

Ottawa-Carleton Institute for Electrical Engineering

University of Ottawa
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The Institute

Director of the Institute:

Emil Petriu

Established in 1983, the Institute combines the research strengths and resources of the Departments of Electronics and of Systems and Computer Engineering at Carleton University and the Department of Electrical Engineering at the University of Ottawa. Programs leading to master's and Ph.D. degrees are available through the Institute in a wide range of fields of electrical engineering. Graduate students may pursue their research on either university campus, depending upon the choice of supervisor. Registration will be at the university most appropriate to the student's program of studies and research.

Requests for information and applications for admission should be sent to the Director of the Institute.

Members of the Institute

The "home" department of each member is indicated by (OE) for the Department of Electrical Engineering, University of Ottawa; (CE) for the Department of Electronics, Carleton University; (SCE) for the Department of Systems and Computer Engineering, Carleton University.

T.A. Aboulnasr, *Digital Signal Processing* (OE)
N.U. Ahmed, *Systems Theory, Optimal Control, Filtering and Reliability* (OE)
S.A.H. Aly,* *Signal Processing, Digital Transmission* (SCE)
Prakash Bhartia,* *Microwaves, Antennas, Instrumentation* (OE)
A.R. Boothroyd, *Solid State Devices, ICs, CAD* (CE)
R.J.A. Buhr, *Software Engineering, Protocols, CAD of Computer Systems* (SCE)
R.J.C. Bultitude,* *Digital Radio, Propagation, Mobile and Portable Radio Systems* (SCE),
C.H. Chan, *VLSI Circuits, Systems* (CE)
J.W. Chinneck, *Computer Modelling, Operations Research* (SCE)

J.-Y. Chouinard, *Mobile Communications, Digital Channel Modelling, Information Theory* (OE)
Jacek Chrostowski,* *Photonics, Sensors* (OE)
D.C. Coll, *Telecommunications and Computers* (SCE)
M.A. Copeland, *ICs, Analog Signal Processing, CAD* (CE)
G.I. Costache, *Electromagnetic Engineering* (OE)
S.R. Das, *Digital Circuits, Computer Architecture, Faults in LSI/VLSI Systems* (OE)
N.W. Dawes,* *Artificial Intelligence, Expert Systems* (SCE)
M.S. El-Tanany, *Mobile Communications, Spread Spectrum Systems, Wave Propagation* (SCE)
D.D. Falconer, *Digital Communications, Signal Processing, Digital Subscriber Loops* (SCE)
P.A. Galko, *Digital Communications, Optical Communications* (OE)
N.D. Georganas, *Multimedia Broadband Communications* (OE)
D.T. Gibbons, *Digital and Biomedical Electronics, Computer Engineering* (OE)
K.R. Goheen, *Controls, CAD/CAM/CIM* (SCE)
M.C. Goldberg,* *Image Processing, Image Communications* (OE)
D.G. Goodenough, *Remote Sensing, Artificial Intelligence, Image Analysis* (OE)
R.A. Goubran, *Digital Systems Design, Mobile Communications* (SCE)
H.M. Hafez, *Digital Modulation Techniques, Packet Radio Switching, Cellular Digital Radio* (SCE)
R.G. Harrison, *Microwaves, Non-linear Processes* (CE)
J.F. Hayes,* *Computer Communications, Optical Networking, Communication Theory* (OE)
W.J.R. Hoefer,* *CAD/CAM of Microwave Circuits, Numerical Methods* (OE)
Dan Ionescu, *Digital Computers, Computer Process Control, Machine Vision* (OE)
G.M. Karam, *Software Engineering, Concurrent Systems, Logic Programming* (SCE)
Ahmed Karmouch, *Multimedia Communications, Multimedia Real-time Distributed Information Systems and Databases* (OE)
Satish Kashiap,* *Electromagnetic Compatibility, Electromagnetic Pulse, High Power Microwaves, Electromagnetic Analysis* (OE)
Mohsen Kavehrad, *Digital Communications, Photonic Networks, Mobile and Portable Communications* (OE)

*Adjunct Research Professor

A.R. Kaye, *Office Technology, Embedded Knowledge Systems, Computer Networks* (SCE)
 J.P. Knight, *Logic Design, Computer-Aided IC Design* (CE)
 Moshe Krieger, *Computer Architecture, Micro-processor, CAM* (OE)
 T.A. Kwasniewski, *Digital and Analog Signal Processing, Microprocessors* (CE)
 M.C. Lefebvre, *Computer-Aided I.C. Design, VLSI Design* (CE)
 J.H. Lodge,* *Mobile Communications, Modulation, Channel Coding, Multiple Access* (OE)
 S.A. Mahmoud, *Distributed Databases, Radio Packet Switching, Communication Network Protocol* (SCE)
 Shikaresh Majumdar, *Parallel and Distributed Systems* (SCE)
 Vassilios Makios,* *Microwaves, Fibre Optics* (CE)
 L.S. Marshall,* *Software Engineering, Software Validation and Formal Specification Tools* (SCE)
 W.F. McGee,* *Communications Circuits* (OE)
 J.W. Miernik,* *Teletraffic Engineering, Computer Networks and Discrete Simulation* (SCE)
 L.R. Morris, *Signal Processing, Minicomputers, Computer Graphics, Software* (SCE)
 M.S. Nakhla, *CAD for VLSI* (CE)
 M.M. Ney, *Electromagnetic Engineering, Microwaves, Numerical Modelling* (OE)
 M.D. O'Riain,* *Biomedical Engineering* (OE)
 Bernard Pagurek, *Queuing, Databases* (SCE)
 Sethuraman Panchanathan, *Image Processing and Communications, Parallel Processing, Computer Engineering* (OE)
 D.C. Petriu, *Performance Evaluation, Software Engineering, Database Systems* (SCE)
 E.M. Petriu, *Robotics, Neural Networks* (OE)
 Calvin Plett, *Analog I.C. Design* (CE)
 A.S. Podgorski,* *Picosecond Broadband Electromagnetics, EMI/EMC, AI, Lightning, Nuclear EMP, ESD, High Power Electromagnetics* (OE)
 Surendra Rawat, *Communications* (SCE)
 J.S. Riordon, *Distributed Databases, Radio Packet Switching, Systems Modelling* (SCE)
 H.M. Schwartz, *Automation, Robotics, Controls* (SCE)
 A.U.H. Sheikh, *Mobile and Personal Communications, Packet Networks* (SCE)
 T.J. Smy, *Solid State Sensors, Fabrication* (CE)
 W.M. Snelgrove, *Analog signal processing, VLSI* (CE)
 W.J.D. Steenaart,* *Digital Communications, Signal Processing* (OE)
 P.C. Strickland,* *Antennas, Microwaves, Radar* (CE)
 M.G. Stubbs,* *Monolithic Microwave Integrated Circuits* (CE)
 S.S. Stuchly,* *Microwaves, Antennas, Instrumentation* (OE)

B.A. Syrett, *Microwaves, Fibre Optical Communications* (CE)
 N.G. Tarr, *Solid State Devices, Fabrication* (CE)
 R.E. Thomas,* *Solid State Technology, Solar Energy* (CE)
 P.D. van der Puije, *Circuit Synthesis, Biomedical Engineering* (CE)
 D.J. Walkey, *CAD for VLSI, IC Design* (CE)
 J.S. Wight, *Phase-locked Circuits, Microwaves, Antennas, Radar, Spread Spectrum* (CE)
 C.M. Woodside, *Computer Performance, Queuing, Distributed System Design* (SCE)
 O.W. Yang, *Computer Communications, Broadband Networks, Performance Evaluation* (OE)
 Abbas Yongaçoglu, *Digital Communications Coding and Modulation* (OE)
 Q.J. Zhang, *CAD for VLSI, Optimization* (CE)

Master's Degree

Admission Requirements

The normal requirement for admission to a master's program is a bachelor's degree with at least high honours standing in electrical engineering or a related discipline.

Program Requirements

The requirements for course work are specified in terms of credits: one credit = one hour/week for one term. Subject to the approval of the departmental chair, a student may take up to half of the course credits in the program in other disciplines (e.g., Mathematics, Computer Science, Physics). At the University of Ottawa, master's programs with a thesis earn the Master of Applied Science degree, while other master's programs earn the Master of Engineering degree. At Carleton University, all master's programs earn the Master of Engineering degree.

Master's Degree by Thesis

- eighteen course credits plus thesis

Master's Degree by Course Work

- twenty seven course credits plus a project (nominally six credits)

Cooperative Master's Degree by Thesis

- eighteen course credits plus a thesis

Cooperative Master's Degree by Course Work

- twenty four course credits plus two projects (each conducted in one work term)

Participation in the cooperative master's program is subject to acceptance by a suitable sponsoring organization.

Doctor of Philosophy

Admission Requirements

The normal requirements for admission into the Ph.D. program is a master's degree with thesis in electrical engineering or a related discipline.

Program Requirements

The requirements for course work are specified in terms of credits: one credit = one hour/week for one term. Subject to the approval of the advisory committee, a student may take up to half of the course credits in the program in other disciplines (e.g., Mathematics, Computer Science, Physics).

- A minimum of fourteen course credits
- A comprehensive examination involving written and oral examinations and a written thesis proposal, to take place before the end of the fourth term of registration
- A thesis which must be defended at an oral examination

Graduate Courses

In all programs, the student may choose graduate courses from either university with the approval of the adviser or advisory committee. Course descriptions may be found in the departmental section of the calendar. All courses are of one term duration. Only a selection of courses listed is given in a particular academic year. The following codes identify the department offering the course.

Carleton University

- 94 Department of Systems and Computer
 Engineering
- 97 Department of Electronics

University of Ottawa

- 92 Department of Electrical Engineering
- The CSI designation refers to the Department of Computer Science at the University of Ottawa. The ELG designation refers to the Department of Electrical Engineering at the University of Ottawa.