Dean, Engineering and Applied Science

Statement of Accomplishments and Vision

Acknowledgments

After a long and fulfilling academic career at the University of New Brunswick, I accepted the honour of serving the University of Regina as a Dean of its modern and progressive Faculty of Engineering and Applied Science. Upon accepting the appointment, I initially planned to serve a five-year term, expecting to be drained and exhausted by the end of my term. To my delight and surprise, I feel energized and motivated as much as I was at the beginning of my mandate. This is mostly thanks to the energy and enthusiasm I see at the Faculty level, within this University and beyond.

The engagement of our academic staff members through the Faculty Council, the Academic Assembly and various Committees, though sometimes challenging, are engaging and informative. In my interview on the cold day of January 31, 2013, I recall mentioning that I thrive on creative tension. Thanks to my colleagues for challenging me with a healthy dose of productive tension, which is the driving force behind progress and innovation.

The tremendous support and hard work of the five Associate Deans who I have worked with (Drs. deMontigny, Henni, Huang, Idem and Sharma) made me feel empowered and protected. The thoroughness of the Faculty Administrator, Ms. Schmidt, her passion and hard work, backed by superb office staff, made my job easier and enjoyable. Last but not least, the training and guidance provided by my capable assistants, Ms. Barlow and Ms. Docking, then Ms. Fahlman, made coming to work every day a delight.

We are all here to serve our students. The Faculty has been blessed by superb students at both the undergraduate and graduate levels. The leadership of the Regina Engineering Students Society has been responsive, supportive and reliable. They doubled their contribution to the Equipment fee, established the Regina Engineering Equipment Fund to support future students, and are winning awards within Canada and the USA. Graduate students took my initial challenge to them to organize themselves and established the University of Regina Engineering Graduate Students’ Association. I am delighted to see them taking ownership of their education and offering professional development workshops on their own. Both student groups participate in collegial governance and search processes.

At the University level, the evidence-based decision making approach of the Provost, Dr. Chase, and his mentorship and support, made my job as Dean fulfilling and rewarding. Working with the Vice-President (Research), Dr. Malloy, in building relationships outside the University has been crucial to the success of the Faculty on a number of fronts. The understanding of my fellow Deans of the challenges the
Faculty of Engineering has been facing and their camaraderie instilled in me a sense of duty to serve and support the common mission of the University. The Faculty of Science has been very helpful in accommodating the increase in our enrollment in introductory courses. I have also enjoyed the support, responsiveness and professionalism of the offices and staff of External Affairs, Facilities Management, Financial Services, Information Services, Human Resources, Resource Planning, Student Affairs and U of R International. President Timmons made me feel welcome and supported, I feel honoured to serve under her leadership.

I am indebted to members of the Faculty’s Advisory Board, the leadership of Association of Professional Engineers and Geoscientists of Saskatchewan, my colleagues on the Boards of Directors of PTRC and the Fedoruk Centre, and many external partners for sharing their experience and wisdom (particularly the CCS Knowledge Centre and SRC). They not only welcomed me to the broader community, but also made me feel valued and appreciated.

I have started this statement by a long list of acknowledgments because the credit for the achievements listed below is entirely due to the support and backing of many. Some of these accomplishments were also their ideas and or implementations.

Accomplishments
Below are some of the accomplishments which I was directly involved in or facilitated, since July 1st, 2013. They are presented, in no particular order, under the main headings of the University’s strategic plan peyak aski kikawinaw. At the end of this section, I address some of the issues that caused some discontent in the Faculty.

Student Success
- Broadening students’ horizons by allowing them to take any courses in the Faculty of Arts as humanities or social sciences electives.
- The MEng program was restructured as a professional degree. Related courses were developed and are offered by myself.
- Created an MEng lounge to provide a meeting place for MEng students.
- Enhanced teaching capacity to cope with increased enrollment (from 872 in the Fall of 2012 to 1364 in the Winter of 2017) by:
  - Securing new positions (* positions secured by former Dean):
    - Three (3) Lab Instructors: 2 ISE (Al Zubadi *+ new to be hired), 1 PSE (to be hired).
    - Five (5) Lecturers: EVSE (Wu), ENGG (Peng*), PSE (Azadbakht*), ESE (to be hired), 1 SSE (to be hired).
    - Two (2) CRC II: ESE + PSE (to be hired), expected to carry half teaching load each.
    - One (1) Industrial Research Chair (SaskPower Chair, to be hired), expected to carry half teaching load.
Reducing number of Associate Deans from four to two, and having current Associate Deans teach two courses each, plus the Dean teaching a graduate course (3-1ch MEng courses).

Filling all retirements, a resignation and a promotion to out-of-scope:
- 1 EVSE (Mehran for McMartin).
- 2 ESE (Al-Anbagi & Bais for Misskey & Conroy).
- 1 PSE (Jia for a resignation).
- 1 ESE Lab Instructor (to be hired for Wirth).

- Reaching out to students by attending and addressing their functions, regular meetings with their leaderships and regularly dropping by their lounge.
- Established an excellence scholarship to attract our best graduates to do graduate studies a U of R.
- Introduced measures to deal with cheating and recycling of exam-questions.
- Encouraged students to introduce an Honour Pin ceremony with a pledge to abide by ethical and professional practices during their studies.
- Participated in the development of continuing improvement procedures in conjunction with outcome-based accreditation.
- Introduced a teaching development fund.
- Created a student-services corner to consolidate student advising.
- Develop a transparent and fair approach to streamline student-selection of majors to address the uneven demand among Undergraduate Programs.
- Renovated both undergraduate computer and teaching labs to increase capacity and improve functionality.

**Research Impact**

- Celebrated achievements: a monthly achievement email celebrating success and recognizing accomplishments, particularly in research.
- Featured faculty members who are journal editors on our webpage\(^1\) to demonstrate leadership in research.
- Worked with the VPR to establish a fund to support research in clean energy and exchange of scholars, financed by SaskPower’s $3.5M gift.
- Secured an industrial research chair in clean energy with the help of the VPR, financed by SaskPower’s $3.5M gift.
- Worked with Program Chairs to secure two CRC II chairs in ESE and PSE.
- Introduced a research development fund.
- Advocated for a monthly research seminar, introduced and led by Associate Dean (Research).
- Cultivated a strong relationship with Mitacs and promoted it within the Faculty, resulting in a number of successful funding arrangements for graduate students.
- Faculty’s research is enriched by a number of adjunct appointments from government and industry.

\(^1\) [https://www.uregina.ca/engineering/research/editors.html](https://www.uregina.ca/engineering/research/editors.html)
• Led a successful $1.1M research team on small nuclear reactors, involving 14 faculty members from five Faculties (7 form U of R Engineering) in two Universities (U of R & U of S).
• Supported and aided in the creation of the Centre for Science and Innovation Policy in the Johnson-Shoyama Graduate School of Public Policy.

Commitment to Our Communities

Faculty Community
• Criteria Document was updated for the first time since 2002. Task was accomplished by an elected committee of academic staff members and with wide consultation.
• Introduced a planning committee to guide future directions.
• Developed an enrollment management scheme: task accomplished with the help of the Faculty’s Planning Committee and consultation with U of R Enrollment Services and with the National Council of Deans of Engineering and Applied Sciences. This involved a capacity exercise in terms of human and laboratory resources, and resulted in a dynamic enrollment model that uses previous years’ trends to determine the grade cut-off for automatic and wait-list admission; aiming at maintaining enrollment at a level in between those of 2013 and 2014.
• Faculty Council and Academic Assembly meetings are scheduled regularly and are fully engaged.
• Established collegial, transparent and participatory decision-making environment, via procedures and policies developed collectively.
• Introduced, with the Faculty Administrator, a Faculty Operational Handbook, which is updated regularly.
• Empowered Program Chairs to make collegial decisions at the program level.
• Communicated regularly with all staff members on ongoing issues at meetings and by email, and introduced a briefing email on Faculty Executive meetings.
• Walking around to make myself accessible and visible.
• Celebrated the role of sessional instructors by having an appreciation reception.
• Developed, in consultation with the Planning Committee and the Academic Assembly, a Strategic Action Plan, to implement the Faculty’s and the University’s Strategic plans.
• Streamlined and formalized collegial search processes for external hirings, hiring of sessionals and filling and renewing leadership positions.
• Maintained academic integrity and quality by adhering to the Collective Agreement with Academic Staff and the Faculty’s Criteria Document.
• Sustaining a respectful workplace as stipulate by the University policies.
• Supporting and promoting a safe and healthy workplace. Took a decisive action, in coordination with Program Chair, academic staff members, the
Faculty’s Safety Coordinator and graduate students in the aftermath of a fire in our petroleum research laboratory.

- Continue to build a sense of community among staff members at all levels via organized social events.
- Conducted an external review of the Faculty’s workshop that resulted in streamline the operation.

**University Community**

- Served on the University’s bargaining team with the academies staff, 14/2015, and will serve in 2016/17.
- Developed with the Dean of Arts a Colloquium series on Teaching, and coordinated together the first colloquium by Dr. Elizabeth Barkley on Student Engagement in the Classroom, April 13, 2017.
- Served as an internal member on the Academic Unit Review of the Department of Physics, March 2016.
- Serve on the Data Governance Advisory Group/Council, since April 2015.
- Presented at New Faculty Orientation, Fall 2015.
- Severed on search advisory committees for deans of Fine Arts and Science.
- A member of the selection committee for the Innovation Awarded, Innovation Place.
- Member of evaluation committee for the Clean Energy Fund.
- Advocated successfully for more flexible offerings of minors across the University, so that a curriculum in one program does not need to be approved by another.

**Outside Community**

- Perhaps our strongest link to the community is the EYES Program. It continued to flourish under the support of the Faculty, reaching over 12,000 children across southern Saskatchewan in 2016, it has over 1450 campers at its summer camps, including special All Girls camps.
- Continued to support the robotics program at Campbell Collegiate.
- Established an advisory board\(^2\) to the Faculty, to provide guidance and strengthen relationship with employers of our students.
- Publicized Faculty activities to the professional engineering community via the College Corner in the APEGs magazine: *The Professional Edge*.
- Made friends of the Faculty and alumni aware of faculty members and students’ accomplishments via a monthly email.
- Serve as the Province’s academic representative with the Energy Council (Oil producing US States and Canadian Provinces).
- Serve as U of R’s representative on the Board of Directors of PTRC.
- Served on the Board of the Sylvia Fedoruk Canadian Center for Nuclear Innovation, 2015-2016 (stepped down to avoid conflict of interest after receiving research funding from the Centre).

\(^{2}\) [https://www.uregina.ca/engineering/about-us/advisory-board.html](https://www.uregina.ca/engineering/about-us/advisory-board.html)
• Reached out to families of deceased students: two posthumous degrees were awarded and face-to-face meetings with three families took place.
• Advocated in public for nuclear power and the Canadian Institute for Science and Innovation Policy.
• Served as Program Visitor, Engineers Canada Accreditation Board, Nuclear Engineering Program, University of Ontario Institute of Technology, February/March 2016.
• Hosted the Fall meeting of the National Council of Deans of Engineering and Applied Sciences in Regina, November 2016.
• Participated in the selection for a new PTRC Chief Executive Officer, Winter 2017.

Sustainability
• Revamping the MEng program generated additional funding that are used to enhance student experience and encourage faculty members to supervise MEng students.
• Established a transparent budget allocation and spending processes, which resulted in a healthy financial situation that enabled renovation of labs and offices to cope with increased student enrollment and staff complement, providing teaching assistantships, covering contingencies, and even investing on some teaching and research development activities.
• Sources of revenue expanded by better use of CCE to increase revenue by ten folds over four years (from $42,800 in 2012/13 to $428,000 in 2016/2017), and by the increase in MEng fee. A portion of the increased revenue returned to each Program operating budget.

Indigenization
• Fund-raising is undergoing for special scholarships to attract high-school indigenous students to Engineering.
• Met with the File Hills Qu'Appelle Tribal Council in November 2015 to understand the challenges facing their youth’s science education, and subsequently facilitated a mentorship process of their science teachers with our Faculty of Education.
• An Aboriginal Science and Engineering student’s support group was created in conjunction with the Faculty of Science. Both financial and moral (attending meetings in person) support was given to this group.
• Dr. Stilling has taken the lead on Enhancing Academic Indigenization in Engineering, supported by the President’s Office. This initiative will continue to receive my support and encouragement.
• Have invited a prominent indigenous alumni of the Faculty to speak to the Canadian Deans of Engineering and Applied Science at their meeting in Regina in November 2016, on challenges facing indigenous engineers; to
raise the profile of the issue. His talk was well received and he was invited to speak at other venues.

**Challenges**

There was a number of issues that caused some discontent within the Faculty, some of which I take full responsibility for, others were beyond my control. Among those issues was the review of the market supplement. I made my submissions in this regard available to academic staff members before the decision was made, and academic staff members submitted their own analysis. The final recommendation was made by a joint Employer/URFA committee in accordance to the provisions of Appendix B of the Collective Agreement, in a manner that was applied consistently to all requests.

The recommendation of the Academic Assembly to reduce the teaching load was also a point of contention. This recommendation could not be implemented at this stage, in spite of the increased teaching capacity, without heavy reliance on sessionals, having large classes, and less frequent offerings of courses students need to take for timely graduation. No responsible leader would implement such recommendation, and face an accreditation process with a significant number of courses taught by part-time staff. However, we will look into a model that gives research-intensive faculty members some teaching relief in a transparent and fair manner.

I realize that the growth in enrolment has increased the workload, in spite of the increase in teaching support and the splitting of large classes. However, the recent rise in the number of academic staff members was not possible without the enrolment growth, and I am committed to making every effort to sustain the increase in the faculty complement to match that of student enrolment over the next few years.

Yes, a Dean must advocate for the Faculty, but as evidence-based decision maker, I have to advocate based on solid facts. A leader has also to make some difficult decisions that are not necessarily popular, and has in turn to take responsibility and accept criticism and feedback. As such, the leadership in the Faculty voluntarily invited an informal review to hear out concerns and get feedback on its performance. I am committed to studying the report of this review, and use it to provide our students, faculty and staff with better service and support.

**Vision and Plan**

I started my term as a Dean in 2013 by defining three themes (in my emails to the Faculty on September 3rd, 2013) (1) collegiality, (2) academic integrity and (3) safety. I believe we had established a strong culture of collegiality as evident by the vigorous and open debate that takes place and the participatory leadership at all levels in the Faculty. Instructors and students worked together to curtail a culture of
cheating during exams. Though there are still some remnants of this culture, I am proud that our students are taking charge of their education and speaking up against academic misconduct, while pledging through their Honour Pin Ceremony to abide by their own code of conduct. On the safety front, we had only one significant accident over the past few years, during which and afterwards we all took decisive actions to mitigate its effect and develop measures to avoid its recurrence. Work on the above three fronts will continue and there is always room to improve. Nevertheless, if I am re-appointed, my focus will also include the following three themes: (a) Expanded Outreach, (b) Accreditation and Continuing Curriculum Improvement, and (c) Enhanced Research. These correspond, respectively, to the University strategic priorities of Commitment to Our Communities, Student Success and Research Impact. Interwoven, within these is a commitment to indigenization and sustainability. I elaborate below on each of these themes.

**Expanded Outreach**

Engineering education and research influence our communities and must be strongly connected to beyond the confines of the academia. We already have strong ties with two of our public utilities (SaskPower and SaskTel), and we need to work on renewing our ties with SaskEnergy and SaskWater. We have funding from the three Provincial bodies (PTRC, IMII and the Fedoruk Centre), as well as from Innovation Saskatchewan and Western Economic Diversification Canada. We also work closely with the Saskatchewan Research Council and many governmental ministries. Our Faculty is enriched by inviting practicing engineers to offer lectures and seminars to our students. These are very good foundations to build on to expand our reach, while consolidating existing ties. The establishment of the Faculty’s Board of Advisors and the advisory bodies at the Program’s level will further facilitate these efforts.

I see a need to expand our Faculty’s outreach to small and medium-sized companies, taking advantage of our co-op program and Mitacs, to provide research and development work through graduate and fourth-year projects. There is room to grow in supporting projects related to the City First-Nations communities and the health-care sector. This can be facelifted by expanding the role of the Co-Op Director to include professional practice and outreach.

We have a growing alumni base that we need to reach out to. Although I have attempted locally and throughout my travels to reach out to individuals, there is a need for a more coordinated outreach effort. I plan to work with the University’s alumni office to have more access to alumni and devise mechanisms to communicate to them.

To meet Engineers Canada challenge to the profession of “raising the percentage of newly licensed engineers who are women to 30 per cent by the year 2030”[^3], we have to sustain and increase the number of women undergrad students in the Faculty from the current of approximately 20% to 30%. A number of faculty

[^3]: [https://engineerscanada.ca/diversity/women-in-engineering](https://engineerscanada.ca/diversity/women-in-engineering)
members are coordinating this effort with APEGS, and I fully support these efforts and will work with them to further support this initiative.

I also support Engineers Canada’s effort “to increase Indigenous peoples’ representation in engineering education”\(^4\). We have taken some steps in this direction as indicated above, but we need to more directly engage local communities and their schools. This will be done in coordination with Faculty’s and the University’s indigenous leads and with our alumni.

To attract more women and indigenous students to the Faculty and to maintain long term enrollment, I am committed to continue to support the EYES Program’s efforts to work with the young, particularly young girls and with the ingenious communities. In this regard, we are working with the Faculty of Science to become members of the Let’s Talk Science organization, which focuses “on education and outreach to support youth development”\(^5\).

Reaching out should also include other programs and units within U of R and its affiliated colleges. The Creative Arts Program and the Engineering Management MBA are two examples on how such initiatives are useful to students. There is more room for developing other joint programs and options, with the Faculties of Science and Arts, JSGS, FNUC, and others. In my view, the engineers of the future will be more heavily involved in gaining social acceptability of their projects. As such, expanding the horizons of our students beyond engineering subjects will be beneficial, if not necessary.

Finally, as we prepare for a new building, we must reach out to governments, funding agencies companies and foundations to get endorsement and financial support. I believe that over the past few years, I have established relationships within the local community that should facilitate this task.

**Accreditation and Continuing Curriculum Improvement**

The accreditation process in my view, is not simply a means to be recognized as a credible institution, but it is a vehicle for student success and continuing improvement. It challenges us to maintain high quality and update programs, and requires our student to meet rigorous standards. I moved into academic administration at UNB’s Engineering in July 2010, because I believed in the new outcomes-based accreditation process, and wanted to lead my then Faculty’s effort, to establish this process. I continued this effort at U of R by serving as a member of the Engineering Outcomes-based Committee, and actively participating in its activity. The last year of my current term as a Dean will heavily focus on preparing the Faculty of the accreditation visit, likely in the Fall of 2018. Whether I serve beyond the end of my current term or not, I am committed to doing my best to


\(^5\) [letstalkscience.ca](http://letstalkscience.ca).
prepare the Faculty for the incoming accreditation. In fact, I have started the process already last Summer by preparing a draft report for one of the programs (ESE), to identify the likely challenges, taking advantage of my recent experience as a program visitor to a school in Ontario. The Faculty is fortunate to have other faculty members who have served on recent accreditation visits, their experience will be quite helpful.

The accreditation process is a team effort and is also a team-building opportunity. It is an opportunity for a SWOT (strengths, weaknesses, opportunities, and threats) analysis of our undergraduate curricula. It is an opportunity for renewal and to showcase our programs. We have unique systems-based programs that are modern and forward looking, but also need explanation and articulation to outsiders. The Faculty is among a few in Canada that offer laboratory instruction by professional permanent academic staff, which provides our students with strong hands-on experiences. Enrollment growth has been a challenge, and we have to show our efforts in maintaining quality, e.g. increasing TA's, renovation of lab facilities, multiple offerings of classes over semesters, etc. I am seeing the accreditation process as an opportunity for Faculty’s revitalization, from which we will emerge with stronger programs.

With the emphasis on continuing improvement in the accreditation process, I expect that the self-study report for accreditation and the findings of the visiting team will results in a number of actions that will form the academic agenda until the next accreditation cycle.

**Enhanced Research**

While the accreditation process will guide and enable changes in our academic curriculum, the incoming 2017/2018 Academic Unit Review of Engineering will assist accreditation, but it also provides us with an opportunity to do a SWOT analysis for our research and graduate studies programs. We are in the process of acquiring three research chairs (two CRCs and the SaskPower Chair on Clean Energy), but we need to explore ways to enhance our research funding, renew our equipment, find a fair and transparent way to free up research-intensive faculty members to further succeed. Visiting members of the Academic Unit review team will be asked for advice on how to better enhance our research activities, while building on existing industrial support, and support from Mitacs and NSERC programs. Our relationship with the provincial bodies that support research (Innovation Saskatchewan PTRC, the Fedourk Centre and IMII) and with SaskPower should continue to flourish, and I am committed to working with Vice-President (Research) on sustaining these relationships. I see also stronger ties developing with the Saskatchewan Research Council, particularly on the energy file and I see good potential there. There are also opportunities for collaboration with SaskPoly on applied research that we should explore.
There is more room to cultivate a stronger research culture, provide mentoring for emerging researchers, and better funding opportunities and office and lab space for our graduate students. The Faculty has introduced a research seminar series in attempt to at least know what other colleagues are doing, and I hope more researchers attend these seminars. Research by its nature is not driven from the top, but as a Dean I am committed to supporting research (we have introduced a modest research development fund for this purpose), celebrating success (we can always do more), and exploring ways to make our facilities more safe, efficient and effective. However, the limited space is a challenge, and in my view the planning for a new building should focus on providing first-class research facilities, as well as meeting our educational needs. A research park, funded by industrial partners, may be also an alternative means to achieving these goals.

**Faculty’s Strategic Action Plan**

Through a consultative process, the Faculty has developed a Strategic Action Plan to implement the University’s and the Faculty’s strategic plans. This action plan had concrete actions to be taken, along with indicators to measure the effectiveness of these actions. I am fully committed to these actions and to maintaining an efficient, effective and transparent operation at levels.

The Faculty’s current strategic plan expires in 2017. We need, through consultation with stakeholders, to update and enrich this plan and align it with the University’s strategic plan. The Faculty may also consider developing its own research/graduate studies strategic plan, within the framework of the University’s plan, while focusing on applied/targeted research and international collaboration.

We are here for our students. We educate the engineers of the future, train highly-qualified personnel to advance knowledge and improve technology, and in the process serve our communities. I have tried my best during the past few years as a Dean of this fine school to meet these goals. I am committed to continuing this sense of mission, without compromising our academic mission and integrity and our calling as professional engineers. This cannot be done, however, without the continuing support of all our stakeholders.