

Bachelor of Engineering (Mechanical and Sustainable Systems)

Open Day will be held on Sunday 15 August 2010, City West campus. Visit unisa.edu.au/openday

Information Sessions will be held at the **Careers Festival**, Sunday 29 August 2010, Mawson Lakes campus.

To register, visit unisa.edu.au/infosessions

Drop-In Times will be available from 6-10 December 2010, from 9.00am – 7.00pm at Campus Central, Mawson Lakes campus.

An additional **Information Session** will be held on Wednesday 15 December, 2010, at 6.30pm, Mawson Lakes campus. To register visit unisa.edu.au/infosessions

SATAC code	434771
UniSA program code	LBMR
CRICOS code (international students only)	063514G
TER (February 2010 cut-off)	81.95
Program length	4 years
Prerequisites	SACE Stage 2 Mathematical Studies
Assumed knowledge	SACE Stage 2 Physics
Home campus	Mawson Lakes
Accepts Special Entry (STAT)	Yes
External study available	No
Part-time study available	Yes
TAFE credit available	Yes
Honours study available	Yes
Program fees	Commonwealth supported
Program fees (international students only)	(A\$) \$23,500 per annum
Scholarships available	unisa.edu.au/scholarship

Program overview

This program prepares students for careers in developing and maintaining sustainable systems in mechanical engineering applications and combines strong theoretical and practical content while maintaining an industry focus. Students develop the skills to find environmentally sustainable solutions to engineering problems utilising both engineering theory and practical exposure gained throughout the program.

In their final year, students have the opportunity to undertake an industry based research project with UniSA's Institute for Sustainable Systems and Technologies.

Accelerated three-year Engineering program

It is possible to complete this program in less than four years by undertaking courses offered during study period breaks. This accelerated option will be offered by the Program Director to students who achieve outstanding grades in the first year.

What will I study?

In the first year, all Engineering students study eight core engineering courses, including Engineering Design and Innovation, Mathematical Methods for Engineers 1 and 2, Mechanics and Physics, Computer Techniques, Sustainable Engineering Practice

and Electrical and Energy Systems. These courses provide a practice-centred foundation to engineering that exposes students to the breadth of cross-disciplinary studies as well as how engineering is applied in industry.

Students undertake a number of hands-on engineering projects including participation in the Engineers Without Borders Challenge. By the end of first year, students can choose an area of interest to specialise in. In following years, students select courses in the areas of energy, fluids, design, mechanics, materials, processes and engineering modelling. Specialised final-year courses provide innovative topics in sustainable systems engineering such as vehicle emission control, energy management for sustainability and sustainable energy system design.

The final-year project offers the choice of a range of industry-based projects in the sustainable systems and technologies areas or a School-based project. All students in the program undertake 12 weeks of compulsory industrial experience during their study. This experience is highly regarded by students and prospective employers.

Students have the opportunity to apply and integrate the knowledge and skills they have gained during their program in an industry setting. Industry experience also helps students to determine their engineering career pathway as they are able to experience particular sectors prior to graduation.

UniSA, in association with industry partners and sponsors, offers many prizes and awards for students at various levels of study (for more information visit unisa.edu.au/ame/prizes).

Students who graduate from this degree are able to apply for entry into the Master of Engineering (LMEN), and receive credit for four courses completed in the undergraduate degree. Hence it is possible to gain a bachelor and master degree in five years of full-time study.

What does it take?

Students should have an inquiring mind with good verbal and written communication skills. The ability to design, innovate, communicate, identify and solve problems is necessary, and competence in mathematics and physics is essential. Students should have an interest in science as well as social, management and environmental sustainability issues.

Who will employ me?

With current attention to climate change and the need to provide sustainable energy and sustainable resources, Mechanical and Sustainable Systems Engineering graduates will find work locally and internationally in the conventional and sustainable energy industry (electricity, gas, solar, wind, geothermal), environmental, energy, building and mechanical services management, transport, consulting, automotive, mining and manufacturing industries.

Professional recognition

The program is professionally accredited by Engineers Australia and is recognised as satisfying the requirements for graduate membership of Engineers Australia and comparable international institutions through the Washington Accord.

For further information on these organisations visit washingtonaccord.org and engineersaustralia.org.au

Honours

Students achieving a credit level average at the end of third year will be allowed to enrol in honours courses in fourth year. Successful completion of the program and the honours project courses may lead to the award of a degree with honours.

Program requirements

FIRST YEAR

Computer Techniques
Engineering Materials
Mathematical Methods for Engineers 1
Sustainable Engineering Practice
Electrical and Energy Systems
Engineering Design and Innovation
Mathematical Methods for Engineers 2
Mechanics and Physics

SECOND YEAR

Mechanics and Structures
Engineering Modelling
Manufacturing Practice
Mechanical Engineering Practice N
Mechanics of Machines
Mechanical Design Practice
Fluid and Energy Engineering
Elective
Industrial Experience

THIRD YEAR

Design for Manufacture and Assembly
Energy Conversion and Management
Project Planning and Control
Computer Aided Engineering Practice
Design in Plastics and Advanced Composites
Engineering Maintenance
Operations Management for Engineers
Fluid and Energy Management Practice
Students are required to select a plan specialisation aligned with their project

FOURTH YEAR

Vehicle Emission, Control and Strategy
Energy and Society
Mechanical Engineering Project 1
Sustainable Development and Design Practice
Sustainable Energy
System Design
Mechanical Engineering Project 2

FOURTH YEAR (HONOURS)

Vehicle Emission, Control and Strategy
Energy and Society
Mechanical Engineering Project 1
Sustainable Development and Design Practice
Sustainable Energy
System Design
Mechanical Engineering Honours Project



Clive Silva

Senior Engineer, Aurecon

'As consulting engineers, Connell Wagner undertakes a range of projects that are as varied as they are challenging and exciting. Our Mechanical Engineers graduates utilise their skills and abilities developed through their degree and are encouraged to find innovative ways to solve the challenges put forward to us by our clients. Connell Wagner are committed to sustainable design principles and Mechanical and Sustainable Systems graduates will have rewarding and challenging careers as they will be at the forefront of developing solutions to environmental and suitability issues across many industries. If Connell Wagner's interest in suitably qualified mechanical engineers, such as those who have completed this degree, is any indication of the industry as a whole, these graduates