

# Bachelor of Engineering (Mechanical)

**Open Day** will be held on Sunday 15 August 2010, City West campus. Visit [unisa.edu.au/openday](http://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](http://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](http://unisa.edu.au/infosessions)

SATAC code	434321
UniSA program code	LBMR
CRICOS code (international students only)	056093E
TER (February 2010 cut-off)	70.05
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	<a href="http://unisa.edu.au/scholarship">unisa.edu.au/scholarship</a>

## Program overview

This degree combines a strong theoretical foundation with significant practical exposure, a combination that is highly sought by today's employers. This applied approach provides students with the ability to find practical solutions to engineering problems and projects.

Academic staff in the School of Advanced Manufacturing and Mechanical Engineering have close ties with a cross section of industry, and extensive research experience. Students learn about the latest developments in machinery design, manufacturing technologies, and sustainable energy usage and management.

Students may choose, as a final year project, to build and race a Formula race car, design the next generation solar commuter car, undertake a project with one of UniSA's research centres or work on an industry project with one of UniSA's industry partners.

## 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?

The degree focuses on finding real solutions to engineering problems utilising both engineering theory and practical exposure gained throughout the program.

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.

Students then select courses in the areas of design, mechanics, materials, energy, fluids, processes and engineering modelling. Specialised courses in the final year provide advanced and innovative topics in mechanical engineering such as vehicle emission control, mechanical system design, quality management and machine vision.

The final-year project offers the choice of a range of industry-based projects or one of the many special School projects such as the development of the Society of Automotive Engineers Australasia (SAE-A) Formula Car or the solar commuter vehicle.

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, recognises many deserving students with prizes and awards at various levels of study (for more information visit [unisa.edu.au/ame/prizes](http://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?

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

### Who will employ me?

Mechanical Engineering graduates find work locally and internationally in the mining, defence, manufacturing, ship building, environmental, engineering consulting, building services, automotive, petrochemical, and other industries. Many graduates receive multiple job offers and are able to choose their employer or the industry in which they wish to work.

South Australian companies that have employed recent graduates include ASC, Orlando Wyndham Group, Holden, Origin Energy, Caroma, WMC (Olympic Dam), Aurecon, Bridgestone, Transport SA and SA Water.

### 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](http://washingtonaccord.org) and [engineersaustralia.org.au](http://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

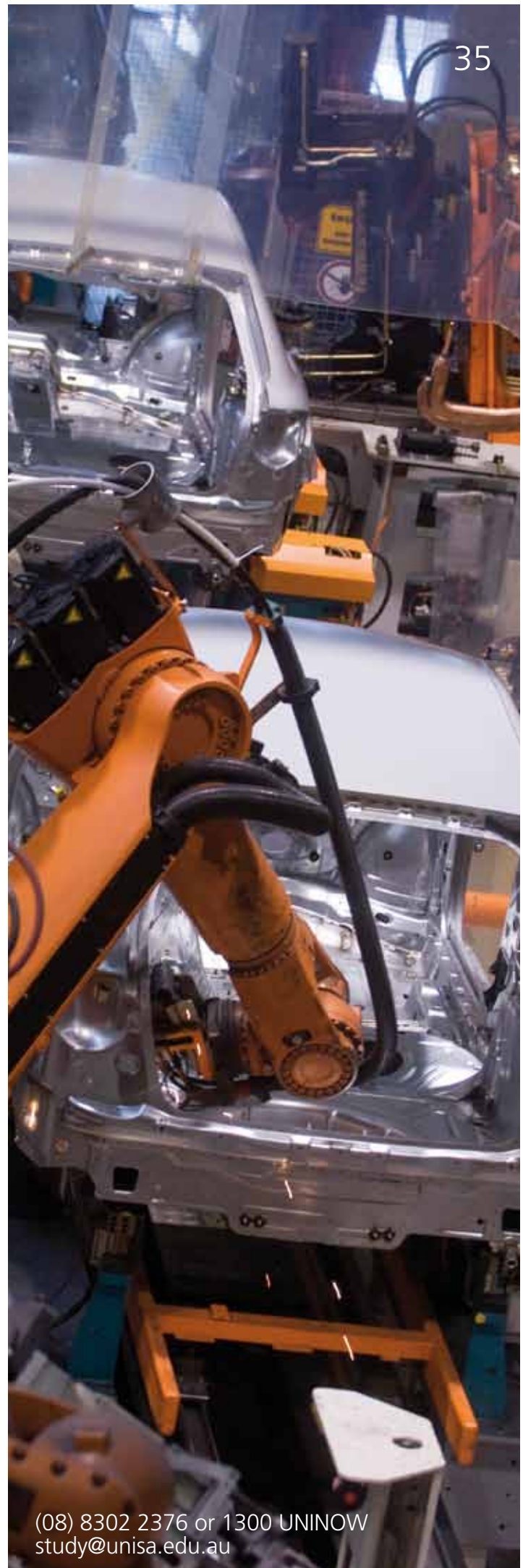
#### FOURTH YEAR

Vehicle Emission, Control and Strategy  
Intelligent Manufacturing Systems  
Mechanical Engineering Project 1  
Sustainable Development and Design Practice  
Mechanical Systems Design  
Mechanical Engineering Project 2

#### FOURTH YEAR (HONOURS)

Vehicle Emission, Control and Strategy  
Intelligent Manufacturing Systems  
Mechanical Engineering Project 1  
Sustainable Development and Design Practice  
Mechanical Systems Design  
Mechanical Engineering Honours Project

Robotics automation in automotive manufacturing.



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