

Strategic Plan 2013 - 2018

## **Vision 2020**

**Faculty of Engineering and Applied Science  
Progress Report 2013/2014**

**Memorial Engineering  
September 2014**

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## 1 Executive Summary

The Faculty of Engineering and Applied Science successfully completed Year 2 (2013-14) of its 8-year growth plan to 2020 in the Engineering Expansion Strategic Initiative, as per the FEAS Strategic Plan entitled "Vision 2020". The FEAS Strategic Plan includes a research growth plan based on four research theme areas: Ocean Technology; Energy; Environment and Sustainable Infrastructure; and Information and Communication Technology. These are consistent with the strategic research themes in Memorial's Research Framework. The double cohort of undergraduate students graduated in the Spring 2013. This included our first cohort of students in the new Process Engineering program. In June, 2013, accreditation of the program was successfully received by CEAB (Canadian Engineering Accreditation Board), as well as the other undergraduate programs following a focused lab safety visit. This means accreditation of all of the FEAS undergraduate programs is secured until 2017.

Filling current existing faculty vacancies as well as recruiting new faculty and staff members to increase the number of base funded positions as per the Faculty Growth Plan have been among the top priorities over the past year. Positions in specialized areas such as Reservoir Engineering (Statoil Chair), and Arctic and Harsh Environment Engineering (Wood Group Chair), have been challenging to fill, so significant additional effort has been placed upon faculty recruitment.

FEAS has worked collaboratively with DELTS to develop a new graduate attributes methodology for transitioning of the undergraduate curriculum to new outcome-based learning, assessment, and accreditation of the undergraduate programs. These efforts are consistent with the objectives of Memorial's Teaching and Learning Framework and will be continued and expanded in 2014-15. Also, following a consultant's report on the viability of college bridging programs, the Faculty is actively engaging the Marine Institute and College of the North Atlantic as partners in bridging programs that provide advanced standing to college graduates for entry into engineering. A 1-term bridging transition program at MI would enable technology diploma holders to receive adequate preparation and gain advanced entry into an undergraduate engineering program.

In response to the needs of industry, the Faculty has also completed a detailed study on the viability of launching a new Petroleum Engineering program, as part of the Faculty Growth Plan. An external consulting study provided a positive recommendation on the viability of launching this new program. This initiative would require 6-8 new faculty members and about 21 new courses. Fundraising efforts have reached an advanced stage with the five major oil and gas companies in the province. There has been strong support to offer this new program from the local oil industry, including all five major offshore oil operators in the Province. Courses in a new program would include, but are not limited to: upstream petroleum production; reservoir modelling; subsea production systems; drilling; safety, risk and reliability; among others. The major thrust of the fundraising effort is towards construction of a new Petroleum Centre of Excellence which houses the new laboratories and student project spaces in a major construction project on campus.

The Engineering One Help Centre has continued to provide effective support to first year students in Engineering to transition from high school to the academically challenging engineering program. A donor (Fred Cahill) has generously supported this initiative financially, as well as a lecture series, and further opportunities to expand this initiative are ongoing. With the generous support received from corporations, the Faculty continued the GirlQuest program to increase awareness of engineering and science among young girls in the province. This program received additional support this year and was offered again during the summers of 2013 and 2014. The Dean and Senior Development Officer are actively engaged in discussions with potential donors in support of several other fundraising initiatives, such as lab naming opportunities; equipment / furniture renewal and upgrading in classrooms and labs; and a new centre in innovation, entrepreneurship and technology commercialization (CIETC), in collaboration with the Dean of Business.

Engineering undergraduate student enrolment has grown about 5% over the past year, as per the Faculty's enrolment growth plan. Also, graduate student enrolment has continued to climb rapidly over the past year, totaling about 500 graduate students. Various recruitment efforts abroad to increase qualified applicants to our graduate programs in engineering will be continued and expanded. A new post-graduate diploma program in safety and risk engineering was approved and launched in September, 2013. Undergraduate and graduate students continue to be actively engaged in co-curricular and extra-curricular activities such as: participation in national design conferences, events organized by student chapters of learned societies, organization of events by student societies, as well as the local chapter of Engineers Without Borders to support charities, Student LIFE Forum organized by students, and so forth.

The research activity in the Faculty has also grown significantly and it is expected to continue growing in 2014-15. The Suncor Energy Offshore R&D Centre was completed in April 2014. This expansion includes new office space for research chairs, research engineers and graduate students who are engaged in major research projects related to offshore energy. Major renovations in the Engineering Computing Centre have been completed and the launch of a ticketing system to receive requests for computing support is proving to be effective in the delivery of IT services in this area. Space on the third floor of the SJ Carew building was reallocated and renovated to accommodate post-doctoral research personnel. Renovations of other spaces in the SJ Carew Building are also underway in order to accommodate the faculty growth and change of organizational structure to five new departments in May, 2014.

The Faculty also successfully launched a new Social Committee that currently has a membership of approximately 70 faculty and staff members. The social committee is having a beneficial role in promoting a positive work environment. During this past Winter, the Faculty produced another edition of its annual report – Benchmarks – available on the FEAS website. The publication highlights many of the Faculty's accomplishments throughout the past year. This progress report provides a summary of the main achievements and new initiatives achieved over the past towards meeting the goals and objectives of the FEAS strategic plan – Vision 2020.

## 2 Alignment with MUN's Capstone and Strategic Frameworks

MUN's Capstone brings together the university's three strategic frameworks in teaching and learning, research and public engagement. Our Vision 2020 goals, priorities and action plans are consistent with the directions outlined by these strategic frameworks of Memorial.

<b>Memorial's Capstone Goals</b>	<b>FEAS Vision 2020 Goals</b>
<b>Teaching and Learning Framework</b>	
1. Build relationships – Memorial University establishes connections among educators, students, staff and members of the broader community.	1.2.2, 3.2.2
2. Engage people – Memorial University recognizes that engagement is important in all settings where teaching and learning occur.	1.2.4
3. Create synergies – Memorial University maximizes the benefits that occur when various components of the teaching and learning enterprise come together.	1.2.3
4. Focus on the learner – Memorial University engages its students, educators and staff to develop curricula, programs, support services and spaces that address learner needs and support achievement of clearly identified learning outcomes.	1.1.4, 4.3.1
5. Provide support – Memorial University supports educators, staff and all students it admits by aligning its policies and procedures with the distribution of resources to advance teaching and learning.	1.1.1, 4.2.1, 4.2.2, 4.4.2
6. Commit to quality – Memorial University provides high quality curricula and learning experiences that are current, relevant, creative, innovative and appropriately challenging.	1.1.3, 4.3.3
7. Foster transformation – Memorial University provides a supportive and inclusive environment that fosters individual transformation.	1.2.1, 3.3.5
8. Value contributions – Memorial University recognizes and values the contributions of all individuals who are involved in the teaching and learning enterprise.	1.1.2, 4.1.1
9. Acknowledge responsibility – At Memorial University, educators, students, staff and the institution as a whole share responsibility and accountability for effective teaching and active learning.	1.1.5, 1.2.5, 4.4.1
10. Support lifelong learning – Memorial University models enthusiasm for continuous learning.	3.3.4
<b>Research Framework</b>	
1. Attract, retain, support and celebrate people engaged in and supporting research.	2.1.2, 2.2.3, 2.3.2, 4.3.2
2. Support an environment of research collaboration.	2.1.4, 2.2.2, 2.2.4, 3.1.1

3. Engage with community partners and collaborators locally, nationally and internationally.	2.3.1, 2.3.3, 2.3.4, 3.1.2
4. Support fundamental and applied research excellence in areas of strategic opportunity.	2.1.1, 2.1.3, 2.2.1
<b>Public Engagement Framework</b>	
1. Make a positive difference in our communities, province, country and world.	3.2.3
2. Mobilize Memorial for public engagement.	3.2.1, 3.3.6
3. Cultivate the conditions for the public to engage with us.	3.3.1, 3.3.3
4. Build, strengthen and sustain the bridges for public engagement.	3.3.2

Table 1: Alignment of Vision 2020 and MUN's Capstone

The Vision 2020 plan will be updated and adjusted over time to align with MUN's Capstone timeframe. It will be directed to support the strategic directions set out in Memorial's strategic frameworks.

### 3 Vision 2020 Progress Report

In this section, the following four pillars of the FEAS strategic plan – 1) teaching, 2) research, 3) partnerships, and 4) workplace – will be outlined, with specific outcomes that have been achieved over the past year towards the goals and action items on those priorities.

#### 3.1 Creating the Conditions for Student Success

The Faculty has achieved a number of significant outcomes and accomplishments over the past year as part of the Vision 2020 goals for enhancing student success to provide an exceptional teaching and learning environment.

##### Goal 1.1: Support Teaching Excellence

- 1.1.1 Scholarly activities in engineering education have been pursued, for example by active involvement in the Canadian Engineering Education Association (CEEA), i.e., Andy Fisher, President-elect of CEEA.
- 1.1.1 Through a collaborative partnership with DELTS, a staff member (Darlene Spracklin-Reid) has supported a number of initiatives in teaching and learning activities including the assessment of learning outcomes and the establishment of a Teaching and Learning Community.
- 1.1.1 Seven faculty members participated in Project Engage with DELTS and with support from the ADUGS Office.

- 1.1.2 Several initiatives in progress to pursue a teaching chair, including through MUN's Teaching and Learning Framework, and discussions with potential donors for a design chair.
- 1.1.2 New initiatives in progress by the new Director of First Year Engineering, i.e., regular meetings with Engineering One students, development of survey tools, submission of a proposal for a jointly funded position for an "Engage" project for first year instructors, introduction of a survey in ENGI 3101, and redevelopment of ENGI 1040.
- 1.1.3 A focus on a strong track record or promising potential of teaching excellence is emphasized in the hiring process, by rigorously evaluating the teaching capabilities, seeking feedback from a teaching seminar, and emphasizing the importance of teaching in the recommendation letters from search committees.
- 1.1.3 Past TA evaluations have been used for the selection of returning TAs, new TAs received TA training, and TAs with poor evaluations were not re-hired.
- 1.1.4 Several professors have worked collaboratively with DELTS to improve teaching effectiveness and apply innovative new teaching methods in the classroom.
- 1.1.4 Collaborative initiative completed on curricular enhancement and redevelopment of ENGI 1020 lab exercises.
- 1.1.4 New software tools (ANSYS, DelftShip) have been integrated into ONAE courses as examples of the use of innovative new teaching methods in courses.
- 1.1.4 Initiatives led by the ADUGS Office to bring consistency to first year course offerings, as part of an "Engage" proposal, incorporating D2L, increase the awareness of the value of D2L from a student perspective, and incorporate lecture capture facilities in classroom upgrades.
- 1.1.4 Term 3 "Cube Competition" and "Together by Design" on post-Katrina reconstruction projects in New Orleans were held successfully to demonstrate problem based learning of civil engineering students.
- 1.1.5 Results from CEQs (course evaluation questionnaires) were reviewed carefully, follow-up meetings with the dean and associate dean are arranged with faculty to discuss teaching evaluations, and letters of congratulations and thanks are sent to professors with above average teaching evaluations.

- 1.1.5 Mechanical Engineering initiatives, in progress, include end of term student surveys, advisory board in collaboration with EASAC, undergraduate student symposium (Winter 2015) and e-Portfolios for student projects (Winter 2015).
- 1.1.5 Learning outcomes are being aligned with course objectives in each undergraduate program to meet the new CEAB assessment methodology of graduate based attributes (coordinated by Darlene Spracklin-Reid).
- 1.1.5 Electrical and Computer Engineering (ECE) subcommittees were established to review course objectives in each subject area, i.e., circuits, software, etc.
- 1.1.5 An increased depth and diversity of student data has been collected over the past year to analyze student success rates and retention, by gender, high school, international / domestic, and so forth.
- 1.1.5 Learning outcomes were added to course outlines of all civil engineering courses, including assessment criteria, student expectations, graduate attributes (in progress), and emphasis of teamwork and leadership skills in the capstone project.

### **Goal 1.2: Encourage Student Engagement**

- 1.2.1 Seminars were offered by EDGE program, EGSS and ADGS to support TAs in their development of teaching skills.
- 1.2.1 Academic program reviews of courses and labs were successfully completed in the Winter 2014 with a set of recommendations that will be followed-up through an action plan.
- 1.2.1 ECE guest lectures from industry (Nalcor, Freedman and Associates, Gardiner Centre), site visits in courses sponsored by the IEEE Student Branch, and competitions (Hackathon, IEEEExtreme programming, Sailbot) have added more external engagement opportunities for students.
- 1.2.1 The Department of Civil Engineering has created an Academic Development Subcommittee to review program content and courses, introduce new streams, and create a depository for all lab manuals in courses.
- 1.2.1 Initiatives were undertaken to update course content and delivery by rotating courses within smaller groups every 3-4 years to inject new content and keep the course content fresh and updated regularly.
- 1.2.1 The Mechanical Engineering curriculum introduced technical streams in four thematic areas: 1) Sustainable Energy Systems; 2) Mechatronics, Modeling, and

Intelligent Systems; 3) Materials, Mechanics, and Design; 4) Petroleum Production and Operations.

- 1.2.1 A number of senior technical electives and graduate courses in support of the new technical streams in Mechanical Engineering: 1) Arctic Engineering; 2) Composite Materials; 3) Sustainable Energy Systems; and 4) Computational Fluid Dynamics.
- 1.2.1 Significant improvements were made to the content and delivery method in a number of core courses in Mechanical Engineering: 1) ENGI 3941 Production Technology; 2) ENGI 4312 Mechanics of Solids I; 3) ENGI 5911 Chemistry and Physics of Engineering Materials II; and 4) ENGI 7926 Mechanical Design Project I.
- 1.2.2 Closer ties with Co-op Education have been formed, future needs for job development as part of the growth plan were identified, and work term learning has been further integrated into the planned CEAB graduate attributes.
- 1.2.2 Industry site visits were integrated into courses (ENGI 3600, 5671, 6671, 8691, 8692, 8694, among others) and guest lectures from engineers in industry were arranged (ENGI 6961, 8676, etc.).
- 1.2.2 SNAME and RINA student groups, guest speakers, industry / RINA engagement in Term 8 design projects, and ship visits (ENGI 3001) were conducted to add more industry engagement for students in ONAE courses.
- 1.2.2 Civil engineering students experienced site visits and invited speakers in courses, i.e., Capital Ready Mix plant, steel and concrete structures during construction, environmental visits, speakers on construction safety and environmental systems.
- 1.2.3 A working EASAC committee was established to increase student diversity and women in engineering, and a 5-year plan was developed.
- 1.2.3 An EASAC subcommittee on student diversity and women engineering was created and a 5-year action plan was developed to better attract and retain more women in engineering.
- 1.2.3 Renovations were completed, or in progress, for the following classrooms and project spaces: EN 1040 (ECE lab), 2040 (classroom), 3065 (renovations in three areas - 1) 3065A for 9 PDF spaces; 3065 for research lab area; and 3) 3039 for another research lab), 3040A (renovations from storage to NSERC / CREATE and combined with 3054 to create 8 desk spaces), 1035 (mezzanine under development for a design studio for students from all departments and student Sailbot team), 4034/35 (classroom to be renovated with new paint, ceiling tiles, windows cleaned, new desks).

- 1.2.3 Several other initiatives completed to increase student diversity and women in engineering, i.e., increased faculty participation (12) to accept WISE summer students, aboriginal admissions policy approved, aboriginal ambassador pilot project completed, percentage of females at record levels and Fall 2014 on track to continue the trend, introduction of a mentoring pilot for Winter 2015.
- 1.2.4 A mentoring project in 1st year is underway and should provide insight into student stress, workloads and wellness.
- 1.2.4 Several initiatives were conducted for ECE recruitment and retention, including a survey of Term 4 students regarding factors influencing their choice of majors, study of student success rates, ad-hoc committee on enrolment with an action plan and student input to improve ECE enrolment and retention, and actively recruitment efforts, i.e., SLE Forum in Toronto.
- 1.2.4 Feedback from graduate students on student supervision by faculty members was collected by exit surveys (kept anonymous) and a working group to be formed by the ADGS to review the information and develop survey materials.
- 1.2.5 CodeBlue software was acquired in collaboration with the Teaching and Learning Framework, and a common course outline with articulated outcomes was made standard across departments.
- 1.2.5 A data-mining project on student retention, led by the Director of First Year Engineering, is matching outcomes to course objectives.

### **3.2 Increasing Research Capacity**

As described below, excellent progress has been made over the past year on our Vision 2020 goal of increasing research capacity and intensiveness.

#### **Goal 2.1: Attract, Retain and Support Research Activities**

- 2.1.1 NSERC / Chevron Chair in Enhanced Oil Recovery was submitted to the NSERC IRC program, two CRC chairs in progress (Environmental engineering; Offshore engineering), and three further industry funded chairs in progress (Statoil - 2, and Wood Group).
- 2.1.2 Special funding with SGS was secured and new scholarships were obtained to recruit top students internationally.
- 2.1.2 Workshops were held and a database of awards and scholarships was publicized to students by ADGS Office to increase the number of applications to NSERC USRA, PGS, MITACS, RDC, etc.

- 2.1.2 Several sponsorship programs were pursued and established to encourage more visiting students and scholars for schools abroad, i.e., Vietnam (VIED), China (CSC), Iraq (Iraqi MOHE), Saudi Arabia (Saudi MOHE), Mexico (CONACYT), Brazil (SWB).
- 2.1.3 Information sessions, team review process and mentorship were established to review NSERC DG grants.
- 2.1.3 An increased success rate on NSERC DG grants (60%) was achieved in 2014.
- 2.1.3 Selected major grants, contracts and research chairs that were secured over the past year include projects from AIF, Suncor, Statoil, Shell and CARD.
- 2.1.4 Several Lunch & Learn seminars were held to promote research activities internally (6 planned per year) and an external consultant was hired to improve the engineering website including new departmental pages.

**Goal 2.2: Support Research Excellence and Focus on Areas of Strategic Importance**

- 2.2.1 Renovations of laboratories were completed for major new research initiatives, including but not limited to, Suncor H<sub>2</sub>S, AIF optical networking, and enhanced oil recovery projects.
- 2.2.1 Partnerships were established with Norway (NTNU, Kvaerner, and University of Stavanger) and Russia (Sakhalin State University) in the areas of offshore oil and gas.
- 2.2.2 FEAS has been positioned in MUN infrastructure plan for additional space to accommodate the Faculty's growth plan, including vacated space assigned to FEAS in the Bruneau Centre for Research and Innovation when units move off-campus to the Battery, 45,000 GSF in the new science / engineering building and a high-bay lab expansion of the SJ Carew Building.
- 2.2.3 Additional resources were provided to support research activities, including an additional R&D liaison officer hired, R&D budgets / grants officer to be converted from contractual to permanent, funds to support OERC (Ocean Engineering Research Centre), software platform (ANSYS).
- 2.2.3 The major organizational change of departmentalization has been successfully completed, including discipline chairs becoming administrative (department) heads, technologists assigned to departments, new Director of First Year Engineering created, new departmental office created, future growth positions assigned to departmental secretaries, and an ongoing transition of establishing departmental budgets.

- 2.2.3 New processes were developed collaboratively with the offices of the VPR and SGS, including but are not limited to, informed IP consent by graduate students, Mitacs template agreement for industry contacts, and direct submission of DG applications from FEAS to NSERC, to streamline administrative procedures and improve responsiveness.
- 2.2.4 Existing inter-disciplinary groups were strengthened and new groups were formed, including but not limited to, projects with Suncor, Kvaerner, NTNU, and CARD.

### **Goal 2.3: Expand Engagement with Partners**

- 2.3.1 The construction project for the Suncor Offshore Energy R&D Centre was successfully completed, including for industry partnerships on projects with Suncor Energy, ExxonMobil, Vale, Husky Energy, among others.
- 2.3.2 A proposal has been developed for the creation of a new Centre for Innovation, Entrepreneurship and Technology Commercialization, in collaboration with the Faculty of Business Administration.
- 2.3.3 Invited speakers have supported the Harris Centre's outreach activities, for example, Lesley James speaking on the topic of shale oil and gas exploration and development.

### **3.3 Expanding Partnerships**

A significant number of advances were made over the past year towards our Vision 2020 goals of expanding external engagement, outreach and partnerships with industry, high schools and other organizations.

#### **Goal 3.1: Expand Partnerships that Contribute to Research**

- 3.1.1 Sabbatical leaves have been taken outside the province and Canada, i.e., Faisal Khan (Australia), Ralf Bachmayer (Germany), Octavia Dobre (USA), Siu O'Young (Greece, Germany), Eric Gill (USA), Benjamin Jeyasurya (USA), among others.
- 3.1.1 Scholarly exchange programs with other countries were formed by MOUs to enhance research collaborations, i.e., Akita University (Japan), NTNU (Norway), Sakhalin State University (Russia), UNIS (Norway), University of Stavanger (Norway), and Far Eastern Federal University (Russia).
- 3.1.1 New multi-disciplinary collaborations have been created, i.e., maritime history (Dan Walker), ice / concrete friction (Bruce Colbourne, Steve Bruneau, Amgad Hussein, Assem Hassan), pack ice modeling (Dennis Peters, Claude Daley), mooring corrosion (Amy Hsiao, Sam Nakhla, Bruce Colbourne).

- 3.1.2 Existing collaborations with NRC / OCRE (marine safety) and IBRD (marine corrosion) have been pursued successfully.

**Goal 3.2: Expand Partnerships that Contribute and Strengthen our Programs**

- 3.2.1 Working groups were formed with the Faculties of Medicine, Business Administration and Science on new initiatives involving biomedical engineering (joint faculty appointment with Medicine), CIETC (Centre for Innovation, Entrepreneurship and Technology Commercialization) and petroleum engineering (partnership on curriculum development).
- 3.2.1 Projects with D2L were completed or in progress to offer and develop distance delivery courses, i.e., redeveloped ENGI 4102, developed ENGI 8151, preparation of ENGI 6749 and Work Term 1 content, evaluation of ENGI 4421.
- 3.2.1 Progress achieved by departments toward biomedical and management / entrepreneurship multidisciplinary streams.
- 3.2.2 Active graduate student exchanges with countries in Europe on STePS2, CREATE and AIF research projects.
- 3.2.2 Following visits with the China University of Petroleum (UPC), a joint graduate program in process engineering with UPC is under development.
- 3.2.2 Several international students will be arriving at Memorial in late 2014 through exchange agreements with UArctic, CUP-B and UPC.
- 3.2.3 FEAS has worked collaboratively with the Division of Co-op Education to assist in the placement of students in co-op work terms with employers and research assistant positions with faculty members.

**Goal 3.3: Improve Engineering and FEAS Profiles in the Community**

- 3.3.1 New community outreach activities include library interaction, girl guide program and potential mobile “maker space”.
- 3.3.1 A \$2.85M “Hibernia Project Shad Valley Fund” was awarded to attract more high school student engagement in STEM (science, technology, engineering and math), through a new funded Shad Program Coordinator position in Engineering and additional student placements in the Shad Valley program.

- 3.3.1 FEAS participated in numerous outreach activities, including but not limited to, PEGNL bridge building competition, high school science fairs, open house, etc.
- 3.3.1 Faculty members have held leadership positions in organizing major international conferences in St. John's, i.e., iMFE 2014 (Bing Chen), Oceans 2014 (Ralf Bachmayer), IEEE CWIT 2015 (Octavia Dobre) and OMAE 2015 (Wei Qiu).
- 3.3.2 Meetings were held with high school administrators to collaborate with educators on engineering content and awareness in the curriculum.
- 3.3.3 Proposals were submitted and awarded from Harris Centre funds (Applied Research Fund - 1 awarded; MMSB Solid Waste Management Fund - 3; RBC Water Research and Outreach Fund - 1).
- 3.3.4 Active involvement of faculty members with professional societies, including but not limited to, CSCHE, CSME, IEEE, SNAME, CSCE, etc.
- 3.3.4 The Faculty became a member of CRIAQ (Le Consortium de recherche et d'innovation en aérospatiale au Québec) which will open a range of opportunities for industry / university collaboration in the aerospace sector.
- 3.3.4 The course ENGI 6749 (Construction Planning, Equipment and Methods) was redeveloped through DELTS and a partnership was established with the Newfoundland and Labrador Construction Association to provide a link with the construction industry and share resources such as NLCA's electronic plans room.
- 3.3.4 Faculty members were actively involved in PEGNL activities, i.e., Dennis Peters (Chair of PEGNL Board), Leonard Lye (Vice Chair of PEGNL Registration Committee), practising PEGNL members partnering in Civil Engineering Capstone Project.
- 3.3.4 Plans in progress will create online modules for components of mechanical engineering courses, i.e., design of experiments module for ENGI 7930, computer aided manufacturing module for ENGI 6928.
- 3.3.5 FEAS worked collaboratively with various groups which promote diversity in engineering such as WISE.
- 3.3.6 Alumni relations have been established and expanded through participation at a number of Alumni Affinity Dinners, i.e., Calgary, Halifax, Houston, London (UK), Toronto and Ottawa.

#### **3.4 Fostering a Distinguished Workplace**

The Faculty has made steady progress on many of the Vision 2020 goals for a distinguished workplace.

**Goal 4.1: Promote a Culture in which All Work is Valued**

- 4.1.1 New awards and procedures were created and awarded (Christmas Breakfast) for excellence in teaching, research, academic service, staff service, graduate student supervision, and outstanding contributions (external).

**Goal 4.2: Promote Excellence through Personal Growth**

- 4.2.1 A mentorship process was created in September 2013, whereby a number of professors have been nominated to serve as mentors in FEAS. Faculty members consult with their Department Head who suggest names from which an appropriate mentor is selected
- 4.2.2 Several staff members participated in training programs, i.e., supervisory skills development program, management development program, Banner training, NSERC workshops, VMware vSphere training, Hydraulics training, Strain gage workshop, CUPE Atlantic Region annual training, Graduate Studies continuance, Microsoft software training.

**Goal 4.3: Provide Adequate Physical Work Space for Employees and FEAS Activities**

- 4.3.1 New space was allocated to FEAS in the Alexander Murray Building, and plans have been developed for new space allocation to FEAS in the Bruneau Centre for Research and Innovation, and Core Science Facility.
- 4.3.2 The new Suncor Energy Offshore Research and Development Centre has opened and made an additional 11,700 NSF available for graduate students and researchers.
- 4.3.3 Completed initiatives on renewal and modernization of the SJ Carew Building, including renovations of Engineering Computing Services (ECS), modernization of the building's lobby including historical artifacts, and a wall of excellence with award displays.
- 4.3.3 Reviews were completed for renovating several classrooms (EN 2043, 2007, 3000/29).
- 4.3.3 Upgrades were made to the telecommunications lab (\$70k), upgrades to EN 3000 / 29 are in progress, and ECE has completed detailed plans for moving offices, labs and design studios to the new Core Science and Engineering Building in 2019.

- 4.3.3 New chairs, podium and presentation equipment were purchased and installed in EN 2078.
- 4.3.3 Upgrades were completed for civil engineering laboratories - Environmental Lab, Geotechnical Lab, Fluids Lab, Structural Lab and Concrete Lab.
- 4.3.3 A new teaching laboratory was created with dual capabilities - for experiments on reaction engineering (ENGI 6631) and also for process control (ENGI 7621).
- 4.3.3 Mechanical Engineering initiatives were completed for improvement of teaching labs in the area of materials science and production technology, i.e., CES EduPack software for materials selection with applications in materials science, design, and sustainability, atmosphere controlled furnace for heat treatment and casting, Rockwell hardness tester, equipment for a new welding lab, vacuum former.

**Goal 4.4: Promote a Safe, Healthy and Respectful Work Environment**

- 4.4.1 Several activities were held to promote awareness of safety related issues, i.e., OH&S Building Committee, Occupational Health & Safety Committee training sessions, Fire Safety Evacuation Plan, safety moments at the start of meetings such as Faculty Council, safety related training attended by several staff members (compressed gas, transportation of dangerous goods, CPR, first aid, WHMIS, forklift training, cylinder safety and oxy/fluids, fall protection authorized person training and inspection).
- 4.4.2 The Faculty held numerous social events over the past year to build camaraderie, i.e., annual faculty and staff kickoff meeting, Year in Review Christmas breakfast, social club (membership - 70), Christmas Potluck, Valentine's refreshment break, family skate, pancake breakfast, fundraising events, future planned events).
- 4.4.2 An annual staff retreat was held at the Suncor Energy Fluvarium, including presentations on mental health, and occupational health and safety.

**4 Progress Indicators**

**4.1 Faculty and Staff Data**

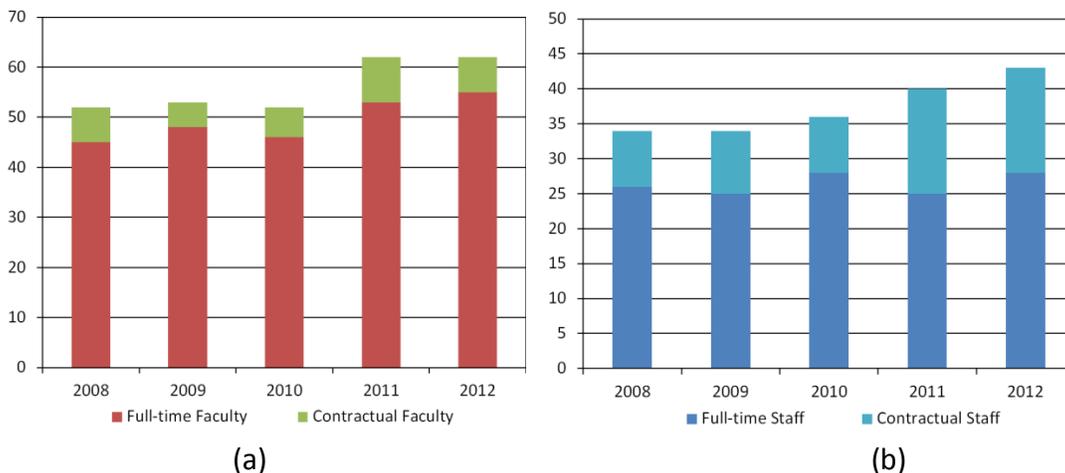


Figure 1: Number of full-time and contractual (a) faculty and (b) staff

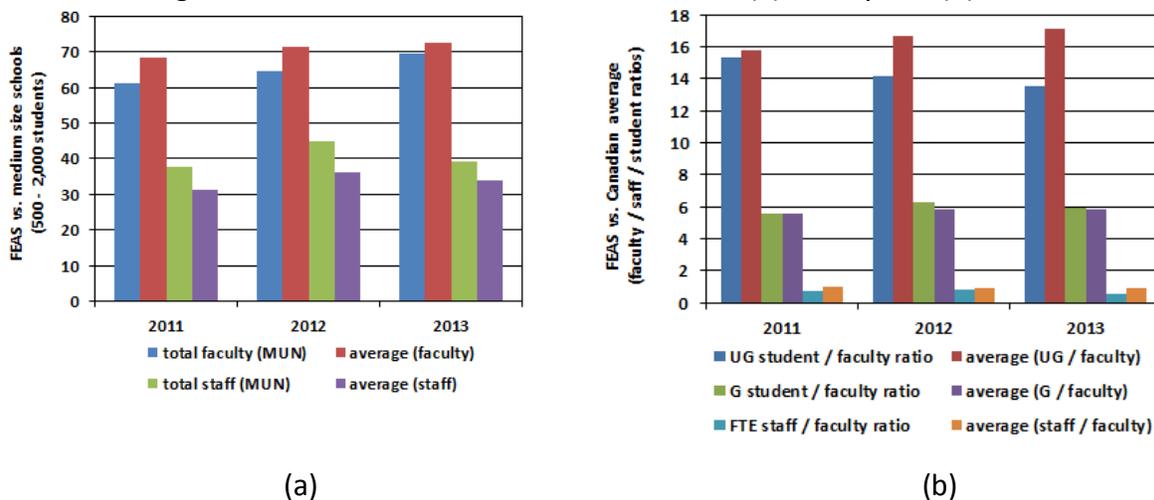


Figure 2: Number of full-time (a) faculty, staff and (b) per faculty ratios [3]

## 4.2 Student Data

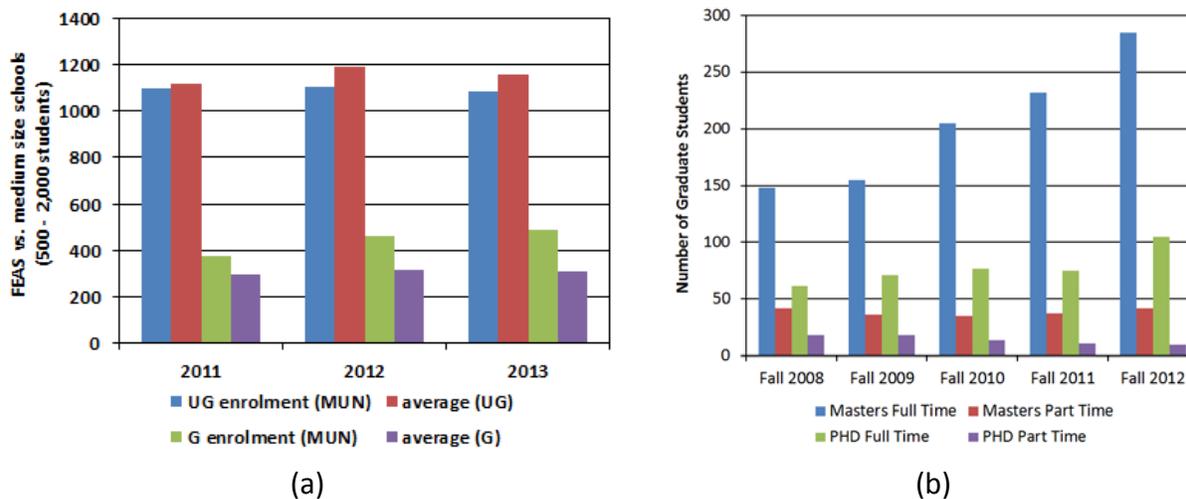


Figure 3: Student (a) enrolments and (b) part/full-time status of graduate students [3, 4]

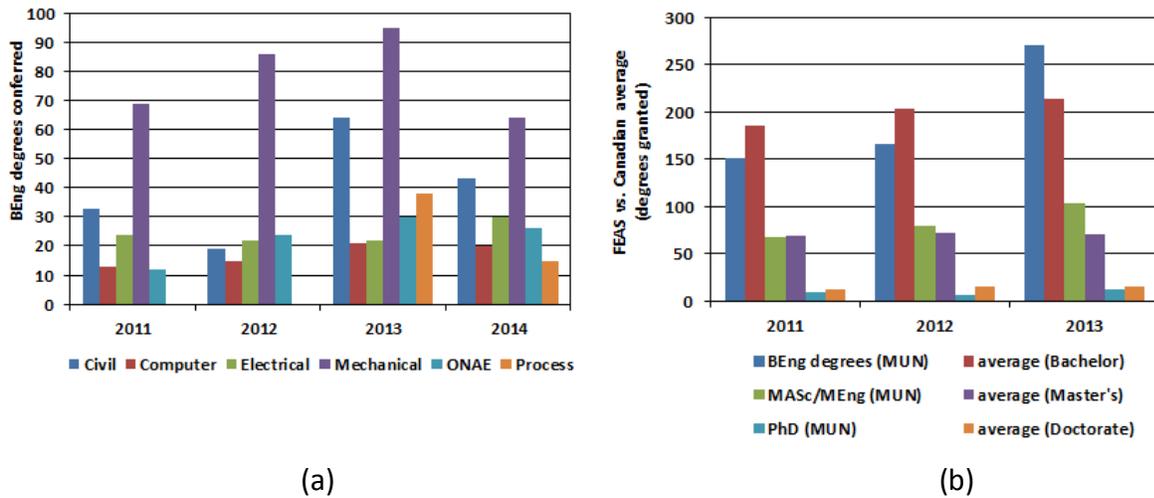


Figure 4: Student (a) BEng degrees by department and (b) per faculty ratios [3]

### 4.3 Research and Operating Funds

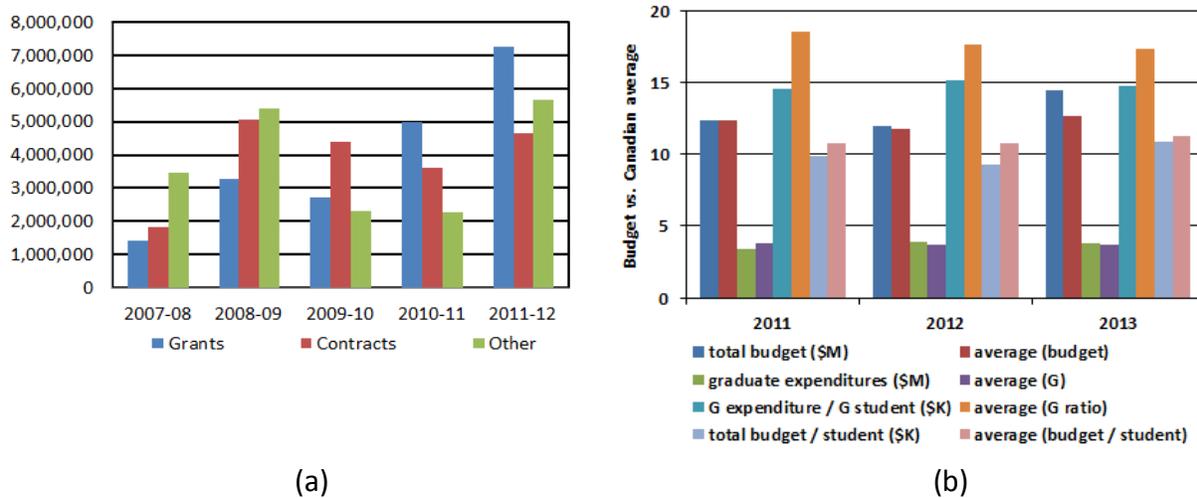


Table 7.5: (a) Research grants / contracts and (a) operating budgets [3]

## 5 Acknowledgements

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## 6 References

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