

Review of the University of Victoria's Department of Electrical and Computer Engineering Graduate Programs

18 July 2022

Review Committee

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Executive Summary

This report contains a set of impressions and observations collected by the review committee through their study of the submitted written documents (principally a unit "self-study" document), as well as resulting from the committee's in-person visit of the unit, comprised of interviews with students, staff, faculty and University of Victoria administrators. Overall, this committee is pleased to report that the unit is strong on many facets, most importantly, in its research enterprise and graduate teaching and learning programs (format, content and delivery), as well as in its human resources. Nevertheless, a number of opportunities for improvement or strengthening emerged through this review. The context for these is discussed in more detail in the body of this report. These opportunities are also summarized and articulated through the following set of seventeen recommendations referenced to the numbered Sections of Unit Review Report Template provided by the University of Victoria.

Recommendation S1.1: The university should ensure that comprehensive unit reviews are conducted on a regular schedule (ideally every 5 years) and that the reviews not separate undergraduate and graduate programs, i.e., that the unit and all its activities be assessed as a whole. The CEAB reviews for accreditation of undergraduate programs should be independent exercises. If the university wishes to conduct reviews of graduate programs only, then a different set of review criteria, specifically focused on program outcomes, pedagogy, etc., should be established.

Recommendation S1.2: The unit should work towards a more definite plan to inform the decisions that it will want to make in the short and longer terms. The onus is not only on the unit to align its strategies and goals with that of the Dean's Office and the

University as a whole. The responsibility should also rest with senior leaders to work with unit members to develop a plan that will be supported and embraced at all levels.

Recommendation S1.3: The unit should not embark on creating further teaching and program delivery commitments until it reaches a state of stability and sustainability for its existing programs and staff/faculty complements.

Recommendation S1.4: A hiring plan that connects to clearly articulated departmental vision and goals would be beneficial, both for guiding departmental decisions as well as for communications internally and externally to the department.

Recommendation S1.5: The department should refrain from assigning PhD students the responsibility to instruct graduate courses, even if those are to be assessed by faculty members (as per current practice).

Recommendation S1.6: The unit should engage in developing a more comprehensive plan that connects technical areas of interest reported in the self-study document with the current and anticipated teaching needs at the undergraduate and graduate levels and tie in these technical areas with a vision and goals for their research enterprise. In regards to the latter, the technical areas pursued will result in large impacts on physical (lab space and equipment) and other resources. A holistic plan would be in order to capitalize on the current strengths and the opportunities available to the department.

Recommendation S2.1: To retain the ability to deliver a large and diverse graduate program within the constraints of the university's budget and resource models, the department should engage in revitalizing its electrical and computer engineering undergraduate programs with the objective of increasing student demand. This is a substantial and multifaceted undertaking with additional discipline-specific constraints from CEAB accreditation, which we expect to require both broad participation from unit members and sufficient time (we would estimate 1-2 years) for high-quality planning and implementation.

Recommendation S2.2: Implement more structured surveys (e.g., exit interviews) to collect industry, faculty and student inputs to inform steps to evolve the programs and their delivery.

Recommendation S3.1: Implement more formal and rigorous program review mechanisms to enable continuous program improvements as opposed to single course improvements.

Recommendation S3.2: Introduce some departmental oversight in the admission process for MASc, PhD and MEng students.

Recommendation S3.3: As part of a strategic plan, develop and articulate a stronger internationalization initiative to integrate with both the teaching and research missions.

Recommendation S3.4: There is an opportunity to formalize the co-op experience for some graduate programs. This would need to be balanced with an increase in program completion time. Co-op should thus remain optional.

Recommendation S3.5: The unit should consider more directly promoting student engagement in co-curricular activities. This could include committing resources to support activities organized by the ECE student body. In this context, the unit could encourage the formation of an ECE Graduate Student Society, which would be warranted considering the size of the program.

Recommendation S4.1: There is an opportunity to develop more structured metrics for assessing post graduation outcomes. Such tracking may be done at the Faculty level, since the needs are similar across individual engineering departments.

Recommendation S5.1: A sustained and targeted effort to grow the connection(s) between the Entrepreneurship@UVic program with local and global industry and the unit's research enterprise should be formulated.

Recommendation S6.1: Formalize objectives and activities to strengthen collaborations with on- and off-campus partners and alumni engagement as part of the upcoming strategic plan.

Recommendation S6.2: A physical infrastructure master plan for the department's research and teaching should be developed along with a strategic plan with its specific goals and priorities. Ideally, the infrastructure plan would include some degree of contingency to allow the department to respond to unanticipated scenarios, including the pursuit of unplanned opportunities.

The set of recommendations above is quite extensive and comprehensive. We understand that considerable changes to the leadership of the University have just occurred or in process. We hope that these recommendations will be helpful to all the stakeholders as they come together to set their own course based on an agreed upon set of common goals and priorities for the short and longer term.