

UTS: SCIENCE & ENGINEERING

BACHELOR OF SCIENCE, BACHELOR OF ENGINEERING
UAI 2007 – 85.00

WHY SCIENCE & ENGINEERING?

The aim of this combined degree program is to produce graduates with professional qualifications in both science and engineering. These graduates will be well prepared and ready to pursue a career in either field or one that combines the skills of both. Students who have keen interest in careers with strong research and innovation components will be well suited in this program.

WHAT WILL I LEARN?

This flexible double degree program combines the study of science and engineering. Students are able to decide on both their Science and Engineering majors thus giving them the flexibility and choice to decide on their own career path and interest. Moreover, students have a wide range of majors for them to choose from.

SCIENCE MAJORS

- Mathematics
- Applied Physics
- Nanotechnology
- Applied Chemistry
- Environmental Science
- Biomedical Science
- Biotechnology
- Medical Science

ENGINEERING MAJORS

- Civil
- Civil and Environmental
- Computer Systems
- Construction
- Electrical
- Mechanical
- Mechanical and Mechatronics
- Software
- Telecommunications

Students are required to complete 96 credit points of Science subjects and 162 credit points of Engineering subjects comprising Core, Field of Practice and Capstone subjects.

This program is recognised and accredited by the Institution of Engineers, Australia.

CAREER OPTIONS

Students can choose a career in scientific research useful to engineering

practice, or a career in engineering practice itself. Graduates will find employment in areas such as environmental protection, biotechnology, medical engineering, energy and resource exploration, communication, transportation, nanotechnology and materials technology.

Depending on the science and engineering disciplines chosen, graduates could find themselves working in medical technology and instrumentation, biotechnology, environmental protection and management, energy and resource exploration and development, communication, mathematical modelling, transportation, construction, nanotechnology and materials technology.

FULL-TIME PROGRAM

(Example shows Electrical and Environmental Science majors program)

YEAR 1

AUTUMN SEMESTER

| | |
|---------------------------------|-----|
| Mathematical Modelling 1 | 6cp |
| Physical Modelling | 6cp |
| Intro to Electrical Engineering | 6cp |
| The Biosphere | 6cp |

SPRING SEMESTER

| | |
|-----------------------------|-----|
| Mathematical Modelling 2 | 6cp |
| Object-oriented Programming | 6cp |
| Electronics and Circuits | 6cp |
| Biocomplexity | 6cp |

YEAR 2

AUTUMN SEMESTER

| | |
|------------------------------|-----|
| Engineering Communication | 6cp |
| Intro Mech & Mechatronic Eng | 6cp |
| Introductory Digital Systems | 6cp |
| Chemistry 1 | 6cp |

SPRING SEMESTER

| | |
|--------------------------------|-----|
| Design Fundamentals | 6cp |
| Circuit Analysis | 6cp |
| Advanced Mathematics & Physics | 6cp |
| Embedded C | 6cp |

YEAR 3

AUTUMN SEMESTER

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|--------------------------------|-----|
| Electromechanical Systems | 6cp |
| Ecology | 6cp |
| Experimental Design & Sampling | 6cp |
| Geological Processes | 6cp |

SPRING SEMESTER

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|---------------------------------|-----|
| Signals and Systems | 6cp |
| Engineering Economics & Finance | 6cp |
| Advanced Digital Systems | 6cp |

One of :

| | |
|-------------------------|-----|
| Environmental Forensics | 6cp |
| Marine Communities | 6cp |

YEAR 4

AUTUMN SEMESTER

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|-----------------------------------|-----|
| Engineering Project Management | 6cp |
| Data Acquisition and Distribution | 6cp |
| GIS and Remote Sensing | 6cp |

One of :

| | |
|-------------------------|-----|
| Biodiversity Assessment | 6cp |
| Marine Geosciences | 6cp |

SPRING SEMESTER

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|---------------------------------|-----|
| Electrical Energy Technology | 6cp |
| Advanced Electronics | 6cp |
| Environ Protection & Management | 6cp |

One of :

| | |
|-----------------------------|-----|
| Advances in Ecology | 6cp |
| Semi Arid Ecology | 6cp |
| Forest and Mountain Ecology | 6cp |

YEAR 5

AUTUMN SEMESTER

| | |
|--------------------------|-----|
| Embedded Systems | 6cp |
| Interrogating Technology | 6cp |
| Capstone Project Part A | 6cp |
| Aquatic Ecology | 6cp |

SPRING SEMESTER

| | |
|------------------------------|-----|
| Analogue and Digital Control | 6cp |
| Engineering Enterprise | 6cp |
| Capstone Project Part B | 6cp |
| Stream & Lake Assessment | 6cp |

COURSE CODES

UTS course code: C10073
 UAC code: 609360
 Duration: 5 years Full-Time, 10 years P/T
 Location: City campus
 Assumed Knowledge: HSC Mathematics Extension 1, Physics and English.

Need to know MORE??

For enquiries regarding the engineering component, majors and study programs, contact the Faculty of Engineering at phone no. (02) 9514 2666.

For enquiries regarding the Science majors please contact

Course Director
 A/Prof Kenneth Brown
 Faculty of Science
 Phone (02) 9514 4042
 Fax (02) 9514 4079
 Email: Kenneth.Brown@uts.edu.au

UTS: SCIENCE

Innovative, relevant and practical - a fusion of theory and practical studies

Why UTS Science?

At UTS Science innovation is more than just an idea, it is applied in the development of courses, making science an experience. Our courses show how basic sciences like biology, physics, chemistry and mathematics connect with the quest for new vaccines, new gene therapy treatments, development of efficient photonics, more sensitive detection systems for environmental toxins and pathogens, and a host of exciting applications.

Students study science at UTS because they want courses with real world skills. Employers' value our graduates because they are work-ready, even before they graduate. Students can opt to take the Diploma in Scientific Practice in the second year of their degree, where they participate in industrial internship.

Studying Science at UTS also means having access to a new state-of-the-art laboratory facility in the city, the chance to network with a group of diverse researchers and the possibility to contribute to current research.

What do our past students say?

SAM MORGANKELLOW, graduated in 2007

Bachelor of Science in Urban Ecology

"I chose this area of study because I was keen on learning about the environment. I was interested in biology and other components of the course relating to building and design. The lecturers were very helpful and the practical components of the course were enjoyable. I was able to choose two very different elective areas in second and third year and got to see different ecosystems on my field trips.

My final year project on CBD tree canopies with the City of Sydney was fantastic because I felt it had a real practical application. I'd like to work for local councils in an Environmental Officer role and eventually work in government on policy."

OSTA CHANGALANGSY, graduated in 2006

Bachelor of Medical Science

"My job (as a Clinical Trials assistant) requires me to be highly organised so that I can manage the clinical trials efficiently. My job involves dealing with investigators, pharmaceutical companies. I also ensure patient demographics are correct, order the correct test for each patient as well as to make sure that the results are reported to the investigators. I am also responsible for overseas specimens dispatch for further testing. The subjects I studied at UTS gave me the confidence on my very first day at work.

MARTIN BLABER, graduated in 2007

Bachelor of Science in Nanotechnology

"I was drawn to UTS because it was the pioneer in nanotechnology in Australia. Through the Institute for Nanoscale Technology I have access to two very large computing facilities. I would not have been able to do my work efficiently without access to these machines. I am also a big fan of the people here. They are very supportive and friendly. There is always someone willing to help.

What do employers say about UTS Science, its students and internship program?

MR JAMES MCLEOD,

CEO, Dominion Electronics

"We have taken on four UTS Science interns over the past two years. They did some really great research in imbedded electronics. They compiled the raw data and presented a market analysis report. The interns from UTS Science were very practical and fitted straight into our organisation."

MR ALAN LIDDLE

CEO, Immune System Therapeutics Ltd

"At Immune System Therapeutics, we have interfaced with and worked with UTS Science students for over five years. Students from UTS have strong, readily useable technical skills that allow them to be productive from day one. They have sound knowledge base that enables them to learn and master new technologies in a timely fashion."

What is the Diploma of Scientific Practice? Should you consider this option?

The UTS Diploma of Scientific Practice is yet another example of how studying science at UTS can give your career a kick start. Students have the option in the second or third year of their degree to participate in an industrial internship gaining practical experience and the opportunity to develop the skills, knowledge and attitudes needed to give them that extra edge in the marketplace. The possibility is there for employers to offer students employment as a result of these internships.