



# University of Toronto Quality Assurance Process (UTQAP) Cyclical Review: Final Assessment Report and Implementation Plan

<b>Program(s):</b>	Computer Engineering, B.A.Sc. Electrical Engineering, B.A.Sc. Electrical and Computer Engineering, M.Eng., M.A.Sc., Ph.D.
<b>Division/Unit:</b>	The Edward S. Rogers Sr. Department of Electrical and Computer Engineering
<b>Commissioning Officer:</b>	Dean, Faculty of Applied Science and Engineering
<b>Reviewers (Name, Affiliation):</b>	<ol style="list-style-type: none"><li>1. Dr. Andreas C. Cangellaris, M.E. Van Valkenburg Professor and Head of Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign</li><li>2. Dr. John P. Hayes, Claude E. Shannon Professor of Engineering Science, Department of Electrical Engineering and Computer Science, University of Michigan</li><li>3. Dr. André Ivanov, Professor and Head of Department of Electrical and Computer Engineering, University of British Columbia</li><li>4. Dr. Ruby B. Lee, Forrest G. Hamrick Professor in Engineering, Professor of Electrical Engineering, Department of Electrical Engineering, Princeton University</li></ol>
<b>Date of review visit:</b>	May 22-23, 2013
<b>Date reported to AP&amp;P:</b>	April 1, 2014

## 1 Outcome

The Committee on Academic Policy and Programs (AP&P) concluded that the Decanal response adequately addressed the review recommendations.

## 2 Significant Program Strengths

- Internationally well-recognized academic programs
- Program objectives, admissions process, and degree-level expectations favourably evaluated by the Canadian Engineering Accreditation Board (CEAB)
- High-impact, high-quality research
- Students' positive assessment of faculty members' teaching and research

## 3 Opportunities for Program Improvement and Enhancement

The reviewers recommended that the following be considered:

- Finding the appropriate balance between teaching and research workload
- Removing barriers to interdisciplinary research and longer-term, high-risk research endeavours
- Enforcing deadlines and timelines for graduate review committee meetings, impacting progress in students' doctoral studies
- Attending to variations in graduate student funding levels
- Strengthening graduate student advising
- Examining the "big jump" between the first and second year in the undergraduate program and the level of required courses in the second year

## 4 Implementation Plan

The Dean undertook in consultation with the Department to support the following changes:

- Immediate Term (6 months)
  - Balancing teaching and research workload
    - The Department will continue to support faculty members by providing teaching assistants for any undergraduate courses that require them.
    - The Department's internal Advisory Committee will consider the overall goal of reducing the number of course sections offered annually and will develop detailed implementation plans for longer term goals.
  - Removing barriers to interdisciplinary research
    - The Department will work with cognate units to develop interdisciplinary workshops where high-impact research can be discussed and pursued.
  - Enforcing graduate review timelines
    - The Department will test and finalize its new Ph.D. Tracking System, deploying it in Spring/Summer 2014.
  - Attending to student funding levels
    - The Department will study the financial burden on students and will collect and review data on the funding situation past the University's funding commitment.

- Strengthening graduate student advising
  - The Department will review the situation and take corrective action, if required, via The Edward S. Rogers Sr. Department of Electrical and Computer Engineering (ECE) graduate studies office.
- Examining the first- and second-year curricula
  - The Department will develop communications strategies and provide counselling to first-year students about the upcoming challenges in their second year.
- Medium Term (1-2 years)
  - Balancing teaching and research workload
    - The Department will reduce the number of graduate and undergraduate courses offered annually.
    - The Department's Graduate Matters Committee and Curriculum Matters Committee (undergraduate) will reduce the frequency of or eliminate courses with low student interest or low enrolment.
  - Removing barriers to interdisciplinary research
    - The Department will renew its advocacy efforts with the Natural Sciences and Engineering Research Council of Canada (NSERC) and other funding agencies to support basic and interdisciplinary research.
    - The Department will review its policy to better empower faculty interested in leading large, interdisciplinary initiatives.
  - Attending to student funding levels
    - The Department will work to find a balance among faculty relative to the notion that graduate study is a training program rather than a source of employment and will develop guidelines for funding after the University's commitment has expired.
  - Examining the first and second year curricula
    - The Department will review the second-year curriculum to identify areas where student workload may be reduced.
- Longer Term (3-5 years)
  - Balancing teaching and research workload
    - To reduce the number of course sections, the Department will work towards reducing undergraduate enrolment and will offset lost revenue through other means.
  - Removing barriers to interdisciplinary research
    - The Department will work with Faculty Advancement to develop the capacity to support high-impact interdisciplinary research from the Department's budget
    - The Department will work to foster a collaborative research environment, such as through increasing interdepartmental/divisional teaching and Ph.D. committee service

The Dean's Office will follow up annually with the unit to assess progress.

## 5 Executive Summary

The reviewers identified the Department's strengths as its internationally well-recognized academic programs; the high-impact, high-quality research being conducted; students' positive assessment of faculty members' teaching and research; and the recent favourable Canadian Engineering Accreditation Board accreditation review. The reviewers recommended that the following issues be addressed: finding the appropriate balance between teaching and research workload; removing barriers to interdisciplinary, higher-risk research; enforcing timelines for graduate review committee meetings; attending to variations in graduate student funding levels; strengthening graduate student advising; and examining the "big jump" between the first and second year in the undergraduate program and the level of required courses in the second year. To address concerns about faculty workload, the Department will reduce the number of courses and course sections offered and overall undergraduate enrolment. The Department will support interdisciplinary research through building connections with cognate units, advocating for external funding, and reviewing internal policies and funding. To ensure that graduate students are supported, the Department will deploy its new online Ph.D. Tracking System, review funding guidelines and structures for the period after which the University's funding commitment expires, and take required action to better advise graduate students. The Department will work with first-year undergraduate students so that they are better prepared for the second year and will identify areas in the second year where student workload may be reduced. The Committee on Academic Policy and Programs concluded that the Decanal response adequately addressed the review recommendations.