WHY STUDY AT ADELAIDE?

The University of Adelaide has been teaching engineering since 1946. The balance of theoretical and practical skills that has been established over time has helped the university to be placed in the top six Australian universities in a recent Government Quality Audit. Modern teaching facilities enable students to extend themselves intellectually while introducing them to programs and equipment they are likely to use in their working life. Australia's only astronaut is a graduate of the School of Mechanical Engineering at the University of Adelaide. Engineering is taught at the University's North Terrace campus in the heart of Adelaide. It is close to transport, entertainment and shopping as well as Adelaide's sporting and cultural attractions. The university provides a number of student services including counselling, careers advice, an employment service, and student housing and loans. There are also a large number of clubs available to complement your studies.

FOR FURTHER INFORMATION

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THE UNIVERSITY OF ADELAIDE AUSTRALIA

THE SIR ROSS & SIR KEITH SMITH FUND

WHAT IS ENGINEERING?

Engineering is the application of science in the real world. Engineers require a good knowledge of science, and skills to apply that knowledge to real world problems. Scientists learn about the world as we know it; engineers create and shape our future.

WHAT IS AEROSPACE ENGINEERING?

Aerospace Engineering is a specialised branch of Mechanical Engineering. It is concerned with the design, construction, production and maintenance of vehicles and objects intended for use in and beyond the atmosphere. Aerospace Engineering is a growing field with applications in areas as diverse as aircraft, satellites, rockets, space stations and hot air balloons.

THE UNIVERSITY OF ADELAIDE AUSTRALIA

AEROSPACE ENGINEERING

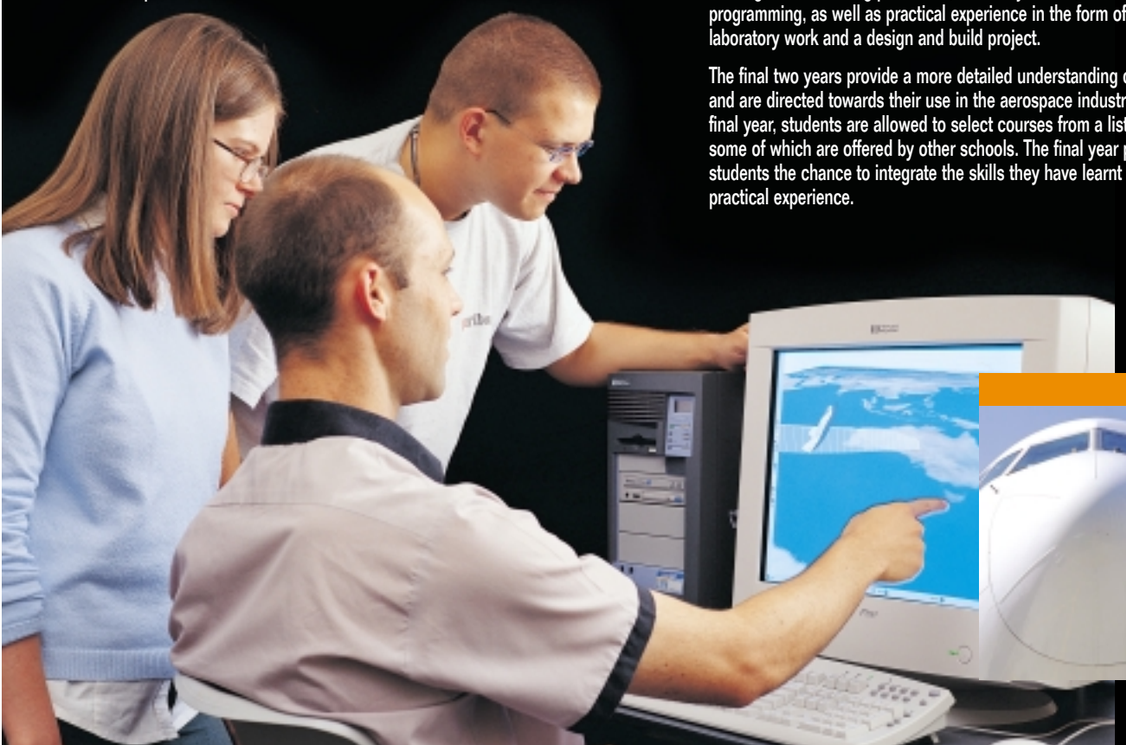
SCHOOL OF MECHANICAL ENGINEERING

WHAT DO AEROSPACE ENGINEERS DO?

Aerospace engineers address problems specific to the aerospace industry. These problems relate to how a vehicle moves, how high and how fast it can travel, how it holds together under the forces it experiences and how it is kept on course. Aerospace engineers analyse and solve these problems using their knowledge of mechanics and dynamics, materials and joining methods, thermodynamics, heat transfer, vibrations, guidance, control and modelling techniques.

The three main areas in which aerospace engineers work are: design and manufacture; research and development; and airworthiness operations. Within these areas aerospace engineers may use their skills to:

- Investigate faulty engines or other components
- Test new materials, engines, body shapes and structures that may improve the performance of vehicles
- Design and develop guidance, control and propulsion systems
- Develop repair systems
- Develop improved air conditioning or fuel systems
- Estimate performance of entire vehicles and analyse test flight data
- Design aircraft components and systems
- Analyse component or system failure
- Prepare technical or commercial information



WHERE CAN YOU WORK?

Aerospace engineers can find work in:

- Government aerospace laboratories or research centres
- Airline maintenance and operations
- Satellite operations
- Defence - aircraft, unmanned aerial vehicles (UAV), rockets etc.
- Aerospace design and manufacture in general

In addition, Aerospace engineers, having been provided with a sound Mechanical Engineering knowledge base, may also find employment in all areas of Mechanical Engineering such as the automotive industry, or in other industries where they may work in energy production and conservation, lightweight materials or new manufacturing technologies.

PROGRAM STRUCTURE

Aerospace Engineering at the University of Adelaide is a four-year degree. The first two years of Aerospace Engineering are identical to those of Mechanical Engineering. They include mathematics and physics and introduce design, stress analysis, dynamics, fluid mechanics, electronics, electrical systems, materials, computer aided drafting, manufacturing processes, thermodynamics, control and programming, as well as practical experience in the form of hands-on laboratory work and a design and build project.

The final two years provide a more detailed understanding of these skills and are directed towards their use in the aerospace industry. In their final year, students are allowed to select courses from a list of electives, some of which are offered by other schools. The final year project gives students the chance to integrate the skills they have learnt and to obtain practical experience.

Subject Areas

Mathematics
Physics
Statics and dynamics
Fluid mechanics
Heat transfer
Thermodynamics
Material science and selection
Stress analysis and design
Vibrations and control
Programming and use of computer packages
Management
Computational and experimental techniques
Aerospace specific knowledge such as:

- Astrophysics
- Space science
- Aerospace propulsion
- Aerospace materials and structures
- Navigation and guidance
- Orbital dynamics
- Hypersonic aerodynamics and re-entry phenomena
- Space vehicle design

PRE-REQUISITES

Aerospace Engineering requires both an interest in and a good grasp of mathematics and physics. These subjects form a basis of understanding from which other subjects are developed. This strong fundamental understanding allows graduates from the aerospace degree to find new and innovative solutions to problems encountered in the field as well as to implement current aerospace technology.

Thus, as well as satisfying the entry requirements in terms of subject choices and TER, students must have:

- An ability and interest in mathematics and physics
- An inquisitive mind
- Determination to succeed and a will to continue self-education
- A desire to exercise creativity in design and to put their knowledge to practical use