Strategic Plan 2013 - 2018

Vision 2020

Faculty of Engineering and Applied Science
Progress Report 2015/2016

Memorial Engineering
October 2016

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1 Executive Summary

The Faculty of Engineering and Applied Science (FEAS) is currently midway through its 8-year growth plan in the Engineering Expansion Strategic Initiative, as per the FEAS Strategic Plan entitled "Vision 2020". It completed Year 3 (2014/15) of 8 in April 2015. The provincial government paused the Year 4 growth funding allocation in May 2015 so the growth plan was paused in fiscal year 2015/16 and the end date was extended by one year from 2020 to 2021. It resumed in May 2016 after Year 4 provincial funding was announced. The engineering expansion is proceeding amidst a challenging fiscal climate of budgetary reductions and attrition across units at Memorial University.

FEAS has met and exceeded its enrolment growth target of 10-15 additional graduates per year, while maintaining among the highest entrance averages of engineering schools in Canada (89%). The increased number of first year BEng students accepted for the Classes of 2017-2020 is leading to incremental growth of about 5%/year of graduating students in Years 5-8 of the 8-year growth plan. This enrolment growth is on schedule to reach the goal of 250 graduates by 2021 (see Table 1).

Vision 2020	2012	2020
Number of graduates (undergraduate)	155	250
First-year intake (undergraduate)	300	425
Total student enrolment (graduate)	360	650

Table 1: Enrolment growth plan of "Vision 2020"

The following table summarizes the enrolment growth of MEng and MASc students. The Faculty's growth has significantly outpaced the original projections (*) made in 2012 as part of the Faculty Growth Plan. Graduate student enrolment is far ahead of scheduled.

Year	2012	2013	2014	2015	2016	2018	2020
Enrolment (MEng / MASc / PhD / Diploma)			480	-	525 *	570 *	625 *
Actual	442	482	539	591	630		

Table 2: Actual and projected enrolment growth of MASc / MEng students

This progress report provides an overview of the progress and achievements towards Vision 2020. It provides a summary of actions completed on each of the four theme areas of the strategic plan - student success; research excellence; external partnerships; and distinguished workplace. The initiatives are well aligned with the University's capstone strategic plan and frameworks.

2 Alignment with MUN's Capstone and Strategic Frameworks

MUN's Capstone comprises the university's three strategic frameworks in teaching and learning, research, and public engagement. The FEAS Vision 2020 goals, priorities and action plans are well aligned with the directions outlined by these strategic frameworks of Memorial.

Memorial's Capstone Goals	**FEAS Vision 2020 Goals**
Teaching and Learning Framework	
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
Research Framework	
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
Public Engagement Framework	
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 2: Alignment of Vision 2020 and MUN's Capstone

The action items of Vision 2020 plan have been updated and adjusted over time to align with emerging opportunities / challenges in FEAS and MUN's Capstone plans. These evolving initiatives will be outlined and discussed in the following sections.

3 Vision 2020 Progress Report

The four primary pillars of the FEAS strategic plan – 1) teaching, 2) research, 3) partnerships, and 4) workplace – will be outlined in this section, including specific outcomes that have been achieved over the past year towards the goals of these priorities. In each of the sub-sections, a selected list of completed action items over the past year is provided (a sample list including some of the main outcomes but not an exhaustive complete list). Most items are new initiatives that have been launched over the past year, while others were continued from a prior year but recently completed this year.

3.1 Creating the Conditions for Student Success

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

Goal 1.1: Support Teaching Excellence

- A new Chair in Teaching and Learning has been established. The chairholder, Dr. Janna Rosales, has developed and implemented a new plan to enhance teaching focused initiatives in line with MUN’s Teaching and Learning Framework.

- Using external donor funds, a new Technical Communications Coordinator was hired to enhance the development of communication competencies throughout the undergraduate programs.

- The Office of Undergraduate Studies has thoroughly reviewed the admission / promotion framework for Engineering and developed a comprehensive set of changes to enhance the learning environment for student success.

- The Director of First Year Engineering and Department Heads ensured that feedback meetings are held each semester with each cohort of students for all programs and First Year. Action items are recorded and follow up actions were taken to improve the teaching and learning environment.

- An accreditation focused retreat with all faculty, co-op coordinators and staff was held in early 2016. Several action items were taken to improve teaching and learning.

- Continued development of the Vena software platform has supported accreditation efforts and has given access to a detailed database of student performance.

- Undergraduate student support has been centralized and modernized through redevelopment of the Office of Undergraduate Studies.

- New departmental curriculum committees were established and initiated for regular academic review in all areas including First Year. Several new initiatives were launched through these committees, including better alignment and updates of course content to eliminate redundancies and gaps, improved teaching methods, and updated learning outcomes and assessment criteria.

- The continued and expanded use of industry standard computer software for analysis and design in courses has been implemented in numerous courses.

- The Cube Competition was continued in Civil Engineering and a prize of $500 from ACI Atlantic was presented to the winning student team by Stephen Grainger, Senior Principal, Stantec.

- New elective courses were developed to expand and balance current stream offerings.

- New course-based graduate programs are being developed in: 1) Ocean and Naval Architectural Engineering; 2) Energy Systems Engineering; and 3) Bioengineering.

- Through the accreditation process, numerous faculty members have developed and enhanced the learning outcomes as part of their course descriptions.

- New shipbuilding components are being incorporated into a revised ONAE program.

- Two new streams were developed and launched – 1) Process and 2) Oil and Gas – in the Process Engineering program.

- Learning outcomes are being actively monitored, in part through faculty sharing best practices and experiences (coordinated by Darlene Spracklin-Reid) and student feedback.

- CAFCE (Canadian Association for Co-operative Education) has awarded Co-op accreditation for all B.Eng. programs at MUN for six years ending in December 2021. The approval letter from Karen Reimer, Chair of the CAFCE Accreditation Council, indicated " … healthy participation numbers", " … impressive detailed student handbook" and " … innovative grading process".

- Several new Co-op initiatives were launched including curriculum enhancement of Co-op education. Also, a working group was formed to explore and develop an alternate delivery of Co-op education.

- An ECE Curriculum Committee has brought forward several significant course improvements in First Year including changes to ENGI 1040 (Mechanisms and Electric Circuits) and Redevelopment of ENGI 1020 (Introduction to Programming).

- Several faculty members participated in DELTS Innovative Teaching activities and T&L workshops. Best practices were regularly shared at Departmental meetings, e.g., in-class tutorial assignments and regular lab exams.

- In collaboration with DELTS, the course ENGI 3731 – Materials of Construction – will be offered in the Fall 2016 in a new blended course format.

- Structured student feedback was held in a CSME symposium and will be expanded via more workshops for the 2016-17 academic year.

- New staff positions over the past year will enhance the teaching and learning environment, including a new Civil Engineering (Environmental) technologist, Laboratory Instructor (CAD), Laboratory Instructor (Programming), and Student Engagement and Retention Project Coordinator (T&L Framework award funded).

- New software was installed for courses, such as WAMIT, Shipmo 3D and DelftShip.

Goal 1.2: Encourage Student Engagement

- Collaborated with the School of Graduate Studies on programs such as EDGE (Enhanced Development of the Graduate), ETP (Entrepreneurship Training Program), Thesis Boot Camp, and Career/Professional Development for graduate students.

- Mentorship and training of TAs (teaching assistants) including TA training, five outstanding TA awards each year, and TA evaluations.

- New work term retention and development plan, and continuous job match process, were developed and implemented by the Engineering Co-op Education Office.

- Study classrooms were opened up and designated during the final exam periods to increase the available study spaces for students.

- Hands on learning initiatives were enhanced in various courses, including but not limited to, student competitions in courses such as the Cube Competition and Scavenger Hunt.

- A new Mechanical Engineering graduate student seminar series was introduced.

- AutoCad and Solidworks training sessions were launched every semester leading to a certificate upon completion by students.

- A plan was developed and is currently being implemented for Faculty mentors for all incoming first year students.

- Collaborated with the School of Graduate Studies on student exit surveys. All graduating engineering students are encouraged to fill out the exit survey, after which results are examined for appropriate follow-up actions by the Associate Dean, Graduate Studies.

- A new “Thinking Like an Engineer” pilot initiative in ENGI 1040 (Mechanisms and Electric Circuits) was launched to support transition from high school to university, and enhance first year student success.

- A new initiative was launched to introduce student mentors (on co-op work terms) into first year courses.

- Numerous Lunch and Learn Sessions were held to increase awareness about research activities among the students, faculty and staff.

- A new initiative was launched to identify and assist at-risk students along with an intervention strategy to reduce attrition particularly in first year.

- Site licenses for Office and Matlab were obtained, and efforts are continuing to seek access by students to Solidworks.

- Student engagement projects were initiated through a successful application to MUN’s T&L Framework funds.

- The computer lab, EN3000 / 3029, is currently undergoing a major renovation to modernize and support enhanced delivery of software based courses. Audiovisual facilities will be

upgraded to create dual classroom, as well as new furniture, computers, ceiling tiles and lighting.

- Computers were upgraded in the Cahill Engineering One Help Centre including dual monitor configurations.

- Two new teaching term positions for First Year and Common Core courses were created with a potential for a female lecturer as a role model for women in engineering in the first year of the program.

- Classrooms EN 4034, 4035, 1000, 1001, 1002, 1003 and 1004 were redeveloped and brought up to modern standards to improve the student learning environment, e.g., new multimedia facilities and desk furniture.

- Several site visits were organized for students in various courses, e.g., Capital Ready Mix plant, construction sites, Windsor Lake Water Treatment Plant, Robin Hood Bay Waste Management Facility.

- Several invited speakers participated in courses, including speakers from industry for the annual Civil Engineering event. The Civil Night keynote presentation was given by Nick Gillis, Senior Engineer/Project Manager, SNC-Lavalin, on the topic of Concrete GBS – Design & Constructability Lessons.

- Students participated successfully in the 2016 Canadian Society for Civil Engineering (CSCE) National Capstone Competition, held at the 2016 CSCE Annual Conference in London, Ontario, June 1 – 4, 2016.

- Students successfully and actively participated again in regional and national design competitions, and international design challenges including SAE Baja, SailBot, SAE Aero, and Formula SAE.

- Many graduate students actively participated in regional, national, and international conferences, and student chapters of professional societies, e.g., CSME, ASME, SPE, SNAME, RINA, etc.

- Examples of follow-up action items from student feedback include revisions to course notes and delivery to add more worked problem examples, additional seminars, tutorials on background materials, and lab components.

- Awards include the 2016 Gold Standard award to the MUN Student Chapter of SPE (Student Society of Petroleum Engineering), led by student Javad Hashemi and faculty advisor Dr. Lesley James, in recognition of its exceptional programs in industry engagement, operations and planning, community involvement, professional development and innovation.

- Meetings with students and class representatives were held regularly to seek feedback for program and course improvement. Many follow-up actions were taken and Department Heads discussed various forms of student feedback with instructors, including from meetings with students and CEQs.

- Guest speakers were invited into lectures of various courses and student team activities, such as the SNAME Student Section, NSERC CREATE guests, and industry / RINA engagement in ONAE Term 8 design projects.

- Off-site visits onto ships were coordinated in ENGI 3001 (Ocean Engineering and Naval Architectural Design) as well as visits onto ships by SNAME student activities.

- Further site visits were organized for ENGI 3600 and 8694; additional site visits will be integrated into courses ENGI 8691, 8692, 6602, 6671, and 5671; and guest lectures were held in ENGI 7640, 8640 and 8676, among others.

- Major progress was achieved towards the creation of new academic programs, including a new B.Eng. program in Petroleum Engineering (submitted, pending industry funding support for incremental space and infrastructure), new graduate program in safety and risk engineering (currently under departmental review), and a new Minor in chemistry in collaboration between Process Engineering / Chemistry (approved).

- Unassigned desk spaces were created in EN 2041 and 2064 and renovated for shared graduate student desks. Each room has lockers for students to store books, desktop computers for sharing, and wireless access for laptop computers.

3.2 Increasing Research Capacity

Excellent progress has also been made over the past year on our Vision 2020 goal of increasing research capacity and intensiveness, as detailed in the following selected examples.

Goal 2.1: Attract, Retain and Support Research Activities

- Undergraduate students in high academic standing were actively encouraged to apply to the fast-track program to graduate studies after graduation. Top-up funding was provided to match SGS fellowships.

- Numerous initiatives were completed and efforts are actively underway in collaboration with the School of Graduate Studies on recruiting top students internationally.

- Updated graduate studies and research brochures to be completed by the Fall 2016, including several new research chairs, faculty members, and research programs.

- Applications to NSERC were submitted, or to be submitted, for leveraging of funding to industrial research chairs, e.g., Dr. Lesley James (NSERC / Chevron CRD to be submitted), Dr. Brian Veitch (NSERC / Husky Energy IRC approved), Dr. Rocky Taylor (NSERC / CARD IRC submitted).

- Six new research chairs were hired / selected in 2015/16 – Dr. Enamul Hossain (Statoil Chair in Reservoir Engineering), Dr. Sohrab Zendehboudi (Statoil Chair in Reservoir Analysis), Dr. Octavia Dobre (Research Chair in Subsea Communication), Dr. Bipul Hawlader (Research Chair in Seafloor Mechanics), Dr. Faisal Khan (nominee for Tier I Canada Research Chair Offshore Safety and Risk Engineering), Dr. Helen Zhang (nominee for Tier II Canada Research Chair in Environmental Engineering).

- A 2nd Annual Research Report and several faculty news stories as part of a new Research Impacts Initiative were completed over the past year.

- FEAS assumed the day to day administrative management of the Suncor Energy Offshore R&D Centre, thereby providing guidance, support and assistance for graduate students, researchers and research chairs occupying space in the Centre, and overseeing health and safety in the Suncor Centre.

- Several initiatives were undertaken to promote a higher awareness and visibility of research activities in FEAS, e.g., more seminars in the Lunch & Learn seminar series that highlighted interdisciplinary research projects across faculties / schools at Memorial, a new Research Communications Award in partnership with the Office of Graduate Studies, a new research video to showcase the Faculty's research programs in its strategic theme areas, and improvements to the FEAS research website to provide quick links to available resources for researchers.

- An increased success rate was achieved in NSERC Discovery Grant applications that exceeded the national average success rate.

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

- New initiatives / proposals were launched and major ongoing projects underway in Oceans and Arctic-focused research, such as an industry partnership with Kvaerner in offshore concrete structures, multi-disciplinary research in reservoir souring (with Suncor Energy), GEMS project (with Shell).

- New initiatives were launched in support of MUN's COASTS initiative, such as the National Network for Innovative Shipbuilding and Marine Research and Training (iSMART), led by Dr. Wei Qiu.

- Research programs have engaged rural communities in the province such as renewable energy (Dr. Kevin Pope) and clean drinking water in remote coastal communities (Dr. Tahir Husain).

- New staff members were hired in ERO (Engineering Research Office) to facilitate, support and assist with an increasing number of research grants and contracts, both in terms of pre-award proposal submission, and post-award processes.

- A new template agreement was created for Mitacs projects to reduce / eliminate delays related to establishing contracts with industry partners.

- More efficient processes were created to enable the administration and management of IP informed consent processes to be transferred to FEAS.

- The NSERC DG submission process has been improved and streamlined so that the Office of the Associate Dean, Research, is now able to submit DG applications directly to NSERC without the previously required additional processes in RGCS.

- ERO enhanced its services and supports to researchers, for example, through additional workshops that provide a comprehensive overview of the NSERC Discovery Grant program to new faculty members.

- The Office of Associate Dean, Graduate Studies, has actively recruited graduate students directly from top universities internationally, particularly Vietnam, Brazil, India, and China. These efforts have been very successful as graduate student enrolment (630 in Spring 2016) has far exceeded prior expectations and the target enrolment of the growth plan (525 in 2016).

- More efficient post-awards processes were created to improve clarity and communication between ERO, FEAS Graduate Studies, and FEAS Grants and Contracts Accounts Officers.

- Six new graduate diploma programs in engineering are currently under development. These include: Arctic, Communications, Geotechnical and Structural, Mechatronics, Mechanics and Materials, and Thermofluids. These diploma programs are in addition to the Safety and Risk Engineering diploma which has been very successful.

Goal 2.3: Expand Engagement with Partners

- Researchers have collaborated with the provincial government on engineering related projects involving regional policy, drinking water, and waste management.

- A new National Network for Innovative Shipbuilding and Marine Research and Training (iSMART), led by Dr. Wei Qiu, has been launched, including C-CORE and MI, and in

partnership with a number of universities, government agencies, and industry partners, across Canada. This network will enhance collaborations with national and international marine industry partners, shipyards and universities (particularly those in Europe and USA).

- A new research centre was launched and opened – Centre for Risk, Integrity Safety Engineering (CRISE) – led by the founding director, Dr. Faisal Khan.

- New inter-institutional MOUs were created with IIT Madras and University of Amity, India, for student exchange and joint collaborative research programs.

- In collaboration with the School of Graduate Studies, and the International Office, new partnership programs have been established, or are currently under development, in several universities abroad – Vietnam (VIED), China (CSC), Iraq (Iraqi MOHE), Mexico (CONACYT), Brazil (SWB), Indonesia, Norway.

- International funding support of collaborative research programs has been secured, e.g., ABS, INTPART, GEM Solution, U.S. Department of Defense, Saudi Electricity Company.

- Faculty members have established new partnerships in Oceans and Arctic-focused research programs such as with partners in Norway and Russia.

- Research proposals have been submitted for enhanced collaboration with Norwegian university (NTNU) and industry (Kvaerner) partners.

3.3 Expanding Partnerships

An increasing number of activities of external engagement, outreach and partnerships with industry, high schools and other organizations, has been achieved over the past year.

Goal 3.1: Expand Partnerships that Contribute to Research

- Researchers participated in an oil spill response study with SINTEFF (Norway), C-CORE, and local oil and gas industry partners.

- Biomedical engineering research initiatives were launched with the Faculty of Medicine and other units.

- Several faculty members used their sabbatical leaves to enhance partnerships internationally – Dr. Bing Chen (China) and Dr. Ralf Bachmayer (Germany).

- The ECE Department successfully hosted the 24th annual NECEC conference in St. John's with a strong participation from industry and the community.

- The 34th International Conference on Ocean, Offshore and Arctic Engineering, OMAE 2015, chaired by Dr. Wei Qiu, was held in St. John's with a strong participation from faculty, graduate students and industry.

- Faculty members contributed significantly on technical committees, conferences, and journals to promote the visibility and reputation of FEAS internationally, e.g., Dr. Cheng Li (Technical Program Committee, ICC conference), Dr. Howard Heys (Conference Chair, Selected Areas in Cryptography 2016 conference, St. John's), Dr. Octavia Dobre (Editor-in-Chief, IEEE Communications Letters).

- Various initiatives were completed successfully in partnership with external bodies including with BTCRD in support of OERC projects, and with NRC–OCRE on Marine Safety projects, and an international NATO Workshop on Ship Safety in the Arctic.

- NSERC CRD projects, IRC (Dr. Brian Veitch), and industry sponsored research, are actively collaborating with industry and other partners. Dr. Veitch's LRET program involves Europe-Canada collaborations. Dr. Claude Daley's GEM program involves collaborations with industry partners and other departments on campus.

- Several collaborations with Norway (University of Stavanger) have been launched, including Steve Butt (drilling and well engineering), and Dr. Lesley James (enhanced oil recovery).

- A CREATE program proposal was developed in partnership with Chalmers University (Sweden), Duisburg University (Germany), TUHH (Germany), and Florida Atlantic University (USA), etc.

- Partnerships across departments were expanded in several research proposals, for example, two new CFI applications (harsh environment research centre, and another on autonomous underwater vehicles) involving faculty members from Ocean and Naval Architectural Engineering, Mechanical Engineering, and Physics and Physical Oceanography.

Goal 3.2: Expand Partnerships that Contribute and Strengthen our Programs

- FEAS participated in several international graduate student recruitment fairs, such as in China and Vietnam, to recruit top students.

- Several partnership agreements with universities abroad are currently under development, or recently started over the last year, e.g., UPC (China), CUPB (China), IIT (India), Amity University (India), HIT (China). Several others are ongoing – UArctic, CUP-B (China), UPC (China), UNIS (Svalbard, Norway).

- Faculty members actively participated in provincial and national engineering associations over the past year, for example, Dr. Dennis Peters, Vice-Chair of the Qualifications Board of Engineers Canada.

- Professors engaged in outreach activities in high schools, e.g., “Code Is Cool” program at Frank Roberts Jr. High (Dr. Dennis Peters), high school science fair judging (Dr. Amgad Hussein, Dr. Jonathan Anderson, Dr. Vlastimil Masek, Dr. Yuri Muzychka, Dr. Heather Peng, Dr. Faisal Khan).

- Co-op coordinators have travelled broadly to expand our partnerships with employers hiring co-op students, i.e., Toronto, Calgary, Edmonton, Vancouver, Houston, etc.

- Professors have expanded their involvement with technical activities in professional societies, e.g., Dr. Wei Qiu (Vice-President, SNAME), Dr. David Molyneux (ITTC Ice Committee), Dr. Lorenzo Moro (ISSC Dynamics Committee), Dr. Bruce Quinton, (ISSC Ice Committee), etc.

- The new “Memorial Centre for Entrepreneurship” (MCE) has been launched over the past year to expand programs and research in entrepreneurship and innovation, initially through a joint partnership between Engineering and Business, but recently broadened to all faculties / schools at Memorial in terms of potential course(s), student activities, and collaborations.

Goal 3.3: Improve Engineering and FEAS Profiles in the Community

- FEAS joined the Actua network to increase STEM outreach activities and involvement.

- FEAS partnered with WRDC (Women in Resource Development Corporation) in the development of STEM modules.

- A new one-day engineering badge activity with Girl Guides was launched.

- FEAS partnered with high schools on “STEM day” as a pilot initiative of increased engagement with high schools.

- ECE participated in new outreach activities – namely “Ladies Learning Code”, and ProtoShed (a maker group).

- Professors served in various roles at PEGNL, e.g., Dr. Dennis Peters – Past Chair of the PEGNL Board of Directors, Dr. L. Lye – Vice-Chair of PEGNL Registration Committee, PEGNL and other engineering bodies, and Dr. Steve Butt and Dr. Faisal Khan reviewed P.Eng. applications for PEGNL and PPEO National Exams for P.Eng. qualifications.

- Practicing engineers served as “clients” for the Civil Engineering Capstone Project.

- Professors served in national and international workshop and conference organizing committees –SPE Deepwater Workshop 2016 (Dr. Steve Butt, Dr. Faisal Khan, Dr. Lesley James), ASME OMAE2016 conference (Dr. Steve Butt), Canadian Chemical Engineering Society Annual Conference 2016 (Dr. Kelly Hawboldt), Symposium on Risk-based Safety and Asset Integrity Analysis in Harsh Environments (Dr. Faisal Khan), and IChemE Loss Prevention Symposium and SAFER 2017 conference (Dr. Faisal Khan).

- Professors served on NSERC review committees and panels – Dr. Kelly Hawboldt (IRC committee), Chemical Engineering Discovery Grant committee (Dr. Faisal Khan), RCRA Panel (Dr. Faisal Khan).

- Dr. Steve Butt served on the NL Angels Network Board of Directors.

- Faculty members gave lectures as visiting professors at Sakhalin State University, Russia, University of Tasmania and others.

- Engineering Reunion 2015, held in October 2015, was a huge success with over 100 attendees, primarily alumni, friends, and spouses. Engineering Reunion 2016 is planned for Oct. 13 – 17. Kathryn Hong is organizing the event to celebrate the Classes of 1976, 1981, 1986, 1991, 1996, 2001 and 2006.

3.4 Fostering a Distinguished Workplace

The Faculty continues to have steady progress on the Vision 2020 goals and action items for a distinguished workplace.

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

- The 3rd annual Dean’s Awards ceremony was held at the Christmas Breakfast Year in Review to recognize faculty and staff members for excellence in teaching, research, academic service, staff service, and graduate student supervision.

- The following faculty and staff were recognized by the 2015 Dean’s awards:
  - Dr. Assem Hassan, Dean's Award for Research Excellence
  - Dr. Glyn George, Dean's Award for Teaching Excellence
  - Dr. Wei Qiu, Dean's Award for Teaching Excellence
  - Dr. Benjamin Jeyasurya, Dean's Award for Excellence in Graduate Student Supervision
  - Dr. Faisal Khan, Dean's Award for Excellence in Graduate Student Supervision
  - Ms. Betty Corbett, Dean's Award for Exemplary Service
  - Ms. Colleen Mahoney, Dean's Award for Exemplary Service
  - Dr. Octavia Dobre, President's Award for Outstanding Research

- Numerous other national and international awards were celebrated:
  - Dr. Yuri Muzychka, Fellow of the American Society for Mechanical Engineers (ASME)
  - Dr. Azizur Rahman, Fellow of the Royal Society of Canada (RSC)
  - Dr. Leonard Lye, Fellow of the Canadian Academy of Engineering (CAE)
  - Dr. Greg Naterer, Robert W. Angus Medal of the Canadian Society for Mechanical Engineering (CSME)
  - Dr. Octavia Dobre, President's Award for Outstanding Research
  - Dr. Amgad Hussein, Fellow of the Canadian Society for Civil Engineering (CSCE)
  - Dr. Claude Daley, Fellow of The Society of Naval Architect & Marine Engineers (SNAME)
  - Dr. Wei Qiu, Fellow of The Society of Naval Architect & Marine Engineers (SNAME)
  - Dr. Wei Qiu, Fellow of the Royal Institution of Naval Architects (RINA)

Goal 4.2: Promote Excellence through Personal Growth

- Staff members were encouraged to further their education and enroll in applicable training and professional development programs.

- Staff members participated in the following professional development and training opportunities in the form of workshops / courses / areas:
  - Administrative Support Development Program
  - Supervisory Skills Development Program
  - Management Development Program
  - Banner Training (Finance and HR)
  - Adobe Acrobat Pro
  - NSERC – Use of Grant Funds
  - Privacy Training
  - CPA Course Audit and Assurance Training
  - Post-Doctoral Researcher Hiring Training
  - MyHR Training
  - Sharepoint
  - Site Builder

- Mentors were established for new faculty members hired in the past year.

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

- Facilities Management provided the Faculty with a dedicated Project Manager (Shane Russell) to oversee capital projects for Faculty.

- Currently over 20 renovation projects are underway or have been completed in the past year:
  - Clean-up continues throughout laboratories

- Movement of under-utilized equipment to off-campus storage space
- EN-4028 – renovations and expanded Co-op Education space
- IIC-1021 – Process Engineering Department Office
- ER4014 – graduate student renovated space
- ER4014A/4015 – new C-RISE research centre space
- EN1026C – Asphalt Lab re-instated
- EN2042B – workshop for mechanical engineering students
- EN-1015 – Purchasing / Receiving Office renovations
- EN-4007 – Faculty's Finance Office
- EN-3076 – Cahill Engineering One Help Centre – renovations to add 2nd office
- EN1017 – 3-D Printing Lab

- Numerous lab upgrades and modernization projects were completed / underway: Mechanics of Solids Labs; Wave Tank (wave-maker upgrade), Environmental Lab; Geotechnical Lab; Fluids Lab; Structures Lab; Asphalt Lab; Concrete Lab.

- A new Graduate Student Office Space Policy was implemented to assign spaces in a more equitable manner among graduate students.

- Lab infrastructure was upgraded for courses: Geomechanics Frame for ENGI 6602 and 9117, Catalytic Reactor for ENGI 6631 – Reaction Engineering, and Process Control Lab for ENGI 7621 – Process Control.

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

- FEAS promoted safety in the workplace and staff members participated in the following training workshops:
  - First Aid / CPR
  - Forklift Training
  - H2S Safety
  - Fall Protection
  - Compressed Gas
  - Hydraulics
  - Transportation of Dangerous Goods
  - WHMIS
  - Mental Health

- The Building OH&S Committee met to discuss issues quarterly.

- The Faculty held its annual Academic Year Faculty and Staff Kick-off Social in September, and Year in Review meeting in December, including breakfast and award presentations.

- The Faculty's Staff Social Club membership increased from 73 to 83 members over the past year: Staff (33), Faculty (34) & Co-op (16). About 15 functions held in the past year compared to 6 last year.

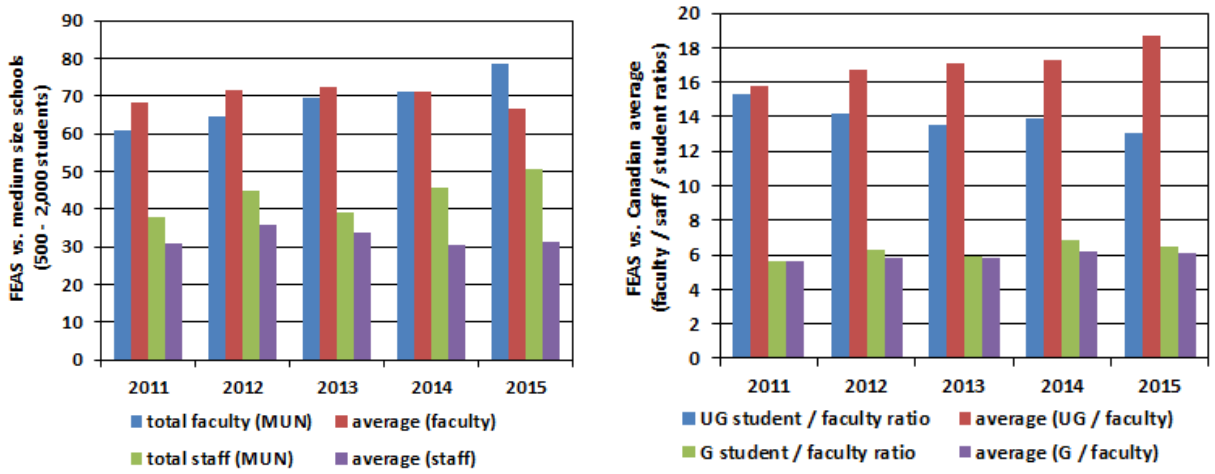
- The Social Club recognized milestone events of a member and made monetary contributions towards collections for non-membership milestones.

- The 9th Annual Staff Retreat was held at the Hampton Inn by Hilton in October 2015. Presentations from EHS were made on Safety in the Workplace. An afternoon Team Building Exercise (team building escape exercise) was held at Breakout NL.

- The Faculty produced its next issue of its annual report, thanks to Jackey Locke. "Benchmarks" highlighted the Faculty's accomplishments throughout the past year.

4 Progress Indicators

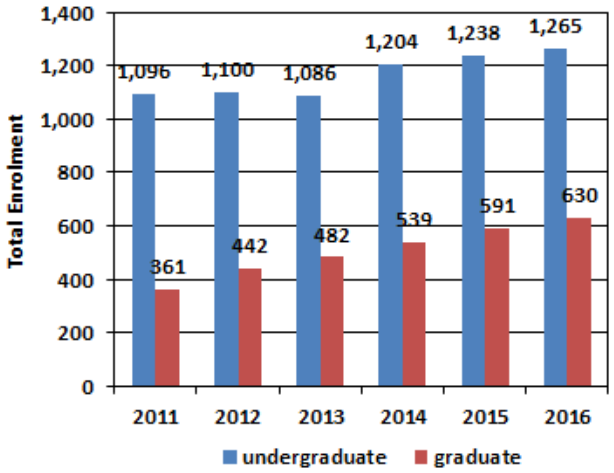
4.1 Faculty and Staff Data



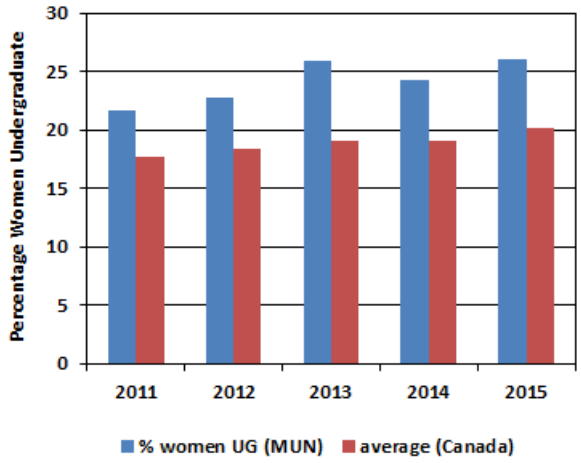
(a) (b)

Figure 1: Number of FTE (a) faculty, staff and (b) per faculty ratios [2]

4.2 Student Data



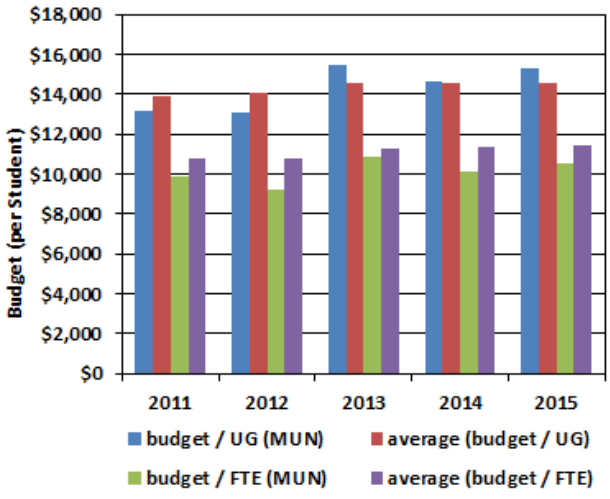
(a)



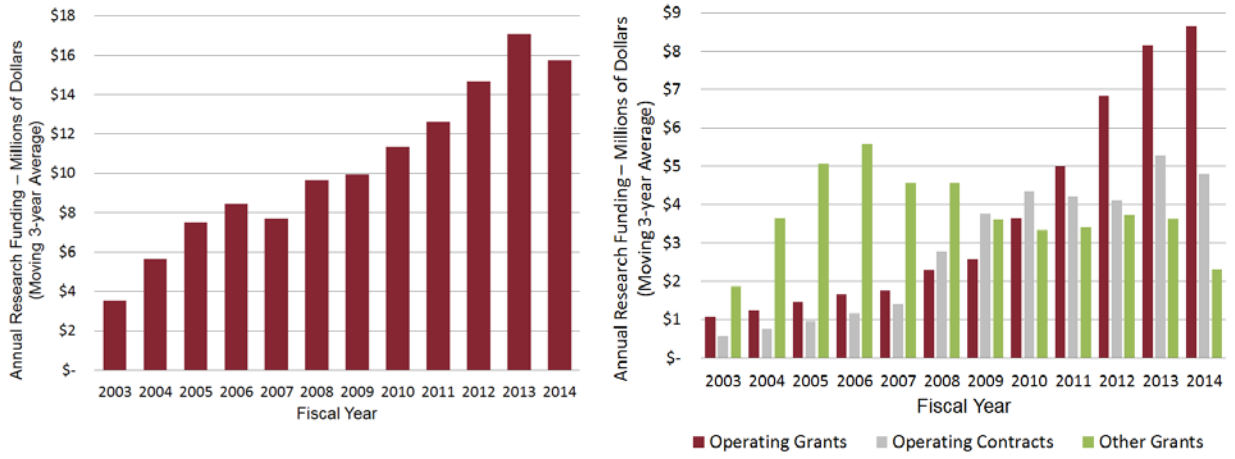
(b)

Figure 2: (a) Undergraduate, graduate, and (b) female student enrolments [2]

4.3 Operating and Research Funds



(a)



(b) (c)

Figure 3: (a) Operating budget and (b)-(c) research support by contract type

5 Acknowledgements

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6 References

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2) Resources Survey of Engineers Canada, National Council of Deans of Engineering and Applied Science, 2016.

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