Electrical and Computer Engineering

Electrical Engineering involves the design of devices and systems that employ the flow of electrons and photons to achieve useful purposes. It encompasses electrical power generation and distribution, electronics, wired & wireless communications, optoelectronics, signal processing, robotics, computers, radar, ultrasonics, and many other technologies.

Computer Engineering involves the use of scientific discoveries and practical knowledge in digital circuit technology to create devices and systems that can be used to benefit the public. It encompasses computer hardware, electronics, digital communications, multimedia, signal processing, robotics, and other related technologies. Computer Engineers focus on computer hardware and its interaction with software to create integrated computer systems.

Specializations:
- Power and Sustainable Energy
- Electronics and Microelectronics
- Microwave Engineering
- Nanotechnology
- Photonics
- Digital Systems and Microprocessors
- Control Systems and Robotics
- Digital Imaging and Signal processing
- Wireless Communications
- Instrumentation
- Computers and Software
- Communication Networks

Did You Know...
Thomas Edison (prolific inventor), Nikola Tesla (inventor of the electric motor, transformer), Alfred Hitchcock (filmmaker and producer), Jimmy Carter (US President), and Rowan Atkinson (Mr. Bean) are all Electrical and Computer Engineers!

Recent graduates work for companies such as Hydro One, RIM, Texas Instruments, GE, Google, Microsoft, Intel, IBM, Ontario Power Generation, Bell and many more!

Department History
Electrical Engineering began in 1958 at McMaster University and quickly grew in response to the increasing demand for high quality graduates. In 1981, the department started the first Computer Engineering program in Canada.

The Department of Electrical and Computer Engineering at McMaster University is a growing and dynamic department offering undergraduate and graduate degrees in Electrical, Computer, and Electrical & Biomedical Engineering, all of which are accredited by the Canadian Engineering Accreditation Board.
Electrical and Biomedical Engineering

Specializations:
- Medical Robotics
- Medical Imaging
- Bioelectromagnetism
- Implants
- Instrumentation
- Biological Modeling
- Biomedical Signal Processing
- Electrophysiology

Did You Know...
Choosing the Electrical and Biomedical Program gives you many unique opportunities, such as:
- You study human anatomy using real cadavers
- You get hands-on learning and experience in actual MRI labs, as well as neuro-interfacing
- An Electrical and Biomedical specialization also gives you the knowledge to work as an Electrical Engineer as well as giving you the prerequisites to apply for Medical School
- You can continue graduate studies in interdisciplinary areas such as computational engineering, neuroscience, biomedical sciences, and others.
- The opportunity to do a 4, 8, 12, or 16-month work-term in industry

Top Reasons for Choosing ECE*:
- The Curriculum
- The Uniqueness of the Program
- Interdisciplinary Studies
- Topics of Interest
- Job Prospects, Exciting Future Career
- Esteemed Faculty

*Data based on ECE undergraduate Entrance Survey results.

Student Groups:
- Electrical and Computer Engineering Society
- Bioengineering at McMaster Society
- IEEE Student Branch
- Women in Science and Engineering

The 20th century has witnessed the emergence of biology and medicine as disciplines of technological innovation. Scientific and technological advances in biomedicine, as well as ongoing debates about Canada's national health care system have generated strong social and economic interests in the development of biomedical technologies.

Electrical and Biomedical Engineering is a fast-growing field that involves the application of Electrical Engineering and technology to the solution of problems in medicine and biology. It bridges the historical separation between the biological/medical sciences and the engineering and physical sciences, thereby spanning interdisciplinary boundaries.

Poster Day
The Department of Electrical and Computer Engineering gives undergraduate students the opportunity to formally present their final year design projects, just as their graduate counterparts do with their research findings. This also gives students the chance to gain feedback from faculty, peers and staff in their own and other disciplines.

In 2009/10, ECE's Poster Day was featured on Daily Planet, Canada AM, CHML's Scott Thompson Show, Exchange Magazine, Canadian Electronics, Cable 14, McMaster's Daily News, and Golden Horseshoe Biosciences Network.

http://www.ece.mcmaster.ca/4oi6posterday.html
Graduates from McMaster's ECE Program

Stefan Ionita, Comp Eng & Mgmt '11
Technology Associate
Morgan Stanley

Trinette Wright, Elec & Biomed '13
Research Engineer
Sunnybrook Health Sciences Centre

Nathan Cox, Elec Eng '11
Engineering/IT Grad
Hydro One

Caroline Youssef, Elec Eng '11
Project Manager
Bombardier Aerospace

David Newman, Elec & Biomed '13
Program Manager, Skype Division
Microsoft Corporation

Lucas Dobrowolski, Comp Eng '10
WLAN Software Validation Developer
BlackBerry

Nanxi Zha, Elec & Biomed '10
Software Development Engineer
Microsoft Corporation, 2010-2013
Currently in the MD program at
University of Western Ontario

Department of
Electrical and Computer Engineering

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