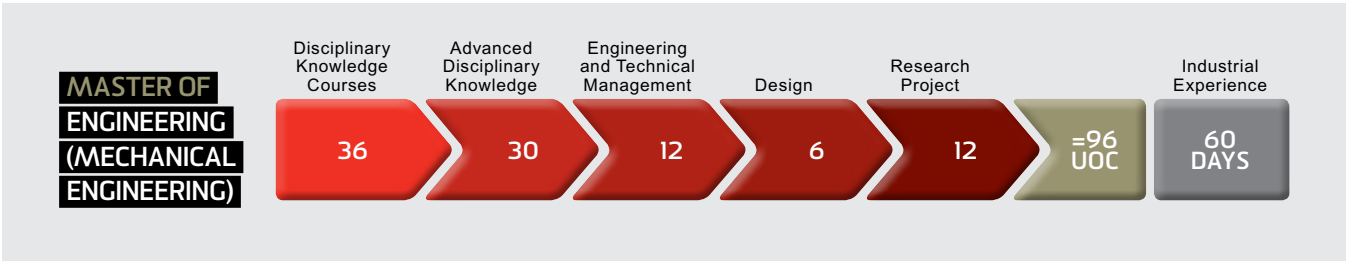
The **Master of Engineering program** provides a perfect avenue for those wanting to enter the engineering profession or for currently practicing engineers who wish to gain accreditation, expand their knowledge and skills in engineering management, acquire an in-depth knowledge of a particular discipline,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

PROGRAM OPTIONS	PROGRAM CODE	UNITS OF CREDIT	DURATION*	COMMENCE
Master of Engineering (Mechanical Engineering)	MECHBS8621	96	2 years	Feb, Jul

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

TYPICAL PROGRAM STRUCTURE

This two year Masters degree is especially designed for students who wish to increase their knowledge and skills in mechanical engineering but who may not qualify for entry to the Master of Engineering Science. 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 mechanical design, mechanics, fluid dynamics, refrigeration and air-conditioning, composite materials, solar thermal energy and more. This program is the perfect entry point for those who wish to move into the engineering profession.



Students are required to complete at least 96 UOC in a range of specialised mechanical engineering topics and engineering management courses. A compulsory design course and research project plus 60 days of industrial experience results in students having a firm grasp of all aspects of mechanical engineering upon graduation.

16 COURSES (96 UOC)

YEAR 1

ADVANCED COURSE IN MECHANICAL DESIGN

- MECH4100 Mechanical Design 2.

DISCIPLINARY KNOWLEDGE COURSES

Students can choose from:

- MECH4320 Engineering Mechanics 3
- MECH4620 Computational Fluid Dynamics
- MECH4880 Refrigeration and Air Conditioning
- MECH4900 Mechanics of Fracture and Fatigue
- MMAN4410 Finite Element Methods
- MMAN4400 Engineering Management.

ADVANCED DISCIPLINARY KNOWLEDGE COURSES

Students can choose from:

- MANF9543 Computer Aided Design / Computer Aided Manufacture
- MECH9325 Fundamentals of Acoustics and Noise
- MECH9420 Composite Materials and Mechanics
- MECH9650 Introduction to Micro Electromechanical Systems
- MECH9720 Solar Thermal Energy Design
- MECH9761 Automobile Engine Technology
- MTRN9211 Modelling and Control of Mechatronic Systems.

YEAR 2

RESEARCH-RELATED COURSES

- MECH9011 ME Project A (6 UOC)
- MECH9012 ME Project B (6 UOC).

* Please note that not all of these courses will be available in each semester. A full and current list of courses is available online in the UNSW Handbook

PROGRAM STRUCTURE CONTINUED

ENGINEERING AND TECHNICAL MANAGEMENT COURSES

Students must include at least two Engineering and Technical Management courses from:

- GSOE9340 Life Cycle Engineering
- GSOE9810 Process and Product Quality in Engineering
- GSOE9820 Engineering Project Management
- GSOE9830 Economic Decision Analysis in Engineering
- GSOE9840 Process Improvement and Maintenance Engineering.

ADVANCED DISCIPLINARY KNOWLEDGE COURSES

Students can choose from:

- MANF9543 Computer Aided Design / Computer Aided Manufacture
- MECH9325 Fundamentals of Acoustics and Noise
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- MECH9650 Introduction to Micro Electromechanical Systems
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- MTRN9211 Modelling and Control of Mechatronic Systems.

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+ 60 DAYS OF WORK EXPERIENCE

Students must complete ***60 days of Mechanical 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 3 year Engineering Science degree, at least equivalent to the first three years of a relevant engineering degree accredited under the Washington Accord.

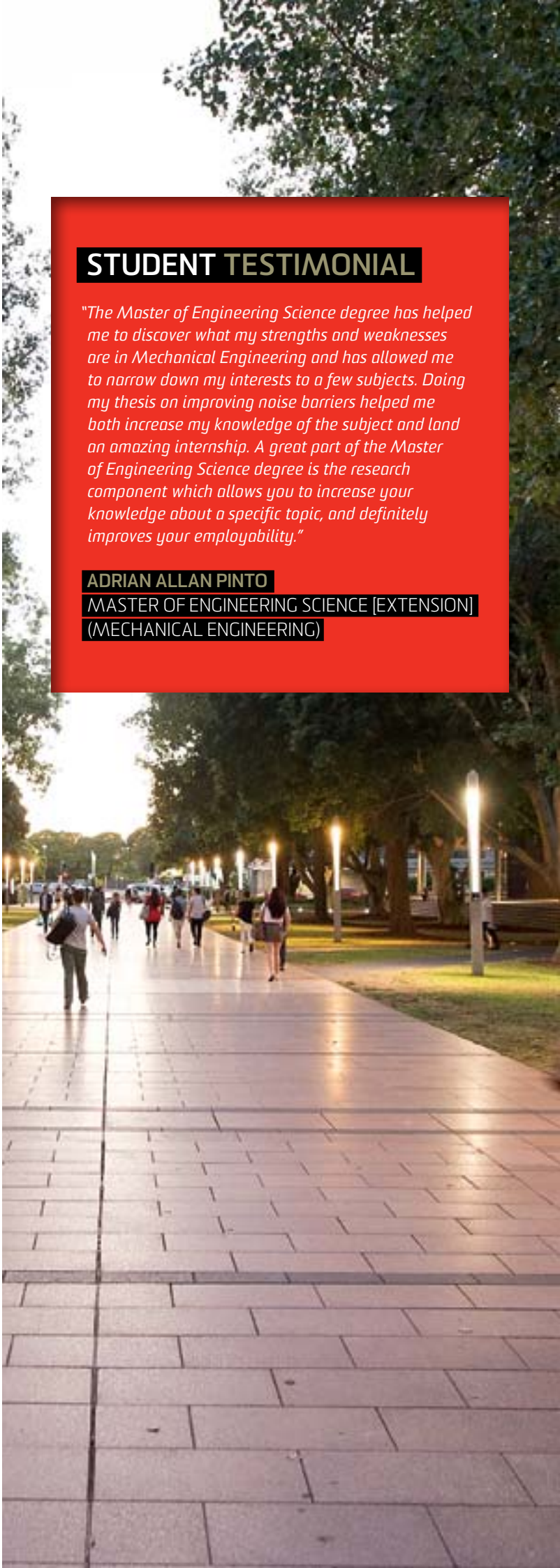
PROFESSIONAL RECOGNITION

The Master of Engineering in Mechanical Engineering is currently awaiting provisional professional accreditation by Engineers Australia.

STUDENT TESTIMONIAL

"The Master of Engineering Science degree has helped me to discover what my strengths and weaknesses are in Mechanical Engineering and has allowed me to narrow down my interests to a few subjects. Doing my thesis on improving noise barriers helped me both increase my knowledge of the subject and land an amazing internship. A great part of the Master of Engineering Science degree is the research component which allows you to increase your knowledge about a specific topic, and definitely improves your employability."

ADRIAN ALLAN PINTO
MASTER OF ENGINEERING SCIENCE [EXTENSION] (MECHANICAL ENGINEERING)



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 and out-of-hours classes.

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.

CRICOS Provider Code: NSW 00098G

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

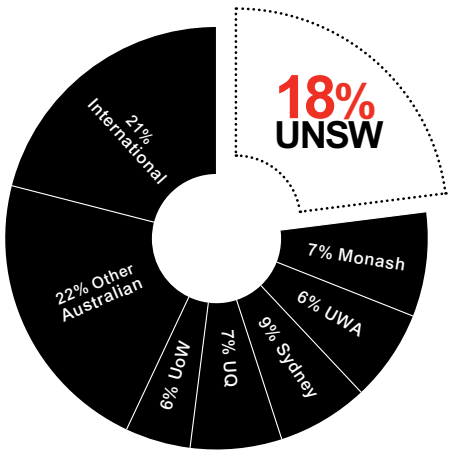
More technology entrepreneurs

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

School of Mechanical and Manufacturing Engineering
Faculty of Engineering, UNSW Australia

T: +61 (2) 9385 4093
E: mech@unsw.edu.au
W: mech.unsw.edu.au