

7. Multidisciplinary Education and Research

U of T Engineering has a long tradition of collaborative scholarship that enhances the student experience and promotes research excellence. The breadth and depth of our programs, centres, and institutes provides an extraordinary range of opportunities for multidisciplinary research and teaching.

The Faculty has introduced a number of Faculty-wide initiatives in the past few years. In 2009–2010, we initiated two new cross-disciplinary undergraduate Minors to complement the new Energy Systems Engineering Major in the Engineering Science program that was launched in fall 2008. Graduate students actively contribute to the Faculty’s multidisciplinary research and can specialize in one of two graduate certificates to further enrich their educational experience.

Collaborative and multidisciplinary educational and research programs are becoming a fundamental part of the Engineering Faculty, and the Faculty continues to expand its offerings. In 2008–2009, we created two new initiatives: the Centre for Global Engineering; and the Identity, Privacy and Security Institute.

In May 2009, the Faculty established two new Extra-Departmental Units (EDU) that will advance and administer new curricular and co-curricular activities to further strengthen our research and educational offerings.

The Centre for Global Engineering (CGEN) and the Identity, Privacy and Security Institute (IPSI) were created as EDU:C and a Cross-Disciplinary Programs Office was also created.

Identity, Privacy and Security Institute

Background

In the spring of 2007, ECE Professor Dimitrios Hatzinakos and colleagues from the Faculty of Information and U of T Mississauga created a new initiative at U of T focusing on identity, privacy and security. This initiative was established to carry out a pioneering, interdisciplinary program of research, education, outreach, industry collaboration and technology transfer with emphasis on technology, policy and science. In May 2009, IPSI became an EDU-C and became the Identity, Privacy and Security Institute.

Objectives

- To advance the integration of the basic, social and engineering science research required to generate sustainable solutions to identity, integrity, privacy and security.
- To assemble a cross-disciplinary community of researchers and community partners to create excellence in interdisciplinary research and education in the field of identity, privacy and security technologies, policies and sciences.
- To provide interdisciplinary high level training in identity, privacy and security applications through state of the art educational programs and specializations that will bring together faculty and students from different disciplines to study and think together about identity, privacy and security and related technologies, policies and sciences.
- To facilitate the commercialization of technologies through effective technology transfer mechanisms and industrial partnerships.
- To work with policymakers and regulatory agencies to inform their judgment of identity, privacy and security realities with evidence-based considerations of the scientific, ethical, legal and social issues involved.

Director

Dimitrios Hatzinakos

Centre for Global Engineering

Background

In the first half of 2008, the Dean's Task Force on Globalization and Engineering recommended exploring the creation of a centre to focus the Faculty's activities on global engineering issues. A working group consisting of Phil Byer, Yu-Ling Cheng, Bryan Karney and Murray Metcalfe was established to explore the concept of a centre.

Objectives

- CGEN will play a key role in both the education and research mission of the Faculty by promoting interdepartmental and interdivisional research and other scholarly activities related to engineering in a global environment.
- CGEN's activities will be carried out by existing faculty, working with internal and external partners.
- CGEN members will conduct research that is either: (1) discipline specific research projects with relevance to global issues, and/or (2) research in knowledge translation or diffusion of innovation in the engineering context.
- CGEN will help to enhance the global experience of students.
- Faculty affiliated with CGEN will contribute to the education mission by: teaching courses, supervising design projects or undergraduate and graduate theses with international content, participating in the development of academic initiatives including undergraduate minors and graduate certificate programs, and serving as links to Departments outside the Faculty who may be beneficial partners in the Faculty's global programs.
- CGEN will be the face of global engineering to both internal and external communities and will identify to potential external partners that research and educational activities on global issues exists within the Faculty, and will thus lead to collaborative opportunities.

Director

Yu-Ling Cheng

Cross-Disciplinary Programs Office

Background

The Faculty has introduced a number of Faculty-wide educational initiatives in the past few years. The new Cross-Disciplinary Programs Office will provide leadership, administration and initiation of Faculty-wide programs, effective July 1, 2009.

Objectives

This Office will focus on inter- and cross-disciplinary programs available to Engineering undergraduate students, in addition to some graduate programs. Programs administered by this Cross-Disciplinary Programs Office are available to all students in Engineering, subject to approval from their home Department/Division, and does not include Engineering Science Majors.

Programs to be administered by this Office include:

- Bioengineering Minor
- Environmental Engineering Minor
- Sustainable Energy Minor
- Certificate Program in Entrepreneurship
- Certificate Program in Preventive Engineering and Social Development
- Collaborative Graduate Program in Environmental Engineering
- Future curricular certificates/minors

Specific responsibilities of the Office include:

- Provide a “one stop shop” for students to learn about Engineering’s interdisciplinary programs.
- Communicate the availability of cross-disciplinary programs to students, faculty, the University and the general public.
- Administer regulations; provide student academic guidance/advising.
- Verify completion of requirements for the awarding of certificates/minors.
- Be the voice for these programs within our Faculty (e.g. Curriculum Committee, Executive Committee, Registrar’s Office, Departmental Offices).

Associate Dean

Bryan Karney

Note: Co-curricular “certificates” (e.g. Engineering Leaders of Tomorrow) that do not directly involve courses in our curriculum would not normally be the responsibility of this Office. However, this Office will be knowledgeable of such activities so as to provide the most complete information for our students. Graduate programs such as MEng/ELITE, MEng/EPP, Prospective Professors in Training (PPIT) and the Jeffrey Skoll joint Engineering-MBA program will continue to be the responsibility of the Vice-Dean Graduate Studies.