



## Council of the Faculty of Applied Science & Engineering Minutes of the Meeting of December 7, 2023

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**MEMBERS:** Ning Yan (Interim Speaker), Chris Yip (Dean), Badr Abbas, Dionne Aleman, Brohath Amrithraj, Julie Audet, Mohammed Basheer, Chris Beck, Timothy Bender, Evan Bentz, Shlomo Bibas, David Boroto, Helen Bright, Markus Bussmann, Arthur Chan, Heba Chehade, Alan Chong, Sinisa Colic, Tom Coyle, Christopher Damaren, Francis Dawson, Michelle Deeton, Matthew Du, Natalie Enright Jerger, Jennifer Farmer, JJ Garcia-Luna-Aceves, Diane Giang, Sarah Haines, Ben Hatton, Marianne Hatzopoulou, Angela Henshilwood, Glenn Hibbard, Ken Hilton, Robert Irish, Greg Jamieson, Charles Q. Jia, Parker Johnston, Shannon Jones, Dawn Kilkenny, Deepa Kundur, Katy Kwong, Freeman Lan, Allison MacKay, Heather MacLean, Gaurika Mahajan, Caitlin Maikawa, Elham Marzi, Katy Mezei, Kasra Modares, Emily Moore, Erika Narimatsu, Jeffrey Packer, Milos Popovic, Adham Ragab, Aryan Rezaei Rad, Jonathan Rocheleau, Lisa Romkey, Cindy Rottmann, Philipp Seiler, Shamim Sheikh, Theodore Soong, David Steinman, Marisa Sterling, Chirag Variawa, John Walker, Lesley Warren, Elizabeth Whitmell

**SECRETARIAT:** Caroline Ziegler (Secretary), Alex Schroen (Moderator), Rodney Gensell (Support)

**GUESTS:** Olenka Baron, Sharon Brown, Leanne Dawkins, Sonia De Buglio, Khuong Doan, Roger Francis, Shilpa Gantotti, Sania Hameed, Christina Heidorn, Andrew Kozak, Denis Mascarin, Teresa Miniaci, Don Newton, Shannon Osborne, Asma Pathan, Dan Pettigrew, Rafael Puello, Zeeshan Rayees, Alex Schroen (Moderator), Frank Scornaienchi, Tristan Tapscott, Gary Tibshirani, Alex Tichine, Geoff Wichert, Nefeteria Wickham

### 1. Speaker's Welcome

Interim Council Speaker Ning Yan called the second Faculty Council meeting of 2023-2024 to order at 12:10 pm, welcoming Council members in GB202 and online. The Dean and Secretariat introduced themselves. The Speaker acknowledged the land on which the University of Toronto operates, and reviewed protocols for the hybrid meeting.

### 2. Approval of Agenda

The agenda and reports were distributed on November 22. There was no discussion and on a regular motion duly moved, seconded and carried, the agenda was approved.

### 3. Introduction of New Faculty Members

New faculty members Jose Joaquin (JJ) Garcia-Luna-Aceves of Electrical & Computer Engineering and Freeman Lan of Biomedical Engineering were introduced by their respective chair and director.

#### **4. Adoption of the Minutes of Previous Meetings**

No errors or omissions were noted in the minutes of the October 31, 2023 Council meeting and on a regular motion duly moved, seconded and carried, the minutes were approved.

#### **5. Memorial Tributes**

##### **(a) Cristiana Amza**

Deepa Kundur, chair of Electrical & Computer Engineering, read the following memorial tribute in honour of Professor Cristiana Amza.

Be it resolved –

THAT the Council of the Faculty of Applied Science & Engineering record with deep regret the death on September 8, 2023 of Professor Cristiana Amza.

Professor Cristiana Amza was born in Bucharest, Romania, in 1968. With her husband Marius, she has two children, Stefan and Gabriela.

Cristiana was driven from an early age by her love for computer science. She graduated from Bucharest Polytechnic University in 1991 and followed her passion across the Atlantic to Rice University in Houston, U.S., where she completed her master's degree in 1997 and her PhD in 2003. She achieved her goal of becoming a professor that same year in The Edward S. Rogers Sr. Department of Electrical & Computer Engineering (ECE) at the University of Toronto, eventually promoted to Full Professor by 2018.

Cristiana's research in distributed systems and cloud computing was internationally acclaimed and widely cited. Her research project called "Treadmarks," published in 1996 is an excellent example of how a simple, clean interface based on well-defined abstractions can provide a powerful and potentially useful parallel system. She was able to implement a "lazy" release consistency model for shared memory on a network of workstations that are not connected by physical memory. Treadmarks made a range of applications more efficient, and it was a natural environment for writing programs. Cristiana also made significant contributions to enhance the efficiency and reliability of cloud-based infrastructure, developing new techniques to optimize resource allocation of computers and networks that maximized performance and minimized costs. She worked towards a cloud infrastructure that could self-manage, self-tune and self-heal for a scalable, diverse range of applications, such as e-commerce, online bidding, neuroscience modelling and multiplayer games.

Over the years, Cristiana received numerous awards and recognitions, including IBM's 2011 CASCON International conference best paper award, the 2008 Middleware Conference best paper award and the 2007 Early Research Award. She collaborated with some of the most influential companies in the industry, including Intel, Bell Canada and IBM.

Cristiana had a special rapport with her students, who thought very highly of her. She was sharp-minded and generous, and during her time in ECE she guided and mentored many to great accomplishments. Professor Khoman Phang observed that her feedback with undergraduates was so gentle, encouraging and positive, it allowed them to relax and absorb what she had to say. Professor Ashvin Goel, who followed her as an instructor of a computer programming course, says, “Her exams in the course were legendary. They helped me understand the course material better!” Professor Mark Jeffrey credits her with a significant impact on his career: “She was one of the first to pique my interest in computer performance,” he says. “Her quiet chuckle at her own jokes was legendary among my peers. We loved it.”

This picture of a kind and selfless person, a genuine friend to many in the department, is repeated again and again by those who knew her. Over the years, conversations extended beyond engineering into the day-to-day joys and struggles of a life in academia, of finding a balance between work and family, always punctuated with Cristiana’s trademark smile. Professor Ding Yuan first met Cristiana when he was a graduate student and she was on his hiring committee the year he was hired. “When I first came to U of T, Cristiana was a mentor and she and her family also helped us in every possible way in our move to Toronto. She was one of the most selfless and kind people I’ve known.”

Professor and Chair, Deepa Kundur reflects on Cristiana’s legacy: “She was a kind, sensitive and gentle soul and a genuine friend to many colleagues in the department. She was incredibly talented, thoughtful and didn’t hesitate to stand up for the underdog.”

Cristiana’s tenacity, her intellectual curiosity, and her friendliness and warmth made her such a beloved colleague. She will be sorely missed.

Be it further resolved –

THAT this tribute to Professor Cristiana Amza 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.

**(b) James (Jim) Fennel Keffer**

Markus Bussmann, chair of Mechanical & Industrial Engineering, read the following memorial tribute in honour of Professor Emeritus James (Jim) Fennel Keffer.

Be it resolved –

THAT the Council of the Faculty of Applied Science & Engineering record with deep regret the death on September 29, 2023 of Professor Emeritus James (Jim) Fennel Keffer.

A distinguished professor, researcher, teacher and administrator at the University of Toronto, Professor Emeritus Jim Keffer made lasting contributions to fluid mechanics, and heightened the international research profile of U of T during a remarkable career.

Born in 1933, Jim pursued his undergraduate mechanical engineering studies at U of T. Maintaining an honours standing while playing football for the Varsity Blues, Jim was a member of the U of T Hall of Fame team that won the Yates Cup in 1954. After graduating in 1956, Jim joined the research division of Canadian General Electric, which led to his return to U of T for graduate studies. Advised by Professor Doug Baines, Jim obtained his PhD in mechanical engineering in 1962 and then spent two years as a postdoctoral fellow at the Cavendish Laboratory at Cambridge. On his return to Canada, he joined U of T's Department of Mechanical Engineering as an Assistant Professor.

Jim's lifetime of research advanced understanding of fluid mechanics with emphasis on two fundamental shear flows: the wake and the jet. He used novel experimental techniques to investigate these basic flows, which are relevant to environmental problems such as pollutant dispersion, smokestack dispersion, and climate effects. Jim and his students developed rigorous theoretical analyses to support their experimental data and to evaluate their validity and limitations, an important contribution to computer models.

Jim had a keen ability to recognize and plan for the future. Through his efforts, he helped the department and university acquire a unique wind tunnel in the 1970s that remains in use to this day. This facility allowed him to perform sophisticated measurements for the first time and contributed to his widely cited and highly respected work. The quality and significance of his research brought many interested students to his lab. Those under his supervision graduated to become university professors and global industry leaders who continue to contribute to turbulence measurement and analysis.

Jim's roles at U of T extended far beyond the classroom and his lab, as he undertook several administrative positions. He served as the Director of Graduate Studies for Mechanical Engineering, which led to appointments as the Associate Dean at the School of Graduate Studies, and later as Vice-Provost, Professional Faculties. Before retirement, Jim's final appointment was as Vice-President, Research and International Relations. In this role, he firmly established a professional service orientation within the portfolio; made major organizational innovations that his successors have built on to increase U of T's international research profile; and brought the first Cray supercomputer to the campus.

Jim formally retired from U of T in 1999. He and his late wife, Anne, enjoyed their retirement. Summers were spent cruising on their yacht in Georgian Bay; winters were spent in Florida. After Anne passed away in 2015, Jim married Carol Moore-Ede, a family acquaintance of some years. Jim often remarked that he was indeed fortunate to be so lucky twice in one lifetime.

Be it further resolved –

THAT this tribute to Professor Emeritus James (Jim) Fennell Keffer 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.

The Speaker assumed concurrence with these resolutions and Council observed one minute of silence in honour of Professors Amza and Keffer.

## **6. Report of the Dean**

Dean Chris Yip welcomed all to Council and provided the following remarks.

### **(a) Engineering Career Centre**

The Engineering Career Centre is part of a new tri-campus U of T Co-op partnership. This is a win for the entire institution and is largely driven by the success of the Faculty's Professional Experience Year Co-op Program (PEY Co-op). Congratulations to the PEY Co-op office for a successful year to date, with 98.5 percent of first year students registered in the program and a large increase in the number of participating companies.

### **(b) Recruitment for 2024-2025 Academic Year**

We have reached 10,000 applications, ahead of schedule for the coming year. Close to 3,000 are international students, which is also ahead of target. This is tremendous in terms of application numbers and in the increasing diversity of students' home countries.

### **(c) Financial Constraints**

U of T is financially constrained because of underfunding from the provincial government, a tuition fee reduction of 10 percent in 2019, and a subsequent domestic tuition freeze. A few weeks ago, the university submitted its response to the province's Blue Ribbon Panel on Financial Sustainability in the Post-Secondary Education Sector, asking the government to lift the tuition freeze so that we may address growing financial pressures. The university is advocating for Engineering at municipal and provincial levels through its government relations office regarding the impact of the tuition and salary freezes and the lack of provincial matching to federal money for research.

Notwithstanding these constraints, our Faculty is in a relatively positive financial position because of the number of undergraduate applications we have received and because of our graduate-level teaching.

### **(d) Rhodes Scholars**

Congratulations on the remarkable success of the four U of T students selected as Rhodes Scholars, including fourth-year Engineering Science student Adam Martinez.

### **(e) U of T Aerospace Team**

Congratulations as well to the University of Toronto Aerospace Team (UTAT) which launched the first Canadian satellite fully funded by students. The satellite is being tracked in space from the roof of the Bahen Centre and is tracking the International Space Station.

### **(f) National Day of Remembrance and Action on Violence Against Women**

The university held a memorial event at Hart House Circle on December 6 to honour the National Day of Remembrance and Action on Violence Against Women. The Engineering Society also held a memorial that evening outside the Galbraith Building. Thank you to everyone who attended these events.

### **(g) FASE Provostial Review and Self-Study**

Thank you to those who participated in the provostial review of our Faculty earlier this week, whether contributing to the process or sharing their perspectives with the review team. The review team was impressed with our programs and collegiality, and recognized the challenges facing universities at all levels. The provost has also received laudatory feedback from the review team. The review report is expected next week.

### **(h) Vaccine Pop-Clinic**

Engineering partnered with the Leslie Dan Faculty of Pharmacy to hold a pop-up vaccination clinic on November 30. For the second consecutive year, our Faculty won best attendance with over 200 doses administered.

### **(i) Advancement Updates**

Our 150th Anniversary Open House was a huge success. Thank you to everyone involved in the planning and implementation of the event and thanks to the 800 or so people who attended. The dean and the executive director of advancement recently travelled to Singapore and Hong Kong, where the anniversary celebration continued with the largest alumni event ever held in that country. The strength of our alumni community increases engagement and provides opportunities for placements and internships.

The dean closed by wishing good luck to undergraduate students during their exams and wished all a happy holiday. There were no questions and the speaker thanked the dean for his report.

The following items were endorsed by the Executive Committee of Council at its November 14 meeting and are recommended for Council's approval by regular motions, requiring a simple majority of members present and voting to carry.

## **7. Major Curriculum Changes for the 2024-2025 Academic Year**

Evan Bentz, chair of the Undergraduate Curriculum Committee (UCC), presented Report 3759 Revised, which describes curriculum changes affecting various programs and cross-disciplinary minors and certificates in the 2024-2025 academic year.

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

THAT the proposed curriculum changes for the 2024-2025 academic year, as described in Report 3759 Revised, be approved.

Two errors were noted in the report: ECE286, a proposed prerequisite for the new course MIE3XX, was listed twice and CSC411, an exclusion for MIE3XX, has been re-coded as CSC311. The UCC will update the report accordingly for posting on the Council webpage.

Members discussed the timing of the addition of CSC373 as an exclusion to a MIE245. Because MIE245 is new and will not run until the winter session, and because it appears to have insufficient overlap with CSC373, it was suggested that the exclusion be removed from the UCC

report for re-assessment at a later date. However, because the UCC had identified significant overlap between CSC373 and MIE245 from the course calendar entries, it was recommended that the exclusion remain in the report and that if students feel there is a case for undoing this change after the course has been run, they can take it up with the professor and department then.

Members also discussed the possible impact on enrolment caused by moving MIE504 to the same semester as MIE414, which would result in both fluid mechanics courses being offered in the fall term when there is space for only one technical elective. The UCC chair said the moving of courses is impacted by the availability of professors and students among other factors, and that the professor of MIE504 had requested this change to make the course available to students doing capstone projects.

The UCC chair described the path by which curriculum decisions are made at the local and Faculty levels and the various points at which students can provide feedback. Proposed changes are first discussed and approved by the department or division's curriculum committee. They are then brought to the UCC for discussion and approval. The UCC brings forward a consolidated report on curriculum proposals to the Executive Committee of Council for endorsement, and the report is submitted to Faculty Council for approval, ideally during the fall term so that the changes can be included in the following year's undergraduate calendar.

There are various avenues for student input during this process, ideally before the report is submitted to Council. Local curriculum committees may include student representatives. The UCC membership includes two appointed student representatives plus the Engineering Society vice-president, academic, who is an ex officio member. The Engineering Society president and vice-chair, academic are ex officio members of the Executive Committee. Students who are interested in serving on the UCC or other standing committees can contact the Engineering Society, who makes these appointments. The process for 2024-2025 will begin this March or April.

Members discussed putting a motion to amend Report 3759 Revised to remove the recommendations concerning MIE504 and MIE245 and bringing them forward for approval at a subsequent Council meeting. As this would affect their implementation for 2024-2025, it was subsequently agreed to leave these recommendations in the report. The concerns regarding the MIE courses will be brought back to the department for discussion and an update will be provided at the next Council meeting.

The motion was carried.

## **8. Sessional Dates for Fall 2024-Winter 2029**

Evan Bentz, chair of the Undergraduate Curriculum Committee (UCC), presented Report 3754 Revised. The report describes how, starting in 2024-2025, sessional dates will be aligned among first entry undergraduate divisions at the university, including Engineering, to reduce confusion, improve co-ordination of shared services and ensure consistent terms for students and faculty studying and working across divisions. As a result of this alignment, Fall term classes will start on

the first Tuesday immediately following Labour Day instead of the Thursday of Frosh Week, and Winter term classes will normally be set to start on a Monday. The fall study week will be moved one week earlier, which will further help relieve student stress.

There will be a minimum of 60 instructional days (12 weeks) in a term, excluding Saturdays, Sundays and statutory and university holidays. The UCC proposes that the length of the standard term in Engineering be set at 12.2 weeks to meet CEAB requirements.

We have received tentative approval that the move-in date for the Chestnut Residence and other new residences will be moved a weekend earlier, which will allow the entirety of the following week for Frosh Week and orientation. However, the move-in dates for the affiliated colleges, where a small number of FASE students live, are variable and the effects on them remain to be seen.

Going forward, the UCC will bring forward annual proposals for summer sessional dates only, as these remain within the purview of Faculty Council.

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

THAT the length of the standard term in Engineering be set at 12.2 weeks, as described in Report 3754 Revised.

Members discussed whether moving the fall study week a week earlier will restrict the time available to instructors to collect and return to students 10 percent of their marks by the drop deadline; however, Council does not vote on annual drop dates. They are set annually by the Registrar's Office which consults with the Undergraduate Assessment and Undergraduate Curriculum committees.

The motion was carried.

## **9. Information Reports**

The following items were approved by the Executive Committee of Council at its November 14 meeting and are recommended for Council's information.

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

Lisa Romkey, chair of the Engineering Graduate Education Committee, presented Report 3756 which lists a new course approved, MIE1520: Learning with Graphs and Sequences.

There was no discussion and the report was received for information.

### **(b) Admissions Update**

Sarah Haines, chair of the Undergraduate Admissions Committee (UAC), presented Report 3758, which provides data on applications for admission, offers of admission, registration figures, and characteristics of the 2023 first year class.



A member asked if being ahead of targets helps with our current financial situation. Key for the UAC is how to nail yields so we can stay within three percent plus/minus on domestics.

Members discussed the impact of large class sizes on the number of appeals received. The UAC sets targets in consultation with chairs and the Faculty to ensure targets do not go over a certain amount, causing class sizes to get too large.

Some classrooms are so small that students have been asked to move to online delivery due to insufficient seating. This is not ideal but it is difficult to find rooms large enough to seat 150 students, especially with losses like the large classroom in Lash Miller. The biggest challenge across the university is yield; if we are under on offers, enrolment will be low and the budget will be affected. If we are over, class sizes will explode.

There are not enough TAs in some classes, such as CIV100. The budget for TAs lies with chairs who, in discussion with course instructors, decide how much they can allocate for TA hours. It is a delicate economic balance within units who must ensure there is an appropriate number of hours for TA appointments.

Council discussed grade inflation, as marks remain quite high. We do not apply adjustment factors based on high schools, as some institutions do, because of concerns about equity. Instead, we use broad-based admissions. Students have been consistently strong, even during Covid, and any grade inflation that happened then is starting to decline.

Members also discussed the declining running average of female enrolment, which is now at 40 percent. The UAC is working with departments to try to maintain or increase this percentage but the challenge is mainly yield; offers are made but are not being accepted. The registrar noted that our yield on female students admitted from overseas is lower. The committee is working with Outreach to identify ways to reach more female students, such as promoting engineering at Ontario high schools.

The UAC is looking into expanding what is being tracked, such as additional equity-related statistics on people of colour and marginalized communities. The registrar added that the equity-related data already collected is not tied to the application process.

Regarding whether the proportion of professors on sabbatical in a given year affects admissions, the biggest challenge is for chairs to balance the running cycle of sabbaticals in their departments so that the teaching of courses is likewise balanced.

The report was received for information.

## **10. Other Business**

There was no other business.

**11. Date of Next Meeting**

The next Faculty Council meeting is on February 27, 2024.

**12. Adjournment**

The Speaker wished students good luck with their exams, and all a happy holiday.

The meeting was adjourned at 1:55 pm.

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