Minutes of the Faculty Council  
Meeting of February 27, 2018  
Michael E. Charles Council Chamber (GB 202)

PRESENT  

REGRETS  
Susan Andrews, Brittny Carter, Lee Clement, Sourabh Das, Peter Herman, Jane Illarionova, Mark Kortschot, Raymond Kwong, Doug Perovic, Shoshanna Saxe, Charles Albert Ward, Walter Wonham, Paul Yoo

GUESTS  
Ann Crichton-Harris, Sonia De Buglio, Cori Hanson, Evan Hunter, Phuong Huynh, Syed Imam, Ezzat Jaroudi, Jennifer Lancaster, Jean McNeil, Emily Meyertholen, Dan Pettigrew, Cindy Rottmann, John Senders, Mindy Thuna, Alex Tichine, Allison Van Beek, Geoff Wichert, Caroline Ziegler (Secretary)
1. **Speaker’s Welcome and Adoption of the Agenda**

Council Speaker Doug Reeve welcomed members to the third Faculty Council meeting of the 2017-2018 academic year and provided the following remarks on mining engineering at the University.

The Mining Engineering Department was established in 1878 as part of the School of Practical Science, and has been located in the Mining Building since its completion in 1905. The building was renovated and renamed the Lassonde Mining Building in 2011, in honour of philanthropist and donor Dr. Pierre Lassonde. It hosts the Lassonde Mineral Engineering program, IBBME, and the Canadian Mining Hall of Fame. Toronto has long been a world-wide centre for mining investment.

The agenda and meeting package were distributed on February 13, 2018 and the memorial tribute to William Leslie Cleghorn was distributed on February 22, 2018. The minutes of the meeting of December 12, 2017 will be brought forward at the April 11, 2018 Council meeting.

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

THAT the agenda be adopted.

2. **Introduction of New Faculty**

Jun Nogami, Chair of the Department of Materials Science and Engineering, introduced his new faculty member, Yu Zou. The Speaker welcomed and thanked Professor Zou for attending.

3. **Memorial Tributes**

(a) **Neville Moray**

The Speaker welcomed Professor Emeritus John Senders, formerly of the Department of Mechanical and Industrial Engineering, and his wife, Ann Crichton-Harris, who were in attendance. Professor Emeritus Senders read the following memorial tribute in honour of Professor Emeritus Neville Moray.

Be it resolved –

THAT the Council of the Faculty of Applied Science & Engineering record with deep regret the death on December 15, 2017 of Professor Emeritus Neville Moray.

Neville Peter Moray, born on May 27, 1935, one of the pillars of applied experimental and engineering psychology, died on December 15, 2017 at the age of 82. Neville graduated from the University of Oxford, where he was a member of Worcester College, and received his Doctorate in Psychology in 1960. He spent one year at the University of Hull as a visiting Lecturer and was appointed Lecturer and then Senior Lecturer at the University of Sheffield. Upon immigrating to Canada in 1970, Neville was appointed Associate Professor and then Professor in the Department
of Psychology at the University of Toronto. In 1974, he returned to the United Kingdom as Professor and then Head of the Department of Psychology at the University of Stirling in Scotland. In 1981, he returned to Toronto as Professor, but in the Department of Industrial Engineering. In 1988, he moved to the University of Illinois at Urbana-Champaign, where he held positions in the Departments of Mechanical Engineering, Industrial Engineering, Psychology, and the Institute for Aviation for seven years until 1995. Neville then taught at the Université de Valenciennes et du Hainaut-Cambrésis where he lectured on applied engineering issues in French. This was followed by four years as Professor at the University of Surrey in Guilford, England until his final retirement in 2001.

This bare litany of appointments fails to capture the interpolations of Neville’s many and numerous visiting positions, as well as the international interactions from which he derived his clear inter-disciplinary mastery. For example, Neville spent time at both MIT and Brandeis in the late 1960s where he encountered researchers who were to become life-long colleagues. He taught summer school in China in the mid-1980s and toward the end of his career, collaborated with a number of Japanese colleagues at the University of Tsukuba. Neville was a long-time member of the Human Factors and Ergonomics Society (HFES), of which he became a Fellow in 1991. Shortly after, in 1993, he achieved the status of a Certified Human Factors Professional. In 2001, Neville received the Society’s highest award, the Arnold M. Small President’s Award. He was equally active in the global, parent organization, the International Ergonomics Association (IEA) of which he was also a named Fellow. He received the Ergonomics Development Award and subsequently the President’s Award both from IEA, the latter in the year 2000. At the combined HFES/IEA Conference that year, there was a special session dedicated to Neville’s lifetime contributions. He was also a Fellow of the Institute of Ergonomics and Human Factors, formerly the Ergonomics Society of Great Britain.

After his final retirement, Neville sailed his 26-foot yacht across the Atlantic Ocean.

Be it further resolved –

THAT this tribute to Professor Emeritus Neville Moray be inscribed in the minutes of this Council meeting, and that copies be sent to his family as an expression of the respect and gratitude of the members of this Council.

Professor Emeritus Senders added the following personal reflection:

Fifty-plus years of my good friend, Neville Moray

I met Neville Moray around 1960 during a visit to an old friend, Harry Kay, then the Professor at Sheffield. Neville and I became instant old friends. He was exceedingly green, having just, in the company of Richard Gregory, completed a study on a small underwater animal, Copelia. I recall my astonishment at an experimental psychologist, for so he was in those days, who would dive into the Mediterranean to administer tests to a small, inoffensive, animal in its native habitat. Copelia, like Neville, was always looking, albeit involuntarily, for something really interesting.
When he finally slithered sideways into being an applied experimental psychologist, converted into an engineering psychologist, and finally transmogrified into a human factors engineer, he had found his calling. He had always really wanted to be an engineer – and now he was one – roughly speaking. There some minor shortfalls in mathematics but he picked up what was needed and gracefully and artfully concealed his occasional ignorance.

We met frequently over the years and have always collaborated on getting things done but never did any joint research. It is of interest that two people of pretty much like mind on many topics could spend 40 years talking and thinking together, and occasionally writing together, but never do any research together. Neither of us has ever considered why this was so but it clearly was by unconscious mutual agreement. We did try together to move the world from time to time; we organized meetings on topics that other people needed to know about.

I have hardly ever read Neville's work – he has always accused me of never reading anyone's work and I have to confess that he was right. He is a much better scholar than I, either by natural bent or more rigorous training, and I leave that to him.

He has been also a much better academic than I, probably also as a consequence of his training. He had better judgment of whether a graduate student was worth spending time on. I always wanted to be kind; he wanted rigor and diligence. He was almost always right in his assessment of the probable success of the occasional lame ducks that wandered into the department. Mostly we had fun. We drank, ate, and sang songs together, and made clever puns and insulting jokes about one another. The latter are the mark of a genuine friendship of equals, and that we had.

(b) William Leslie Cleghorn

Markus Bussmann, Chair of the Department of Mechanical and Industrial Engineering, read the following memorial tribute in honour of Professor Emeritus William Leslie Cleghorn.

Be it resolved –

THAT the Council of the Faculty of Applied Science & Engineering record with deep regret the death on February 1, 2018 of Professor Emeritus William Leslie Cleghorn.

William Leslie Cleghorn, born on September 28, 1953, passed away peacefully at the North York General Hospital in Toronto on February 1, 2018 at the age of 64 years.
Bill, as he was known to his colleagues, successfully completed his Bachelor’s [1975], Master’s [1976] and PhD [1980] degrees at the University of Toronto. His dedication, commitment and inquiring mind were already clearly evident during his undergraduate years, and faculty colleagues in the Department of Mechanical Engineering were not surprised when his efforts were recognized with him securing the coveted Centennial Thesis Award, and other notable graduation prizes.
His Master’s and PhD dissertations addressed the sub-disciplines of kineto-elasto-dynamics and the synthesis of mechanisms, subjects that continued to fascinate Bill throughout his career. The
motion and dynamic behaviour of mechanisms were critical building blocks of early mechanical engineering, when cams, linkages and gears converted potential energy sources into useful work, and these carry forward into modern day robotics where precision positioning, touch and grasping ability in robotic hands and prostheses, not unlike the Canada-arm, can confound.

Bill loved all types of mechanisms and mechanical things that moved or vibrated to achieve a unique engineering objective; in his lectures he wanted to show this mobile beauty to students, and so was always looking for the latest in document cameras, videos, and computer simulations to illustrate the principles and motions that could be contrived. Some of you might recall Bill wheeling a mobile cart laden with the very best in technology to be used in his lectures, when particular classrooms lacked the appropriate projection facilities to demonstrate what could be achieved. His award winning undergraduate text, entitled Mechanics of Machines was published by Oxford Press in 2000 and is a revelation in the teaching of mechanisms that conveys the excitement of this subject matter to the student. A review of this text which comprises the very best of his lecture materials certainly conveys the meticulous innovation that took place within his lectures. It was no surprise that he was highly respected and liked by his students; he took the time to prepare his lectures and delivered the goods.

Throughout his career, Bill’s teaching was recognized by various awards that included the SAE Ralph R. Teetor Award, the CSME I.W. Smith Award, the ASEE John Curtis Lecture Award, and the Canadian Professor of the Year Award in 1994, sponsored by the Council for Achievement in Support of Education. In 1991, Bill Cleghorn received the Teaching Award of the Faculty of Applied Science & Engineering; his efforts were again recognized within the University in 2006 when he received the University of Toronto President’s Teaching Award for “outstanding leadership in teaching”.

Upon completion of his Ph.D., Bill Cleghorn worked as a Research Engineer with MacMillian Bloedel for two years prior to accepting an Assistant Professorship at the University of Manitoba in 1982. In 1986, Bill was persuaded to continue his academic career at the University of Toronto. He was promoted to Associate Professor a year later and attained Full Professorship in 1995. In 2001, Bill Cleghorn was appointed to the endowed Clarice Chalmers Chair in Engineering Design and held this position until 2011. Bill built a vibrant research career during his tenure; he successfully supervised some 21 PhD and 54 Master’s students. He established effective applied research interactions with industry and published approximately 120 refereed journal publications, 300 conference papers, and held six Canadian patents.

Bill also made a significant contribution to the development of engineering education and many of his papers and presentations at engineering conferences specifically addressed educational procedures and methodologies. Within this educational framework, Bill pioneered the Partners for the Advancement of Collaborative Engineering Education, or PACE, program at the University of Toronto. He fostered collaboration with industry and worked tirelessly with undergraduate students to identify suitable industrial projects that students could undertake. He forged meaningful links with the Ontario Centres of Excellence through the Connections program, which rapidly expanded to sister universities in Ontario. Bill’s efforts in this capacity were most
impressive, tireless and extended throughout his career. He encouraged the participation of his students in Ontario and Canadian design competitions sponsored by PACE, UTEK, Connections, the CSME and the ASEE, as well as at other major international competitions where his students gained invaluable experience and recognition for their contributions. His support of students never wavered; it was as good as it gets.

In conclusion, as it represents Bill’s inspirational commitment to the engineering student, we record that in 2010 Bill Cleghorn became an Honorary Warden within Camp I of the Calling of the Ritual of an Engineer, in recognition of twenty years of continuous service as a Warden.

Be it further resolved –

THAT this tribute to Professor Emeritus William Leslie Cleghorn be inscribed into the minutes of this Council Meeting, and that copies be sent to his family as an expression of the respect and gratitude of the members of this Council.

The Speaker assumed concurrence with these resolutions, and Council stood to observe one minute of silence in honour of Professors Emeriti Neville Moray and William Leslie Cleghorn.

The Speaker acknowledged the passing of Jim Prentice, a professor emeritus from the Department of Physics who taught a fourth year course in high energy physics for the Physics option in Engineering Science.

4. Report of the Dean

Dean Amon welcomed members to Faculty Council and provided the following remarks.

(a) Update on the Centre for Engineering Innovation and Entrepreneurship

The official opening of the Centre for Engineering Innovation and Entrepreneurship (CEIE) will be on April 27, 2018, with a larger opening celebration to follow in September for all faculty, staff and students. Although the building may not be fully occupied at that time, we are currently planning moves into the building this spring.

Agreements have been finalized with the University for their use of rooms and the auditorium in the CEIE. In return, we will have the use of some classrooms in our buildings across campus as offices or classrooms. Thank you to Professor Emeritus Ron Venter for his amazing work in negotiating these agreements.

Governing Council has recently announced that the building will be named the Myhal Center for Engineering Innovation and Entrepreneurship in honour of George and Rayla Myhal’s support of this dynamic new space.
(b) **Strategic Mandate Agreement**

A new Strategic Mandate Agreement (SMA2) between the University of Toronto and the Ontario government was made official in January. It recognizes the University’s differentiated role as a top global and research-intensive institution and establishes its enrolment and funding for the next three years.

As part of the agreement, U of T has been asked to reduce domestic undergraduate enrolment by 1,800 students by the fall of 2019. The University has already reduced its number of domestic undergraduate spots by 1,700 at the St. George campus and there will be no growth at UTSC or UTM. This is consistent with our Faculty’s goals: we have reduced our total number of undergraduate students over the last two years and the intake of domestic undergraduates will remain constant.

The University will continue to receive per-student funding from the province for both undergraduate and graduate programs, but by the end of the SMA2 some funding will be moving into a differentiation envelope that will be based on performance in priority areas such as student experience, innovation, research excellence and impact, access and equity, economic development and community engagement, teaching and learning excellence, and international rankings. Our Faculty is well positioned to succeed by these measures as we are accustomed to tracking outcomes as part of our undergraduate accreditation process and annual report of performance indicators.

(c) **CEAB Accreditation**

Thank you to all who are involved in preparing for the upcoming CEAB visit, which is scheduled for October 21-23, 2018. The visit chair is Professor Pemberton Cyrus, Associate Dean of Engineering, Undergraduate at Dalhousie University. The vice-chair and general visitors will be assigned in the next few weeks. We will continue our dedicated efforts in order to achieve the full six-year accreditation in all of our programs as we did at the last review, with a few interim reports in between.

There will be a change in leadership at Professional Engineers Ontario (PEO). Nancy Hill, a civil engineering alumnus and patent and trademark lawyer, is the incoming president, and Marisa Sterling, a chemical engineering alumnus and Assistant Dean for Inclusivity and Diversity at the Lassonde School of Engineering at York University, is the incoming vice-president. We very much look forward to working with this new leadership on the modernization of the PEO.

(d) **Provincial and Federal Updates**

The Ontario legislature recently approved the creation of a Professional Engineers Day, with the first one to be held on March 1, 2018. This coincides with Engineering Month in Canada, which is in March each year. This will help us continue to raise the profile of engineers and the engineering profession.
The federal budget will be released later today, and we will learn more about the level of funding for academic research and the impact of the final report of Canada’s Fundamental Science Review (the Naylor Report).

(e) Convocation

Mark your calendars for spring convocation on June 19, 2018. UTIAS, IBBME, Civil and Mineral Engineering, Materials Science and Engineering, and Engineering Science will convocate in the morning; Chemical Engineering and Applied Chemistry, and Mechanical and Industrial Engineering will convocate in the afternoon; and Electrical and Computer Engineering will convocate in the evening.

The speaker and honorary graduand at the morning ceremony will be accomplished alumna Janis Chodas from NASA, and speakers are being sought for the afternoon and evening ceremonies. Suggestions can be sent to Dean Amon or to members’ chairs or directors. Our second honorary graduand, industrial engineering alumnus George Myhal, will be the speaker at our November convocation.

5. Creation of the Institute for Studies in Transdisciplinary Engineering Education and Practice

Because it involves the creation of an Extra-Departmental Unit: Type A (EDU:A), the following item will be considered by a special motion, requiring a two-thirds majority of members present and voting to carry.

Greg Evans, Chair of the Working Group to Create an Institute for Engineering Education, presented Report 3575 Revised. The creation of the Institute for Studies in Transdisciplinary Engineering Education and Practice (ISTEP) as an EDU:A in our Faculty will bring together existing cross-disciplinary faculty and programming, support innovative instruction and the scholarship of teaching and learning, promote interdepartmental collaboration and curricular efficiency, better prepare our graduates for the workplace, and increase the positive impact of the Faculty.

It will also help position us to respond to a changing educational landscape and society, where the practice of engineering faces increasingly complex challenges in the areas of energy, health, climate, hunger, and prosperity.

To respond to misconceptions about the Institute that were raised during consultations and at discussions at previous Council meetings, Professor Evans reiterated that ISTEP is for both tenure- and teaching-stream faculty, will strengthen collaboration within the Faculty and with industry, will help strengthen the learning of core technical content, and will not significantly impact the Faculty’s budget as funding will be tied to the Institute’s outcomes. He reminded Council that extra-departmental units can be based on research or teaching, and that an extra-departmental unit, type A is the only EDU structure that can serve as the budgetary home for faculty with a common scholarship.
Professor Evans thanked the working group for their efforts, and all who participated in consultations and provided input in other ways over the past 18 months.

At the conclusion of the presentation, the following special motion was moved and seconded –

**THAT** the Institute for Studies in Transdisciplinary Engineering Education and Practice (ISTEP) be created as an Extra-Departmental Unit Type A, effective July 1, 2018.

Council debated the pros and cons of establishing the Institute.

Some faculty, professors emeriti and alumni members of Council agreed that we need educational reform and improved teaching methods to graduate engineers who are better-rounded in areas such as leadership, entrepreneurship, emotional intelligence, writing and communication, and are pleased to see this proposal come forward. A representative from the Engineering Society said that undergraduate students are excited and positive about the creation of the Institute, even though the outcomes are unknown.

Members discussed the different types of extra-departmental units. An EDU:A was recommended by the Vice-Provost, Academic Programs as it can hold primary budgetary appointments and it will enable colleagues who teach in multi-disciplinary areas to work and collaborate where there is a common understanding and shared values. Others disagreed, saying that an EDU:C would be more appropriate a structure because it can bring people together, secure funding and scholarships, and promote interdisciplinary collaboration.

Some Council members felt the Faculty should concentrate on teaching technical skills, and that while there are many reasons to improve engineering education, they questioned whether we should focus on teaching communications and language at a time when physics and math are being cut from the curriculum.

A member said it would make more sense for the faculty who would be appointed to ISTEP to be appointed to OISE instead, where there is already a critical mass of cross-disciplinary faculty. Another member responded that there is a unique scholarship associated with the field of engineering education which would be difficult for units outside FASE to undertake.

A member pointed out that there are engineering education departments across North America, and that while we are close to the forefront, we are rapidly falling behind. We need to consider the risk of not approving ISTEP. There will always be a better way, but this may be the best we can do at this time.

A member called for the motion to be decided by paper ballot, and, as is required by Council’s Rules of Order, four other members indicated their support. The Speaker reminded Council that only members can vote, and that the ballots should be anonymous.
The motion was carried. The report will be forwarded to the University’s Planning and Budget Committee, Academic Board and Governing Council for approval.

6. **Civil Engineering Department Name Change**

The following items will be considered by regular motion, requiring a simple majority of members present and voting to carry.

Brent Sleep, Chair of the Department of Civil Engineering, presented Report 3576 Revised, a proposal to change the name of the department to the “Department of Civil and Mineral Engineering” in order to reflect the offering of two distinct CEAB accredited undergraduate engineering programs, the Civil Engineering and Lassonde Mineral Engineering Programs. The name change will also bring consistency with the naming of other departments within the Faculty that offer two separate and distinct engineering programs, such as the Department of Mechanical and Industrial Engineering, and The Edward S. Rogers Sr. Department of Electrical and Computer Engineering.

At the conclusion of the presentation, the following regular motion was moved and seconded –

**THAT the name of the Faculty of Applied Science & Engineering’s Department of Civil Engineering be changed to Department of Civil and Mineral Engineering, effective immediately upon approval.**

There were no questions and the motion was carried. The report will be forwarded to the University’s Academic Board for approval and Executive Committee of Governing Council for confirmation.

7. **Session Dates, 2018-2019**

Evan Bentz, Chair of the Undergraduate Curriculum Committee, presented Report 3577, session dates for the 2018-2019 academic year. In determining the dates, the committee consulted colleges and residences, the Faculty of Arts and Science, and the University holiday schedule. Professor Evans pointed out that the first Saturday in January is being held as an emergency exam day in the event exams are cancelled in December because of inclement weather.

At the conclusion of the presentation, the following regular motion was moved and seconded –

**THAT the session dates for the 2018-2019 academic year be approved as described in Report 3577.**

There were no questions and the motion was carried.
8. **Major Curriculum Changes, 2018-2019**

Evan Bentz, Chair of the Undergraduate Curriculum Committee, presented Report 3578, major curriculum changes for the 2018-2019 academic year affecting programs in Engineering Science, Mechanical and Industrial Engineering, Civil Engineering, Materials Science and Engineering, Chemical Engineering and Applied Chemistry, the Engineering Communication Program, First-Year, and PEY.

At the conclusion of the presentation, the following regular motion was moved and seconded –

> THAT the proposed curriculum changes for the 2018-2019 academic year be approved as described in Report 3578.

There were no questions and the motion was carried.

9. **Closure of Engineering Science Infrastructure Stream**

Deepa Kundur, Chair of the Division of Engineering Science, presented Report 3579, a proposal to close the Infrastructure stream due to low enrolment. Admissions will be suspended on May 1, 2018, and the stream will be fully closed effective June 30, 2022. Students currently in first and second year will still be able to enroll in the stream, and students in first year will be able to graduate from the stream, even if they participate in PEY.

Although the closure will have some impact on the number of graduates available to industry and academia, the Department of Civil and Mineral Engineering will continue to offer a high quality civil engineering program that allows students to study infrastructure and the new technologies being deployed to design, build and maintain the built environment.

At the conclusion of the presentation, the following regular motion was moved and seconded –

> THAT admissions to the Infrastructure Engineering stream within the Division of Engineering Science’s undergraduate program be suspended effective May 1, 2018, with an anticipated full closure of the stream effective June 30, 2022, as described in the major modification proposal.

There were no questions and the motion was carried.

10. **Reports and Recommendations of Standing Committees**

The following report was approved by the Executive Committee of Faculty Council at its February 7, 2018 meeting and is being presented for Council’s information.

(a) **Engineering Graduate Education Committee Update**

Julie Audet, Vice-Dean, Graduate Studies and Chair of the Engineering Graduate Education Committee, presented Report 3580, which lists new courses, a minor modification to APS1012,
and a minor modification of Electrical and Computer Engineering’s MEng program to add eight new emphases that correspond to the department’s technical subfields.

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

11. **Discussion Item: Report of the Eagles Longhouse Steering Committee**

Jason Bazylak, Co-chair of the Eagles Longhouse Steering Committee, was scheduled to report on the committee’s recommendations to improve the Faculty’s relationship with Indigenous peoples, but due to timing this item was deferred to the April 11, 2018 Faculty Council meeting.

12. **Other Business**

There was no other business.

13. **Date of Next Meeting**

The next and final Faculty Council meeting is on April 11, 2018.

14. **Adjournment**

The meeting was adjourned at 2:01 p.m.

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