

Faculty of Engineering and Applied Science (FEAS)

A Proposal for Creation of Departments

March 26, 2012

EXECUTIVE SUMMARY

This proposal presents the advantages of restructuring the Faculty of Engineering and Applied Science around a departmental structure, and provides details on how this new organizational structure would function. The proposal is cost-neutral with respect to the present organizational structure of the Faculty. The faculty and staff of FEAS have indicated their strong support of the new structure at a Faculty Retreat on February 23, 2012 and through a vote at a special Faculty Meeting on March 22, 2012. The timing of this change is important as both of the current Program Directors terms of office expire on June 30, 2012, as do both Associate Deans. An implementation date of July 1, 2012 is proposed.

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1. OVERVIEW OF THE FACULTY OF ENGINEERING AND APPLIED SCIENCE (FEAS)

1.1 VISION, MISSION AND VALUES OF THE FACULTY

[from the FEAS Faculty Website, June 2009]

The mission of the Faculty of Engineering and Applied Science is to deliver the highest quality of engineering education, through teaching and research excellence, state-of-the-art educational environment and innovative programs. It aims to provide our engineering graduates with the knowledge and skills needed to succeed and become leaders of tomorrow. The Faculty of Engineering and Applied Science is market oriented, and connects to the needs of industry and communities, striving to contribute to sustainable economic development through innovative research and highly qualified personnel, and the overall betterment of society.

1.2 FACULTY HISTORY

[from multiple sources, June 2009]

The Faculty of Engineering and Applied Science (FEAS) is one of the founding Faculties of the University of Ontario Institute of Technology (UOIT). The programs were developed in close consultation with industry representatives and experienced faculty from other universities, with the objective of delivering a highest-quality educational experience that addressed both the needs of industry and the interests of the students.

Originally, the Faculty started as a School of Manufacturing Engineering, but soon thereafter became the Faculty of Engineering and Applied Science. The Faculty continues to build from this strong launch. The programs offered by the Faculty are unique and innovative – for example:

- Canada's only degree programs in Automotive Engineering and Manufacturing Engineering;
- Broad programs in Mechanical and Electrical Engineering;
- Choice of three educational streams in Mechanical Engineering: Comprehensive option; Energy Engineering option; and Mechatronics option;
- One of the few Software Engineering programs in Ontario;
- Five-year Engineering and Management variations for all engineering programs;
- Work-study experience for students through internships, work placement, and career opportunities with leading employers;
- Research opportunities for undergraduate students.

The extensive use of laptop computers in engineering degree programs provides students with the knowledge needed to be successful in attaining a degree and applying the knowledge in industry after graduation. Whether a student studies equipment design and development, power plant operation, project management or any other area of engineering, the computer and the Internet are keys to success for students to find and use information, and in creating new knowledge.

Students have access to PACE (Partners for the Advancement of Collaborative Engineering Education) software. PACE includes state-of-the-art computer-based hardware, engineering software and, student and instructor training and academic support. PACE links its business partners - General Motors, EDS, HP, Siemens and Sun Microsystems - with leading academic institutions worldwide to prepare future engineers, designers and analysts to have key roles in the lifecycle

management of engineered products. UOIT is one of six PACE Canadian universities, enabling them to interact and share ideas with other PACE institutions worldwide

The following table offers a snapshot of the roll-out of the programs offered by FEAS:

Table 1: Programs with Launch and Accreditation Dates

Program	Program Launch	Initial Program Accreditation	Current Program Accreditation Valid until
Manufacturing	September 2003	June 2007	June 2015
Mechanical	September 2004	June 2008	June 2014
Automotive	September 2005	June 2009	June 2012
Electrical	September 2005	June 2009	June 2012
Software	September 2005	June 2009	June 2012
Engineering and Management	Same of above (for each respective program)	Same as above (for each respective program)	
M.A.Sc./M.Eng. Mechanical Engineering	September 2006		
M.A.Sc./M.Eng. Automotive Engineering	January 2008		
M.A.Sc./M.Eng. Electrical & Computer Engineering	September 2007		
Ph.D. Mechanical Engineering	September 2008		
Ph.D. Electrical & Computer Engineering	September 2009		

1.3 FACULTY FACTS

Since its inception, the Faculty has seen a strong growth in all areas. The faculty has over 1,400 undergraduate and graduate students, 35 faculty members and 14 staff. Table 2 provides a summary of the number of undergraduate and graduate students in various programs over the past three years:

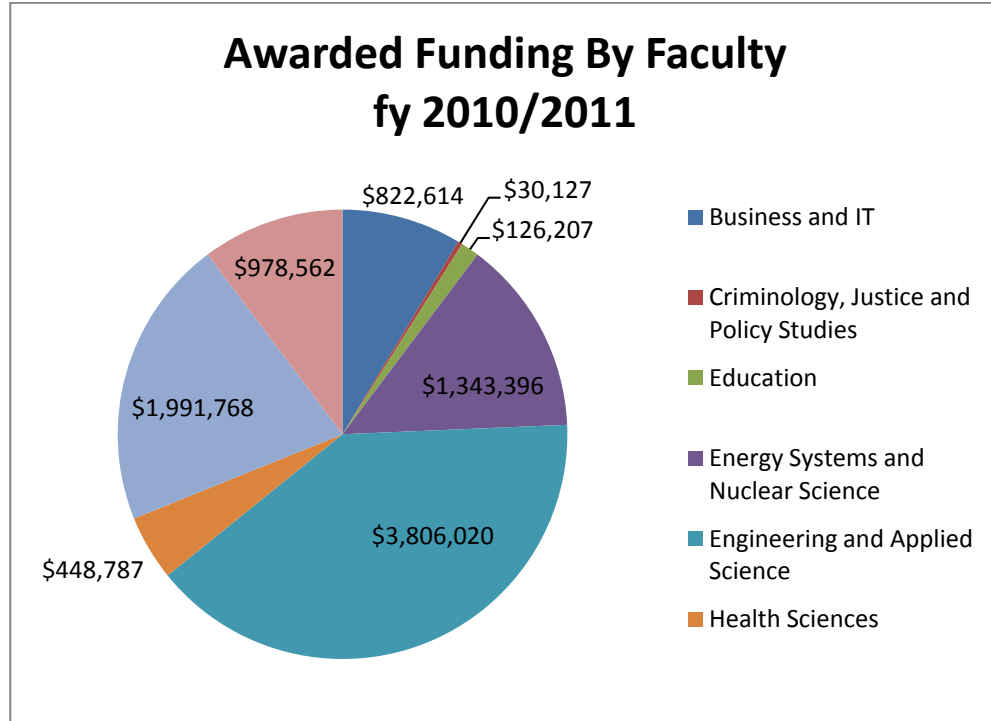
Table 2: Count of Undergraduate and Graduate Students in Faculty of Engineering and Applied Science

	2009-2010	2010-2011	2011-2012
Undergraduate	1129	1186	1301
BEng & Mgt, Automotive	28	29	19
BEng & Mgt, Mechanical	91	74	57
BEng & Mgt, Manufacturing	7	3	3
BEng, Automotive Eng	147	154	172
BEng, Manufacturing	28	31	34
BEng, Mechanical	389	400	488
BEng & Mgt, Electrical	41	30	27
BEng & Mgt, Software	5	6	7
BEng, Electrical Eng	204	223	255
BEng, Software Eng	67	94	106
Graduate	122	142	133
MASc in Automotive Engineering	12	9	11
MASc in Mechanical Engineering	39	40	30
MEng in Automotive Engineering	2	2	
MEng, Mechanical Engineering	9	8	6
PhD in Mechanical Engineering	20	31	40
MASc, Elect. & Computer Eng.	24	33	20
MEng, Elect. & Computer Eng.	13	11	13
PhD in Elect. & Computer Eng.	3	8	13
Grand Total	1,241	1,328	1,434

(All counts are based on official November 1st counts of the academic year)

FEAS conducts leading-edge, value-added research in focused strategic areas. Faculty members have a broad array of expertise and experience in teaching, research and graduate student supervision. Their research activities attract funding through grants and other support from a range of sources, including industry, government agencies and other organizations. These include the Natural Sciences and Engineering Research Council of Canada (NSERC), Canada Foundation for Innovation (CFI), and

the Canada Research Chairs (CRC) Program. External research funding has grown rapidly in FEAS to approximately \$4 million per year in 2011. The figure below illustrates the FEAS contribution to the UOIT overall research funding, which is one measure generally used for research productivity in engineering field.



From the above FEAS research budget represents 44% of the total university research funds. In various specific areas of research, FEAS is an international leader, with developments that have led to patents, books, journal / conference publications and prestigious recognitions and honors within Canada and around the world. FEAS research activities are conducted within state-of-the-art research facilities and laboratories.

1.4 FACULTY STRATEGIC PLAN

[as approved by the Board of Governors, April 16, 2008]

The FEAS Strategic Plan is an integral part of the UOIT 2008-2011 Strategic Plan approved by the Board of Governors on May 16, 2008. The Plan has five strategic priorities: i) to grow strategically, b) to consolidate governance and management, c) to strengthen identity and partnerships, d) to build research and graduate intensiveness, and e) to innovate in teaching and learning. Within these priorities, FEAS had identified 41 actions to be accomplished over the three-year period. The complete UOIT plan can be found at:

<http://www.uoit.ca/EN/main2/about/14057/42048/Publications.html>

The *Strategizer* software was employed to identify the actions to be accomplished, provide follow-up information on each one, and track FEAS' overall progress in contributing to the UOIT Strategic Plan.

The Faculty is currently working to develop a new strategic plan (2012-2017) in close consultation with all stakeholders.

2. CHALLENGES AND OPPORTUNITIES

Being a laptop-based program, faculty members have tremendous opportunity to focus on outcomes-based teaching and learning, thus being in the forefront of all engineering faculties in the country. Faculty's focused and niche research will provide us unique opportunities to serve industry retraining through unique graduate-level professional programs. We are already emerging as a faculty having industry-relevant research and we have tremendous opportunities to strengthen this further in our focus areas which are relevant to regional, provincial, national and international needs.

Students and researchers have an exciting opportunity to be part of the automotive industry transformation through the GM Automotive Centre of Excellence (ACE).

One of the past challenges has been the physical space for labs, students and classrooms, which has not kept pace with the rapid growth in undergraduate and graduate student enrolments. However, with the recent opening of IRTF and ERC (Energy Research Research), new space has recently become available for faculty, staff and students, and it is hoped that some of this pressure will be alleviated.

Being a young university, we still face many challenges and, our faculty, staff and students have expressed a strong desire to have a structure with departments to face some of these challenges. Faculty has grown to the size now that it is possible and desirable to have departments. It is not only the size of the Faculty but there are other compelling reasons to create Departments as discussed in the next section.

3. NEED FOR DEPARTMENTS

Following extensive consultations and discussions within the Faculty, the following were identified as main reasons for creation of Departments within the Faculty of Engineering and Applied Science:

- Faculty has grown to over 1,400 students which is equal to most average size faculties of engineering with departments.
- A Faculty of Engineering without departments is perceived as a teaching only faculty and this perception continues to be a detriment for:
 - attracting high quality faculty candidates;
 - securing research funds from government funding agencies and industries (please see Appendix A that shows a sample review of a research grant application by one of our faculty members);
 - adjustment and quick productivity of new faculty members who are familiar with a faculty having departments.
- A structure such as one with departments was expected with growth and is specifically allowed for in the UOIT Act and by-laws.
- Creation of departments puts in place a structure that allows us to be ready for further growth within the Faculty.
- Creation of departments within the Faculty will allow promotion and peer recognition of research intensiveness and strong graduate studies programs for the reasons as described above.
- Departments will allow a clear and desired identity for students and programs, particularly for smaller and newer programs. As a result, this will help us to attract better students to our Faculty.

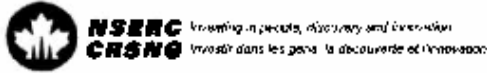
4. PROPOSED DEPARTMENTS

Right after joining on Jan 1, 2012, the new Dean of the Faculty had extensive one-on-one meetings with each of the faculty members, staff members and student leaders. At these meetings, a strong desire for creation of departments within the Faculty was expressed. Extensive discussions took place at the Faculty retreat on Feb 23, 2012 on this subject and a clear indication was that the Faculty should start exploring the possibility of forming two departments. On March 22, 2012, a formal vote at a special Faculty meeting was held and it was decided overwhelmingly to create departments within the Faculty. Therefore, it is proposed to form two departments within the Faculty of Engineering and Applied Science as follows:

- Department covering programs related to Electrical, Computer and Software Engineering;
- Department covering programs related to Automotive, Mechanical and Manufacturing Engineering.

It must be noted that there is no significant budgetary implication with the creation of departments (please see Appendix 2 for proposed structure), and the Faculty will follow the recommendations of UOIT Human Resources and UOIT Faculty Association. It is expected that the Department Chairs will be members of the Faculty Association.

APPENDIX 1: SAMPLE OF NSERC FEEDBACK



*Consultation
from GSC
1054*

Referee Report - Application for a Grant Rapport de l'examinateur - Demande de subvention

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Family name, given name and initials(s) of applicant / Nom de famille, prénom et initiale(s) du candidat	Application no. / N° de la demande	
Type of grant / Type de subvention Discovery Grants - Individual	Committee / Comité 004	
Confidence Level / Niveau de confiance		
I rate my ability to assess this particular application as / Mes compétences évaluer cette demande sont		
<input type="checkbox"/> High / Élevées	<input checked="" type="checkbox"/> Satisfactory / Satisfaisantes	<input type="checkbox"/> Low / Faibles

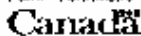
... appears to have moved recently from ... to the University of Ontario Institute of Technology. The latter is a well-respected University; I had never heard of the latter until seeing this proposal! As ... had a reasonably good research record. He publishes in good, international journals (ie. with good impact factor ratings) and many of his publications have his students listed as first author. His work is

... has moved. It would appear that this will contribute to a "Delay in Research Activities", but there is no section covering this in his Form 100. Meanwhile, it is not clear what unit ... has joined at UOIT. They have a Mechanical Engineering program described on their web-site, Engineering.

... furthermore, what doesn't appear to be a PhD? Where are the two PhD students listed in the proposal supposed to get their degree from?

Use additional page(s) if necessary / utiliser ... pages supplémentaires si besoin

Form / Formulaire 140 (2007W)



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... t. Consultation

APPENDIX 2: PROPOSED INITIAL STRUCTURE

Preamble: The proposed structure for the Faculty will be to have two departments. The organization of the Faculty within this structure is an internal matter for the Faculty, it is understood that the establishment of new positions are a budgetary matter and require approval of the Office of the Provost.

This proposed organization is presented for information in order to demonstrate the relative budget neutrality of the change to Departments.

Final authority and continuing evolution of this organization will continue to follow internal decision making processes of the Faculty, which will include consultation where necessary with other university bodies.

It should also be noted that the timing of this proposal is critical. The new dean was appointed on January 1, 2012 and consulted widely as to general concerns of the faculty members. Having departments was quickly identified as a widespread need. This was followed by a Faculty Retreat in February, consultation with university bodies, and a Faculty meeting on March 22, 2012.

The objective is to have this change accepted for implementation effective July 1, 2012 which coincides with the completion of the terms of both Associate Deans and both Program Directors of FEAS on June 30, 2012.

The process for appointing each of the new positions will follow an open committee process consistent with Faculty and university policies and procedures. These committees will be chaired by the dean.

Evolution of the Faculty Organization: The administrative structure of FEAS has been evolving alongside the growth of the faculty over the past several years. Starting in 2009-2012 the flat faculty structure was augmented with the addition of several advisory committees including two Program Committees, one to represent and advise on each of the two sides of FEAS: Automotive, Mechanical and Manufacturing (AMME) and Electrical Computer and Software Engineering (ECSE). This was agreed to in a special Faculty Meeting on June 25, 2009 and published in the FEAS Administrative Code in Fall 2009. These Program Committees were responsible for undergraduate programs only, and other committees remain Faculty committees, such as Graduate Studies Cmty, Teaching Assistants Cmty, etc.

The following year, this was further evolved to evolve the Program Committees into Program Councils which included all members of the respective program groups in 2010 to allow better representation of faculty members in these bodies which were evolving into the primary deliberative bodies of the faculty. These Program Committees were provided with Program Curriculum Committees (PCCs) to allow for development of proposals and so on. Other faculty wide committees remained unchanged with direct reporting to the dean and Faculty Council. Some graduate program responsibilities were devolved to the Program Director and the Program Councils such as advising the Graduate Program Director on graduate course offerings and course loading. This was agreed to in a Faculty Council Meeting on October 28, 2010 and published in the Administrative Code effective that date.

Proposed Departmental Structure: It is understood that the faculty organization will continue to evolve to better support the teaching, research and administrative functions of the faculty and its members. The initial move to departments will closely reflect the current organization with few significant changes besides the replacement of the Program Directors with Department Chairs.

Role of Department Chairs: In addition to the current responsibilities of the Faculty's Program Directors, it is anticipated that the Department Chairs will have additional responsibilities to enable a much closer relationship in terms of teaching and research to the programs and to the faculty members. This will allow the Chairs to work closely with them, provide mentorship in both teaching and research, and to promote graduate studies for the Departments. Overall, work and performance management of faculty members will remain with the dean in accordance with the Collective Agreement with the Faculty Association.

Unchanged Responsibilities:

The following aspects of the faculty will remain unchanged:

- Responsibility for laboratory facilities will remain with the faculty and the reporting structure for the lab staff will remain unchanged.
- Budget authority will remain with the dean
- The Student Advisors will continue to report to the Associate Dean (Undergraduate Studies and Experiential Learning) regarding all FEAS students.
- The Internship coordinator will continue to report to the Associate Dean, who will not be the Academic, who will promote and coordinate the internship and co-op programs.
- The Graduate Studies Committee will continue to report directly to Faculty Council and have representatives from both departments.
- The Curriculum Committee will continue to report directly to the Faculty Council, noting that in the current organization curricular changes normally flow through the Program Committees to the Curriculum Committee, which has proven to be effective.
- Other committees of the Faculty will remain the same or be changed following the normal processes of the Faculty and are not affected by the establishment of Departments. The Program Councils, for instance, already have the authority under our current administrative code to establish their own committees.

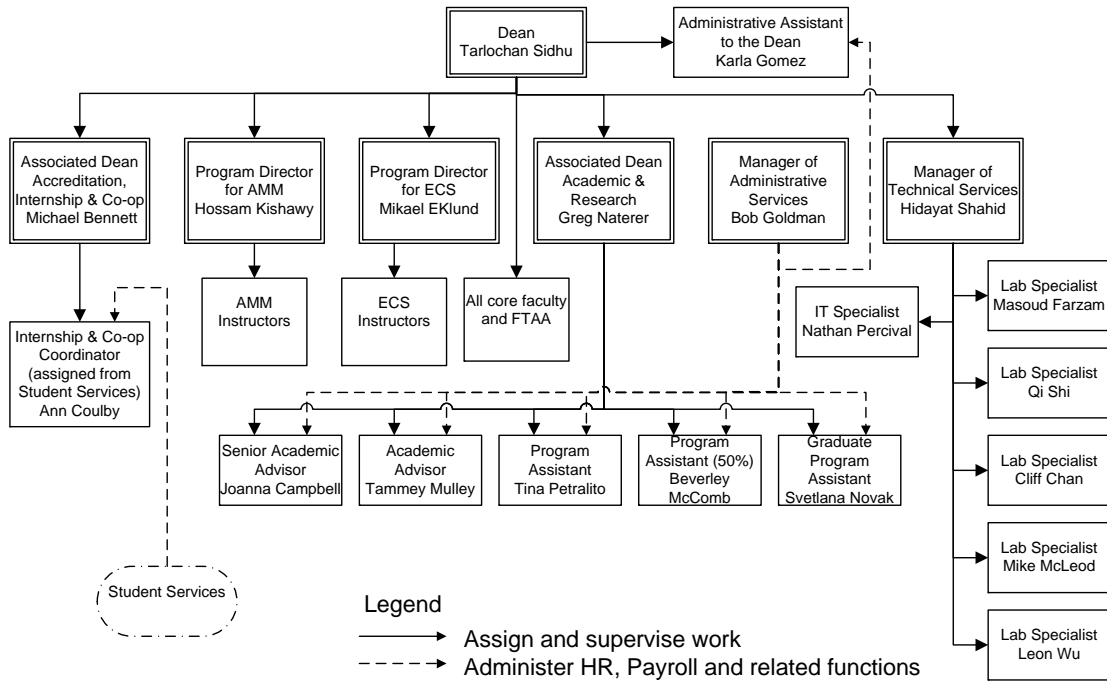
Changed Responsibilities:

The following aspects of the faculty will be slightly changed, but these as routine evolutionary changes in the Faculty which will occur regardless of a Departmental structure:

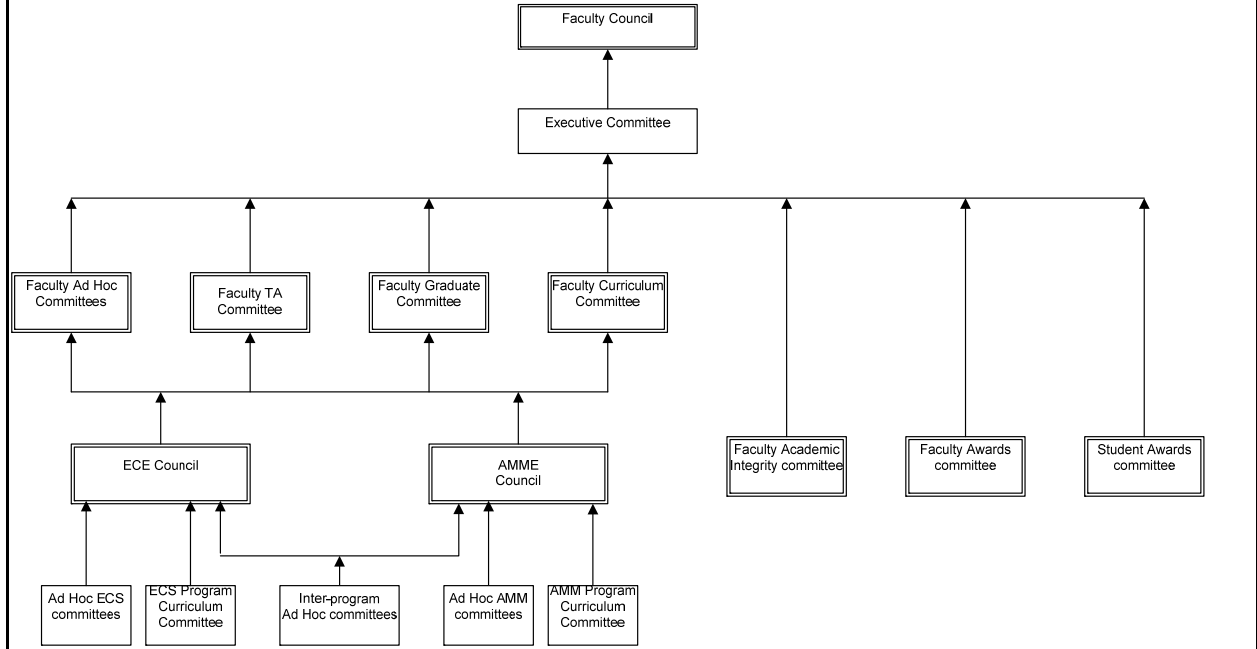
- The current two Associate Dean positions will change from Academic & Research, and Accreditation & Internship to Associate Dean (Undergraduate Studies and Experiential Learning), and Associate Dean (Graduate Studies and Research). Accreditation responsibilities for undergraduate and graduate programs will go to the Associate Dean (Undergraduate Studies and Experiential Learning) and Associate Dean (Graduate Studies and Research), respectively.
- Staff supervision (including administrative and technical) will remain with the Associate Dean, Academic and the Manager of Administration and Finance, with the Program Assistant reporting directly to the Department Chairs. Also noting that currently staff have duties that are partially program specific, e.g. technical staff have responsibilities to certain labs which are used primarily or exclusively by one program or another.

The current organization of the faculty is shown in following three figures (taken from the Faculty of Engineering and Applied Science Administrative Code, Oct 28, 2010).

Current Faculty of Engineering and Applied Science Reporting Relationships (Since October 2010)

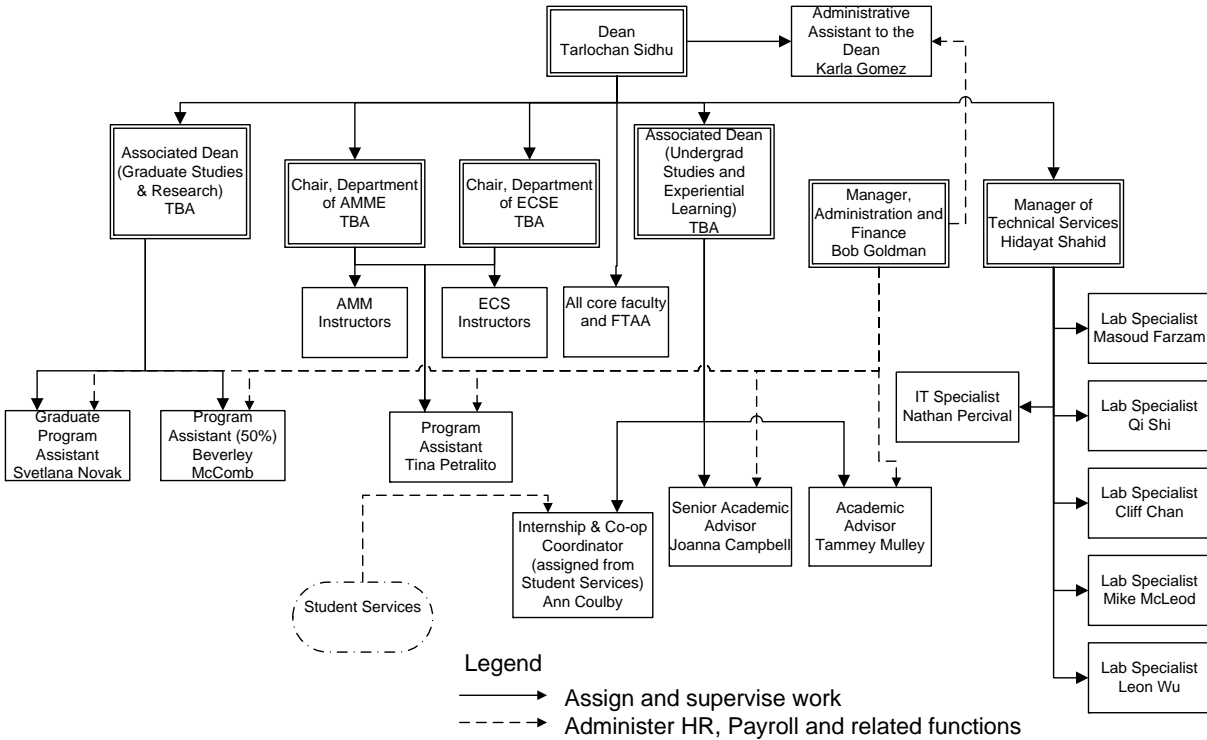


Current Faculty of Engineering and Applied Science Committee Structure (Since October 2010)

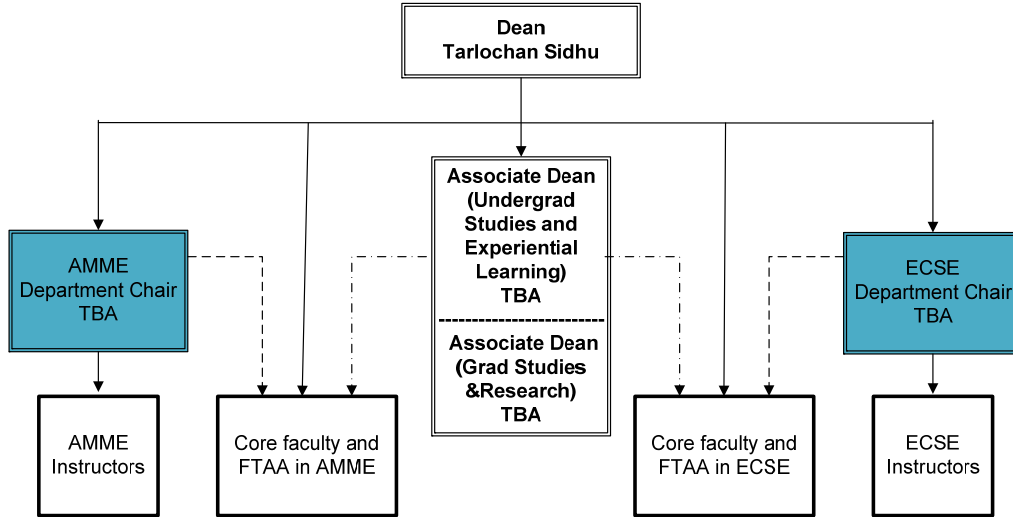


The following figure illustrates the proposed Faculty organization with the establishment of Departments. Note that there are no changes envisioned regarding the Committee structure at this point (except the renaming of the program committees to department committees). This organization will continue to evolve following normal Faculty processes already established and with continuing consultation with the faculty and staff of the Faculty, Human Resources, the Faculty Association, Academic Council and the Office of the Provost.

Proposed Faculty of Engineering and Applied Science Reporting Relationships (Effective July 1, 2012)



**Proposed Departmental Structure
of the Faculty of Engineering and Applied Science
Academic Reporting Relationships
(Effective July 1, 2012)**



Legend: ———> Overall work and performance management in accordance with the Faculty Association Collective Agreement
 - - - -> Recommend teaching loads, supervise undergraduate teaching and service tasks
 - · - · -> Recommend research space and resources, supervise graduate teaching