

## **Faculty of Applied Science and Engineering Division of Environmental Engineering: Name Change from “Option” to “Major”**

### **Recommendation**

At the Faculty’s Council meeting on February 25, 2008, the following recommendation was adopted:

For students graduating from the Engineering Science Program in the Faculty of Applied Science and Engineering, their **Option** shall be renamed their **Major** on their official academic transcript to properly recognize the field they have chosen to focus on in Years 3 and 4 of their Program, effective June, 2008.

The intent is for this change to be backdated and implemented effective September 2007 so that starting with students graduating in June 2008, the transcript will show a student’s enrolment in an Option in Year 3 and enrolment in a Major in Year 4. The Faculty’s Calendar is available on-line and can be updated immediately to reflect this change upon approval by the Committee on Academic Policy and Programs.

There are currently two other “options: within the Faculty: Collaborative Environmental Option in Chemical Engineering and Collaborative Environmental Option in Civil Engineering. The Curriculum Committee will be reviewing the naming of these next year.

### **Previous Action /Consultations Undertaken**

This proposal was first brought forward to the Faculty’s Deans, Chairs and Directors on February 4, 2007 and received broad support. It was felt that this should formally come through the Faculty’s Curriculum Committee for approval. At its February 2007 meeting, the Curriculum Committee asked that information be collected from the Canadian Accreditation Board (CEAB) to determine if they had any issues with this proposal. Accordingly, letter was sent by Dean Amon advising the CEAB of this proposal and asking if they had any comments. On October 17, 2007, Dean Amon received a response from the CEAB indicating (i) that the Board had no adverse comments on this proposal, and (ii) that ‘major’ would be interpreted to mean the same as ‘option’ and therefore their ‘statement of interpretation’ concerning options would apply. This information was brought back to Curriculum Committee at its November 2007 meeting. There was some discussion of whether ‘Major’ or ‘Specialist’ should be used, given that these terms, along with ‘Minor’, are used in the Faculty of Arts and Science to describe different levels of concentration. The general sense was that ‘Major’ was a more appropriate designation because it is a term that is more widely recognized and understood outside the University.

### **Details of the Renaming**

In the Engineering Science Program, students pursue their field of specialization after Year 2 by choosing an Option to study in Years 3 and 4. For students in the Faculty’s other engineering programs, this decision about field of specialization is made upon entry into Year 1 or at the end of Year 1 for students entering the Faculty via Track One.

At the Council meeting in February 2008, the Faculty agreed to change the way it designates on the transcript the Option an Engineering Science student chooses to better reflect to the outside world, e.g. employers and graduate schools, that this is in fact the student’s major field of study within the Engineering Science Program.

Currently, the transcript of an Engineering Science graduate shows the degree name followed by the Option choice in the following way:

BASc-Engineering Sci (Elect Opt)

where the Option selected for this example is the Electrical Engineering Option of Engineering Science.

The Faculty has decided to change this to read:

BASc-Engineering Science (Major in Electrical Engineering)

For students in the Faculty's other engineering programs, the transcript reads, for example:

BASc-Chemical Engineering

and therefore the student's major field of study is already reflected on the transcript.

It is worth noting that for the Engineering Science Program the word Option will continue to be used to refer to the various choices Engineering Science students have available to them prior to entering Years 3 and 4. The new wording will be used on transcripts once students have made their Option choice.

For the purpose of this Major designation, the current Options are to be renamed on the transcript as follows:

BASc - Engineering Science (Major in Aerospace Engineering)  
BASc - Engineering Science (Major in Biomedical Engineering)  
BASc - Engineering Science (Major in Computer Engineering)  
BASc - Engineering Science (Major in Electrical Engineering)  
BASc - Engineering Science (Major in Infrastructure Engineering)  
BASc - Engineering Science (Major in Manufacturing Systems Engineering)  
BASc - Engineering Science (Major in Nanoengineering)  
BASc - Engineering Science (Major in Engineering Physics)  
BASc - Engineering Science (Major in Energy Systems Engineering)

### **Definition of an Option/Major in Engineering Science**

To our knowledge, there has never been a formal definition of an Option in Engineering Science. The Faculty's Calendar in 1964-65 (the year in which the Program was renamed from Engineering Physics to Engineering Science), reads as follows (p 47):

“The options offered in Third and Fourth Years cater to a variety of specific interests and prepare the student for post-graduate work in many of the Engineering Departments or in Physics, Biophysics or Applied Mathematics.”

Beyond that, the Options have been defined by a set of Option-specific courses of instruction.

In the past couple of years, the Division has endeavored to create a set of criteria for what defines an Option in Engineering Science to aid with the introduction and phasing out of Options and to help guide the Division in its curriculum development.

The criteria that have been proposed are as follows:

1. Distinguishable from our other Engineering programs - Options should offer an experience in Years 3 and 4 that makes use of the unique breadth and depth our students obtain in the Foundation Years 1 and 2;
2. Leading edge - Options should focus on emerging disciplines or rapidly evolving established disciplines;
3. Interdisciplinary - Because so many emerging fields of engineering are found at the intersection of several disciplines, Options should benefit as much as possible from collaboration among cognate departments/institutes;
4. Demonstrated student demand - over the long term, student demand for an Option must be sufficient but economies of scale can be found by sharing courses among Options and with other specialist programs (e.g. Physics). Evidence of demand or anticipated demand for our graduates from both industry and graduate schools is also very important.

The Faculty does not wish to be too rigid with its definition of an Option, because different Options have different needs in terms of what is considered core material. However, all Options have certain common features as summarized below:

- A number of required core technical courses at the Years 3 and 4 levels;
- A number of technical elective courses at the Years 3 and 4 levels;
- A half- or full-year thesis;
- Several courses at the Years 3 and 4 levels that are offered only to students in Engineering Science that may be Option specific or may include students from several Options or Arts & Science specialist students;
- One economics course;
- Two complementary studies electives;
- One Option-specific seminar.