UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE & ENGINEERING

Report No. 3477

MEMORANDUM

To: Executive Committee of Faculty Council (September 15, 2015)
Faculty Council (October 28, 2015)

From: Professor Bryan Karney
Chair, Division of Environmental Engineering and Energy Systems

Date: September 1, 2015

Re: Closure of the Collaborative Program in Environmental Engineering

REPORT CLASSIFICATION

This is a major policy matter that will be considered by the Executive Committee for endorsing and forwarding to Faculty Council for vote as a regular motion (requiring a simple majority of members present and voting to carry).

SUMMARY

As described in the attached proposal, it is proposed to close the graduate Collaborative Program in Environmental Engineering as of June 2018. Admissions to the program were suspended on September 1, 2015.

RATIONALE

Since the collaborative program was established in the late 1970s, environmental engineering has become more mainstream. This has resulted in less need for students to go outside their regular degree program for this exposure and a corresponding decline in both student enrollment in the CP and support from their collaborative program supervisors.

An internal review of the program was conducted with faculty members from the four collaborating departments: Chemical Engineering and Applied Chemistry, Civil Engineering, Mechanical and Industrial Engineering, and Materials Science and Engineering. The review team agreed that the program no longer serves students' or faculty members' interests and should be closed.

Going forward, students who wish to obtain a collaborative program designation on their transcript will be encouraged to participate in the School of the Environment's Collaborative Program in Environmental Studies.

CONSULTATION

In addition to the collaborating departments listed above, the School of Environmental Studies, the Vice-Provost, Academic Programs, and the School of Graduate Studies were consulted.

GOVERNANCE

Approval and/or endorsement of the proposal is required by the affected programs, the Executive Committee of Faculty Council (September 15, 2015), and the Council of the Faculty of Applied Science & Engineering (October 28, 2015). Final approval is required by the University's Committee on Academic Policy and Programs (January 12, 2016).

MOTION

THAT the proposed closure of the Collaborative Program in Environmental Engineering, to which admissions have been suspended, as described in the proposal from the Division of Environmental Engineering and Energy Systems dated September 1, 2015, be approved with an anticipated program closure date of June 2018.

UNIVERSITY OF TORONTO

Faculty of Applied Science & Engineering

Proposal to Close the Collaborative Program in Environmental Engineering (Master's and Doctoral Level)

The process followed for the closure of any program is the same as that required for the approval of any new such program.

Closure Proposed:	Graduate Collaborative Program in Environmental Engineering (Master's and Doctoral Level)
Department / Unit:	Division of Environmental Engineering and Energy Systems
Faculty / Academic Division:	Faculty of Applied Science and Engineering
Faculty / Academic Division contact:	Caroline Ziegler, Faculty Governance and Programs Officer
Department / Unit contact:	Prof. Bryan Karney, Chair, Division of Environmental Engineering and Energy Systems
Effective date program will be closed to new admissions:	September 1, 2015
Effective date of full closure of program: (date by which students currently in the program will be expected to graduate)	June 2018
Version Date:	September 1, 2015

1 Brief Summary

We are proposing to close the Graduate Collaborative Program in Environmental Engineering (master's and doctoral level). A list of participating degree programs is below:

- Chemical Engineering and Applied Chemistry, Ph.D.
- Civil Engineering, Ph.D.
- Materials Science and Engineering, Ph.D.
- Mechanical and Industrial Engineering, Ph.D.
- Chemical Engineering and Applied Chemistry, M.A.Sc.
- Civil Engineering, M.A.Sc.
- Materials Science and Engineering, M.A.Sc.
- Mechanical and Industrial Engineering, M.A.Sc.
- Chemical Engineering and Applied Chemistry, M.Eng.
- Civil Engineering, M.Eng.
- Materials Science and Engineering, M.Eng.
- Mechanical and Industrial Engineering, M.Eng.

Admissions to the collaborative program were administratively suspended as of September 1, 2015.

The program was up for cyclical review in 2014/2015. A review deferral was approved (July 14, 2014) to provide the program time to consult on future plans. As such, upon closure of the program, a review, including the completion of a self-study and MOA renewal, will not be required.

2 Rationale

The Environmental Engineering Graduate Collaborative Program (EECP) was established in the late 1970s to encourage interdisciplinary studies and recognize students who are specializing in environmental engineering. The Division of Environmental Engineering took over administration of the program in 1996, which consolidated administration of the graduate program with the undergraduate environmental engineering collaborative program.

The EECP was designed to allow students in any of the above 12 participating degree programs delivered by the Departments of Chemical Engineering and Applied Chemistry, Civil Engineering, Mechanical & Industrial Engineering, and Materials Science & Engineering, to undertake interdisciplinary studies in environmental engineering. Students admitted into one of the programs listed above can request to enroll in the EECP during their first term of studies. The EECP is a collaboration between the four departments and the School for the Environment through the Division of Environmental Engineering and Energy Systems. The School of the Environment offers several non-engineering interdisciplinary environmental courses – which is one of the collaborative program requirements at both the master's and doctoral levels. After registration in one of the four participating departments, students can then apply to the Environmental Engineering Collaborative Program.

Over the last decade, environmental engineering has become much more mainstream than it was when the program started. Departmental course offerings now include many courses related to the environment that expose engineering students to environmental engineering content. There is less need for students to go outside of their regular degree program.

The EECP was also designed at a time when the program demographics at the Faculty emphasized the M.A.Sc. and Ph.D. programs. The increasing number of course-based M.Eng. students, who do not have a requirement to participate in our seminar series, has weakened the effectiveness of the seminars as an opportunity to bring the community together.

There are also an increasing number of options available for students interested in topics related to the environment, such as the School of the Environment's Collaborative Program in Environmental Studies, and the Faculty of Applied Science and Engineering's Emphases in Sustainable Energy and in Advanced Water Technologies and Process Design, which offer students more varied choices in the discipline. The expanded breadth of academic activities as resulted in a declining number of enrollments and declining support from students' supervisors participating in the program.

3 Impact on Other Programs/Units of the Proposed Closure

We have recently conducted an internal review of the program with faculty members from the four collaborating departments. Options considered included keeping the status quo under new leadership, revamping the program or closing the program. While the review team felt Environmental Engineering is relevant now and will still be in the future, and that collaboration in this area can be beneficial to students and faculty, for the reasons listed above, our collaborative program does not serve students' or faculty members' interests.

However, the collaborative program designation is attractive to students and is valued as an academic activity leading to a transcript notation for potential employers and other graduate or post-graduate programs. As such, the review team recommended encouraging the EECP collaborating departments, and any others in the Faculty, to participate in the School of the Environment's Collaborative Program in Environmental Studies in order to provide incoming students with an option that leads to a collaborative program designation on the University of Toronto transcript.

Closure of the EECP will result in the elimination of the program's one core course: EDE 3000H Environmental Engineering Research Seminar Series, which was a CR/NCR course required only for the EECP. This course will be offered for one final session in order to allow currently enrolled students to complete the program requirements.

4 Student Accommodation

Table 1: Graduate Breakdown 2015

Program Title	Subj Post Code	YoS	CHE	CIVIL	MIE	Grand Total
MEng-C.P. Environmental Eng	GSCOLENEMG	1	1			1
		2	3			3
MASc-C.P. Environmental Eng	GSCOLENEMC	1	2	1		3
		2	1		2	3
PhD-C.P. Environmental Eng	GSCOLENEPH	2		1		1
		3	1	3	1	5
		4	1	1		2
		6	1			1
	Grand Total		**10**	**6**	**3**	**19**

Data Source Notes:
All data from ROSI, current as of Feb 1, 2015

Our plan for program closure is as follows. Students who are currently (May 2015) enrolled in graduate studies and have either enrolled in the EECP and/or received credit for at least one session of EDE 3000H will be allowed to complete the collaborative program. We anticipate all students will have completed the program by June 2018.

Incoming students (September 2015) will be encouraged to consider joining the Collaborative Program in Environmental Studies (ESCP). The Department of Chemical Engineering and Applied Chemistry has already formally joined the program and we will encourage the remaining three collaborating departments to work with the School for the Environment as soon as possible to sign on to their program in order to provide a seamless transition for students interested in specializing in this area. The School for Environment has in the past taken on “non-standard” students from departments (including the Department of Electrical and Computer Engineering and the Department of Mechanical and Industrial Engineering) who have not signed on to their MOA. The Director of the School of the Environment has indicated her support of adding more engineering programs to their collaborative program.

Academically, the program requirements for the ESCP for Chemical Engineering students in a M.A.Sc. or Ph.D. program are very similar to those for the EECP. Students in the M.A.Sc. program are required to take a core course in Environmental Decision-Making (ENV1001), which was already one of the more popular courses for the EECP, take one additional 0.5 FCE course from the School’s offerings, and complete a thesis in an environmentally-related field. Requirements for Ph.D. students are the same as above, adding in a requirement to make a presentation in either their seminar series or at their annual research day. Students in the M.Eng. program need to take an environment-related internship (ENV 4444Y) and write a brief research paper (ENV 5555Y) on an environmental topic in addition to the course requirements outlined above for M.A.Sc. students.

If students are not able to complete the EECP requirement for two sessions of EDE 3000H prior to the final offering of the course, the Director and Manager of the EECP will work with them to find alternative arrangements. Students would also be allowed to transfer to the Environmental Studies Collaborative Program if they wish. Where approved, students also have the option of pursuing one of the environmentally-related emphasis options discussed earlier in the document.

We anticipate that all currently enrolled students would be able to complete the EECP requirements and their degree program prior to June 2018.

Student members from Civil Engineering and Chemical Engineering and Applied Chemistry participated in the EECP internal review. Their feedback reflected the importance of retaining some sort of environmental credential for students. They were also strongly supportive of the need for interdisciplinary collaboration but felt that this may in fact be strengthened through stronger ties outside of Engineering through the Environmental Studies Collaborative Program.

Following approval of this closure plan, we will communicate the changes to enrolled students directly through email, through a student meeting and through their home department counsellors. Engineering counsellors in our collaborating departments will be encouraged to connect with the School of the Environment during creation of new partnerships with the Environmental Studies Collaborative Program.

5 Faculty / Staff Accommodation

There is no anticipated impact on faculty or staff due to the closure. The Division of Environmental Engineering and Energy Systems and the EECP have been administratively managed by the staff of the Cross-Disciplinary Programs Office since 2009. The budget previously assigned to the EECP was folded into the CDPO budget when the office was created. There are no faculty or staff directly hired through the program. All are associated with other departments or offices and elimination of any duties or responsibilities associated with the program will not impact their job description in any significant way.

6 Governance Process

	Levels of Approval Required
Faculty of Applied Science & Engineering	Faculty Council (approval of closure of minors, where there is a continuing (specialist or major)
University of Toronto	AP&P (approval of program closures: undergrad specialists/majors; minors where there is no specialist of major; graduate fields or diploma, and collaborative programs)
	Executive Committee of Governing Council (executive confirms degree, grad program, closures)
Inclusion in Annual report to Quality Council	