Quality Assurance Cyclical Undergraduate Program Review – Executive Summary and Implementation Plan

Department of Electrical and Computer Engineering

Faculty of Engineering

October 2024

Programs Reviewed

Engineering Technology Diploma (Electrical Engineering)
Bachelor of Engineering (Electrical Engineering)
Bachelor of Engineering (Electrical Engineering) – Co-operative Education/Internship option

Executive Summary

In accordance with the Lakehead University Institutional Quality Assurance Process (IQAP) and the Ontario Quality Assurance Framework (QAF), the Department of Electrical and Computer Engineering submitted a self-study (September 2017). Volume I presented the undergraduate program descriptions and outcomes, an analytical assessment of the programs, and program information along with institutional information and statistical data. Volume II provided course syllabi. Volume III provided the CVs for core faculty and one contract lecturer contributing to the delivery of the programs.

The Review Team for this cyclical program review included two external reviewers and one internal reviewer selected by the Senate Academic Quality Assurance Sub-Committee (SAC-QA) from a set of proposed reviewers. The reviewers examined materials and completed a two-day site visit on October 22-24, 2017. The site visit included meetings with the Provost and Vice-President (Academic), Deputy Provost, Dean of Engineering, the Chair of the Department, full-time, tenure-track faculty members, the technical staff, a group of undergraduate students, the Associate Vice-President, Research & Graduate Studies, the University Librarian and Liaison Librarian, and a group of alumni and community partners. The Review Team observed and/or toured laboratory facilities on the Thunder Bay campus, the Chancellor Paterson Library including the Teaching Commons and Northern Studies Research Centre (fifth floor).

In their report (February 2018), the Review Team provided feedback that describes how the programs delivered by the Department of Electrical and Computer Engineering meet

the Quality Assurance Framework evaluation criteria and align with the University mission, strategic plan and academic plan. The Review Team noted that the programs are of high quality and offer students a regionally connected and learner-centred experience supported by the full-time faculty members and highly qualified technologists.

At the undergraduate level, students must meet the standard University admission policies which are appropriate for the Program Learning Outcomes. Curriculum structure and delivery, and teaching and assessment methods are appropriate, are aligned with comparable programs across Canada at the undergraduate level, reflect the current state of the discipline, and are effective in preparing graduates to meet defined program outcomes and the University's Undergraduate Degree Level Expectations.

The Review Team noted several strengths of the Electrical and Computer Engineering programs and summarized them as follows:

- The Electrical Engineering program is a relatively small but solid traditional program.
- Its uniqueness lies in the fact that large portions of its students are diploma transfer students from colleges.
- The program emphasizes hands on practical training and its graduates have a high rate of employment upon graduation.
- The faculty members are dedicated and there is a collegial atmosphere in the program.

Responses to the Review Team were received from the Chair of the Department (September 2018), and the Dean of the Faculty of Engineering (June 2020).

A Final Assessment Report (FAR) has been prepared to provide a synthesis of the external evaluation and internal response to the recommendations. This report identifies the significant strengths of the program, the opportunities for program improvement and enhancement, and sets out and prioritizes the recommendations that have been selected for implementation.

Implementation Plan

The Implementation Plan included below identifies the academic unit's plans to action the recommendations, those responsible for ensuring their implementation and the timelines.

Implementation Plan

Recommendation Priority 1

Reducing student workload, addressing low average marks, improving retention rates, evaluating soft skills of graduates and addressing the duration of the post-diploma students (in reference to Recommendations 1, 5, 6, 7 and 10).

Actions for Implementation

- Use the CEAB continual improvement process based on graduate attribute indicators to identify in what areas students are not performing well and propose solutions that may include program changes. The process includes feedback from the Engineering Advisory Board, which includes representatives from several industries.
- Review program curriculum to reduce course load while still satisfying Technology Diploma, College-Transfer and CEAB constraints.

Role/Person responsible for implementation

Department Chair.

Timeline

To be completed by the 2023-2024 academic year.

Recommendation Priority 2

Teaching relief for Department Chair, faculty complement increase, shared IT position, and using GAs to provide instructional support in labs (in reference to Recommendations 2, 3, 4 and 11).

Actions for Implementation

1. The Department Chair will not teach more than 3 courses per year, if the actions below make this possible.
2. The Department will attempt to partially address the teaching shortages by sharing some courses with Barrie.
3. The Department will request additional faculty positions to address the problem with overloads and the high teaching load of the Department Chair. If the request is denied, there will be less reliance on overloads and more on sessional instructors.
4. One of the laboratory technologists will be assigned the IT role in the Department.

Role/Person responsible for implementation

Department Chair.

Timeline

Items 1, 2 and 3 to be completed by the 2020/21 academic year. Item 4 to be completed by the 2024/25 academic year.

Recommendation Priority 3

Simplification of engineering regulations and expansion of the co-op program (in relation to Recommendations 8 and 9)

Actions for Implementation

- Review existing Engineering regulations to see if parts of it can be simplified.
- Review the co-op program organization in the Faculty of Engineering

Role/Person responsible for implementation

Faculty Dean / Assistant Dean

Timeline

To be completed by 2025/26 academic year.