UNIVERSITY OF WINDSOR
UNIVERSITY PROGRAM REVIEW (UPR)
REPORT ON: Electrical and Computer Engineering
GRADUATE AND UNDERGRADUATE PROGRAMS
March 2018

EXECUTIVE SUMMARY

Review Preparation
In preparing this document, the Program Development Committee reviewed the following: Electrical and Computer Engineering's Self-Study (SS) (October 2015), the report of the external reviewers (ER) (April 2016), the response from the Head (HR) (February 2017), and the response from the Dean (DR) (November 2017) to the above material. The external reviewers were: Dr. Kash Khorasani, Faculty of Engineering and Computer Science, Concordia University, Dr. Fayez Gebali, Department of Electrical and Computer Engineering, University of Victoria, and Dr. Scott Goodwin, School of Computer Science, University of Windsor.

Undergraduate and Graduate Programs
At the undergraduate level, the Department offers a Bachelor of Applied Science in Electrical Engineering, and a post-undergraduate Honours Certificate in Electrical Engineering.

At the graduate level, the Department offers a Master of Applied Science in Electrical Engineering, a Master of Engineering in Electrical Engineering (with/without Co-op or Internship Option)[1], and a PhD in Electrical Engineering.

Enrolments

Undergraduate

	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017
Full-Time	179	191	225	250	265
Part-Time	59	45	52	53	72

Graduate

	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017
Full-Time	326	289	313	326	404
Part-Time	5	9	6	5	4

Human Resources

Faculty/Instructors

Tenure/tenure-track faculty	19 (including Dean of Engineering and 1 vacancy)
Faculty members involved in graduate program delivery	18

Full/Part-time Staff

Graduate Secretary	1
Electronics Technologist	.5
Technologist	1
Secretary to the Head	1

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[1] Changed to Master of Engineering in Electrical and Computer Engineering (with/without Co-op or Internship Option) in January 2018

FINAL ASSESSMENT REPORT (with Implementation Plan)

Significant Strengths of the Programs
The External Reviewers identified the following strengths, among others, during its review of the Department's undergraduate and graduate program:
"1.   The number of professors involved actively in teaching and research,
2.   The research excellence of the faculty members,
3.   The motivation, morale, and capabilities of the undergraduate and graduate students, and
4.   The development of revised curriculum programs." (ER, p.6)"

"[U]nique undergraduate and graduate courses in specialized and strategically important areas such as automotive, smart grid, and security" and "world-class laboratory facilities" positively impact the quality of the undergraduate and graduate programs and research programs. (ER, p.6,8)

Opportunities for Program Improvement/Enhancements
The External Reviewers raised a concern with the completion rates for undergraduate and PhD programs. This is reflected in recommendation 2, below. PDC concurs with the Department's statement that addressing this concern and increasing graduation rates requires a long-term approach and ought to be prioritized. (HR, p.6) The reviewers also noted that retention of new early career faculty members "will be a both a challenge and an opportunity for the Department" and "it is critical that appropriate support processes are put in place to help them achieve tenure." (ER, p.7)

Further opportunities for program improvements are captured in the recommendations listed below.

IMPLEMENTATION PLAN

Recommendations (in priority order)
(Final recommendations arrived at by the Program Development Committee, following a review and assessment of the External Reviewers report, the Head's response, and the Dean's response.)

Recommendation 1: That the Department submit curriculum maps for each of its programs and course-level learning outcomes and assessment methods for each of its courses that clearly correspond to the program-level learning outcomes.
Agents: Department Council, Head, CTL, Vice-Provost, Teaching and Learning
Completion by: Fall 2019

Recommendation 2: That the Department review and identify the causes of low graduation rates in its PhD and undergraduate programs, and longer degree completion times for its MASc and PhD programs, and report on strategies to address these issues. Consideration should be given to allowing refereed publications to form the majority of the thesis.
Agents: Head, Graduate Program Chair, AAU Council
Completion by: Fall 2019

Recommendation 3: That the Department strike a task force to investigate and consider reducing or eliminating the seminars that are now part of the requirement for a Masters degree. Consideration might be given to replacing such seminars with a course addressing some or all of the following objectives: critical thinking and problem solving, oral and written communication skills, methodology, professionalism, and ethics.
Agents: Head, Graduate Committee, AAU Council
Completion by: Fall 2019

Recommendation 4: That the Department maintains and report on its continuous curriculum revisions for improving its graduate course offerings. Specifically, that the Department:?
(a) review its graduate courses to ensure that they are at the appropriate level and content,
(b) consider whether there is a need for more advanced or complementary graduate courses, particularly in the MASc and PhD programs,
(c) consider moving the design methodology topic of the Capstone Design Project in the 1st semester of the Masters program, and
(d) report on the feasibility of introducing a set of core courses in each of the Department's areas of research. (Computer Engineering, Electronics, Signal Processing/Communications, and Control/Power (mechatronics)).
Agents: Head, Graduate Committee, AAU Council
Completion by: Fall 2021

Recommendation 5: That the Department, working with the Faculty of Engineering Curriculum Committee, consider whether there should be electrical and computer engineering content in the first-year undergraduate core program.
Agents: Head, Faculty of Engineering Curriculum Committee
Completion by: Fall 2019

Recommendation 6: That Department report on efforts to establish research teams based on common areas of interest and multidisciplinary research thrusts with a view to obtaining large group grants or industry-sponsored research grants and securing sustainable graduate student funding.
Agents: Head, faculty members
Completion by: Fall 2021

Recommendation 7: That the Department, working with the Faculty Dean report on a plan to effectively and efficiently manage technical and administrative support needs**.**
Agents: Head, Dean
Completion by: Fall 2019

Recommendation 8: That the Department, working with its Dean, make a case to the Faculty of Graduate Studies for additional graduate student support.
Agents: Head, Dean
Completion by: Fall 2019