CARLETON UNIVERSITY COMMITTEE ON
QUALITY ASSURANCE
Cyclical Review of the undergraduate program
in Electrical Engineering
Executive Summary and Final Assessment Report

This Executive Summary and Final Assessment Report of the cyclical review of Carleton's undergraduate program in Electrical Engineering in the Department of Electronics is provided pursuant to the provincial Quality Assurance Framework and Carleton's Institutional Quality Assurance Process (IQAP).

EXECUTIVE SUMMARY
The undergraduate program in Electrical Engineering resides in the Department of Electronics, a unit administered by the Faculty of Engineering and Design.

As a consequence of the review, the program was categorized by Carleton University's Senate Quality Assurance and Planning Committee (SQAPC) as being of good quality. (Carleton's IQAP 7.2.13-7.2.14).

The External Reviewers' report offered a very positive assessment of the program. Within the context of this positive assessment, the report nonetheless made a number of recommendations for the continuing enhancement of the program. These recommendations were productively addressed by the Chair of the Department of Electronics, and the Dean of the Faculty of Engineering and Design in a response to the External Reviewers' report and Implementation Plan that was submitted to SQAPC on October 13, 2022.

Electronics
Unit Response to External Reviewers' Report & Implementation Plan
Programs Being Reviewed: Electrical Engineering

Note: This document is forwarded to Senate, the Quality Council and posted on the Vice- Provost's external website.

UNIT RESPONSE AND IMPLEMENTATION PLAN					
Programs Being Reviewed:					
Prepared by (name/position/unit):					
External Reviewer Recommendation & Categorization	**Unit Response (choose only one for each recommendation):** 1- Agreed to unconditionally 2- Agreed to if additional resources permit (describe resources) 3- Agreed to in principle 4- Not agreed to Rationales are required for categories 2, 3 & 4	**Action Item**	**Owner**	**Timeline**	**Will the action described require calendar changes? (Y or N)**
1. We recommend that a succession plan be drawn up immediately regarding transitioning the current workload and responsibilities for technical support to new hires. To this end, we recommend that university-level Human Resources be consulted, as needed, in order ease this transition process and to assist the current technical support individual in reducing the extent of his activities and responsibilities. (weakness)	*Agreed to unconditionally* *The Department of Electronics includes 7 continuing technical staff members. 2 staff members support the Microfabrication laboratory which serves senior undergraduate courses and graduate research. 2 staff members support the Department computer network and resources including undergraduate courses, graduate research, and administrative computing. 3 staff members support undergraduate hardware labs and some experimental research labs. While the technical roles are distinct there is sufficient overlap and faculty expertise to support a transition should a staff member leave.* *It is likely this recommendation regarding technical support was based on an ad-hoc interview with a single staff member who assumed considerable responsibility during the*	*Hiring technical staff and managing evolution of workload and responsibilities is ongoing.* *All continuing technical staff positions are filled from October 10, 2022.*	*Department Chair*	*September 2022*	*N*

	COVID pivot to remote laboratory activity. There is ongoing coordination with HR regarding lab staffing and responsibilities.				
2.We recommend that funds currently allocated for faculty recruitment be reallocated to hire additional technical support staff. (opportunity)	*Agreed to unconditionally*	*Hiring technical staff and defining responsibilities is ongoing*	*Department Chair and Faculty Dean*	*September 2022*	*N*
3. Consider merging the Department of Electronics with the Department of Systems and Computer Engineering. (opportunity)	*Not agreed* *This is a major structural change to the faculty with potential negative impact*				
4. Consider reducing the number of ECE-related programs. (opportunity)	*Not agreed* *Smaller programs enhance the sense of community in student cohorts and subsets of faculty members*				
5. Institute a five-year standard length for the term of Department Chair. (opportunity)	*Agreed in principle* *While a longer term can have benefits, flexibility can also be valuable. I thought Carleton used a standard 4 year term but 5 years could be discussed.*	*Discuss with Chairs and Directors*	*Faculty Dean*	*May 2022*	*N*

6. Expect and support Department Chairs and other faculty members who show interest and potential in leadership to participate and complete the Carleton Leader Program. (opportunity)	*Agreed unconditionally*	*I believe this is already done*	*Faculty Dean*	*May 2022*	*N*
7. Establish clear departmental aspirations (vision) along with tactical and strategic priorities (short and longer terms) for guiding collective and individual decisions and resource allocations. (opportunity)	*Agreed in principle*	*Document vision and priorities in annual academic and financial planning*	*Department Chair*	*February 2023*	*N*
8. Revisit the departmental administrative structure and leadership portfolios such that new models can be deployed and experimented with, noting that: o Associate Chairs specifically responsible for coordinating and supporting research initiatives have been instrumental at other institutions in advancing research activities and outcomes o Associate Chairs for outreach, external activities, entrepreneurship, innovation, and/or other strategic initiatives have proven helpful in o (ther institutions for enabling and achieving departmental successes affecting and valued by multiple stakeholders, including students, faculty, and the community at large o High-energy/visionary/unconventional-thinking individuals with different views/ideas can have significant positive impact on departmental operations and outcomes (opportunity)	*Agreed in principle* *These roles are currently administrative load assignments for faculty members*	*Discuss with Dean and Department Faculty Board*	*Department Chair*	*September 2022*	*N*

9. Increase faculty member engagement. (opportunity)	*Agreed in principle*	*Increase number of Department faculty meetings*	*Department Chair*	*September 2022*	*N*
10. Raise departmental levels of enthusiasm/excitement. (opportunity)	*Agreed in principle*	*Will try to be more aggressive in communicating and promoting opportunities to faculty?*	*Department Chair*	*September 2022*	*N*
11. Consider taking a larger and more engaged role in departmental external engagements and promotions. (opportunity)	*Agreed in principle* *Multiple faculty members are actively engaged in outreach through the University and technical society activities*	*Encourage faculty to look for additional opportunities to promote the EE program*	*Department Chair*	*September 2022*	*N*
12. Look externally for ideas for alternatives toward improving academic programs, program delivery, research activities, departmental business operations, student engagement, etc. (opportunity)	*Agreed in principle* *This is an ongoing activity but change is gradual*	*A topic for discussion at the Department faculty meetings (#9)?*	*Department Chair*	*September 2022*	*N*
13. Engage the curriculum committee in the amalgamation and evolution of ECE programs at Carleton. (opportunity)	*Agreed in principle.*	*Review of program overlap*	*Dept. Electronics Curriculum Committee*	*September 2022*	*Maybe?*
14. Give serious reconsideration to the manner in which the final year capstone course is organized and delivered. (opportunity)	*Agreed in principle* *Ongoing discussion*	*Review of capstone structure*	*Capstone committee*	*September 2022*	*N*

15. Review overall workload for students. (opportunity)	*Agreed in principle*	*Review program course load* *Solicit feedback from students to clarify concerns*	*Curriculum committee*	*September 2022*	*Maybe ?*
16. Develop mechanisms to support the regular and critical review of laboratory components to ensure they are truly engaging and instructive and not simply comprised of rote procedures for students to complete. (opportunity)	*Agreed in principle* *Ongoing process*	*Review laboratory components*	*Curriculum committee*	*September 2022*	*N*
17. Re-examine the possibility of integrating low-cost test and measurement devices/platforms into the EE program for students to use outside of traditional labs and classrooms. (opportunity)	*Not agreed* *We have developed equivalent in-person and remote access student experiences using professional quality test equipment.* *Take-home test and measurement is supported where appropriate*				
18. Encourage the revitalization of delivery/learning models even within a classical lecture based classroom model.	*Agreed in principle*	*Encourage course instructors to engage with TLS*	*Department Chair*	*August 2022*	*N*
19. Develop feedback, self-assessment and improvement processes at the department level for courses and the manner in which they are offered.	*Agreed in principle*	*Review student feedback from town hall in winter term* *Encourage faculty to engage Department teaching mentor*	*Department Chair, Curriculum committee*	*August 2022*	*N*

20. Provide additional training for TAs.	*Agreed unconditionally*	*Encourage course instructors to organize training*	*Department Chair*	*September 2022*	*N*
21. Re-examine the basis on which admission to the Electrical Engineering program is offered.	*Not agreed* *This is the territory of the Associate Dean Student Success and Registrar and will be difficult to change for a program of this size*				
22. Re-examine what is sufficient for a student to pass a course.	*Not agreed* *Challenging courses are already offered in different terms providing multiple opportunities to complete.*				
23. Provide greater and more structured and formal support for extracurricular project clubs and activities which provide tremendous learning opportunities for students.	*Agreed in principle*	*Encourage more faculty to sponsor student extracurricular activities*	*Department Chair*	*May 2022*	*N*
24. Create better lines of communication with student leaders.	*Agreed unconditionally* *Student representatives are already included in governance*	*Increase frequency of meetings and town halls*	*Department Chair*	*September 2022*	*N*

25. Create 5 and 6 year program maps.	*Agreed in principle* *Students falling off-pattern on 4 years may still be off-pattern on 5 or 6 year plans.*	*Investigate practical extended program maps*	*Curriculum Committee*	*September 2022*	*N*
26. Encourage faculty members to connect students with their research programs and relate/introduce research examples into the undergraduate program.	*Agreed unconditionally* *This is natural for active researchers*	*Promote to faculty*	*Department Chair*	*December 2022*	*N*
27. We recommend that the department contemplate activities that promote and support undergraduate research opportunities for its students.	*Agreed unconditionally* *See 26.*	*Promote to faculty (USRA, I-CUREUS)*	*Department Chair*	*December 2022*	*N*