UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE & ENGINEERING

Report No. 3433

MEMORANDUM

To: Executive Committee of Faculty Council (September 19, 2014)
Faculty Council (October 8, 2014)

From: Dr. Graeme Norval
Chair, Undergraduate Curriculum Committee

Date: September 4, 2014

Re: Closure of Nanoengineering Stream in Engineering Science

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).

MOTION

THAT admissions to the Nanoengineering Stream within the Division of Engineering Science's undergraduate program be suspended effective September 2016, with an anticipated full closure of the Stream effective September 2018.

SUMMARY

The Division of Engineering Science proposes to close the Nanoengineering Stream[1], effective September 2018. Students enrolled in year 1 of the Engineering Science program in 2014-15 will still be able to enroll in the Stream, as it was advertised to them during the recruitment/admissions cycle. These students will enroll by September 2016 and this will be the last class offered the Stream. All students enrolled in the Stream as of fall 2016 (or earlier) will be able to complete the Stream curriculum.

[1] Engineering Science streams are referred to within the Faculty as "options", and in the undergraduate calendar and on student transcripts, as "majors".

RATIONALE

The Nanoengineering Stream was introduced in fall 2001, coinciding with a significant Faculty focus on nanoengineering research. The Stream initially had great success as the first undergraduate nanoengineering program in the world, with strong enrolment and interest from the University and engineering education communities. However, recent years (see Table 1) have seen a steep decline in enrolment, coinciding with a reduced Faculty-wide focus on "nanoengineering" as an emerging discipline. While nanoengineering research is alive and thriving in the Faculty, it is typically situated within existing disciplines and programs, such as Electrical Engineering and Materials Science & Engineering.

Table 1: Nanoengineering Program Enrollment

Year	**Total Year 3 Engineering Science Enrollment**	**Year 3 Nanoengineering Major Enrollment**
2001-2002	186	13
2002-2003	235	36
2003-2004	223	31
2004-2005	224	42
2005-2006	249	31
2006-2007	268	27
2007-2008	201	22
2008-2009	187	7
2009-2010	168	10
2010-2011	183	5
2011-2012	203	6
2012-2013	183	6
2013-2014	207	6
2014-2015	208	2

A new Minor in Nanoengineering, under the design of Professor Ted Sargent, is expected to be brought forward for approval in fall 2014. This will provide students in Engineering Science, and other undergraduate engineering programs in the Faculty, with an opportunity to complement their main area of study within the Faculty with a focus in nanoengineering. In particular, the Physics and Electrical & Computer Streams in the Engineering Science program currently include a number of technical elective courses that are expected to be a part of the new Minor, providing these students with an opportunity to take the minor with few or no additional required courses. Engineering Science students, regardless of whether they participate in a Minor (should it be approved), will still have the opportunity to take individual courses in nanoengineering, once again through the Physics and Electrical & Computer Streams.

CONSULTATION

Efforts were undertaken by the Division of Engineering Science to investigate new directions for the Nanoengineering Stream, for example through a stronger focus on materials and chemistry, with several meetings held with Faculty members from Chemistry, Chemical Engineering & Applied Chemistry, and Materials Science & Engineering. Meetings were also held with Electrical & Computer Engineering to determine whether there was an opportunity for a Nanoengineering Stream with a greater emphasis on photonics. Ultimately, there wasn't the required interest from any relevant parties in running a revised Stream, nor a demonstrated demand from students for a Stream focused in these areas. Engineering Science students, the Engineering Science Curriculum Committee and the Undergraduate Curriculum Committee of the Faculty of Applied Science and Engineering were consulted on the proposal to close the Nanoengineering Stream.

Given the small number of students currently enrolled in the Nanoengineering Stream, the closure is expected to have very little impact on the departments providing instruction to the Stream, or other Streams within the Engineering Science program. Students who enroll in the Nanoengineering Stream between 2014 and 2016, and take longer than expected to graduate, will be accommodated as much as possible, but may have to enroll in a slightly adjusted curriculum subject to course cancellations.

GOVERNANCE

Approval and/or endorsement of this proposal is required by the unit, the Faculty's Undergraduate Curriculum Committee and the Executive Committee of Faculty Council. Final approval is required by the Council of the Faculty of Applied Science & Engineering. Approval of the proposal will be reported to the Office of the Vice-Provost, Academic Programs, the University's Committee on Academic Policy and Programs, and the Ontario Quality Council for information.