

Bachelor of Engineering (Mechanical), Bachelor of Information Technology

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	434271
UniSA program code	LBRC
CRICOS code (international students only)	036329M
TER (February 2010 cut-off)	87.95
Program length	5 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 double degree is unique as the courses offered within the program provide students with an enhanced understanding and application of engineering principles in conjunction with theoretical and practical knowledge and skills about computers and information technology. Graduates gain two separate degrees by studying only one year more than it takes to gain the single degree of Bachelor of Engineering (Mechanical Engineering). Students have the flexibility to select specialised engineering courses depending on specific areas of interest.

The program has a strong practical and industry focus and students have access to the latest developments in the areas of mechanical plant design, advanced manufacturing technologies and sustainable energy usage and management. With skills in both engineering and information technology, graduates are well prepared for careers in mechanical, manufacturing, defence, building and mechanical services, information services, computing or software development.

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.

This program has been designed to provide complementary education in computer and information science and mechanical engineering. The engineering studies over the five years of the program focus on engineering concepts, computing, problem solving and communication along with advanced studies in mechanical and manufacturing engineering through areas such as machine design, fluid mechanics, manufacturing processes, sustainable design and advanced composites. Specialist final-year courses are offered in advanced manufacturing, sustainable systems, applied mechatronics and nanotechnology.

The Information Technology program complements the engineering component of the degree, with studies in computer system architecture, database technology, networking and internet technology and object-oriented system development.

During final year, students complete a research or industry-based engineering project, enabling them to apply the range of skills learned throughout the program in a professional environment. 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).

What does it take?

Students undertaking this degree 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, information technology and social, administrative and management issues.

Who will employ me?

A multi-skilled employee is a valuable asset and graduates who can apply abilities across different fields are highly sought by industry.

This degree prepares graduates for careers as professional engineers in the mechanical, manufacturing or information services industries, readying them for the application of skills and knowledge in mechanical engineering, manufacturing systems, computing, software development, information services industries, or within government organisations.

Graduates could apply their computer science background to computer systems processes and procedures in the mechanical and manufacturing sector. Previous graduates of this degree have found employment with Connell Wagner; ASC; Southcorp; Mobil Oil Australia; Bridgestone Australia; and Seeley International.

Professional recognition

The program is professionally accredited by Engineers Australia and comparable international institutions through the Washington Accord.

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

The Bachelor of Engineering component of the double degree is recognised as satisfying the requirements for graduate membership of Engineers Australia. The successful completion of the Bachelor of Information Technology degree qualifies graduates for membership of the Australian Computer Society.

Honours

Students achieving a credit level average at the end of the Fourth Year will be invited to enrol in the engineering honours project in their final year. Successful completion of the program and the honours project may lead to the award of the Bachelor of Engineering with Honours. Honours in Information Technology is available as a one year full-time (or part-time equivalent) program on completion of the Bachelor of Information Technology.

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
Problem Solving and Programming
Information Technology Fundamentals
Mechanical Engineering Practice N
Programming Fundamentals
Web and Database Development

THIRD YEAR

Data Structures
Systems Analysis, Design and Project Management
Network Fundamentals
Mechanics of Machines
Fluid and Energy Engineering
User Interfaces
Web Engineering

FOURTH YEAR

Manufacturing Practice
Design for Manufacture and Assembly
Professional Enrichment Elective
Network Fundamentals
Mechanical Design Practice
Information Technology Strategy and Management
ICT Project

FIFTH YEAR

Energy Conversion and Management
Computer Aided Engineering Practice
Engineering Elective 1
Engineering Elective 2
Industrial Experience
Engineering Elective 3
Engineering Elective 4

Mechanical Engineering Project 1

FIFTH YEAR WITH HONOURS

Energy Conversion and Management
Computer Aided Engineering Practice
Engineering Elective 1
Engineering Elective 2
Industrial Experience
Engineering Elective 3
Engineering Elective 4
Mechanical Engineering Honours Project

Engineering Electives

Vehicle Emission, Control and Strategy
Machine Vision Systems
Mechatronics 1
Robotics and Automation
Energy Management for Sustainability
Sustainable Energy System Design
Nanomaterials and Fabrication
Mechanical Systems Design
Nanocomposites and Practice
Design in Plastics and Advanced Composites
Fluid and Energy Management Practice
Sustainable Development and Design Practice

Total Quality Management
Engineering Maintenance
Project Planning and Control
Supply Chain Management G
Intelligent Manufacturing Systems
Industrial Actuation and Automation
Operations Management for Engineers