



**Internal Academic Review 2007-2008**  
**Department of Electrical and Computer Engineering**  
**Internal Academic Review Committee Report to Senate**

The Internal Academic Review (IAR) of the Department of Electrical and Computer Engineering is now complete. The Internal Academic Review Committee (IARC) has taken into consideration all of the submissions related to the IAR of the Department of Electrical and Computer Engineering and respectfully submits the following report. The IARC Report to Senate is intended to supplement the findings of the attached Review Team Report and to provide a mechanism for the Head of the Department and the Dean of the Faculty of Applied Science to jointly report on the progress in addressing the Review Team recommendations (please see the “Outcomes” section of this report).

**Summary of the Internal Academic Review of the Department of Electrical and Computer Engineering**

The Department of Electrical and Computer Engineering (ECE) is to be congratulated for the commitment and enthusiasm of faculty members and the dedication of the departmental staff. The IARC applauds the Department’s recent and notable success in securing significant research funding.

The IARC agrees with the IAR report’s suggestion that the Department would benefit from a renewal of its vision and the development of a comprehensive strategic plan to streamline the curriculum, taking greater care to balance the undergraduate and graduate enrolment, and providing programming that is attractive to students and differentiates the Queen’s ECE Department from similar departments across Canada subject to accreditation requirements.

The IARC acknowledges the Department’s research strength and would encourage the Department to leverage this asset to shape future programming and remain competitive in student recruitment. The IARC also agrees with the IAR recommendations that a detailed plan for continuing research excellence be developed to encourage research in all areas including collaborative research within the department, across the university, and with industry.

As elsewhere, the Department faces challenges with enrolment and a complex curriculum. The IARC supports the IAR recommendation that the Department develop a student recruitment strategy, in conjunction with a newly developed strategic plan that articulates a clear academic direction and is applicable and interesting to students.

The IARC encourages the Department of ECE to leverage the enthusiasm and commitment of the faculty and staff in the unit, working in collaboration with the Faculty

of Applied Science, to address the recommendations of the IAR reports to maintain its competitive edge in a constantly changing field.

**Outcomes of the Internal Academic Review  
for the Department of Electrical and Computer Engineering**

*submitted jointly by the  
Dean of the Faculty of Applied Science  
and the  
Head of the Department of Electrical and Computer Engineering*

The Dean of the Faculty of Applied Science and the Head of the Department of Electrical and Computer Engineering welcome the careful review of the department's activities by the IARC. We are pleased to provide the following response to the specific recommendations of the committee.

1. Strategic Planning:

The Faculty of Applied Science undertook the development of a strategic plan in 2007/08 at the same time as the internal academic review of the department was being conducted. Our plan, which was approved by the Applied Science Faculty Board in January 2009, will guide the development of the Faculty in the coming years and serve as an overarching roadmap within which departments can align their distinctive program requirements. Strategic planning in the Department of Electrical and Computer Engineering will begin this fall. This process will be broad in scope taking into consideration aspects of the curriculum and its relation to other similar programs across Canada. Input from others outside of the Department will be sought, including that of the Faculty of Applied Sciences with respect to admissions and recruitment practises. The strategic plan will also include provision for encouraging research within the department, across the University and with industry.

2. Undergraduate Programs:

The Department of Electrical and Computer Engineering recently streamlined the undergraduate program to increase its attractiveness and distinctiveness and remove much of the complexity from the current curriculum structure. The formal options within each of the two programs have been replaced with streams of suggested course

the relationship of the various streams to future career opportunities. A major review of curriculum, led by the Associate Dean (Academic), is taking place for all programs in the

Internal Academic Review

Queen's University

Report of Internal Review Team

November 27, 2008

## 1. Introduction

This report describes the findings and recommendations of the Queen's reviewers for the Internal Academic Review of the Department of Electrical and Computer Engineering (ECE) that began in 2007. This report is being submitted much later than the committee had initially

intended because the report from the external consultants was not received by the University





Competition with Engineering Science programs, particularly the Eng. Phys. and Eng. Math

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were viewed as detrimental to the ECE Department. The external consultants noted that "ECE

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closely aligned with faculty research interests) and we recommend a review to reduce their number while offering courses that are strategically student centered and industrially relevant

Ultimately, the number of courses and their content should reflect the knowledge and skill sets

pays the differential tuition fee for visa students. Second, top-ups are offered to holders of major scholarships. Third, guaranteed minimum stipends are offered to MSc(Eng) and PhD students. *While these incentives help to maintain a healthy applicant pool, research funding is the primary barrier to an increase in graduate enrolment. Certainly, many qualified applicants*

are not offered positions (see Table on page 37) due to funding constraints.

incentives, an increase in MEng students will bring revenue to the Department. Recent changes to the graduate program include the elimination of written examinations in the revised

Currently, ECE has five designated research groups:

- o Communications

  - o *Computer Architecture and Software Engineering (merged in 2009)*

Advanced Signal Processing

#### 4. Teaching and Learning Methods

Department of Electrical and Computer Engineering. They are of different types, but all offer worthwhile insights and point in the direction of possible areas for improvement. The first of

The following recommendations are made with respect to teaching and learning in the Department:

- o Continuing efforts need to be made to extend and broaden Faculty and Teaching Assistant expertise in teaching methodologies

One dimension of such an initiative might be to increase the role of post-graduate students

curriculum. Effectively implemented, such an emphasis could become an effective part of

student recruitment and employment. Research ties with industry appear strong for some ECE



opportunities in teaching methodologies. Patterns of research funding are also

and

be given a high priority.

7.12 Connections should be established and enhanced within the broader research community at Queen's, at other research institutions, and with industry. The purpose and identity of the research groups must be clearly defined. All research funding should be clearly defined.