WHAT DO WIRELESS ENGINEERS DO?

Being an engineer is about problem solving, having a design focus, and utilizing technology to benefit society. Wireless engineering encompasses the design, build and management of systems that carry out the transmission and broadcasting of information using wireless signals.

WHAT DOES A WIRELESS ENGINEER DO?

Wireless systems are important in mobile telephones, local-area communication networks, broadband networks, satellites, radio and television broadcasting, and areas such as radio-frequency identification tags. Wireless engineers design, build and manage systems that carry out the transmission and broadcasting of information using wireless signals.

WHAT SKILLS DOES A WIRELESS ENGINEER NEED?

- project management skills
- high level of technical expertise
- good communication skills
- leadership capability
- strong analytical skills
- ability to work as part of a team
- problem solving capabilities
- practical/resourceful
- creativity (invention, innovation, thinking outside box)

WHAT CAREER OPPORTUNITIES ARE AVAILABLE?

- electronics design and manufacturing
- engineering research and development
- sales and service of wireless equipment
- software design and development
- project and technology management

TYPES OF JOBS AVAILABLE IN WIRELESS ENGINEERING

- wireless systems designer and installer
- radio-frequency circuit design
- antenna engineer
- computer, wireless and mobile telephone networker
- electronics designer/developer
- software designer/developer

WHERE DO WIRELESS ENGINEERS WORK?

- companies that provide broadband wireless access such as Mimix Broadband, Mitec and RF Technologies
- telecommunications companies such as Optus, Telstra, Nokia, Vodafone, Alcatel-Lucent, Toshiba and Erickson
- media companies such as TV, radio
- public sector institutions at both state and federal level such as Department of Defence
- government and university research laboratories such as CSIRO, DSTO (Defence Science and Technology Organisation), ANSTO (Australian Nuclear Science and Technology Organisation), and university research laboratories around the world

Did you know?

Macquarie University’s Department of Electronic Engineering works with its industry partners to ensure its engineering programs remain relevant to industry needs. Through the Department’s Industry Partnership Program, undergraduate students in their final semester are eligible to undertake a 16 week industry-based internship with one of our industry partners such as Cochlear, Optus, EMC, CiSRA, Honeywell, Mimix Broadband, OEM Technology Solutions, and BCS Innovations. Many of the Department’s industry partners are located in one of Australia’s leading high-technology precincts where the University’s campus is also located.
WHAT DOES A WIRELESS ENGINEER DO?

HOW MUCH DO THEY EARN?
According to GradStats 2007, Careers Council of Australia’s annual Australian graduate survey, the median starting salary for bachelor degree Engineering graduates aged less than 25 and in first full-time employment in Australia was $50,000. This was the fourth highest starting salary of professionals in Australia in 2007. This salary ranking has been consistent for engineering for at least 5 years. By comparison, Economics, Business and Accounting graduates had a median annual starting salary of $40,000 in 2007, $10,000 less than that for engineers.

ABOUT THE ENGINEERING PROGRAM AT MACQUARIE UNIVERSITY
The Bachelor of Engineering in Wireless Engineering at Macquarie University is a 4 year full-time degree and begins with a solid foundation of basic sciences and core electronics engineering and then focuses on the underlying technologies used in wireless systems and wireless telecommunication networks including electromagnetics, antennas, and microwave electronics. Optional units allow for the development of skills in one or more related areas such as optoelectronics, computer hardware and software, coding and secure communications, and telecommunication networks.

The types of units studied in wireless engineering may include the following topic areas along with a range of other units:

- Computer security
- Digital electronics
- eCommerce technology
- Information technology
- Mathematics and physics
- Optical technology and photonics
- Software engineering
- Computer networking and telecommunication systems

ENTRY REQUIREMENTS
2 unit HSC Mathematics (Band 4) or its equivalent is a subject prerequisite for Physics and Mathematics units which form part of the Bachelor of Engineering degree. Students not meeting this requirement will need to enrol in an additional mathematic unit in their first year of study. A combination of higher levels of mathematics, physics, chemistry, engineering studies, senior science, information processes, technology or software design and development are also strongly recommended. Other units taken as part of the degree may have assumed knowledge, prerequisites or recommended studies. Therefore, students should refer to the University Handbook for full degree requirements (www.handbook.mq.edu.au).

OTHER CAREER FACT SHEETS IN THIS SERIES
- Electronics engineering
- Computer engineering
- Software engineering
- Photonics engineering
- Telecommunications engineering
- Instrumentation and control engineering

FOR MORE INFORMATION
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Double-Degree Option
The Bachelor of Engineering combined with Bachelor of Science allows students to undertake a computing major along with a major in software engineering or telecommunications engineering. The Bachelor of Engineering with Bachelor of Commerce combines software engineering or telecommunications engineering with an economics major. The Bachelor of Engineering with a major in any of the seven engineering specialisations can also be combined with the Bachelor of Business Administration. These degrees offer an efficient way for students to broaden their skills and obtain two qualifications in five years.

Disclaimer: This publication is correct at time of printing: August 2008. Macquarie University reserves the right to change program details at any time. CRICOS Provider Code: 00002J