Faculty Council
Thursday, November 29, 2012 at 12:10 p.m.
Michael E. Charles Council Chamber (GB 202)

AGENDA

1. Welcome / Adoption of Agenda

2. Adoption of the Minutes of the September 7, 2012 Meeting
   For approval by regular motion

3. Report of the Dean

4. Academic Plan Update

5. Combined BSc (Environmental Science, UTSC) / MEng (FASE) Program (Report 3361)
   For approval by regular motion

6. Sustained Excellence in Teaching Award (Report 3363)
   For approval by regular motion

7. Proposed Undergraduate Academic Certificate: Nuclear Engineering (Report 3369)
   For approval by regular motion

8. Proposed Session Dates for the 2013-2014 Academic Year (Report 3366)
   For approval by regular motion

9. Major Changes to the Undergraduate Curriculum for the 2013-2014 Academic Year (Report 3368 Revised)
   For approval by regular motion

10. Reports and Recommendations of Standing Committees
    For information

   (a) Engineering Graduate Education Report (Report 3360 Revised)

   (b) Minor Undergraduate Curriculum Changes for the 2013-2014 Academic Year (Report 3367)
11. **Other Business**

12. **Date of Next Meeting**: February 14, 2013

13. **Adjournment**

   A sandwich luncheon, including vegetarian choices, will be provided.

* To be provided
Minutes of the Faculty Council Meeting of
Friday, September 7, 2012
12:10 – 2:00 p.m.
Michael E. Charles Council Chamber, Galbraith Building

Present:
Tony Sinclair (Speaker)
Stewart Aitchison
Dionne Aleman
Cristina Amon (Dean)
Jason H. Anderson
Stavros A. Argyropoulos
Joe Baptista
Will F. Bawden
Jason Bazylak
J. Christopher Beck
Kamran Behdinan
Evan Bentz
Sharon Brown
Phil Byer
David Chartash
Yu-Ling Cheng
Chris Damaren
Jim Dawson
Khuong Doan
Greg J. Evans
Scott Genin
Penney Gilbert
John Harrison
Benjamin Hatton
Jennifer Hsu
Robert Irish
Bryan Karney
Chris A. Kennedy
Mark Kortschot
Deepa Kundur
Matthew Lattavo
Ofer Levi
Rishi Maharaj
Brenda McCabe
Susan McCahan
Barbara McCann
Farid Najm

Jun Nogami
Graeme Norval
Austra Ozolins
Jeffrey A. Packer
Daman Panesar
Debrah Pert
Doug D. Perovic
Karl Peterson
Jane Phillips
Nelly Pietropaolo
Kim Pressnail
Lisa Romkey
Paul Santerre
Shamim A. Sheikh
Chandra Veer Singh
Brent E. Sleep
Steven J. Thorpe
Olev Trass
Peter Weiss
Christopher Yip
Jean Zu

Guests:
Ameri Afshin
Christina da Rocha-Feeley
Liz Do
Leslie Grife
Madelyn Herschorn
Jessica Li
Lesley Mak
Tom Nault
Chirag Variawa
Caroline Ziegler

Regrets:
Grant Allen
Gabriele D’Eleuterio
1. **Welcome/Adoption of the Agenda**

Dean Amon introduced and welcomed the new Faculty Council Speaker, Tony Sinclair.

The Speaker thanked members joining the first Faculty Council meeting of the 2012-2013 academic year, and welcomed all present, in particular undergraduate and graduate Faculty Council student members.

He noted that members had received the agenda on August 28.

On a motion duly moved, seconded and carried, it was resolved –

**THAT the agenda be adopted.**

2. **Approval of the Minutes of the Previous Meeting**

On a motion duly moved, seconded and carried, it was resolved –

**THAT the minutes of the meeting of April 26, 2012 be approved as circulated.**

3. **Introduction of New Faculty Members**

The Speaker called upon Chairs and Directors to introduce their new faculty members.

Professor Jun Nogami, Chair of the Department of Materials Science and Engineering, introduced his new faculty member, Benjamin Hatton.

Professor Jean Zu, Chair of the Department of Mechanical and Industrial Engineering, introduced her new faculty member, Tobin Filleter.

Professor Paul Santerre, Director of the Institute of Biomaterials and Biomedical Engineering, introduced his new faculty member, Penney Gilbert.

Professor Farid Najm, Chair of The Edward S. Rogers Sr. Department of Electrical and Computer Engineering, introduced his new faculty member, Deepa Kundur.

The Speaker welcomed and members applauded the new faculty members.

4. **Report of the Dean**

Dean Cristina Amon welcomed members to Faculty Council and provided remarks.

(a) **Academic Ranking of World Universities**

The Academic Ranking of World Universities (ARWU) rankings were released last month, with UofT Engineering ranking #13.

The ARWU has traditionally used the following indicators for rankings: citations, publications, quality of publications, and research expenditures. Because US schools
distribute research funding differently than other schools, this indicator has historically caused us to underperform. We have been working for a couple of years to address this issue and last year, together with the University of Waterloo, presented the ARWU with a rationale for excluding this indicator. As a result, this is the first year that universities outside the US did not use research expenditures as part of their ranking.

(b) **Boundless Campaign**

Members were sent an invitation to our Faculty’s Afternoon of Engineering Innovation being held on Saturday, September 15.

This event will mark the official launch of our Boundless Campaign, and is open to faculty, staff, students, and alumni. It will include presentations and panels by faculty, students, and alumni and is an excellent opportunity to learn more about the breadth of education, research and innovation happening across our Faculty, and to join in celebrating the impact that our work has on Canadians and across the world.

Several recently received major gifts will be announced, including donations toward the new building on Simcoe Hall’s parking lot (Site 10).

All members were encouraged to attend, and to direct any questions to Jim Dawson, Executive Director of Advancement.

(c) **Site 10 Town Hall**

The first Town Hall of the academic year will be held on Tuesday, September 11 from 12:10-1:30 p.m. in GB202. To be discussed are the common vision for the Centre for Engineering Innovation and Entrepreneurship (Site 10), and an update on the project’s status.

(d) **Annual Report and Academic Plan Update**

The 2011-12 Annual Report is almost finalized, and will be available in print and online in October. This is the Faculty’s fourth annual report, and builds on previous years’ well received publications. It includes a brief update on the progress of our Academic Plan, which will be presented in more detail at our November Faculty Council meeting.

The Annual Report and the Academic Plan allow us to measure our progress towards goals in addition to celebrating our accomplishments. Members input is welcomed.

(e) **CEAB Update**

Our CEAB accreditation review has been scheduled for October 21-23, 2012. The Chair of the visiting team will be Professor James Lee of the Department of Geological Sciences & Geological Engineering at Queen’s University.
Departments have been working diligently over these many months in preparation for the visit, with the goal of receiving the full six-year accreditation for all programs. All materials have now been sent to the CEAB.

The Dean thanked faculty and staff for their efforts, in particular the departmental representatives and the Vice-Dean, Undergraduate.

(f) **IBBME External Review**

The external review of the Institute of Biomaterials and Biomedical Engineering is on November 19-20, 2012. Colleagues from Carleton, Johns Hopkins, University of California, Berkeley, and tentatively Duke will be conducting the review.

Members of the Faculty who wish to offer comments toward the review should contact Caroline Ziegler, Faculty Governance and Programs Officer.

(g) **Undergraduate / First Year Class**

We have an outstanding group of undergraduate and first-year students joining us, with an entrance average of 91.3%, up from 90.4% last year. The total of first-year students is 1,398, well over our target of 1,130. The Admissions Committee will be reviewing the processes in place to try to avoid a recurrence of such a large deviation from our admission target in future years.

(h) **Faculty Administrative Appointments**

Stewart Aitchison ended his term as Vice-Dean, Research on June 30, 2012 and Kim Pressnail will end his term as Chair, First Year on October 31. Dean Amon thanked both for their hard work and dedication over the course of their terms.

Ted Sargent began his term as Vice-Dean, Research on July 1, 2012, and Micah Stickel, who recently won the Faculty’s Early Career Teaching Award, will begin his term as Chair, First Year on November 1.

5. **Business Arising from the Meeting of April 26, 2012**

(a) **Faculty Council Meeting Dates, 2012-2013**

The Faculty Council meeting dates for 2012-2013 were not available at the April 26, 2012 meeting. They were emailed to members on July 13, 2012 and are presented in Report 3354 for members’ information.

There were no questions, and the Report was received for information.

(b) **Updated Membership of Faculty Council Standing Committees, 2012-2013**

The preliminary membership of Faculty Council Standing Committees was approved at the April 26 Council meeting. The attached Report 3334 Revised is an update for members’ information.
There were no questions, and the Report was received for information.

6. **Master of Engineering in Cities Engineering and Management (MEngCEM) Proposal**

The Speaker reminded members that Faculty Council meetings are formal and our Rules of Order and standard parliamentary procedure require that a motion be seconded before discussion ensues.

Brenda McCabe presented Report 3349, a proposal to create a Master of Engineering in Cities Engineering and Management (MEngCEM), circulated in advance.

Professor McCabe discussed the importance of cities as the primary economic engines of the world and the challenges of managing their infrastructure and services due to lack of funding, systemic inertia, or other organizational and political circumstances. The proposed MEngCEM program will enable engineers to address pressing issues that face cities, create innovative responses that are environmentally responsible, socially engaging and economically feasible, and lead innovation in infrastructure-supporting organizations. Although other programs exist that are broadly similar, this will be the first of its kind in Canada.

The program consists of ten courses plus a practicum taken over four consecutive terms on a full-time basis, with 40-60 students registered per year in steady state. It will be structured around three themes: Theme A includes infrastructure-related courses that focus on quantitative methods to provide a foundation for evidence-based decision making; Theme B focuses on cities as complex systems that influence decision making; and Theme C, facilitated by the PEY office, is an integrative practicum that allows students to apply the technical knowledge they have learned to a complex problem related to cities.

At the conclusion of the presentation, Dean Amon moved and Brenda McCabe seconded the following regular motion –

> THAT the Master of Engineering in Cities Engineering and Management (MEngCEM) program, as outlined in the attached proposal, be established.

There were no questions. The Speaker called the question and the motion was carried.

7. **Multidisciplinary Capstone Design Course**

Graeme Norval, Chair of the Undergraduate Curriculum Committee, presented Report 3350, circulated in advance.

Dr. Norval introduced Kamran Behdinan of the Department of Mechanical and Industrial Engineering and NSERC Chair in Multidisciplinary Engineering Design, for whom the proposed multidisciplinary capstone design course is a mandated primary deliverable.
Dr. Norval explained that the proposed multidisciplinary capstone design course builds extensively on the innovative ESP and Praxis course offerings in first year, and aims to foster multidisciplinary capstone participation amongst students. The central focus of this deliverable is for multidisciplinary student teams to contribute directly to a multidisciplinary capstone project (MCP) while communicating with a broad spectrum of industry sectors and clients.

At the conclusion of the presentation, Dean Amon moved and Kamran Behdinan seconded the following regular motion –

THAT the proposed Multidisciplinary Capstone Design be accepted for implementation beginning in the 2013-2014 academic year.

Members discussed the weighting of the capstone design course, and if the assessment of student work can be aligned with the relevant CEAB graduate attribute for consistency.

Members also recommended two friendly amendments to the Report:

- the word “course” be added to the motion for clarity, so that it reads: “THAT the proposed Multidisciplinary Capstone Design course be accepted for implementation beginning in the 2013-2014 academic year” and

- the final sentence in the Report before the motion be changed to read: “All programs are involved in these changes, and the impact on interested students from participating in the various programs has been considered.”

There were no objections to the amendments. The Speaker called the question and the motion was carried.

8. Proposal to Strike a Task Force to Review the Membership Composition of Faculty Council

Dean Amon presented previously-circulated Report 3352, a proposal to strike a Task Force to review the membership composition of Faculty Council, in particular, its size which at approximately 400, can lead to several undesirable results. These may include difficulty in achieving quorum, limited interest in Council business and a corresponding lack of preparation by many attendees to consider the issues at hand, and inefficient allocation of resources in terms of the total number of person-hours spent by the Faculty to consider routine matters.

The Task Force will have broad representation, and will seek input from all members of Council and other interested parties. Council will have an opportunity to vote on any recommendations that may result from the Task Force.

There were no questions and the Report was received for information.
9. Academic Appeals Board Annual Report

Evan Bentz, Chair of the Academic Appeals Board, presented previously-circulated Report 3357, describing the responsibilities of the Academic Appeals Board and summarizing the appeals heard from September 2011 through September 2012.

There were no questions and the Report was received for information.

10. Reports and Recommendations of Standing Committees

The Speaker reminded members that the following reports are for Council’s information.

(a) Changes to the Admissions Requirement for Applicants from Saskatchewan

Christopher Yip, Chair of the Admissions Committee, presented Report 3351, regarding changes to the admissions requirement for applicants from Saskatchewan. These changes are in effect because Saskatchewan has phased in changes to their mathematics curriculum to align with an initiative by the prairie provinces and British Columbia to make their math courses similar. Effective September 2012, Mathematics B30 and C30 will be eliminated and replaced with Pre-Calculus 30.

There were no questions and the report was received for information.

(b) Scholarships and Awards Committee Goals for 2012-2013

Graeme Norval, Chair of the Scholarships and Awards Committee, presented the Committee’s goal for this academic year as indicated in Report 3356, namely to consult with students to identify upgrades to the e-portfolio system that would make it more user-friendly and thereby increase its usage among students.

A member thanked the Committee for seeking student input and suggested that the Committee also provide students with information on how they may best complete the form.

The Report was received for information.

(c) Teaching Methods and Resources Committee Goals for 2012-2013

Lisa Romkey, Chair of the Teaching Methods and Resources Committee, reported on the Committee’s goals for the year. These include the continued deployment of the teaching evaluation framework that was approved by Council on April 26, 2012, including the establishment of priorities for department-specific questions for those who had requested it; a review of the Instructor Manual prepared by the Registrar’s Office; the establishment of a Sustained Excellence in Teaching award; and hosting an Educational Technology conference in Spring 2013.

There were no questions and report was received for information.
(d) **Undergraduate Curriculum Committee Goals for 2012-2013**
Graeme Norval, Chair of the Undergraduate Curriculum Committee, presented Report 3355, the Committee’s goals for the year. These include ensuring that curriculum and calendar changes are reviewed and processed in a timely fashion, and dealing with any curricular changes that arise as a result of the accreditation review.

There were no questions and report was received for information.

11. **Recognition of Service**

(a) **Retiring Faculty Members**
The Speaker acknowledged three faculty members who retired in 2011-2012 and thanked them for their contributions to the Faculty. These are William Bawden and Philip Byer of the Department of Civil Engineering, and Tom North of the Department of Materials Science and Engineering.

Brenda McCabe, Chair of the Department of Civil Engineering, recognized the contributions made by William Bawden and Philip Byer.

Jun Nogami, Chair of the Department of Materials Science and Engineering, recognized the contributions made by Tom North.

Dean Amon presented Professor North with the gift of an engraved captain’s chair. Professors Bawden and Byer had previously received similar gifts.

(b) **Outgoing Vice-Dean, Research**
Dean Amon recognized the contributions of Professor Stewart Aitchison, who completed his term as Vice-Dean, Research at the end of the 2011-2012 academic year, and presented him with a gift of an engraved jade plaque.

12. **Other Business**
There was no other business.

13. **Date of Next Meeting**
The next meeting of Faculty Council is November 29, 2012.

14. **Adjournment**
The Speaker thanked members for attending and participating in the meeting. The meeting adjourned at 1:20 p.m.
MEMORANDUM

To: Executive Committee of Faculty Council

From: Professor Chris Damaren
Chair, Engineering Graduate Education Committee

Date: October 19, 2012 for November 29, 2012 Faculty Council Meeting

Re: Proposal for a Combined BSc (Environmental Science, UTSC) / MEng (FASE) Program

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 voting to carry).

BACKGROUND

Both the University of Toronto Scarborough (UTSC) and the Faculty of Applied Science and Engineering (FASE) wish to grow in the environmental field, a burgeoning academic focus for both intellectual pursuit and occupational demand – and are consequently proposing to combine two excellent existing programs to the benefit of both units.

The combination of the four undergraduate Specialist programs in Environmental Science (Environmental Biology, Environmental Chemistry, Environmental Geoscience, and Environmental Physics) at UTSC, and the graduate Master of Engineering (MEng) program (in Chemical Engineering & Applied Chemistry, or Civil Engineering) at FASE will produce a well-educated and trained environmental professional able to meet the developing environmental needs of our society.

STRUCTURE

The combined program will be five years in duration. In years 1-3, students will work on their BSc requirements. In Year 4, they will work on their BSc requirements (including two FASE undergraduate half courses and up to 1.0 FCE of MEng requirements). The 1.0 FCE of MEng requirements (two half courses) can be counted towards the BSc and MEng requirements. In Year 5, students will fulfill the remaining MEng requirements.
PROPOSAL/MOTION

“THAT the combined BSc-UTSC/MEng program, as outlined in the attached proposal, be established.”
University of Toronto  
Major Modification Proposal – Type C: Combined Program

**Section 1**

| Program Proposed:                      | Combined Bachelor of Science (Environmental Science) UTSC/Master of Engineering (Chemical Engineering & Applied Chemistry and Civil Engineering)  
|                                      | Short form: Combined BSc-UTSC/MEng Program |
| Department(s) / Graduate Unit(s)involved: | University of Toronto Scarborough  
|                                      | Department of Physical and Environmental Sciences with Faculty of Applied Science and Engineering  
|                                      | Departments of Chemical Engineering & Applied Chemistry, and Civil Engineering |
| Faculty(s) / Academic Division(s):     | University of Toronto Scarborough (UTSC); Faculty of Applied Science and Engineering (FASE) |
| Faculty / Academic Division Contact:   | Annette Knott  
|                                      | Academic Programs Officer  
|                                      | aknott@utsc.utoronto.ca |
| Department / Unit Contact:             | William Gough (UTSC)  
|                                      | Chris Damaren (FASE) |
| Anticipated start date of new program: | September 1, 2013 |
| Version Date:                         | October 19, 2012 |
Section 2

1. Executive Summary

The Environmental Science Specialist and Major programs (including a Co-op option), offered through the Department of Physical and Environmental Sciences at the University of Toronto Scarborough (UTSC), have experienced steady growth over the past 20 years. In that time, the Specialist program has evolved into four separate programs (Environmental Biology, Environmental Chemistry, Environmental Geoscience, and Environmental Physics) to which a Minor program in Environmental Science has been added. Recently, the Specialist and Major undergraduate programs were accredited by the Environmental Careers Organization (ECO). In addition, at the graduate level, a highly successful professional Master’s program was launched in 2006 (http://www.utsc.utoronto.ca/~physsci/menvsci/), followed by an equally successful Ph.D. in 2010 (http://www.utsc.utoronto.ca/~physsci/phd/).

As part of its efforts to actively seek out new ways to expand its offerings, and deepen the educational experience of its students, UTSC has been in discussions with the Faculty of Applied Science and Engineering (FASE) to explore possible areas of collaboration. Environmental Science has been identified as one such area, as many graduates of the UTSC Environmental Science programs have expressed an interest in the expertise that an Engineering program can provide. This is especially true for those desiring to work in the environmental consulting industry.

UTSC and FASE are in agreement that a combined program between the UTSC Environmental Science Specialist programs (B.Sc.) (http://www.utsc.utoronto.ca/~physsci/environ_sci) and the Master of Engineering (M.Eng.) offered by FASE (http://www.engineering.utoronto.ca/Future_Students/Graduate_Studies/gradprograms/Master_of_Engineering.htm) is an ideal area for collaboration, and are consequently proposing a Combined program that allows students to complete a Bachelor of Science (B.Sc.) in any one of the four undergraduate Specialist programs in Environmental Science identified above, and a Master of Engineering (M.Eng) in two programs, Chemical Engineering & Applied Chemistry, and Civil Engineering. The appeal of this combined program is twofold: it allows students to apply early to the Master of Engineering program (in the third year of the B.Sc.), and it allows them to complete the Combined program in less time than is normally the case for an M.Eng. that follows upon a bachelor’s degree. It should be noted that completion of the proposed Combined program will not provide a path to licensure as a professional engineer (this requires completion of an accredited undergraduate degree in engineering).

The FASE programs are professional Master’s programs (M.Eng.). The combination of the M.Eng. with the B.Sc. in Environmental Science is ideal for students looking to work in the environmental consulting industry. It also provides a rich intellectual pathway for exceptional undergraduate students by providing access to graduate courses and a graduate milieu before the completion of an undergraduate degree. Students participating in the Combined program will have the option of pursuing the M.Eng. program in either the Department of Chemical Engineering & Applied Chemistry, or Civil Engineering.
Providing the option of a Combined undergraduate Environmental Science/graduate Engineering program will enhance the attractiveness of UTSC’s Specialist undergraduate programs in Environmental Science thus yielding more and better applicants, both domestic and international. At present UTSC enrols just under 100 Environmental Science Specialist students and has the capacity to double this number. The combined program will provide an excellent stream of students with a well-defined environmental educational background to the M.Eng. program. This will enhance the environmental offerings at the University of Toronto by providing an academic pathway for very strong students.

The increase in the number of M.Eng. students is consistent with FASE’s desire to expand M.Eng. enrolments with excellent students. Environmental studies are an important element of the graduate programs in Chemical Engineering & Applied Chemistry and Civil Engineering, and the academic environment will be improved by the diverse backgrounds that the B.Sc. students bring to the classroom.

The B.Sc. in Environmental Science includes fundamental courses in science and mathematics. This will be bolstered by the requirement that participants complete two undergraduate engineering courses as part of their B.Sc. degree requirements. This will ensure that participants have the proper background for completing the M.Eng. program.

Students will apply to the combined program during the Fall term of the third year of the B.Sc. program. Offers of admission will be conditional on maintaining at least a B+ average in the third and fourth years of study, as well as conditional on completing the B.Sc. program and having the degree conferred. During the conditional admission period students will be required to take two undergraduate engineering courses which can be used to meet the degree requirements of the B.Sc. These courses will be identified by the relevant FASE department (either Chemical Engineering & Applied Chemistry, or Civil Engineering). Students in the Combined program who have accepted conditional offers of admission to the M.Eng. program will also be eligible to take two half courses from the Master’s courses that will count towards both degrees. Students will be graded as undergraduate students in those graduate courses according to the requirements of the University Assessment and Grading Practices Policy, and will require a grade of B- or better in order for the course to count for graduate credit towards the master’s program.

2. Program Rationale

Both the University of Toronto Scarborough (UTSC) and the Faculty of Applied Science and Engineering (FASE) wish to grow in the environmental field - a burgeoning academic focus for both intellectual pursuit and occupational demand – and are consequently proposing to combine two excellent existing programs to the benefit of both units.

The combination of the four undergraduate Specialist programs in Environmental Science (Environmental Biology, Environmental Chemistry, Environmental Geoscience, and Environmental Physics) at UTSC, and the graduate Master of Engineering (M.Eng.) program at FASE will produce a well-educated and trained environmental professional able to meet the
developing environmental needs of our society. The Combined program will be five years in length (4+1).

Providing this Combined program will enhance the attractiveness of the UTSC undergraduate programs in Environmental Science thus yielding more and better undergraduate applicants, both domestic and international. It will also provide an excellent stream of students with a well-defined environmental educational background to the M.Eng. program.

The UTSC undergraduate program will gain by having a well-defined pathway into the exceptionally well-regarded Engineering programs offered by FASE. In turn FASE will have a novel stream of students well prepared in the foundations of environmental science, and in the cutting edge issues of this emerging discipline. They will bring a perspective to their courses that is different from their engineering counterparts.

The Specialist undergraduate programs in Environmental Science currently enrol almost 100 students and there is capacity for this to grow by 50 – 100%. The new combined program is consistent with FASE’s desire to increase M.Eng. eligible full-time equivalents (EFTEs) by 15% (approximately 50 students) by 2015.

Other universities do offer combined programs, particularly Faculties of Engineering (e.g. Waterloo), however we understand this particular combination of Environmental Science and Engineering to be unique in Canada.

3. Need and Demand

The UTSC Department of Physical and Environmental Science has discussed this proposal with the current undergraduates in the Environmental Science Specialist programs and keen interest was expressed. Co-op employers involved with the UTSC programs have also expressed an interest in graduates with these dual credentials. It is anticipated that a steady stream of 5 to 10 students per year will avail themselves of this opportunity. UTSC recruiters comment frequently on the cache of “Engineering” in their visits to high schools. This is also true for the Green Path (a UTSC international recruit program) recruiters. Linking one of the UTSC undergraduate programs to an Engineering program will increase enrolment in undergraduate environmental science programs. These are excellent programs (ECO accredited) and UTSC has the capacity to add more high quality students to the program.

The combination of the undergraduate program in Environmental Science and the graduate program in Engineering will produce a well-educated and trained environmental professional who will meet the developing environmental needs of our society. Graduates of the combined program will possess a combination of pure and applied science that gives them a unique perspective on environmental issues.
Table 1: Enrolment Projections

<table>
<thead>
<tr>
<th>Year in program</th>
<th>Academic year #1</th>
<th>Academic year #2</th>
<th>Academic year #3</th>
<th>Academic year #4</th>
<th>Academic year #5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total:</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

The table shows applications to the M.Eng. component of the combined program; registration & enrolment in the master’s program would commence in year #5.

4. Program Description

The current requirements of both programs will be met by the students in the Combined program.

Two prescribed undergraduate half courses (1.0 FCE) offered by FASE must be counted to the degree requirements (but not program requirements) of the B.Sc. Up to two graduate courses (1.0 FCE) offered by FASE of the 5.0 FCEs required for the M.Eng. may be completed during the student’s fourth year and will count towards both degrees; students must receive a grade of B- or better in order to have the graduate courses count towards the master’s program. For the B.Sc., a total of 20 FCEs are required. The 1.0 graduate FCE will not count towards the 14.5-15.5 (program dependent) FCEs for the program but may be counted towards the remaining 4.5-5.5 FCEs required for the degree.

The normal time for completion will be five years (4+1).

MEng Advanced Start Option
Eligible students may begin the master’s program in the summer immediately following completion of fourth year of the Bachelor’s program. In exceptional circumstances, they would be able to complete the M.Eng. degree requirements by the end of the following December. If they complete the degree requirements by the end of April of the following year, they would be charged fees for a single academic year.

5. Admission Requirements

The admission requirements for the Environmental Science B.Sc. remain identical to the existing programs. [See UTSC Calendar: http://www.utsc.utoronto.ca/~registrar/calendars/calendar/Environmental_Science.html].

Students will apply in year three for admission into the Master of Engineering program. Students must meet the admission requirements for the Master of Engineering program and must have an average of B+ in the last two years of undergraduate study. This exceeds the SGS minimum of a mid-B. Students will be required to maintain at least a B+ average in year three and year four to remain in the Combined program. After admission, students will be eligible to take up to two
half courses in the Master’s curriculum while in the B.Sc. program (during year four). These courses can be counted to fulfill degree requirements for the B.Sc. and to fulfill degree and program requirements for the Master’s degree providing that grades of B- or better are achieved in each of the graduate courses.

6. Program Requirements

Program Description
The Combined program in Environmental Science (B.Sc.) and M.Eng. allows exceptional students (registered in one of the 4 specialist programs in Environmental Biology, Environmental Chemistry, Environmental Geoscience, or Environmental Physics) to apply for and be considered for admission to the M.Eng. program in Chemical Engineering & Applied Chemistry or Civil Engineering. Students who receive conditional offers of admission during year three of the Bachelor’s program and complete the bachelor’s program requirements in year four, will commence the M.Eng. during year five. Students who receive conditional offers of admission to the M.Eng. program are considered to be in the Combined BSc-UTSC/M.Eng. Program path.

Combined program students must complete two prescribed engineering half courses (1.0 FCE) as part of the B.Sc. degree requirements. For combined program students, up to 1.0 FCE of the required Master’s courses can be taken during year four and count toward the B.Sc. degree requirements and the Master’s program and degree requirements, assuming acceptable grades. This permits students to complete the two programs in one session (term) less than would normally be required in the M.Eng. program. Eligible students may begin the master’s program in the summer immediately following completion of fourth year of the Bachelor’s program.

Minimum Admission Requirements
A call for applications for the Combined program will occur in September of the third year of full-time study in the B.Sc. program. A Combined program admission committee with representation from both UTSC and FASE will vet the applications and recommend offers of admission, recognizing that the Departments of Chemical Engineering and Applied Chemistry, and Civil Engineering have the authority to issue offers of admission to the M.Eng program. To be eligible for admission into the M.Eng. and the Combined program, students have to be enrolled, and in good standing, in one of the Specialist Programs in Environmental Science (Environmental Biology, Environmental Chemistry, Environmental Geoscience, or Environmental Physics) with a B+ average or higher in year two. Expedited admission into the M. Eng. program is conditional upon students maintaining at least a B+ average in year three and year four. Both of these grade requirements provide a way of identifying exceptionally well-qualified candidates for the combined program.

Program Requirements
Year 1 – B.Sc. requirements
Year 2 – B.Sc. requirements
Year 3 – B.Sc. requirements
Year 4 – B.Sc. requirements (including two FASE undergraduate half courses and up to 1.0 FCE of M.Eng. requirements)
Year 5 – M.Eng. remaining requirements
Within this combined 5-year program, students must:

- Meet the full academic requirements of both programs (B.Sc./M.Eng.)
- Remain enrolled as full-time students during year 3 and after.
- Achieve a B+ average in years 3 and 4 of the B.Sc. program.

The Master of Engineering requires ten half courses. Typically eight courses are taken in the September to April academic sessions (terms) and two remaining courses are taken in the summer session. Thus, the Master’s program can be completed in one year, although some students take up to an additional 2 sessions. In the proposed Combined program, completion of 1.0 FCE in the fourth year of the B.Sc. will permit completion of the M.Eng. in two sessions (terms). Eligible students may begin the master’s program in the summer immediately following completion of fourth year of the Bachelor’s program.

Normal Program Length: Five years (4 + 1)
Time Limit: The time limit for the M.Eng. degree will be three years.

7. Consultation

See attached MOU.

The proposal has been developed with consultation with the Dean’s Offices of UTSC and FASE and the departments involved.

8. Resources:

All courses will be offered as currently with no additional teaching resources required. At UTSC a faculty member will oversee the administration of the combined program. This will include publicizing the program, especially among 2nd year students and vetting applications with an FASE representative to ensure students meet the M.Eng./SGS standards. No additional space is required for this combined program. No additional learning resources are required. No financial support is required as there is no student support provided in both programs. No additional infrastructure is required.

9. Governance Process:

<table>
<thead>
<tr>
<th>Levels of Approval Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultation with the Provost’s Office</td>
</tr>
<tr>
<td>Decanal Sign Off</td>
</tr>
<tr>
<td>Graduate Curriculum Group Approval</td>
</tr>
<tr>
<td>UTSC Academic Committee Approval</td>
</tr>
<tr>
<td>FASE EGEC Approval</td>
</tr>
<tr>
<td>FASE Faculty Council</td>
</tr>
<tr>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Submission to Provost’s Office</td>
</tr>
<tr>
<td>Report to AP&amp;P</td>
</tr>
<tr>
<td>Report to Ontario Quality Council</td>
</tr>
</tbody>
</table>

Developed by the Office of the Vice-Provost, Academic Programs: April 4, 2011
Chemical Engineering and Applied Chemistry

Faculty Affiliation
Applied Science and Engineering

Degree Programs Offered
Chemical Engineering and Applied Chemistry – MASc, MEng, BSc/MEng, PhD

Collaborative Programs
The following collaborative programs are available to students in participating degree programs as listed below:

1. Biomedical Engineering
   Chemical Engineering and Applied Chemistry, MASc, PhD
2. Dynamics of Global Change
   Chemical Engineering and Applied Chemistry, PhD
3. Environmental Engineering
   Chemical Engineering and Applied Chemistry, MASc, MEng, PhD
4. Environmental Studies
   Chemical Engineering and Applied Chemistry, MASc, MEng, PhD
5. Genome Biology and Bioinformatics
   Chemical Engineering and Applied Chemistry, PhD
6. Global Health
   Chemical Engineering and Applied Chemistry, PhD

Overview
The Department of Chemical Engineering and Applied Chemistry offers graduate research in pure science, engineering fundamentals, and engineering applications. Graduate programs lead to the degrees of Master of Applied Science (MASc), Master of Engineering (MEng), and Doctor of Philosophy (PhD). The MEng program differs from the MASc and PhD programs in that it is oriented to learning through prescribed courses rather than through research.

The department attracts a dynamic professorial staff with outstanding international reputations. Many graduate students work closely with industrial partners during their studies. Research is funded by the government and industry, often by means of a consortium of companies. The experience of dealing with real world problems prepares graduates for successful professional careers.

Research and teaching are the foundations of the department. Research is clustered into eight major categories:

1. Biomolecular and Biomedical Engineering
2. Bioprocess Engineering
3. Chemical and Materials Process Engineering
4. Engineering Informatics
5. Environmental Science and Engineering
6. Pulp and Paper
7. Surface and Interface Engineering
8. Sustainable Energy

A more complete and up-to-date description of graduate programs and enrolment procedures appears on www.chem-eng.utoronto.ca.
In addition, the Department of Chemical Engineering and Applied Chemistry offers the Combined Bachelor of Science (BSc)/Master of Engineering (MEng) degree program. This five-year program was established by the University of Toronto Scarborough (UTSC) and the Faculty of Applied Science and Engineering (FASE) for students who wish to combine graduate training in chemical engineering and applied chemistry with a bachelor’s degree in environmental science.

**Contact and Address**

Web: www.chem-eng.utoronto.ca

E-mail:
- Admissions: admissgrad.chemeng@utoronto.ca
- General: gradassist.chemeng@utoronto.ca

Telephone: (416) 946-3987
Fax: (416) 978-8605

Department of Chemical Engineering and Applied Chemistry
University of Toronto
Room 212, Wallberg Building
200 College Street
Toronto, Ontario M5S 3E5
Canada

**Degree Programs**

**Chemical Engineering and Applied Chemistry**

**Master of Applied Science**

**Minimum Admission Requirements**
- Applicants are admitted under the General Regulations of the School of Graduate Studies.

**Program Requirements**
- Thesis on a research topic.
- At least three graduate half courses (1.5 full-course equivalents [FCEs]), one of which normally must be selected from Category A: Fundamental (see courses below), and at least one of which must be selected in an area outside the student’s field of research specialization. Furthermore, only one 500-level course may be taken for credit towards the degree program. Students are also required to complete CHE 2222H and JDE 1000H as well as attend four sessions of the CHE 300xH seminar series. Students are required to take a graduate student seminar, presenting two times during their program, once in the first year and once in the second year of study.
- Each student should discuss possible research projects with several members of the department before selecting a research area and a supervisor.
- The program requires a minimum full-time residence of two sessions (eight months).

**Normal Program Length:** 6 sessions full-time

**Time Limit:** 3 years full-time

**Master of Engineering**

**Minimum Admission Requirements**
- Applicants are admitted under the General Regulations of the School of Graduate Studies.

**Program Requirements**
- The program normally requires completion of a total of 5.0 full-course equivalents (FCEs) or 3.5 FCEs plus a 1.5-FCE project supervised by a faculty member. The project must be defended at an oral examination.
- The MEng program can be completed either through full-time or part-time studies. The full-time program is designed to be completed within 12 months, including the summer session. The part-time program is intended primarily for engineers in full-time professional practice.
**Normal Program Length:** 3 sessions full-time; 9–12 sessions part-time  
**Time Limit:** 3 years full-time; 6 years part-time

### Combined Bachelor of Science (Environmental Science)/Master of Engineering

The Combined Program in Environmental Science (BSc) and Master of Engineering (MEng) allows well-qualified students in the BSc Environmental Science Specialist programs (Environmental Biology, Environmental Chemistry, Environmental Geoscience, or Environmental Physics) to apply for and be considered for admission into the MEng program in Chemical Engineering and Applied Chemistry during the 3rd year of their undergraduate study and receive conditional admission to the graduate program then. Students in the combined program will complete it in less time than is normally the case for an MEng that follows upon a bachelor’s degree.

#### Minimum Admission Requirements:

- Each student in the Combined Program shall meet the respective admission requirements of each program.
- To be eligible for admission into the MEng and the Combined Program, students must be enrolled full-time, and in good standing in one of the BSc Specialist programs in Environmental Science (Environmental Biology, Environmental Chemistry, Environmental Geoscience, or Environmental Physics) with a CGPA of 3.3 or higher in Year 2.
- Admission into the MEng program is conditional upon students maintaining at least a CGPA of 3.3 in Years 3 and Year 4 of the BSc.
- Applications will be accepted in the third year of full-time registration in the BSc program.

#### Program Requirements:

- The full academic program requirements of both programs (BSc/MEng) will be met by students in the Combined Program.
- Students are required to remain registered as full-time students during Year 3 and 4 of the BSc and during the MEng.
- Complete two prescribed undergraduate engineering half courses (1.0 FCE) as part of the BSc degree requirements.
- Complete 10 half courses (5.0 FCEs) required for the Master of Engineering program.
- Up to 1.0 FCE of the required master’s courses normally are taken during Year 4 and count towards the BSc degree requirements and the MEng degree requirements.
- Students who receive conditional offers of admission during Year 3 of the bachelor’s program and complete the bachelor’s program requirements in Year 4 will commence the MEng during Year 5.
- Eligible students may begin the master’s program in the summer immediately following completion of fourth year of the bachelor's program.

The path to completion is:

**Year 1:** BSc requirements  
**Year 2:** BSc requirements  
**Year 3:** BSc requirements  
**Year 4:** BSc requirements (including two FASE undergraduate half courses [to be determined] and up to 1.0 FCE of MEng requirements)  
**Year 5:** MEng remaining requirements (studies may commence in summer between years 4 and 5)

**Normal Program Length:** 5 years full-time  
**Time Limit:** BSc + 3 years MEng

### Doctor of Philosophy

#### Minimum Admission Requirements

- Applicants may enter the program via one of three routes:
  1. following completion of an MSc program with a minimum B+ average and exceptional all-around scientific and intellectual ability as evidenced from theoretical or experimental research, academic standing, initiative, and publication record
2. **transferring from the University of Toronto MASc program** after completing one year; such students must successfully complete a “bypass” examination.

3. **direct entry** after completing a bachelor’s degree may be considered in exceptional cases.

- International applicants with a master’s degree from outside Canada or the United States in their country of residence may be asked to register in the MASc program and follow entry route 2.

**Program Requirements**

- Thesis on a research topic.
- **Students with a completed MASc degree:** at least 2.0 full-course equivalents (FCEs).
- **Transfer students:** 3.0 FCEs for students without a master’s degree 2.0 FCEs for students with a completed master’s degree. Transfer students do not have to take a separate PhD qualifying examination.
- **Direct-entry students:** at least 3.0 FCEs.

Courses must be selected from the calendar and approved by the student’s supervisor and the Graduate Coordinator. At least one of these courses must be taken in a minor area of study. It is recommended that one of these courses should be selected from Category A - Fundamental courses. Normally, PhD students are not allowed to take a 500-level course for credit towards the degree program. Students are also required to complete eight sessions of the seminar: attending CHE 300H series and, if not already completed, CHE 2222H and JDE 1000H. Students are required to take a graduate student seminar: attending course two times in their program, once in the first year and once in the third year of study.

- Within 9–12 months of starting the PhD program, students must pass a qualifying examination. Students normally remain in residence (full-time, on campus) until the departmental recommendation for the Doctoral Final Oral Examination is made, unless special permission to do so has otherwise been granted by the departmental Graduate Studies Committee.

**Normal Program Length:** 4 years full-time; 5 years direct-entry; 5 years transfer-from-master’s

**Time Limit:** 6 years full-time; 7 years direct-entry; 7 years transfer-from-master’s

**Course List**

An updated course list and schedule is available on the departmental website at the beginning of each session listing the time and room location for each course. Not all courses are given every year.

All students wishing to undertake research and teaching in the Department of Chemical Engineering and Applied Chemistry must successfully complete an intensive occupational health and safety training workshop, CHE 2222H *Safety Workshop*, which normally takes place during the week immediately preceding the commencement of graduate courses in the fall. In each subsequent year of registration, students must take the WHMIS refresher workshop. Students registered in a graduate degree program involving research are required to participate in the non-credit seminar course JDE 1000H *Ethics in Research* during their first or second session of registration.

**Category A: Fundamental Courses**

- CHE 1100H Fundamentals of Chemical Engineering
- CHE 1107H Applied Mathematics
- CHE 1141H Advanced Chemical Reaction Engineering
- CHE 1142H Applied Chemical Thermodynamics
- CHE 1143H Transport Phenomena
- JTC 1135H Applied Surface Chemistry
- CHE 1310H Chemical Properties of Polymers

**Category B: Specialized Courses**

- CHE 1053H Electrochemistry
- CHE 1118H Industrial Catalysis
- CHE 1123H Liquid Biofuels
- CHE 1125H Modelling and Optimization of Chemical and Biomedical Networks
- CHE 1134H Advances in Bioengineering
- CHE 1146H Applied Transport Phenomena in Energy Systems
- CHE 1147H Data Mining in Engineering
- CHE 1213H Corrosion
Seminar Courses

CHE 2011H Graduate Student Seminars (Credit/No Credit)
CHE 300xH Seminars in Chemical Engineering and Applied Chemistry (Credit/No Credit)

In addition to the above courses, students may elect to take courses in other engineering or science departments where such courses are deemed relevant to the area of study. These courses require prior approval from the Graduate Coordinator.
Civil Engineering

Faculty Affiliation
Applied Science and Engineering

Degree Programs Offered
Civil Engineering – MASc, MEng, BSc/MEng, PhD

Collaborative Programs
The following collaborative program is available to students in participating degree programs as listed below:

Environmental Engineering
- Civil Engineering, MASc, MEng, PhD

Overview
The Department of Civil Engineering offers a graduate program in Civil Engineering leading to the Master of Applied Science (MASc), the Master of Engineering (MEng), and the Doctor of Philosophy (PhD). Qualified applicants are accepted for advanced studies in one of the following fields: Building Engineering, Environmental Engineering, Structural Engineering, Transportation Engineering, and Geomechanics.

Students registered in MASc or PhD are required to participate in the non-credit seminar course JDE 1000H Ethics in Research during their first or second session of registration.

In addition, the Department of Civil Engineering offers the Combined Bachelor of Science (BSc)/Master of Engineering (MEng) degree program. This five-year program was established by the University of Toronto Scarborough (UTSC) and the Faculty of Applied Science and Engineering (FASE) for students who wish to combine graduate training in civil engineering and with a bachelor’s degree in environmental science.

Contact and Address

Admission
Web: www.civil.engineering.utoronto.ca
E-mail: graduateadmissions@civ.utoronto.ca
Telephone: (416) 946-8028
Fax: (416) 978-6813

Program
Web: www.civil.engineering.utoronto.ca
Fax: (416) 978-6813

MEng
E-mail: shayni@civ.utoronto.ca
Telephone: (416) 978-5905

MASc/PhD
E-mail: colin@civ.utoronto.ca
Telephone: (416) 978-0945
Degree Programs

Civil Engineering

Master of Applied Science

Minimum Admission Requirements
- Applicants are admitted under the General Regulations of the School of Graduate Studies.
- Students who do not possess an undergraduate degree in civil engineering may be required to take more than the usual time and number of courses.

Program Requirements
- Each student, in consultation with a staff member at the beginning of the program, will establish the distribution of time between coursework and thesis or design project.
- Normally, a minimum of 2.5 full-course equivalents (FCEs) (five half courses) and a thesis. Some sections may require 3.0 FCEs (six half courses) and a thesis. Consult the supervisor and/or refer to the departmental graduate student handbook for further details.

Normal Program Length: 5 sessions full-time
Time Limit: 3 years full-time

Master of Engineering

Minimum Admission Requirements
- Applicants are admitted under the General Regulations of the School of Graduate Studies.
- Students who do not possess an undergraduate degree in civil engineering may be required to take more than the usual time and number of courses.

Program Requirements
- Each student, in consultation with a staff member at the beginning of the program, will establish the distribution of time between coursework and thesis or design project.
- Normally, 5.0 full-course equivalents (FCEs) (10 half courses) for the coursework-only program. Up to two half courses may be replaced by a research/design project.
- There is no formal residence requirement for MEng students; therefore, the program may be completed through part-time studies.

Normal Program Length: 3 sessions full-time; 5 sessions part-time
Time Limit: 3 years full-time; 6 years part-time
Combined Bachelor of Science (Environmental Science)/Master of Engineering

The Combined Program in Environmental Science (BSc) and Master of Engineering (MEng) allows well-qualified students in the four BSc Environmental Science Specialist programs (Environmental Biology, Environmental Chemistry, Environmental Geoscience, or Environmental Physics) to apply for and be considered for admission into the MEng program in Civil Engineering during the 3rd year of their undergraduate study and receive conditional admission to the graduate program then. Students in the combined program will complete it in less time than is normally the case for an MEng that follows upon a bachelor’s degree.

Minimum Admission Requirements:

- Each student in the Combined Program shall meet the respective admission requirements of each program.
- To be eligible for admission into the MEng and the Combined Program, students must be enrolled full-time, and in good standing in one of the BSc specialist programs in Environmental Science (Environmental Biology, Environmental Chemistry, Environmental Geoscience, or Environmental Physics) with a CGPA of 3.3 or higher in Year 2.
- Admission into the MEng program is conditional upon students maintaining at least a CGPA of 3.3 in Years 3 and Year 4 of the BSc.
- Applications will be accepted in the third year of full-time registration in the BSc program.

Program Requirements:

- The full academic program requirements of both programs (BSc/MEng) will be met by students in the Combined Program.
- Students are required to remain registered as full-time students during Year 3 and 4 of the BSc and during the MEng.
- Complete two prescribed undergraduate engineering half courses (1.0 FCE) as part of the BSc degree requirements.
- Complete 10 half courses (5.0 FCEs) required for the Master of Engineering program
- Up to 1.0 FCE of the required master’s courses normally are taken during Year 4 and count towards the BSc degree requirements and the MEng degree requirements.
- Students who receive conditional offers of admission during Year 3 of the bachelor’s program and complete the bachelor’s program requirements in Year 4 will commence the MEng during Year 5.

Eligible students may begin the master’s program in the summer immediately following completion of fourth year of the bachelor’s program. The path to completion is:

Year 1: BSc requirements
Year 2: BSc requirements
Year 3: BSc requirements
Year 4: BSc requirements (including two FASE undergraduate half courses [to be determined] and up to 1.0 FCE of MEng requirements)
Year 5: MEng remaining requirements (studies may commence in summer between years 4 and 5)

Normal Program Length: 5 years full-time
Time Limit: BSc + 3 years MEng

Doctor of Philosophy

Minimum Admission Requirements

- Applicants are admitted under the following departmental regulations, in addition to the SGS General Regulations and Degree Regulations for the PhD:
  - Satisfy the department of the ability to undertake advanced research.
  - Admission directly from a bachelor’s degree is not normally permitted.
  - If a student transfers from a master’s degree program to a PhD program, courses taken during the master’s program may be applied to the PhD program.
Program Requirements

- A major and two minor fields of study, normally consisting of a minimum of 4.5 full-course equivalents (FCEs) (nine half courses) in total beyond the bachelor’s degree. More FCEs may be required depending on the student’s background preparation. It is normally expected that at least one of the minor fields will be taken outside of the department.
- PhD students with an MASc degree (or equivalent in the same field) must take a minimum of 2.0 FCEs (four half courses) beyond the MASc degree.
- Students enrolled in the MASc degree program who transfer to the PhD program without submitting an MASc thesis must complete a total of 4.5 FCEs (nine half courses) beyond the bachelor’s degree program.
- Students with an MEng degree may use up to 3.0 FCEs (six graduate half courses) from the MEng program towards the PhD course requirements.
- Comprehensive examination after completing most of the coursework and preferably within one year after first enrolment in the PhD program. This examination consists of a four- to five-day take-home written examination, followed approximately a week later by an oral examination. The examination is administered by a Comprehensive Examination Committee created and supervised by the department’s Examination and Degree Committee.
- Students normally must spend at least two academic years of their program on campus on a full-time basis.
- The academic program must be approved by the department’s Examination and Degree Committee during the student’s first session.
- Supervisors are required to establish a supervisory committee for their PhD students by the end of the second year of the student’s program. This committee must include the supervisor and at least two graduate faculty members. Membership approval is not required.

Normal Program Length: 4 years full-time; 5 years direct-entry
Time Limit: 6 years full-time; 7 years direct-entry

Course List

Not all courses are given every year. Some courses may require a prerequisite. Please consult the department.

General Interest
- CIV 1001H M.Eng. Project I
- CIV 1002Y M.Eng. Project II
- CIV 1099H Special Studies in Civil Engineering
- CIV 1307H Life Cycle Assessment of Engineering Activities
- CIV 1310H Infrastructure Economics
- CIV 1311H Advanced and Sustainable Drinking Water Treatment
- CIV 1337H Simulation in Civil Engineering
- CIV 1422H Dynamic Response of Engineering Materials
- CIV 1429H Advanced Rock Engineering: Rock Engineering in Fractured Rock Masses
- CIV 1504H Applied Probability and Statistics for Civil Engineering
- CIV 1539H Evaluation of Civil Engineering Systems
- CIV 1600H Readings in Technology and Modern Society I
- CIV 1601H Readings in Technology and Modern Society II

Building Engineering
- CIV 514H Concrete Technology
- CIV 575H Building Science
- CIV 1201H Concrete Technology and Non-Destructive Testing Principles
- CIV 1250H Instrumentation Techniques in Concrete Technology
- CIV 1252H Repair and Maintenance of Concrete Structures
- CIV 1277H Construction Estimating and Finance
- CIV 1278H Pre-Project Planning and Constructability Analysis
- CIV 1279H Construction Contract Documents
- CIV 1280H Building Envelope Design
- CIV 1281H Asset Management
- CIV 1282H Case Studies in Building Science
- CIV 1283H Civil Informatics
- CIV 1299H Special Studies in Civil Engineering
Environmental Engineering
CIV 540H Treatment Processes
CIV 549H Groundwater Flow and Contamination
CIV 550H Water Resources Engineering
CIV 1303H Water Resources Systems Modelling
CIV 1305H Water Resources Systems Analysis
CIV 1308H Physical and Chemical Treatment Processes
CIV 1309H Biological Treatment Processes
CIV 1319H Chemistry and Analysis of Water and Wastes
CIV 1335H Advanced Hydrogeology
CIV 1399H Special Studies in Civil Engineering

Geomechanics
CIV 523H Geotechnical Design
CIV 529H Rock Engineering
CIV 1404H Material Fracture Dynamics: Experimental Methods
CIV 1410H Satellite Positioning and Remote Sensing
CIV 1419H Rock Dynamics
CIV 1420H Soil Properties and Behaviour
CIV 1421H Continuum Mechanics of Fluids and Solids
CIV 1446H Slopes and Earthworks
CIV 1499H Special Studies in Civil Engineering

Structural Engineering
CIV 510H Solid Mechanics II
CIV 513H Collaborative Engineering and Architectural Design Studio
CIV 517H Prestressed Concrete Structures
CIV 518H Behaviour and Design of Steel Structures
CIV 519H Structural Analysis II
CIV 1163H Mechanics of Reinforced Concrete
CIV 1164H Bridge Engineering
CIV 1169H Advanced Topics in Building Design
CIV 1167H Advanced Structural Dynamics
CIV 1171H Earthquake Engineering and Seismic Design
CIV 1174H Finite Element Methods in Structural Mechanics
CIV 1175H Design of Tubular Steel Structures
CIV 1180H Advanced Modeling Methods for Seismic Performance Assessment of Structures
CIV 1185H Seismic Design with Supplemental Damping and Isolation Systems
CIV 1199H Special Studies in Civil Engineering
CIV 1361H Reinforced and Prestressed Concrete Structures

Transportation Engineering and Planning
CIV 531H Transport III—Planning
CIV 533H Transport Operations
CIV 1505H Transportation Research Seminar
CIV 1506H Freight Transportation and ITS Applications
CIV 1507H Public Transport
CIV 1508H Airport Planning and Engineering
CIV 1520H Travel Survey Methods
CIV 1535H Transportation and Development
CIV 1532H Fundamentals of ITS and Traffic Management
CIV 1538H Transportation Demand Analysis
CIV 1540H Urban Transportation Networks
CIV 1599H Special Studies in Civil Engineering
MEMORANDUM

To: Executive Committee of Faculty Council

From: Lisa Romkey
Chair, Teaching Methods and Resources Committee

Date: October 25, 2012 for November 29, 2012 Faculty Council Meeting

Re: Proposal for Sustained Excellence in Teaching Award

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 voting to carry).

BACKGROUND

The Faculty currently offers three teaching awards, managed by the Teaching Methods and Resources Committee: the Faculty Teaching Assistant Award, the Early Career Teaching Award and the Faculty Teaching Award. The Early Career Teaching Award is available to those within their first 5 years of teaching, and the Faculty Teaching Award is available to all others in the Faculty. However, there is a gap in recognizing those who have demonstrated excellence in teaching in the Faculty over a sustained period of time.

The addition of this award will provide further recognition of excellence in teaching in the Faculty, and will further support the development of nominations for university-wide and national teaching awards.

PROPOSAL/MOTION

“THAT the Sustained Excellence in Teaching Award, as outlined in the attached proposal, be established.”
SUSTAINED EXCELLENCE IN TEACHING AWARD

1. Eligibility

The Sustained Excellence in Teaching Award is open to any full time staff member who:

a. Has taught undergraduate Engineering students for at least fifteen years at the University of Toronto
b. Has been a previous recipient of, or nominee for the Early Career Teaching Award, Faculty Teaching Award or other form of recognition of teaching excellence within the home department, Faculty, university or greater scholarly community
c. Has previously not won this award

2. Nomination Guidelines

This award is bestowed on exceptional individuals who in the course of their career meet a plurality of the nomination criteria outlined below. Individuals nominated for the Sustained Excellence in Teaching Award will be assessed on the basis of meeting criteria outlined in the following areas of undergraduate teaching:

- Exceptional continuous classroom instruction, including lecturing, small-group teaching, and laboratory instruction in a plurality of courses with broad and diverse content
- Consultation with students outside of class, including individual advising, mentoring, and thesis supervision
- Sustained development and use of innovative teaching methods and instructional course materials via multiple methodologies
- Demonstrated commitment to their own lifelong professional development in teaching
- Demonstrated exceptional leadership ability to inspire all educators within the Faculty while serving as a champion / visionary to advance student learning and achievement
- Demonstration of a significant and lasting impact on student learning within their Department and within the Faculty through course, curriculum, laboratory and facilities development
- Demonstrated innovation in improving the learning experience of under-represented student groups
- Demonstrated continued service to teaching/learning profession through participation and leadership in external professional or societal organizations
- Publication of original work, through any medium including presentations at professional meetings, that enhances the engineering education process or adds value to teaching methodology literature
• Contributions to graduate student teaching will also be considered
• Past award will be taken into account as evidence of excellence

Evidence of outstanding performance in one or more of the above categories will be derived from a number of different sources including:

• Testimonial letters from students, alumni, fellow faculty members or administrators
• Results of teaching evaluations
• Publications specifically directed at teaching/learning methodologies
• Objective measures of student learning
• A statement outlining the contributions made to teaching
• Statement by External Professional Organizations and Societies

3. Supporting Documentation

All documentation should be provided electronically in the form of one or more clearly labelled pdf or Word documents

Main Documents:

1. Cover letter, written by the chair of the nominee’s department. This letter should serve as the nomination letter, and could explicitly address the following questions:
   a. How has the candidate’s teaching excellence impacted the department, the Faculty and/or the University?
   b. What items distinguish the sustained excellence of the candidate as a leader, teacher, mentor and role model relative to their peers?

2. Teaching CV, which shall include the nominee’s educational background, employment history, courses taught, teaching awards received and any activity related to teaching and learning. Do NOT include research grants, papers published, conferences attended or other research-related activities UNLESS they pertain to teaching and learning related scholarship.

3. Statement of Philosophy and Practice (2-3 pages)
   a. The nominee’s beliefs about teaching and learning, and how these beliefs have continuously evolved through their teaching career
   b. This statement, written by the nominee, could include between 3 and 5 “belief statements” about teaching and learning, each with specific examples of the nominee’s innovation and leadership in teaching practice
   c. Some questions to consider when writing the statement:
      i. What do you believe about your students and the way they learn?
      ii. What do you believe about teachers and the role they serve?
iii. What do you want students to learn?
iv. What do you believe is necessary for learning to occur?
v. What hurdles are there to learning? What do you believe is necessary to overcome these hurdles?
vi. What is it that you do in your teaching that is innovative?
vii. What value do you add?
viii. What are your distinguishing characteristics?
ix. What impact has your teaching had on student learning across the Faculty?
x. How do you practice your philosophy in the classroom?
xi. How is your choice of instructional mode, approach to students and course design, choice of teaching projects and development of materials, resources and assessment tied to your beliefs?
 xii. How do you approach students with different learning styles, goals or academic background?

Optional: Statement of Professional Development and Special Projects (1-2 pages)

4. This statement allows the nominee to discuss professional development and special projects related to teaching and learning. The following list provides some examples of items to discuss, however the list is not exhaustive:
   a. Special contributions to course design or course materials
   b. Participation on committees or working groups related to curriculum, teaching and learning
   c. Mentorship of students and student groups
   d. Research and publications in teaching and learning
   e. Professional development related to teaching and learning, such as
   f. seminars, courses or conferences attended
   g. Seminars, workshops or other events on teaching and learning topics run by the nominee
   h. Mentorship of others in their teaching development
   i. Impact outside of the academy (such as community-based teaching)
   j. Public education projects and service in professional or educational societies
Appendices: (The total page count for all Appendices must not exceed 25 pages)

5. Summary table of teaching evaluation data (template provided, use is required). Nominating department should include data from all courses taught in the nominee’s career at the University of Toronto, and must include data from all relevant courses taught in the last 10-20 years

6. Summary/explanation of evaluation data (1 page maximum, optional)
   - This summary can include an explanation of any anomalies, or the evaluation data as a whole (or both)

7. Letters of support from students or former students. Focus should be on quality of letters, rather than quantity. Normally, 5-10 letters are included. (required)

8. Letters of support from colleagues (recommended)

9. Teaching materials: 2-3 examples, which may include course syllabi, assignment instructions, a sample lecture, or other course materials (audio, video, digital media, applications, etc.) to support the Statement of Philosophy and Practice. (recommended)

10. Special project samples: this may include items such as a lab manual, a curriculum document, a textbook, a research paper on a teaching & learning related subject, a workshop outline or any other materials representing work from the statement of professional development & special projects (optional)

4. Selection Procedure

   (a) Directors and Chairs of departments, divisions, programs and institutes, at their discretion, may nominate one candidate for the award. It is assumed that departmental and divisional chairs will consult with their students, Faculty and alumni before deciding upon their nominee.

   (b) The nominations will be considered by the Committee on Teaching Methods and Resources and a recommendation forwarded to the Dean, who shall approve the final award.

   (c) The Committee reserves the right to decline nominating a candidate in a given year.
To: Faculty Council

From: Dr. Graeme Norval  
Chair, Undergraduate Curriculum Committee

Date: October 31, 2012 for November 29, 2012 Faculty Council Meeting

Item: Proposed Undergraduate Academic Certificate: Nuclear 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 voting to carry).

BACKGROUND

An Undergraduate Certificate in Nuclear Engineering Certificate is proposed.

One of the weaknesses in the Faculty’s suite of energy courses relates to nuclear engineering courses. This has been addressed, in part, through the use of sessional instructors, and the creation of two courses (MIE) on nuclear reactor design. The students remain weak on the fundamentals of nuclear engineering.

The Certificate would require the completion of three courses, or half a minor. Successful completion of the certificate would appear on the student’s academic record. This would strengthen the Faculty’s offerings in this field.

PROCESS

The Certificate has been brought forward by the Cross-Disciplinary Office to Chairs and Directors and the Undergraduate Curriculum Committee.

STRUCTURE

The three courses would be a required new course - CHE5XXF, Introduction to Nuclear Engineering, plus two of the existing courses: MIE407S – Nuclear Reactor Theory and Design, MIE408S – Thermal and Mechanical Design of Nuclear Power Reactors, AER507F – Introduction to Fusion Energy, or CHE568S – Nuclear Engineering.
The new course CHE5XXF – Introduction to Nuclear Engineering, which will cover the following topics: nuclear technology, atomic and nuclear physics, thermonuclear fusion, nuclear fission, nuclear reactor theory, nuclear power plants, radiation protection and shielding, environment and nuclear safety, and the nuclear fuel cycle.

Further, the course MIE407F – Nuclear Engineering I – Reactor Physics and the Nuclear Fuel Cycle is moved to term S, with a title change to Nuclear Reactor Theory and Design. The other courses remain unchanged.

**PROPOSAL/MOTION**

Recommendation and Motion for Faculty Council:

“THAT the Faculty establishes an Undergraduate Academic Certificate in Nuclear Engineering and that the associated course changes be approved.”
MEMORANDUM

To: Executive Committee of Faculty Council

From: Dr. Graeme Norval
Chair, Undergraduate Curriculum Committee

Date: October 31, 2012 for November 29, 2012 Faculty Council Meeting

Re: Proposed Session Dates for the 2013-2014 Academic Year

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 voting to carry).

BACKGROUND

The proposed session dates for the Academic Year – 2013-2014 are attached; these have been developed in consultation with the Faculty of Arts and Science and align well with the opening and closing of residences in the Fall and Winter Sessions.

STRUCTURE

There are several issues that have been considered. It is noted that Rosh Hashanah will begin on the evening of September 4th and run through to the evening of September 6th, 2013. In 2005, the Academic Board of the University of Toronto created a policy to address the issue of class and exam scheduling and religious accommodation (attached). The policy provides that while every reasonable effort should be made to provide accommodation, the policy should not be interpreted to mean that no important academic activities can be scheduled on these dates. We have consulted with the Provost’s Office and, provided that all students who require leave are accommodated, there is no objection to the Faculty starting classes during the first two days of Rosh Hashanah in 2013 in order to fulfill the CEAB requirement of a 13 week term.

The Committee notes that it will be critically important to accommodate students who cannot attend the first two days of classes by ensuring that either the instructor or TA review the material with the students impacted by this decision.
Proposed Session Dates for 2013-2014

<table>
<thead>
<tr>
<th>Event</th>
<th>APSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Day of fall classes</td>
<td>Thursday Sept 5</td>
</tr>
<tr>
<td>Thanksgiving</td>
<td>Monday Oct 14</td>
</tr>
<tr>
<td>Last day of Q1 courses</td>
<td>Friday Oct 18</td>
</tr>
<tr>
<td>First day of Q2 courses</td>
<td>Monday Oct 21</td>
</tr>
<tr>
<td>Q1 final exams</td>
<td>Oct 21-25</td>
</tr>
<tr>
<td>Last day of fall classes</td>
<td>Wednesday Dec 4</td>
</tr>
<tr>
<td>Exam Study Period</td>
<td>Thursday Dec 5</td>
</tr>
<tr>
<td>Fall Exams Start</td>
<td>Friday Dec 6</td>
</tr>
<tr>
<td>Fall Exams End</td>
<td>Friday Dec 20</td>
</tr>
<tr>
<td>Number of instructional days</td>
<td>64 days/12.8 weeks</td>
</tr>
<tr>
<td>First day of winter classes</td>
<td>Monday Jan 6</td>
</tr>
<tr>
<td>Last day of Q3 courses</td>
<td>Friday Feb 14</td>
</tr>
<tr>
<td>Reading Week</td>
<td>February 17-21</td>
</tr>
<tr>
<td>First day of Q4 courses</td>
<td>Monday Feb 24</td>
</tr>
<tr>
<td>Q3 final exams</td>
<td>Feb 24-28</td>
</tr>
<tr>
<td>Last day of winter classes</td>
<td>Thursday April 10</td>
</tr>
<tr>
<td>Exam Study Period</td>
<td>Friday April 11</td>
</tr>
<tr>
<td>Winter Exams Start</td>
<td>Monday April 14</td>
</tr>
<tr>
<td>Good Friday</td>
<td>Friday April 18</td>
</tr>
<tr>
<td>Winter Exams End</td>
<td>Tuesday April 29</td>
</tr>
<tr>
<td>Emergency Exam Day</td>
<td>Wednesday April 30</td>
</tr>
<tr>
<td>Number of instructional days</td>
<td>64 days/12.8 weeks</td>
</tr>
</tbody>
</table>

**PROCESS**

The Committee is composed of representatives from each program; the Vice-Dean, Undergraduate Studies; the Chair, First Year; the Associate Dean, Cross-Disciplinary Programs; and the Registrar’s Office. The Committee meets regularly, and reviews changes to the curriculum.

**PROGRAM**

All programs are involved in these changes, and the impact on students in the various programs has been considered.

**PROPOSAL/MOTION**

Recommendation and Motion for Faculty Council:

“THAT the proposed session dates for the 2013-2014 academic year be approved.”
APPENDIX

Policy on Scheduling of Classes and Examinations and Other Accommodations for Religious Observances

Preamble

The University of Toronto welcomes and includes students, staff and faculty from a broadly diverse range of communities and backgrounds. The University community comprises one of the most diverse campus populations anywhere. Students, staff and faculty have a wide range of backgrounds, cultural traditions and spiritual beliefs.

With reference to the University’s commitment to human rights as articulated in the Statement on Human Rights and in accordance with the accommodation principles of the Ontario Human Rights Code, this policy is concerned with accommodations for students with respect to observances of religious holy days.

Policy

It is the policy of the University of Toronto to arrange reasonable accommodation of the needs of students who observe religious holy days other than those already accommodated by ordinary scheduling and statutory holidays.

Students have a responsibility to alert members of the teaching staff in a timely fashion to upcoming religious observances and anticipated absences. Instructors will make every reasonable effort to avoid scheduling tests, examinations or other compulsory activities at these times. If compulsory activities are unavoidable, every reasonable opportunity should be given to these students to make up work that they miss, particularly in courses involving laboratory work. When the scheduling of tests or examinations cannot be avoided, students should be informed of the procedure to be followed to arrange to write at an alternate time.

It is most important that no student be seriously disadvantaged because of her or his religious observances. However, in the scheduling of academic and other activities, it is also important to ensure that the accommodation of one group does not seriously disadvantage other groups within the University community.

On an annual basis, the Office of the Vice-President & Provost shall publish information concerning the anticipated dates of a number of holy days over the subsequent two academic years. While every reasonable effort should be made to provide accommodation, the publishing of these dates should not necessarily be interpreted to mean that no important academic activities can be scheduled on these dates.

This policy shall be applied in a manner which is consistent with normally applicable academic requirements and standards.

Responsibility

Administrative responsibility for this policy is assigned to the Vice-President & Provost.
MEMORANDUM

To: Executive Committee of Faculty Council

From: Dr. Graeme Norval
Chair, Undergraduate Curriculum Committee

Date: November 5, 2012 for November 29, 2012 Faculty Council Meeting

Re: Major Changes to the Undergraduate Curriculum for the 2013/14 Academic Year

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 voting to carry).

BACKGROUND

This report summarizes the major changes to the Undergraduate Program. These changes include course creation and deletion, as well as changes that impact multiple programs.

STRUCTURE

First Year Program

The Faculty will introduce 4 e-course equivalents to some of the first year courses, as part of the University’s program on expanding e-courses. The courses are APS1XXF Mechanics (for CIV100F), APS1XXS Dynamics (for MIE100S), APS1XXF Calculus I (for MAT186F) and APS1XXS Calculus II (for MAT187S). The course content will be the same as that of the existing courses. The evaluation will be based predominantly on the results of a closely supervised final exam.

Cross-Disciplinary Programs

The courses JRE410 – Marketing and Competitive Strategy and JRE420 – Organizational Behaviour and People Management are changed from F course F/S courses (offered in both first and second terms); it will also be offered in the summer. The courses will be converted from 2/0/2 to 2/2/0, to indicate that the group case studies are “laboratories” and not “tutorials”. The course enrollment will be limited to students who have completed second year.
The courses JRE300 – Foundations of Accounting and Finance will be converted from 3/0/2 to 3/0/1; the second hour of the tutorial has been found to be unnecessary. The Pre-requisite of JRE300 – Foundations of Accounting and Finance is adjusted to “Recommended Preparation”.

Electrical and Computer Engineering

The course ECE359 – Energy Conversion will be cancelled. Students in the Engineering Science Energy Option will be able to take the course ECE349 (Introduction to Energy Systems) which is offered in the Electrical and Computer Engineering option. Both courses cover similar material.

A new course is proposed ECE5XX – Power Electronics: Converter Topologies (3/0/1 0.5). This course fills a gap in the curriculum, and provides the students with comprehensive knowledge of main converter topologies and tools for their analysis.

Engineering Science

The course CSC192 – Computer Programming, Algorithms, Data Structures and Languages is to be cancelled. The majority of Engineering Science students complete the pair of courses CSC180 and CSC190, and between 40 and 70 students take the option to complete CSC192 and a free elective. The cancellation of CSC192 will mean that there is a common first year for all engineering science students.

The Course CHE391 – Organic and Biological Chemistry will add an additional hour of lab time, moving to 3/2/1; the students will have 5 labs of 4 hours each, rather than 4 labs of 3 hours each.

PROCESS

The Undergraduate Curriculum Committee is composed of representatives from each program; the Vice-Dean, Undergraduate Studies; the Chair, First Year; the Associate Dean, Cross-Disciplinary Programs; and the Registrar’s Office. The Committee meets regularly, and reviews changes to the curriculum.

PROGRAM

All programs are involved in these changes, and the impact on students in the various programs has been considered.

RECOMMENDATION AND MOTION FOR FACULTY COUNCIL

“THAT the Major Undergraduate Curriculum changes be approved.”
MEMORANDUM

To: Executive Committee of Faculty Council

From: Professor Chris Damaren
Chair, Engineering Graduate Education Committee

Date: November 13, 2012 for November 29, 2012 Faculty Council Meeting

Re: Report of the Engineering Graduate Education Committee

REPORT CLASSIFICATION

This is a routine matter that will be considered by the Executive Committee for approving and forwarding to Faculty Council for information.

New Courses Approved

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AER1514H</td>
<td>Mobile Robotics</td>
</tr>
<tr>
<td>APS1018H (CHE)</td>
<td>History and Philosophy of Engineering</td>
</tr>
<tr>
<td>APS1020H (CHE)</td>
<td>International Business for Engineers</td>
</tr>
<tr>
<td>JCR1000Y (CHE)</td>
<td>An Interdisciplinary Approach to Addressing Global Challenges</td>
</tr>
<tr>
<td>JMB1050H (BME)</td>
<td>Biological and Bio-inspired Materials</td>
</tr>
<tr>
<td>ECE537H</td>
<td>Random Processes</td>
</tr>
<tr>
<td>ECE1549H</td>
<td>Stochastic Networks</td>
</tr>
<tr>
<td>MIE1120H</td>
<td>Current Energy Infrastructure and Resources</td>
</tr>
<tr>
<td>MIE1415H</td>
<td>Analysis and Design of Cognitive Work</td>
</tr>
<tr>
<td>MIE1505H</td>
<td>Enterprise Modelling</td>
</tr>
<tr>
<td>MIE1513H</td>
<td>Decision Support Systems</td>
</tr>
<tr>
<td>MSE1032H</td>
<td>Atomistic Modeling of Materials</td>
</tr>
</tbody>
</table>

Courses Renamed

From | To
---|---
ECE1778H | Creativity and Programming of Mobile Devices | Creative Applications for Mobile Devices

Courses Deleted

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIE1006H</td>
<td>Non-linear Vibrations</td>
</tr>
<tr>
<td>MIE1406H</td>
<td>Cognitive Work Analysis</td>
</tr>
<tr>
<td>MIE1409H</td>
<td>Human Computer Interface Design for Complex Systems</td>
</tr>
</tbody>
</table>
Minor Modifications

Department of Mechanical and Industrial Engineering – Renaming of Fields

The following 9 fields in MIE were originally approved by the OCGS on July 24, 2008:

- Applied Mechanics, Robotics and Materials Engineering
- Biomedical Engineering
- Computer Aided Design and Materials Engineering
- Energy Studies, Thermodynamics and Surface Science
- Environmental Engineering
- Fluid Sciences
- Human Factors/Ergonomics
- Information Systems and Enterprise Engineering
- Operations Research

Under this proposal 6 of the 9 fields were renamed to reflect recent developments in research foci of MIE faculty. The 9 new fields will be:

- Advanced Manufacturing and Materials Engineering
- Applied Mechanics and Design
- Biomedical Engineering
- Energy and Environmental Engineering
- Human Factors/Ergonomics
- Information Engineering
- Operations Research
- Robotics, Mechatronics and Instrumentation
- Thermal and Fluid Sciences Engineering
MEMORANDUM

To: Executive Committee of Faculty Council

From: Dr. Graeme Norval
Chair, Undergraduate Curriculum Committee

Date: October 15, 2012 for November 29, 2012 Faculty Council Meeting

Re: Minor Undergraduate Curriculum Changes for the 2013-14 Academic Year

REPORT CLASSIFICATION

This is minor policy matter that will be considered by the Executive Committee for approving and forwarding to Faculty Council for information.

BACKGROUND

This report summarizes the routine, minor changes to the Undergraduate Program. These changes are primarily administrative in nature.

STRUCTURE

Chemical Engineering

CHE471F – Modelling in Chemical Engineering
The course is changing from term F to term S. The title is modified to “Modelling in Chemical and Biological Systems”, with the term “biological “ added to the existing course description. The course is added to the list technical electives for the Bioengineering Minor.

CHE575F – Mechanical Properties of Bio-composites and Biomaterials
This course has been taught by Professor Yan, of Forestry. It is being converted to CHE4XXS, with a new title “Biocomposites: Mechanics and Bioinspiration”, as well as a new course description.

Civil Engineering

CIV235S – Civil Engineering Graphics (from 2/2/2 to 0/6/0)
The word lecture is removed from the course description, and the lecture time slot is eliminated; this course involves teaching the use a graphical drawing, and it all occurs in a computer room, rather than a lecture room.
CIV313S – Reinforced Concrete
The course description is revised, with more explicit reference to the engineering design
elements, including a design project.

CME321F – Geotechnical Engineering I (from 3/1.5/1 to 3/0.5/1)
The course description is edited, with reference to soil slopes and compaction removed.

CIV324S – Geotechnical Engineering I
The course description is edited, with reference to soil slopes and compaction added.

CME358F – Survey Camp
A note regarding the extra fee has been added.

CIV541S – Environmental Biotechnology
The title is changed from Environmental Bioengineering. The course description is unchanged.

The Academic Unit count (AU) and distribution have been edited for the following courses:
CIV201F, CIV235S, CIV250S, CIV331F, CIV498S, CIV516S, CIV519F, CME185S, CME321F
and CME358.

Cross-Disciplinary Programs

The course APS510 – Innovative Technologies and Organizations in Global Energy Systems will
add the course APS310 – Defining Energy Futures in India and Canada (Study Abroad Course)
as an exclusion.  APS310 already lists APS510 as an exclusion.

The course APS310 is added as an allowable elective for the Sustainable Energy Minor.

The course CIV342 – Water and Wastewater Treatment is removed from the Environmental
Engineering Minor.

Three FOR courses that are listed for engineering are having changes to course titles and
descriptions.  FOR425S has a word change in the course description.  FOR424 is renamed
“Innovation in the Manufacturing of Sustainable Materials”, with minor edits to the course
description, and a mutual exclusion to CHE4XX (above), and an AU count of 100% ES.
FOR421F, a CS elective “Urban Forest Conservation” has a new title and course description.

The Engineering Business Certificate course list will be adjusted from 1) program economics
course, 2) JRE300 and 3) One of JRE410, JRE420, (CHE/CIV/ECE/MIE/ECE)488, to 1)
program economics course, 2) and two of JRE300, JRE410, JRE420, or
(CHE/CIV/ECE/MIE/ECE)488.

Electrical and Computer Engineering

The course ECE110 will have a revised course description that explicitly defines the inclusion of
1st order RC and RL transient responses.
Pre-requisites are added to ECE318 Fundamentals of Optics and ECE451 VLSI Systems and Design.

The course ECE533 – Advanced Power Electronics will be renamed Power Electronics: Switch-Mode Power Supplies.

The course ECE527 – Photonic Devices will have a revised course description; the course content remains the same, but the text is tightened up. Also, the course currently listed as “Background Preparation” are redefined to be Pre-requisites.

**Engineering Science**

ESC103 – Engineering Mathematics and Computation  
The course description is changed with the addition of complex numbers.

PHY180 – Classical Mechanics  
The course description is changed by the elimination of the textbook title.

BME205 – Biomolecules and Cells  
The course contact time is changed from 2/1/25/1 to 2/1.75/1, with the addition of 2 lab safety sessions.

Notations of “Recommended Preparation” courses are being added to the following courses: AER301, AER302, AER307, AER310, AER315, AER336, AER372, AER373, AER406, AER501, AER503, AER506, AER507, AER510, AER525.

The 3S term in the Electrical and Computer Option will be changed from:

- ECE353S – Systems Software  
- ECE356S – Linear Systems and Control  
- ECE362S – Digital Signal Processing  
- ESC301Y – EngSci Option Seminar

One of ECE357S – Electromagnetic Fields  
ECE350S – Semiconductor Devices  

Three of ECE357S – Electromagnetic Fields  
ECE350S – Semiconductor Devices*  
ECE358S – Foundations of Computing*  
ECE354S – Electronic Circuits  
ECE316S – Communication Systems  
ECE Elective  
* ECE350S and ECE358S can not be taken in the same term

The course ECE362S is renumbered to ECE4XXF, and is a required course in term 4F.
There are minor changes to the Physics Option - Group A and Group B electives list. The course MAT410 – Polynomial Equations and Fields is moved from Group B to Group A. The courses AST320 – Introductory Astrophysics, AST325 – Practical Astronomy are added to the Group A elective list and PHY450 – Relativistic Electrodynamics is added to the Group B elective list.

**Mechanical Engineering**

The course MIE422S – Automated Manufacture changes term, and becomes the core course in the Manufacturing Stream.

The course MIE440F – Mechanical Design: Theory and Methodology, will be renamed, have a new course description, and receive a new course number, and become a technical elective.

The course MIE442F – Machine Design has minor edits to the course description.

**PROCESS**

The Committee is composed of representatives from each program; the Vice-Dean, Undergraduate Studies; the Chair, First Year; the Associate Dean, Cross-Disciplinary Programs; and the Registrar’s Office. The Committee meets regularly, and reviews changes to the curriculum.

**PROGRAM**

All programs are involved in these changes, and the impact on students in the various programs has been considered.

**PROPOSAL/MOTION**

“THAT the minor undergraduate curriculum changes be approved.”
To: Executive Committee

From: Professor Christopher Yip  
Chair, Admissions Committee

Date: November 6, 2012 for November 29, 2012 Faculty Council Meeting

Re: Admissions Cycle 2012

This report will provide a summary of the activities of the Committee on Admissions for the period November 1, 2011 to November 1, 2012. The following Tables are attached herewith: Characteristics of First Year Intake; Results of Individual Programs from 2002 to 2012; Admissions Scholarships, and Net First Year Transfers.

Please note that effective for the 2010 cycle, a change in reporting took place for Offers of admission. Offers that are withdrawn by the Faculty for failure to meet the conditions stipulated in the offer of admission will no longer be included in the total number of offers. The data for 2002-2009 has not been changed to reflect this change.

Applications for Admissions

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Applications</td>
<td>7881</td>
<td>8745</td>
<td>9326</td>
</tr>
<tr>
<td>OSS Applications</td>
<td>4423</td>
<td>4838</td>
<td>4917</td>
</tr>
<tr>
<td>Non-OSS Applications</td>
<td>3458</td>
<td>3907</td>
<td>4409</td>
</tr>
<tr>
<td>Domestic Applicants</td>
<td>5892</td>
<td>6359</td>
<td>6662</td>
</tr>
<tr>
<td>International Applicants</td>
<td>1989</td>
<td>2386</td>
<td>2664</td>
</tr>
</tbody>
</table>

Offers of Admission

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Offers</td>
<td>3347</td>
<td>3149</td>
<td>3309</td>
</tr>
<tr>
<td>OSS</td>
<td>2277</td>
<td>1926</td>
<td>2003</td>
</tr>
<tr>
<td>Non-OSS</td>
<td>1070</td>
<td>1223</td>
<td>1306</td>
</tr>
<tr>
<td>Domestic Offers</td>
<td>2665</td>
<td>2400</td>
<td>2510</td>
</tr>
<tr>
<td>International Offers</td>
<td>682</td>
<td>749</td>
<td>799</td>
</tr>
</tbody>
</table>
Registration Figures

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered as of Nov. 1*</td>
<td>1216</td>
<td>1202</td>
<td>1289</td>
</tr>
<tr>
<td>OSS Registered</td>
<td>796</td>
<td>704</td>
<td>757</td>
</tr>
<tr>
<td>non-OSS Registered</td>
<td>420</td>
<td>498</td>
<td>532</td>
</tr>
<tr>
<td>Domestic Registered</td>
<td>940</td>
<td>911</td>
<td>958</td>
</tr>
<tr>
<td>International Registered</td>
<td>276</td>
<td>291</td>
<td>331</td>
</tr>
<tr>
<td>Nov 1 Target</td>
<td>1150</td>
<td>1150</td>
<td>1150</td>
</tr>
</tbody>
</table>

* includes newly admitted first year and upper year students

Scholarships & Awards Offered to Ontario High School Students

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scholarships/Awards Offered</td>
<td>1208</td>
<td>1433</td>
<td>1376</td>
</tr>
</tbody>
</table>

Characteristics of the First Year Class 2012*

<table>
<thead>
<tr>
<th></th>
<th>FT</th>
<th>PT</th>
<th>Total</th>
<th>non-OSS</th>
<th>OSS</th>
<th>F</th>
<th>M</th>
<th>% female</th>
<th>domestic</th>
<th>international</th>
<th>Mean OSS average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical</td>
<td>129</td>
<td>2</td>
<td>131</td>
<td>55</td>
<td>76</td>
<td>42</td>
<td>89</td>
<td>32.1</td>
<td>88</td>
<td>43</td>
<td>89.7</td>
</tr>
<tr>
<td>Civil</td>
<td>108</td>
<td></td>
<td>108</td>
<td>33</td>
<td>75</td>
<td>30</td>
<td>78</td>
<td>27.8</td>
<td>88</td>
<td>20</td>
<td>89.8</td>
</tr>
<tr>
<td>Computer</td>
<td>93</td>
<td>2</td>
<td>95</td>
<td>40</td>
<td>55</td>
<td>13</td>
<td>82</td>
<td>13.7</td>
<td>71</td>
<td>24</td>
<td>90.8</td>
</tr>
<tr>
<td>Electrical</td>
<td>174</td>
<td>5</td>
<td>179</td>
<td>78</td>
<td>101</td>
<td>29</td>
<td>150</td>
<td>16.2</td>
<td>110</td>
<td>69</td>
<td>91.0</td>
</tr>
<tr>
<td>Eng. Sci.</td>
<td>316</td>
<td>316</td>
<td>632</td>
<td>115</td>
<td>201</td>
<td>84</td>
<td>232</td>
<td>26.6</td>
<td>259</td>
<td>57</td>
<td>94.3</td>
</tr>
<tr>
<td>Industrial</td>
<td>83</td>
<td>83</td>
<td>166</td>
<td>39</td>
<td>44</td>
<td>32</td>
<td>51</td>
<td>38.6</td>
<td>55</td>
<td>28</td>
<td>88.7</td>
</tr>
<tr>
<td>Materials</td>
<td>57</td>
<td>57</td>
<td>114</td>
<td>23</td>
<td>34</td>
<td>18</td>
<td>39</td>
<td>31.6</td>
<td>38</td>
<td>19</td>
<td>88.8</td>
</tr>
<tr>
<td>Mechanical</td>
<td>92</td>
<td>1</td>
<td>93</td>
<td>55</td>
<td>38</td>
<td>15</td>
<td>78</td>
<td>16.1</td>
<td>63</td>
<td>30</td>
<td>91.9</td>
</tr>
<tr>
<td>Mineral</td>
<td>47</td>
<td>1</td>
<td>48</td>
<td>15</td>
<td>33</td>
<td>11</td>
<td>37</td>
<td>22.9</td>
<td>42</td>
<td>6</td>
<td>87.2</td>
</tr>
<tr>
<td>Track One</td>
<td>167</td>
<td>1</td>
<td>168</td>
<td>68</td>
<td>100</td>
<td>50</td>
<td>118</td>
<td>29.8</td>
<td>135</td>
<td>33</td>
<td>91.6</td>
</tr>
<tr>
<td>Total</td>
<td>1266</td>
<td>12</td>
<td>1278</td>
<td>521</td>
<td>757</td>
<td>324</td>
<td>954</td>
<td>25.4</td>
<td>949</td>
<td>329</td>
<td>90.9</td>
</tr>
</tbody>
</table>

* Newly admitted students only.
** Based on final grades in Chemistry, Advanced Functions, Calculus & Vectors, Physics, English (if required). These averages differ from the values used for admission decisions, which are based on interim grades without inclusion of the sixth subject.
Number of Students and Percentage of the Incoming Class who are Female

<table>
<thead>
<tr>
<th>Program</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Chemical</td>
<td>42</td>
<td>35</td>
<td>46</td>
<td>41.4</td>
</tr>
<tr>
<td>Civil</td>
<td>33</td>
<td>27.7</td>
<td>27</td>
<td>24.1</td>
</tr>
<tr>
<td>Computer</td>
<td>10</td>
<td>11.4</td>
<td>10</td>
<td>14.3</td>
</tr>
<tr>
<td>Electrical</td>
<td>26</td>
<td>17.6</td>
<td>29</td>
<td>16.7</td>
</tr>
<tr>
<td>Eng. Sci.</td>
<td>77</td>
<td>26.5</td>
<td>66</td>
<td>23.6</td>
</tr>
<tr>
<td>Industrial</td>
<td>7</td>
<td>15.2</td>
<td>24</td>
<td>38.7</td>
</tr>
<tr>
<td>Materials</td>
<td>12</td>
<td>30.8</td>
<td>12</td>
<td>24.5</td>
</tr>
<tr>
<td>Mechanical</td>
<td>24</td>
<td>16.4</td>
<td>20</td>
<td>15.9</td>
</tr>
<tr>
<td>Mineral</td>
<td>1</td>
<td>9.1</td>
<td>5</td>
<td>23.8</td>
</tr>
<tr>
<td>Track One</td>
<td>51</td>
<td>27.3</td>
<td>47</td>
<td>22.6</td>
</tr>
<tr>
<td>Total</td>
<td>283</td>
<td>23.7</td>
<td>286</td>
<td>23.6</td>
</tr>
</tbody>
</table>

June 2012 Net Transfer Statistics

<table>
<thead>
<tr>
<th>Program</th>
<th>Transfers In</th>
<th>Track One Transfers In</th>
<th>Transfers Out</th>
<th>Net</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical</td>
<td>9</td>
<td>13</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>Civil</td>
<td>8</td>
<td>20</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>Computer</td>
<td>9</td>
<td>18</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>Electrical</td>
<td>21</td>
<td>36</td>
<td>18</td>
<td>39</td>
</tr>
<tr>
<td>Engineering</td>
<td>1</td>
<td>1</td>
<td>40</td>
<td>-38</td>
</tr>
<tr>
<td>Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td>12</td>
<td>28</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td>Materials</td>
<td>3</td>
<td>3</td>
<td>10</td>
<td>-4</td>
</tr>
<tr>
<td>Mechanical</td>
<td>44</td>
<td>54</td>
<td>9</td>
<td>89</td>
</tr>
<tr>
<td>Mineral</td>
<td>4</td>
<td>11</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>111</td>
<td>184</td>
<td>111</td>
<td>184</td>
</tr>
</tbody>
</table>
Offers of Admission 2002-2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical</td>
<td>369</td>
<td>484</td>
<td>412</td>
<td>395</td>
<td>385</td>
<td>368</td>
<td>324</td>
<td>397</td>
<td>329</td>
<td>331</td>
<td>397</td>
</tr>
<tr>
<td>Civil</td>
<td>394</td>
<td>429</td>
<td>334</td>
<td>355</td>
<td>351</td>
<td>298</td>
<td>278</td>
<td>310</td>
<td>316</td>
<td>260</td>
<td>277</td>
</tr>
<tr>
<td>Computer</td>
<td>471</td>
<td>496</td>
<td>471</td>
<td>360</td>
<td>352</td>
<td>316</td>
<td>284</td>
<td>281</td>
<td>270</td>
<td>293</td>
<td>319</td>
</tr>
<tr>
<td>Electrical</td>
<td>319</td>
<td>460</td>
<td>319</td>
<td>602</td>
<td>651</td>
<td>523</td>
<td>423</td>
<td>453</td>
<td>440</td>
<td>420</td>
<td>413</td>
</tr>
<tr>
<td>Eng Sci</td>
<td>594</td>
<td>680</td>
<td>684</td>
<td>695</td>
<td>726</td>
<td>671</td>
<td>615</td>
<td>614</td>
<td>584</td>
<td>631</td>
<td>655</td>
</tr>
<tr>
<td>Industrial</td>
<td>129</td>
<td>109</td>
<td>151</td>
<td>145</td>
<td>154</td>
<td>129</td>
<td>137</td>
<td>110</td>
<td>181</td>
<td>127</td>
<td>176</td>
</tr>
<tr>
<td>Materials</td>
<td>203</td>
<td>229</td>
<td>178</td>
<td>145</td>
<td>157</td>
<td>158</td>
<td>169</td>
<td>140</td>
<td>107</td>
<td>166</td>
<td>153</td>
</tr>
<tr>
<td>Mechanical</td>
<td>316</td>
<td>418</td>
<td>337</td>
<td>503</td>
<td>472</td>
<td>435</td>
<td>379</td>
<td>431</td>
<td>443</td>
<td>298</td>
<td>289</td>
</tr>
<tr>
<td>Mineral</td>
<td>170</td>
<td>208</td>
<td>105</td>
<td>59</td>
<td>28</td>
<td>28</td>
<td>33</td>
<td>48</td>
<td>80</td>
<td>102</td>
<td>137</td>
</tr>
<tr>
<td>Track One</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>374</td>
<td>485</td>
<td>545</td>
<td>597</td>
<td>521</td>
<td>493</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Acceptance of Offers 2002-2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical</td>
<td>109</td>
<td>171</td>
<td>127</td>
<td>146</td>
<td>132</td>
<td>136</td>
<td>106</td>
<td>134</td>
<td>119</td>
<td>125</td>
<td>146</td>
</tr>
<tr>
<td>Civil</td>
<td>117</td>
<td>138</td>
<td>93</td>
<td>138</td>
<td>142</td>
<td>126</td>
<td>106</td>
<td>129</td>
<td>120</td>
<td>97</td>
<td>112</td>
</tr>
<tr>
<td>Computer</td>
<td>171</td>
<td>161</td>
<td>99</td>
<td>145</td>
<td>118</td>
<td>113</td>
<td>86</td>
<td>101</td>
<td>78</td>
<td>84</td>
<td>112</td>
</tr>
<tr>
<td>Electrical</td>
<td>146</td>
<td>206</td>
<td>259</td>
<td>255</td>
<td>279</td>
<td>229</td>
<td>169</td>
<td>179</td>
<td>193</td>
<td>215</td>
<td>201</td>
</tr>
<tr>
<td>Eng Sci</td>
<td>262</td>
<td>315</td>
<td>312</td>
<td>329</td>
<td>334</td>
<td>297</td>
<td>292</td>
<td>317</td>
<td>307</td>
<td>315</td>
<td>338</td>
</tr>
<tr>
<td>Industrial</td>
<td>68</td>
<td>55</td>
<td>58</td>
<td>74</td>
<td>79</td>
<td>61</td>
<td>51</td>
<td>51</td>
<td>75</td>
<td>73</td>
<td>84</td>
</tr>
<tr>
<td>Materials</td>
<td>68</td>
<td>68</td>
<td>60</td>
<td>59</td>
<td>71</td>
<td>66</td>
<td>60</td>
<td>41</td>
<td>51</td>
<td>65</td>
<td>63</td>
</tr>
<tr>
<td>Mechanical</td>
<td>125</td>
<td>129</td>
<td>123</td>
<td>176</td>
<td>172</td>
<td>185</td>
<td>144</td>
<td>160</td>
<td>138</td>
<td>109</td>
<td>108</td>
</tr>
<tr>
<td>Mineral</td>
<td>36</td>
<td>35</td>
<td>19</td>
<td>25</td>
<td>12</td>
<td>15</td>
<td>14</td>
<td>13</td>
<td>22</td>
<td>34</td>
<td>50</td>
</tr>
<tr>
<td>Track One</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>118</td>
<td>158</td>
<td>196</td>
<td>222</td>
<td>195</td>
<td>181</td>
</tr>
</tbody>
</table>
Registered Students 2002-2012*

*Includes newly admitted students and transfer students (students who start their studies beyond first year)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical</td>
<td>102</td>
<td>174</td>
<td>120</td>
<td>141</td>
<td>121</td>
<td>128</td>
<td>99</td>
<td>125</td>
<td>111</td>
<td>109</td>
<td>132</td>
</tr>
<tr>
<td>Civil</td>
<td>111</td>
<td>126</td>
<td>89</td>
<td>128</td>
<td>132</td>
<td>118</td>
<td>95</td>
<td>120</td>
<td>112</td>
<td>92</td>
<td>109</td>
</tr>
<tr>
<td>Computer</td>
<td>164</td>
<td>161</td>
<td>94</td>
<td>137</td>
<td>108</td>
<td>97</td>
<td>81</td>
<td>92</td>
<td>70</td>
<td>77</td>
<td>97</td>
</tr>
<tr>
<td>Elec</td>
<td>146</td>
<td>189</td>
<td>232</td>
<td>229</td>
<td>252</td>
<td>209</td>
<td>153</td>
<td>156</td>
<td>176</td>
<td>186</td>
<td>182</td>
</tr>
<tr>
<td>Eng Sci.</td>
<td>243</td>
<td>291</td>
<td>290</td>
<td>304</td>
<td>296</td>
<td>286</td>
<td>275</td>
<td>291</td>
<td>280</td>
<td>282</td>
<td>316</td>
</tr>
<tr>
<td>Industrial</td>
<td>66</td>
<td>51</td>
<td>54</td>
<td>67</td>
<td>78</td>
<td>61</td>
<td>45</td>
<td>46</td>
<td>62</td>
<td>70</td>
<td>83</td>
</tr>
<tr>
<td>Materials</td>
<td>70</td>
<td>63</td>
<td>54</td>
<td>53</td>
<td>63</td>
<td>58</td>
<td>56</td>
<td>39</td>
<td>49</td>
<td>64</td>
<td>57</td>
</tr>
<tr>
<td>Mechanical</td>
<td>120</td>
<td>133</td>
<td>119</td>
<td>170</td>
<td>153</td>
<td>178</td>
<td>130</td>
<td>148</td>
<td>127</td>
<td>104</td>
<td>97</td>
</tr>
<tr>
<td>Mineral</td>
<td>33</td>
<td>31</td>
<td>18</td>
<td>22</td>
<td>12</td>
<td>15</td>
<td>13</td>
<td>11</td>
<td>21</td>
<td>31</td>
<td>48</td>
</tr>
<tr>
<td>Track One</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Chemical
- Civil
- Computer
- Elec
- Eng Sci.
- Industrial
- Materials
- Mechanical
- Mineral
- Track One
Summary of the 2012 Admissions Cycle

<table>
<thead>
<tr>
<th>Program</th>
<th>Applications</th>
<th>Admits</th>
<th>Accepts</th>
<th>Registered</th>
<th>Yield %</th>
<th>Mean OSS average*</th>
<th>OSS cut-off**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical</td>
<td>958</td>
<td>397</td>
<td>146</td>
<td>132</td>
<td>33.2</td>
<td>89.7</td>
<td>85.4</td>
</tr>
<tr>
<td>Civil</td>
<td>1133</td>
<td>277</td>
<td>112</td>
<td>109</td>
<td>39.4</td>
<td>89.8</td>
<td>85.2</td>
</tr>
<tr>
<td>Computer</td>
<td>987</td>
<td>319</td>
<td>112</td>
<td>97</td>
<td>30.4</td>
<td>90.8</td>
<td>86.5</td>
</tr>
<tr>
<td>Electrical</td>
<td>1105</td>
<td>413</td>
<td>201</td>
<td>182</td>
<td>44.1</td>
<td>91.0</td>
<td>85.9</td>
</tr>
<tr>
<td>Eng Sci</td>
<td>1535</td>
<td>655</td>
<td>338</td>
<td>316</td>
<td>48.2</td>
<td>94.3</td>
<td>89.4</td>
</tr>
<tr>
<td>Industrial</td>
<td>330</td>
<td>176</td>
<td>84</td>
<td>83</td>
<td>47.2</td>
<td>88.7</td>
<td>84.1</td>
</tr>
<tr>
<td>Materials</td>
<td>183</td>
<td>153</td>
<td>63</td>
<td>57</td>
<td>37.3</td>
<td>88.8</td>
<td>85.4</td>
</tr>
<tr>
<td>Mechanical</td>
<td>1414</td>
<td>289</td>
<td>108</td>
<td>97</td>
<td>33.6</td>
<td>91.9</td>
<td>89.3</td>
</tr>
<tr>
<td>Mineral</td>
<td>104</td>
<td>137</td>
<td>50</td>
<td>48</td>
<td>35.0</td>
<td>87.2</td>
<td>83.5</td>
</tr>
<tr>
<td>Track One</td>
<td>1577</td>
<td>493</td>
<td>181</td>
<td>168</td>
<td>34.1</td>
<td>91.6</td>
<td>87.4</td>
</tr>
<tr>
<td>Total</td>
<td>9326</td>
<td>3309</td>
<td>1395</td>
<td>1289</td>
<td>39.0</td>
<td>90.9</td>
<td>83.5</td>
</tr>
</tbody>
</table>

*Mean admission average of Ontario students using six courses required for admission
**Cut-off is defined as the mean of the 10 lowest admissions averages (5 lowest for Materials, Mineral and Industrial due to the program size) of students who registered.

International Foundation Program

As of the 2010, the Faculty has partnered with New College to provide the International Foundation Program which allows students who are academically strong but have discretionary English Facility scores to be conditionally admitted to the Faculty as non-degree students. Student in this program must complete an intensive eight month English language program and also complete the Engineering Strategies and Practice course series. Upon successful completion of both requirements, students begin their degree studies the following September (this year’s cohort will commence September 2012) in the Faculty in their selected program.

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied</td>
<td>111</td>
<td>70</td>
<td>93</td>
</tr>
<tr>
<td>Admitted</td>
<td>47</td>
<td>57</td>
<td>63</td>
</tr>
<tr>
<td>Accepted</td>
<td>24</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>Registered</td>
<td>20</td>
<td>26</td>
<td>31</td>
</tr>
<tr>
<td>Yield</td>
<td>42.6</td>
<td>45.6</td>
<td>49.2%</td>
</tr>
</tbody>
</table>

Note: Students are able to apply through the OUAC to both a regular degree program and to the IFP. Students who have done this will have been counted in degree application tables and in this table.
MEMORANDUM

To: Executive Committee of Faculty Council

From: Professor Christopher Yip
Chair, Admissions Committee

Date: October 31, 2012 for November 29, 2012 Faculty Council Meeting

Re: Committee Goals for 2012-2013

REPORT CLASSIFICATION

This is a routine matter that will be considered by the Executive Committee for approval and forwarding to Faculty Council for information.

COMMITTEE GOALS 2012-2013

1. The Terms of Reference for the Admissions Committee were last updated and approved by Faculty Council in 1999. The Committee will revise the terms of reference to reflect the current realities faced by the Committee.

2. The Committee began a review of scholarship strategy in the last academic year. This work is drawing to a close and a report for implementation will be presented during this academic year.

3. The Committee will review the current method of predicting applicant yield with a view to improve its predictive capabilities. This will help ensure that we meet our incoming class targets by the November 1st government count date.

4. The past few years have seen record incoming averages for Ontario Secondary School students. The Committee will review its current admissions processes to determine if and how other non-cognitive variables can be factored into the admissions decision process. As this is a large undertaking, this process may extend into the 2013-2014 academic year.

PROPOSAL/MOTION

For information.
MEMORANDUM

To: Executive Committee of Faculty Council

From: Lisa Romkey
Chair, Teaching Methods and Resources Committee

Date: October 25, 2012 for November 29, 2012 Faculty Council Meeting

Re: Teaching Methods and Resources Committee Goals for 2012-13

REPORT CLASSIFICATION

This is a routine matter that will be considered by the Executive Committee for approving and forwarding to Faculty Council for information.

COMMITTEE GOALS

In addition to routine issues, such as managing the teaching award process, the committee has identified the following priorities for 2012-13:

1. Course Evaluation Framework

As noted in the minutes, the teaching evaluation framework, which includes a set of eight core institutional questions, and a set of Faculty teaching and learning priorities, was approved at the Faculty Council Meeting on April 26, 2012. During the fall semester, CTSI (Centre for Teaching Support and Innovation) will develop a set of reliable and valid questions to reflect the Faculty’s teaching and learning priorities. These will be reviewed by the Teaching Methods and Resources Committee, and will come forward for Faculty Council approval in February 2013.

The new course evaluation system will roll out in the Faculty of Applied Science and Engineering for the fall 2013 semester.

Further discussion also needs to take place around the evaluation of our teaching assistants within the framework. This is an issue that CTSI is currently working through university-wide, and we will use their guidance to move forward in this regard.
2. **Committee Procedures Manual Review**

The committee will review and update the Committee Procedures Manual, which has not been updated in over ten years. Some of these updates will reflect current practices, but will also propose the addition of a member from the Engineering Communication Program.

3. **Sustained Excellence in Teaching Award**

The committee will bring forward a new “Sustained Excellence in Teaching” award, which will reward long-term (15+ years) excellence in teaching within the Faculty of Applied Science and Engineering. This award will be brought forward for Faculty approval at the November Faculty Council meeting.

4. **Teaching Technology in the ECF Labs**

In recent years, there has been a demand for our computer labs to be used as a more formal learning environment. For example, instructors may wish to hold a portion of their class in a computer lab, with the purpose of teaching new skills rather than simply completing lab exercises. This demand may necessitate new software or equipment for the ECF labs. The committee will make recommendations about these needs, based on departmental/instructor feedback.

5. **Educational Technology Conference**

The committee will support the Faculty’s annual Educational Technology Conference, in conjunction with the Faculty’s Instructional Technology Specialist.

**PROPOSAL/MOTION**

For information.
MEMORANDUM

To: Executive Committee of Faculty Council

From: Professor Alison McGuigan
Chair, Community Affairs and Gender Issues Committee

Date: November 5, 2012 for November 29, 2012 Faculty Council Meeting

Re: Community Affairs and Gender Issues Committee Goals

REPORT CLASSIFICATION

This is a routine or minor policy matter that will be considered by the Executive Committee for approving and forwarding to Faculty Council for information.

BACKGROUND

Graduate Attributes have been defined by the Canadian Engineering Accreditation Board (CEAB) as a set of individually assessable outcomes that are the components indicative of the graduate’s potential to acquire competence to practice at the appropriate level. A system to address and assess each attribute must be in place within the Faculty by 2014.

Professionalism is one of the twelve graduate attributes and often issues related to professionalism underlie concerns that arise in community affairs or inter-gender relationships. Various groups/individuals within the University are considering issues around professionalism but there is currently no clear understanding of how to best teach and assess professionalism and in particular professionalism when engaging in inter-gender and inter-cultural interactions. Training on these issues for our diverse student population is critical for their future success in the work place.

COMMITTEE GOALS

The Committee will undertake an evaluation of best practices and current approaches (both in academia and industry) for providing training on professionalism and inter-gender/cultural interactions in the workplace.

Based on this evaluation we will generate i) a list of groups engaging in professionalism training within the faculty and university and ii) a set of recommendations for how to implement training on these issues to students in the Engineering Faculty.

PROPOSAL/MOTION

For information.