WHAT IS COMPUTER ENGINEERING?
Being an engineer is about problem solving, having a design focus, and utilising technology to benefit society. Computer engineering involves the designing, building and managing of computer systems that process, store and transmit information.

WHAT DOES A COMPUTER ENGINEER DO?
Computer engineers design, build and manage computer systems that carry out the processing, storage and transmission of information and the control of complex systems. Besides stand-alone computer systems such as desktop and laptop computers and servers, computer engineers design embedded computer systems used in mobile phones and consumer products such as VCRs, microwave ovens, automobiles and industrial systems. They also design microelectronic integrated-circuit chips.

WHAT SKILLS DOES A COMPUTER 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?
• computer design and manufacturing
• telecommunications and networking
• electronics design and manufacturing
• engineering research and development
• sales and service of computer equipment
• software design and development
• project and technology management
• finance/banking

Did you know?
Engineers are in high demand in Australia and overseas. The fast-growing, high-technology fields of telecommunications, computing and electronics need engineers to drive the future of their products and services. Many of our graduates are offered employment before they graduate.

TYPES OF JOBS AVAILABLE IN COMPUTER ENGINEERING
• computer systems engineer
• computer network engineer
• software engineer

WHERE DO COMPUTER ENGINEERS WORK?
• computing and IT companies such as IBM, Hewlett-Packard, EMC and Toshiba
• semiconductor companies such as Intel
• technology and manufacturing companies such as Honeywell, OEM
• banks and financial institutions such as The Macquarie Group, NAB, Commonwealth Bank
• telecommunications companies such as Optus, Telstra, Vodafone, Nokia, Netcomm
• computer software and hardware companies such as Google, Microsoft and Cisco
• public sector institutions at both state and federal level
• 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
WHAT DOES A COMPUTER 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 Computer Engineering is a 4 year full-time degree and begins with a solid foundation in basic sciences and core areas of electronics engineering and then focuses on the underlying technologies used in computer systems including digital electronics, computer hardware, programming and software design. Optional units allow students to develop skills in one or more related areas such as control systems, computer and telecommunication networks, software engineering, and eCommerce technology.

Units studied in computer engineering may include the following topic areas along with a range of other units:
- communication networks
- computer networking
- computer security
- eCommerce
- embedded systems
- mathematics and physics
- optical technology and photonics
- programming languages

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 mathematical 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
- software engineering
- wireless engineering
- photonics engineering
- telecommunications engineering
- instrumentation and control engineering

FOR MORE INFORMATION
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