**REPORT OF THE ACADEMIC PLANNING COMMITTEE**

**TO THE REGULAR April 2019 SENATE**

 **QUALITY ASSURANCE - CYCLICAL PROGRAM REVIEW OF LAURENTIAN UNIVERSITY’S ENGINEERING GRADUATE PROGRAM**

**FINAL ASSESSMENT REPORT & IMPLEMENTATION PLAN, APRIL 2019**

In accordance with the Laurentian University’s Institutional Quality Assurance Process (IQAP), the Final Assessment Report has been prepared to provide a synthesis of the external evaluation and Laurentian’s response and action plan. This report identifies the significant strengths of the program, opportunities for program improvement and enhancement, and sets out and prioritizes the recommendations that have been selected for implementation.

The report includes an Implementation Plan that identifies who will be responsible for approving the recommendations set out in the Final Assessment Report; and who will be responsible for providing any resources made necessary by those recommendations. The report also lists any changes in organization, policy or governance that will be necessary to meet the recommendations; and who will be responsible for acting on those recommendations; and timelines for acting on and monitoring the implementation of those recommendations.

**SUMMARY OF THE CYCLICAL PROGRAM REVIEW OF THE ENGINEERING GRADUATE PROGRAM**

In February 2017, the engineering graduate program submitted its self-study to the Office of Vice-President, Academic and Provost of Laurentian University.

Part 1 of the self-study presented an overview of the program and then reviewed the program’s self-perception of the faculty, physical and financial resources, students, and program outcomes. It concluded with an overall assessment of the program’s strengths and weaknesses. There were seven sections in this report documenting the following information: an introduction to the program; the faculty and their teaching loads; both library and physical resources; courses offered with enrolments and graduates over the past five years; program regulations and course descriptions from the university calendar; course outlines and methods of determining grades and exams; and student evaluations. Part 2 of the self-study contained the curriculum vitae of the full-time faculty in the program.

On December 7, 2017, after reviewing the self-study, the Review Team conducted a site visit. The external reviewers were Dr. Stephen Butt, Professor in the Department of Process Engineering at the Memorial University of Newfoundland and Dr. Jim Kells, Professor in the Department of Civil, Geological and Environmental Engineering at the University of Saskatchewan. In addition, the team consisted of two Laurentian University professors, Dr. Kalpdrum Passi, Professor in the Department of Mathematics and Computer Science and Dr. Parveen Nangia, Professor and Chair in the Department of Sociology. Finally, the team included two students in the program, Valeria Pavese and Joshua Martin.

During the visit, the external reviewers met with the Interim Vice-President Academic and Provost, the Dean of Graduate Studies, the Engineering Graduate Coordinator as well as the Associate Dean of Science, Engineering and Architecture. The entire review team also met with the Director and faculty members of the department and a group of graduate students. Additionally, the review team met with the university librarian supporting the program. The reviewers also toured some of the classrooms and computer laboratories including the new Cliff Fielding Research, Innovation and Engineering building.

On February 27, 2018, the external reviewers submitted their report. It was very succinctly written and provided a concise overview of their evaluation. In their report, they commented that “Although the review team identified challenges and issues, which impact the delivery of the

Engineering graduate programs, the review team observed that faculty members and graduate

students are enthusiastic and engaged with graduate program delivery and research. Some

evidence of this enthusiasm and engagement is shown by faculty members’ willingness to offer

graduate courses as unpaid overloads and by graduate students volunteering to go to other

universities for some of their coursework.” They also mentioned that, even though the completion rates for graduate degrees are somewhat lower than at other Engineering schools, there is a genuine desire from graduate students, faculty members, and the university administration to improve and enhance the graduate programs. Challenges in relationship to research resources and graduate office space is expected to be resolved with the completion of the new Cliff Fielding Research, Innovation and Engineering building in Spring 2018, which has significant additional graduate student office space.

In addition, the reviewers also noted some concerns in their report, including:

* The number of engineering graduate courses offered in each academic year;
* Regular students’ advisory committee meetings;
* Seminar opportunities for graduate students to communicate their activities to their peers;
* Number of interdisciplinary courses that counts towards the engineering graduate program;
* IP restrictions that are impacting graduate students; and
* Taking the Research Methods course as a non-credit mandatory course (due to its obvious benefits for research students) so that students could take additional graduate courses more specific to their research and area of future professional practice.

In October 2018, the Office of the Provost received the response of the Department, the Dean of Science, Engineering and Architecture and the Dean of Graduate Studies to the external reviewer’s report. These responses form the basis of what follows:

**SUMMARY OF THE REVIEW TEAM’S RECOMMENDATIONS (R), THE RESPONSES FROM THE DEPARTMENT (U), THE DEAN OF SCIENCE, ENGINEERING AND ARCHITECTURE (D), AND THE DEAN OF GRADUATE STUDIES (GS)**

The following recommendations are dealt with in the order that they were presented in the external reviewers’ report. The Dean’s response had listed the recommendations in the same order as presented in the external reviewer’s report and will be reflected in the implementation plan.

**R1: Engineering needs to offer a more stable and comprehensive suite of graduate courses to serve the needs of the existing graduate programs and students and to attract future graduate students. Additional resources are needed to deliver both the existing graduate programs and future programs, such as the professionally oriented one-year MEng program and the potential 3+1+1 combined undergraduate and graduate program.**

U1: We agree with the recommendation and it is tied with the fast-track one year MEng program, which requires additional two tenure-track faculty members. Once these tenure- track faculty members are hired, we will be able to offer fast-track one year MEng program and enable us to offer more stable and comprehensive suite of graduate courses to serve the needs of the existing programs and students and attract new graduate students.

D1: A new Faculty position is now in the final approval phase. This position will ensure that sufficient number of graduate courses are offered every year to enable students to complete their course-based master degree in one year.

GS1: The launch of a fast-track M.Eng. in 2019 will have two effects. With the hiring of a permanent lecturer (24 cr.), it will ensure a consistent offering of graduate courses while providing current faculty the opportunity to teach specialty courses to both Master’s and PhD programs enhancing the breadth of knowledge in the School of Engineering.

**R2: Notwithstanding the preceding recommendation, additional changes to the curriculum for consideration include i) ensuring that supervisor committees meet with students on a regular basis, ii) increasing the number of graduate seminar opportunities, iii) ensuring that graduate course descriptions in the course catalogue are current, and iv) increasing the number of interdisciplinary courses for some programs.**

U2a: We will ensure that thesis graduate students submit their annual report by the end of August each year and it has to be signed by the supervisory committee members. Compliance will be tracked by the graduate program coordinator.

U2b: The supervisory committee members will meet with the graduate student at least twice a year, preferably once every term. Compliance will be tracked by the graduate program coordinator.

U2c: In addition to the departmental seminars, the graduate students will be given an opportunity to present their work at the annual research week in March.

U2d: The graduate course descriptions in the course catalogue are current. However, we do not have the resources to offer overwhelming number of these courses on an annual basis.

U2e: Currently, there exists flexibility in the graduate program for students to take a three-credit interdisciplinary course in Master’s (MASc or MEng) and PhD programs. With the new professional oriented, fast-track one year MEng program the students will have the opportunity to take up to 9 credits of graduate-level courses outside Engineering in the MEng program including interdisciplinary courses.

GS2: I welcome comments 2a and 2b, and the responses from the Department. It is key that students and supervisors meet regularly to avoid challenges and delays to build up. If necessary, the FGS will help policing the submission of annual reports.

**R3**: **Given the inconsistent messages received about the degree program name change from graduate students, the School of Engineering should ensure that adequate stakeholder consultation is made so that any new program name will meet the objectives of expanding student enrolment without disenfranchising any existing programs or graduate students.**

U3: The Bharti School of Engineering faculty feel strongly that the present degree title of Natural Resources Engineering seriously impedes the School in attracting new graduate students. The School feels that a name change from Natural Resources Engineering to Engineering Science will better reflect the wide range of research that it is involved in and will appeal to a broader group of students.

With regards to the apparent confusion of some students about the proposed name change, a better job could have been done in communicating the rationale and implications of the proposal on them. For the proposed name change, any graduate student already enrolled in the Natural Resources Engineering program would have the option to obtain their degree either in Natural Resources Engineering or in the new program name (Engineering Science) at the time of graduation.

GS3: I believe this change will have very good outcomes both on the attractivity of the program but also the marketability of its graduates.

**R4: The School of Graduate Studies should evaluate the current GTA eligibility policies, both for international students who are predominantly ineligible for such funding and course-based MEng students who are currently eligible.**

U4: Starting Fall 2018, all full-time students (domestic and international) enrolled in thesis-based graduate programs (MASc and PhD) who have at least 75% (B+ or higher) cumulative average in their last degree at the time of admission will be offered GTA for up to two (2) years for MASc and up to four (4) years for PhD. As per the university’s new policy, course-based Master’s students (MEng) are no longer eligible for GTA.

GS4: As we contemplated the internationalization of our graduate programs, it became necessary to ensure that support would be in place for such foreign students. We already saw some effects and look forward to continue providing financial support to the Engineering graduate programs.

**R5: The School of Graduate Studies should ensure that prospective graduate students are fully aware of any IP restrictions on their intended research programs and any potential delays that IP issues may cause in completing their degrees.**

U5: The Graduate Studies organizes workshop and orientation session at the beginning of each new academic term. During the workshop and orientation session information regarding IP restrictions are provided to the students. We will ensure that all the graduate students attend workshop and orientation sessions.

We will make a requirement for all the new graduate students to attend workshop and orientation session at the beginning of each new academic term offered by Graduate Studies.

GS5: Intellectual property has become a very important component of discoveries in Engineering as testified by the number of patents developed by its faculty. It only became natural that we develop workshops on the topic for the next generation of scientists.

**R6: Engineering graduate students should be more pro-actively informed about existing resources and assistance programs available from the library (see Section 2.5 Library Resources). Reactivation of Engineering Library Committee may assist in this regard.**

U6: There is a faculty librarian at Laurentian University who is designated to work with and support the Bharti School of Engineering students and Faculty. We will make it a requirement as part of orientation session for new graduate students at the beginning of each new academic term to attend a presentation by the librarian designated to work with the Bharti School of Engineering. This will be scheduled during one of the departmental seminars.

**R7: The School of Graduate Studies should be more pro-active in maintaining records for the average time to completion for graduate students, completion rate, post-graduation career status, and other Quality Indicators as stipulated by the IQAP process. Maintaining links with graduates is also seen as an opportunity to build further collaborative relationships with industry and other educational and research institutions.**

U7: We will improve communication link with the Alumni & Development Office to improve linkages between industry and the School of Engineering.

GS7: With 29 graduate programs and more than 200 students graduating every year, FGS cannot keep track of post-graduation career status for every student. However, we will assist with other data related to the student progress and encourage a closer relationship between the Department and the Alumni office for the former.

**R8: Closer VP Research coordination with Engineering is encouraged. This support from the Research Office for engineering faculty is expected to result in more success with obtaining research grant funding.**

U8: Since the current VP Research took office in Jan 2014, he has not visited or reached out to the School of Engineering to interact with the faculty and explore ways to improve research potential and opportunities. This VP Research has now left Laurentian University. An interim VP Research will be starting August 1, 2018. Efforts will be made to work more closely with the Research Office under the new leadership.

**ACAPLAN’S RESPONSE**

ACAPLAN endorses the recommendations of the Review Team but notes the following recommendations will not be followed up:

**R3: Ensure adequate stakeholder consultation on new program name to meet the objectives of expanding student enrolment without disenfranchising existing programs or graduate students.**

Reason: Name change has been approved by Curriculum Committee and Faculty Council and is scheduled for Graduate Studies and CELP. Current students have the option of graduating with old or new name.

**R4: The School of Graduate Studies should evaluate the current GTA eligibility policies, both for international students who are predominantly ineligible for such funding and course-based MEng students who are currently eligible.**

Reason: This recommendation has been implemented as per the university’s new policy for GTA funding.

ACAPLAN also propose that the concern raised by the reviewers referred to here as “AR1” be converted to a recommendation and followed-up.

**AR1: Taking the Research Methods course as a non-credit mandatory course (due to its obvious benefits for research students) so that students could take additional graduate courses more specific to their research and area of future professional practice.**

**LAURENTIAN QUALITY ASSURANCE IMPLEMENTATION PLAN FOR THE ENGINEERING GRADUATE PROGRAM**

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| **Recommendation** | **Proposed Follow-up** | **Responsibility for Leading Follow-up** | **Timeline** |
| **R1: Engineering needs to offer a more stable and comprehensive suite of graduate courses to serve the needs of the existing graduate programs, one-year MEng program and the potential 3+1+1 combined undergraduate and graduate program.** | A 3-year term faculty position with regular course load (12 cr) and 6 cr graduate courses overload has been approved for the one-year Meng program with September 2019 start date.A second faculty position will be approved in the future to support the Meng program depending on enrollmentThis follow-up should also address recommendation **R2iii)** | Department Director | September 2019; ongoing |
| **R2: i) Ensure that supervisory committees meet with students on a regular basis;** **ii) Increase the number of graduate seminar opportunities;** **iii) ensure graduate course descriptions in the course catalogue are current, and** **iv) increase the number of interdisciplinary courses for some programs.**  | i) Annual research report signed by research committee to be submitted by graduate student. ii) Graduate students’ presentations at annual research week to count towards seminar requirement.iii) Increase interdisciplinary course offerings for graduate program; e.g. from 3 cr to 6 cr | Engineering Graduate Program Coordinator and Dean for Faculty of Graduate Studies | September 2019; annually |
| **R5: Make prospective graduate students fully aware of any IP restrictions or delays on their intended research programs.** | Establish a requirement for new graduate students to attend orientation session workshop where research IP restrictions are discussed. | Engineering Graduate Program Coordinator, Dean of FGS, Office of Innovation and Commercialization | September 2019 |
| **R6: Engineering graduate students should be informed about existing library resources and assistance programs. Reactivation of Engineering Library Committee may assist in this regard.** | Establish a requirement for new graduate students to attend a presentation by the librarian designated to work with the Bharti School of Engineering. | Engineering Graduate Program Coordinator | September 2019 |
| **R7: The School of Graduate Studies should maintain records for the average time to completion, completion rate, post-graduation career status, and other Quality Indicators as stipulated by the IQAP process.**  | Communicate with Alumni & Development Office to improve linkages between industry and the School of Engineering | Engineering Graduate Program Coordinator and Dean of FGS | Ongoing |
| **R8: Closer VP Research coordination with Engineering is encouraged to result in more success with obtaining research grant funding.** | VP Research will be invited to attend faculty meetings to facilitate coordination between research office and engineering faculty.  | Department Director, Dean of FGS and Research Office | September 2019; ongoing |
| **AR1: Taking the Research Methods course as a non-credit mandatory course so that students could take additional graduate courses more specific to their research.** |  | Engineering Graduate Program Coordinator, Dean of FGS, Department Director | September 2020 |

The Dean of Science, Engineering and Architecture shall be responsible for monitoring the implementation plan. The details of progress made shall be presented in the Dean’s Annual Report and filed with the Vice-President Academic and Provost. The executive summary and the monitoring reports will be posted on Laurentian University’s web site.

CONCLUSION

The Engineering Graduate Program is approved to continue and it will be reviewed in the Fall of 2026.