

Electrical Engineering
Update on Unit Response to External Reviewers’ Report & Action Plan
Programs Being Reviewed: Electrical Engineering
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Approved by Dean: Larry Kostiuk August 26, 2024

Note: This document is made available for public posting on the Vice-Provost’s website.

*** Denotes items that SQAPC would like the unit to pay particular attention to based on their past review of the original action item.

External Reviewer Recommendation & Categorization	Action Item	Owner and Timeline	Progress updates	Have calendar changes been initiated or completed (Not applicable/Yes/No), if Yes, when
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)	<i>Hiring technical staff and managing evolution of workload and responsibilities is ongoing. All continuing technical staff positions are filled from October 10, 2022.</i>	<i>Department Chair</i>	<i>Chair is meeting regularly with support staff to discuss workload and succession. Staff are working on improved documentation of workload and responsibilities.</i> <u><i>The new technical staff have successfully embraced their roles within the department and are actively running labs, ordering supplies, interfacing with faculty, and even updating and improving labs.</i></u>	<i>Not Applicable</i>
2.We recommend that funds currently allocated for faculty recruitment be reallocated to hire additional technical support staff. (opportunity)	<i>Hiring technical staff and defining responsibilities is ongoing</i>	<i>Department Chair and Faculty Dean</i>	<i>Currently no funding has been made available for faculty or staff recruitment.</i>	<i>Not Applicable</i>

3. Consider merging the Department of Electronics with the Department of Systems and Computer Engineering. (opportunity)	<i>Not agreed</i> <i>This is a major structural change to the faculty with potential negative impact</i>	N/A	N/A	N/A
4. Consider reducing the number of ECE-related programs. (opportunity)	<i>Not agreed</i> <i>Smaller programs enhance the sense of community in student cohorts and subsets of faculty members</i>	N/A	N/A	N/A
5. Institute a five-year standard length for the term of Department Chair. (opportunity)	<i>Discuss with Chairs and Directors</i>	<i>Faculty Dean</i>	<i>Incoming Chair is on a 5 year term.</i>	<i>Not Applicable</i>
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)	<i>I believe this is already done</i>	<i>Faculty Dean</i>	<i>Already done, dependent on schedules.</i>	<i>Not Applicable</i>
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)	<i>Document vision and priorities in annual academic and financial planning</i>	<i>Department Chair</i>	<p><i>Department retreat held in May 2024. Increased frequency of Department meetings in 24-25. Incoming Chair is actively pursuing strategic collaborations.</i></p> <p><u><i>So far two departmental meetings have been held. The Chair is targeting a meeting each month, or every 5 weeks, depending on workloads and need. Strategic collaborations with industry are being pursued through the Industry Advisory Board, which is being rebuilt. Also the Chair reconnected with the CEO of CMC.ca, a primary contact between DOE and industry. Basically the word is spreading that the department is active and looking to engage.</i></u></p>	<i>Not Applicable</i>

<p>8. Revisit the departmental administrative structure and leadership portfolios such that new models can be deployed and experimented with, noting that:</p> <ul style="list-style-type: none"> ○ Associate Chairs specifically responsible for coordinating and supporting research initiatives have been instrumental at other institutions in advancing research activities and outcomes ○ 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 ○ High-energy/visionary/unconventional-thinking individuals with different views/ideas can have significant positive impact on departmental operations and outcomes (opportunity) 	<p><i>Discuss with Dean and Department Faculty Board</i></p>	<p><i>Department Chair</i></p>	<p><i>Incoming Department Chair will bring new ideas and energy.</i></p> <p><u>More work is needed here. Currently “job descriptions” for the important roles such as Associate Chair Graduate, Associate Chair Undergraduate are being written (they did not exist before). The Chair investigated what roles are present in the sister departments (CIV/MAE/SCE). A “Chair’s Council” which is comprised of the current Chair, and three previous Chairs, will carefully define roles based on experiences administering the department. We need to balance the admin roles with teaching load which is a challenge right now. The timeline for this item is completion prior to teaching assignments which normally are given out early in the new year.</u></p>	<p><i>Not Applicable</i></p>
<p>9. Increase faculty member engagement. (opportunity)</p>	<p><i>Increase number of Department faculty meetings</i></p>	<p><i>Department Chair</i></p>	<p><i>Increased number of Department meetings scheduled in 24-25</i></p>	<p><i>Not Applicable</i></p>
<p>10. Raise departmental levels of enthusiasm/excitement. (opportunity)</p>	<p><i>Will try to be more aggressive in communicating and promoting opportunities to faculty?</i></p>	<p><i>Department Chair</i></p>	<p><i>Increased focus on in-person interaction, more frequent meetings, and collaborative research activities.</i></p> <p><u>The Chair is focused on always being available personally. Open-office and face to face. Meanwhile a very transparent administration involving everyone in major areas such as budget, and CPR, has been implemented and will continue to be improved.</u></p>	<p><i>Not Applicable</i></p>

11. Consider taking a larger and more engaged role in departmental external engagements and promotions. (opportunity)	<i>Encourage faculty to look for additional opportunities to promote the EE program</i>	<i>Department Chair</i>	<i>Increasing number of faculty assigned to outreach events in 24-25.</i> <u><i>This is needed for enrolment and industry collaborations. So far we've had one outreach event (OUF) and two faculty attended. We will be representing our department at all upcoming events.</i></u>	<i>Not Applicable</i>
12. Look externally for ideas for alternatives toward improving academic programs, program delivery, research activities, departmental business operations, student engagement, etc. (opportunity)	<i>A topic for discussion at the Department faculty meetings (#9)?</i>	<i>Department Chair</i>	<i>Increasing consultation with stakeholders</i>	<i>Not Applicable</i>
13. Engage the curriculum committee in the amalgamation and evolution of ECE programs at Carleton. (opportunity)	<i>Review of program overlap</i>	<i>Dept. Electronics Curriculum Committee</i>	<i>Digital electronics course content updated in 23-24. Analog electronics review planned for 24-25</i>	<i>Not Applicable</i>
14. Give serious reconsideration to the manner in which the final year capstone course is organized and delivered. (opportunity)	<i>Review of capstone structure</i>	<i>Capstone committee</i>	<i>New Capstone coordinator in 23-24 initiated significant improvements to course organization, with further improvements planned for 24-25.</i> <u><i>We are confident the latest incarnation of our Capstone project is greatly improved. It's organized, efficiently run, faculty are involved, and students have clear instructions on how to engage with faculty and how to successfully complete the capstone course.</i></u>	<i>Not Applicable</i>
15. Review overall workload for students. (opportunity)	<i>Review program course load Solicit feedback from students to clarify concerns</i>	<i>Curriculum committee</i>	<i>Ongoing, some feedback from town hall meetings in winter 24.</i> <u><i>This is a major undertaking and work has started via engagement first with the student societies. A subset of the curriculum committee will be asked to focus on workload once students have had their voices heard. Timeline for this activity: complete the review by the end of the W2025 term and implement any corrective actions agreed upon in time for F2025.</i></u>	<i>Not Applicable</i>

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)	<i>Review laboratory components</i>	<i>Curriculum committee</i>	<p><i>Ongoing. Lab updates in several key courses have been initiated for fall 24.</i></p> <p><u><i>Lab updates for ELEC4601 and ELEC4505 have been implemented. An industry collaborator donated development kits for use in ELEC4601. So we are training the students using the most up to date hardware available. New printed circuit boards were designed for ELEC4505, implemented by one of the newer technicians, and will be built in-house).</i></u></p>	<i>Not Applicable</i>
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)	<p><i>Not agreed</i></p> <p><i>We have developed equivalent in-person and remote access student experiences using professional quality test equipment.</i></p> <p><i>Take-home test and measurement is supported where appropriate</i></p>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>
18. Encourage the revitalization of delivery/learning models even within a classical lecture based classroom model.	<i>Encourage course instructors to engage with TLS</i>	<i>Department Chair</i>	<i>Two faculty engaged in TLS supported course updates, will encourage additional faculty in 24-25</i>	<i>Not Applicable</i>
19. Develop feedback, self-assessment and improvement processes at the department level for courses and the manner in which they are offered.	<p><i>Review student feedback from town hall in winter term</i></p> <p><i>Encourage faculty to engage Department teaching mentor</i></p>	<i>Department Chair, Curriculum committee</i>	<p><i>Feedback provided to instructors based on town hall meetings.</i></p> <p><u><i>The Chair runs a student discord, gets real time feedback, and distributes it real time to appropriate faculty. We are doing real time feedback. A town hall will also be held.</i></u></p>	<i>Not Applicable</i>
20. Provide additional training for TAs.	<i>Encourage course instructors to organize training</i>	<i>Department Chair</i>	<i>Additional training on course by course basis encouraged for 24-25.</i>	<i>Not Applicable</i>

21. Re-examine the basis on which admission to the Electrical Engineering program is offered.	<i>Not agreed</i> <i>This is the territory of the Associate Dean Student Success and Registrar and will be difficult to change for a program of this size</i>	N/A	N/A	N/A
22. Re-examine what is sufficient for a student to pass a course.	<i>Not agreed</i> <i>Challenging courses are already offered in different terms providing multiple opportunities to complete.</i>	N/A	N/A	N/A
23. Provide greater and more structured and formal support for extracurricular project clubs and activities which provide tremendous learning opportunities for students.	<i>Encourage more faculty to sponsor student extracurricular activities</i>	<i>Department Chair</i>	<i>More structured process for funding and space requests have been established by the Dean's office.</i> <u><i>The Chair has interfaced with the undergraduate societies. We are implementing workshops for technical training "after hours" with faculty attendance.</i></u>	<i>Not Applicable</i>
24. Create better lines of communication with student leaders.	<i>Increase frequency of meetings and town halls</i>	<i>Department Chair</i>	<i>Plan for Chair to meet student leaders at least once each term in 24-25.</i> <u><i>The Chair has met with all student societies, regularly chats with them in person and on discord, and has arranged a weekly office hour for them.</i></u>	<i>Not Applicable</i>
25. Create 5 and 6 year program maps.	<i>Investigate practical extended program maps</i>	<i>Curriculum Committee</i>	<i>Ongoing.</i> <u><i>Our program is accredited and there is a natural progression through the program with pre-requisites. We do not want to risk accreditation status by changing the accepted program streams.</i></u> <u><i>At the September departmental meeting this point was discussed. The topic of student workload was connected to this request.</i></u> <u><i>What is needed is a clear roadmap with the courses more balanced with respect to workload over the five or six years.</i></u>	<i>Not Applicable</i>

			<p><u>Once #15 is complete we can use the information to determine course combinations suitable for a 5 year and a 6 year program, while keeping pre-requisites in place.</u></p> <p><u>So the timeline for this action is completion by S2025.</u></p>	
26. Encourage faculty members to connect students with their research programs and relate/introduce research examples into the undergraduate program.	<i>Promote to faculty</i>	<i>Department Chair</i>	<i>New Capstone coordinator in 23-24 initiated improvements to encourage faculty engagement with capstone students including research topics.</i>	<i>Not Applicable</i>
27. We recommend that the department contemplate activities that promote and support undergraduate research opportunities for its students.	<i>Promote to faculty (USRA, I-CUREUS)</i>	<i>Department Chair</i>	<i>See 26.</i>	<i>Not Applicable</i>