

# ELECTRICAL AND COMPUTER ENGINEERING

## Departmental Facilities

The Department of Electrical and Computer Engineering is housed in Walter Light Hall which provides over 5,400 square meters of modern research, teaching and classroom facilities. The building is linked to Goodwin Hall which houses the School of Computing. Additional space for undergraduate laboratories and research is located in Beamish-Munro Hall.

Graduate research is supported by an extensive network of personal computers and workstations. In total, there are over one hundred workstations and personal computers maintained within the Department. The administration of the network is both open and flexible to allow the sharing of data, application software, and peripherals among all groups. In addition, an ATM fiber network is available for research use and several research groups also operate stand-alone computer systems linked to specialized research equipment. The Department also provides several computing laboratories to support both graduate and undergraduate courses. Installed operating systems include Unix, Windows, and Windows NT and a wide range of application software is available on both the teaching and research networks. Access to University wide computing resources, such as the Library systems and the Internet, is provided through high speed network switches.

Facilities in the Department include laboratories, with extensive modern equipment and instrumentation, dedicated to research in digital communications, cellular and satellite communications, wireless network and modems, computer communications, computer architecture and parallel processing, photonic packet switching network, information networks technology and network performance testing and monitoring, image processing, communication signal processing, array signal processing, video image compression, fiber optics, microwave integrated circuits, microwave communications, wireless communications, power electronics, electric drive systems, biomedical engineering, robotics and control systems.

A large number of graduate students are associated with projects being carried out under several federal and provincial centres of excellence, including Communications and Information Technology Ontario (CITO), Photonic Research Ontario (PRO), the Canadian Institute for Photonic Innovations (CIPI), and the Canadian Institute for Telecommunications Research (CITR). Graduate students whose research involves VLSI design have access to the facilities of the Canadian Microelectronics Corporation (CMC) which is located on the Queen's University campus.

## Financial Assistance

Graduate students are frequently supported by one or more of external scholarships (such as Ontario Graduate Scholarships and Natural Sciences and Engineering Research Council Postgraduate Scholarships), University awards, research assistantships available from individual members of staff, and teaching assistantships. Teaching assistantships involve approximately 84 hours of work during the academic year and are offered, based upon Departmental needs, to full-time students in the first two years of the M.A.Sc. program and the first four years of the Ph.D. program. Student income typically ranges from \$18,000 to \$28,000 per annum, depending primarily upon whether or not an external scholarship is held. For further information, please contact the Coordinator of Graduate Studies in the department.

## Areas of Research

The research activities of the Department fall into five broad areas:

- **Biomedical and Intelligent Systems** – Coordinator: M. Korenberg  
For detailed description see <https://www.ece.queensu.ca/research/groups/biomedical-and-intelligent-systems.html>
- **Communications and Signals Processing** – Coordinator: S. Blostein  
For detailed description see <https://www.ece.queensu.ca/research/groups/comm-and-signals.html>
- **Computer and Software Engineering** – Coordinator: N. Manjikian  
For detailed description see <https://www.ece.queensu.ca/research/groups/computer-and-software-engineering.html>
- **Microelectronics, Electromagnetics and Photonics** – Coordinator: J.C. Cartledge  
For detailed description see <https://www.ece.queensu.ca/research/groups/mep.html>
- **Power Electronics** – Coordinator: P. Jain  
For detailed description see <https://www.ece.queensu.ca/research/groups/power-electronics.html>

Applicants are accepted under the general regulations of the School of Graduate Studies.