Student close-up

Dr Yang Tang completed an undergraduate engineering degree at Beihang University, China followed by the Research Masters in Telecommunications Engineering at the University of Sydney before joining Nortel Networks in Canada. He returned to USyd to undertake a PhD in the area of wireless communications systems and a new wireless technology, WiMAX, a vision towards pervasive mobile computing. After graduation Yang worked for Samsung in South Korea and is now with FutureWei in San Diego.

Yang generously comments that the USyd Telecommunications programs are outstanding for producing talented engineers with solid backgrounds, but also with an enthusiasm for their profession and an ability to adapt in a fast growing and changing industry.

China to Camperdown. Sydney to Seoul to San Diego. This could be you!

Further information

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For information on how to apply to the Bachelor of Engineering in any discipline go to
http://www.ee.usyd.edu.au

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What is Telecommunications Engineering?

Telecommunications infiltrate and permeate every aspect of 21st century life. From the humble telephone in the corner to the GPS navigation systems, wireless internet and beyond. Telecommunications Engineering focuses on development, design and maintenance of voice and data communications systems – optical fibre, satellite, wired, unwired, and the encoding, encryption and compression of data. The Blackberry is old; 3G is dead, Torrent downloads take too long – the world is moving to 4G, wireless sensors networks, body area networks, and ‘smart’ meters. Cutting edge developments are occurring throughout the world of telecommunications as we speak.

What will you learn and how will it be applied in the real world?

You will apply your knowledge in projects such as:

4G WIMAX mobile technology – 4G is in its development phase and promises to provide features such as higher data rates to transmit photos and live pictures and with the coverage of a cellular mobile.

Projects feature the development of RF propagation planning and network dimensioning tools.

Wireless sensor networks – projects include applications for environment monitoring, gas pollution readings, and soil moisture measurements for agriculture (used both by industry and media) and smart meters for utilities such as power and water (meters which provide detailed information on environmental parameters and effectively take their own readings)

Wireless sensor medical applications utilising a body area network, remote blood pressure readings etc as a pre-op process for hospitals and subsequent patient monitoring.

Wireless sensor projects include increasing the transmission range of current receivers and increasing the range of applications through design, channel coding and routing protocols.

After your first degree

Start with your Telecommunications undergraduate degree either as a standalone or part of a combined program and branch out. Masters by coursework and research and doctoral programs are available to further enhance and grow your knowledge.

See www.ee.usyd.edu.au for details.

What career opportunities are there in this field?

There are worldwide career opportunities in our global village. Anything requiring the transmission of information across channels via wired or unwired means utilises telecommunications engineering. Career opportunities abound with

Telecom providers such as Telstra, Optus Unwired, Vodafone, AAPT and vendors like Motorola, Sony-Ericson, Nokia, NEC

- Computer companies such as Microsoft, IBM, Google
- Telecom security, standards and regulations
- Network management
- Telecom research and application of that research in CSIRO, NICTA and universities
- Multimedia and IT companies
- Design of equipment and telecom devices
- Military and defence applications

And areas you may not immediately consider – engineering involves technical expertise and high level project management skills which can lead to careers in technology development and business management. Also combined programs with Science, Arts, Commerce, Medical science and Law can lead to further rewards and challenges.