Electrical and Computer Systems Engineering

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A Brief Example

- Did you cross the Westgate or Bolte Bridge?
  Large structures are constantly monitored for wind, traffic flow, obstructions, and traffic is controlled with management systems to minimize delay.

- Did you use the Metropolitan train system?
  Trains are an example of a sophisticated electrical distribution network as well as modern Power Electronic Control.

A Brief Example

- Did you visit someone or stay in a hospital in the last 6 months?
  Modern medical diagnosis and treatment rely heavily on the use of computers and sophisticated sensing techniques. Even when you give blood, every drop collected gets scanned, collated and tracked through a sophisticated data collection system.
- Did you Play on the Nintendo Wii or play station that you bugged your parents for?
  One of the most important markets in the world is computer games. In fact many forms of entertainment rely on electrical energy (IMAX, TV, radio,)

A Brief Example

- Did you use your mobile phone?
  Australia is one of the most highly mobile countries in the world. New networks are being planned and will emerge just about when you graduate. Somebody has to build and maintain them.

Electrical Engineering in Society

- Its everywhere. The constructed environment and our lifestyle largely depends on the supply and use of electrical energy.
- Electrical Engineering isn't just power generation.

What is Electrical Engineering?

- Power Generation and the systems that control and monitor it
- Power Distribution
- Telecommunications
- Plant operation and control (A chemical engineer may design it, a mechanical engineer may build it, but an electrical engineer makes it move with motors and switches and relays and computers!)

What is Electrical Engineering?

- Telecommunications: Mobile Phones, multimedia, High speed internet. Designing, testing , fault finding.
- Medical: Machines for diagnosis, for rehabilitation and care. All take advantage of sensors and effectors controlled by computers.
- Robotics: It's a buzz word, which is so much more than what it suggests!
  Robotics is control, automation, sensing, vision, manipulation of the surroundings
  And an awful lot of fun…

Where can I get a job?

- Begin by looking in the newspapers.
  See where the jobs are being employed today.
- Imagine where jobs will be needed by the time you graduate.
- Ask last years graduates where they found jobs
- Use company web pages to see who is hiring
  (Hint telecoms, energy)

And Now For Some Serious Electrical Fun!