



**UNIVERSITY OF TORONTO**  
**FACULTY OF APPLIED SCIENCE & ENGINEERING**

# **Academic Plan 2011–2016**

## **Year Four: Progress and Achievements**

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# 1. Executive Summary

The Faculty of Applied Science & Engineering's five-year *Academic Plan 2011–2016*, outlines our goals in seven areas: culture of excellence; positioning; educating future engineers; student experience; research foci; outreach, collaboration and influence; and resource allocation. We developed our Academic Plan through a highly consultative planning process involving our U of T Engineering community and other key stakeholders. Over the past four years, its framework has guided and inspired us, and we have made remarkable progress in realizing, and often exceeding, the ambitious goals set out in this document. As we enter into the final year of the Academic Plan, we are pleased to present our Year Four progress report.

Our commitment to providing an outstanding student experience, as well as our reputation for academic excellence, attracts the brightest students from across Canada and around the world. In 2014–2015, we drew a record 10,989 applications for only 1,130 undergraduate places. From that pool, we admitted the most accomplished first-year class in our history, with the mean entering average of Ontario secondary school students increasing to 92.4 per cent. It was also the most diverse: 30.6 per cent of our first-year students were women, the highest proportion of any entering class in Canada, and 31.9 per cent were international students. Across our undergraduate and graduate cohorts, our students came from 109 countries, providing the cultural diversity to ensure rich intellectual conversations and a global outlook.

Interest in our doctoral and masters programs continued to grow, with the graduate cohort increasing to 2,194 students in 2014–2015 after surpassing our Academic Plan goal of 2,000 graduate students, two years ahead of schedule. This graduate expansion resulted in an undergraduate-to-graduate ratio of 2.24 to 1 in 2014–2015, down from 2.35 to 1 in 2013–2014, bringing us closer to our long-term goal of 1.5 undergraduates for every graduate student.

International educational exchanges, both outgoing and incoming, allow our students to gain cross-cultural fluency and experiences that enhance their understanding of today's complex challenges. In 2014–2015, we welcomed 147 students from more than 30 peer institutions and sent 94 of our students to 26 partner universities across the globe. Our partnership with Brazil's *Ciência sem Fronteiras* program continues to be strong, with 490 students coming to U of T Engineering since the program's inception in 2012.

We remain the premier engineering school in Canada and one of the world's best across all international rankings. Actively working to foster a culture of excellence, U of T

Engineering continues to be the leader among its Canadian peers. We received 25 per cent of all the major awards given to Canadian engineering faculty members, despite the fact that our professors make up only 5.5 per cent of the national total. We continue to innovate and evolve our curriculum to enhance experiential and collaborative learning opportunities and enable students to customize their degrees. For example, in 2015 we introduced a new minor in Nanoengineering and a certificate in Communication. We further enhanced our graduate offerings through the creation of an MEng in Biomedical Engineering, emphases in the leading-edge areas of Sustainable Energy and Advanced Manufacturing, and a collaborative program for masters and doctoral students in Engineering Education. In 2014–2015 the Core Curriculum Review Task Force completed its assessment of the content and delivery of first-year core curriculum and we have begun implementing the recommendations.

Our Academic Plan outlined a key goal with respect to our research portfolio: to increase our Tri-Council funding to \$25 million per year by 2015. We surpassed this goal three years early, reaching \$26.3 million in 2012–2013, and are making excellent progress toward our newly established goal of \$32 million by 2015–2016. Fostering multidisciplinary and collaborative research is a vital component of our Academic Plan, and in 2014–2015 we established new partnerships and centres including the Translational Biology and Engineering Program — part of the new Ted Rogers Centre for Heart Research — and the University of Toronto Centre for Aerial Robotics Research and Education.

We had a highly successful fundraising year for philanthropic and research gifts, with support from alumni, graduating students and other members of our vibrant community reaching \$34.9 million. Our fundraising has accomplished more than \$152 million toward the goal of \$200 million for Boundless: The Campaign for the University of Toronto. A major focus for our campaign is the Centre for Engineering Innovation & Entrepreneurship (CEIE), which started construction in June 2015 and will set a new standard for engineering education and research. Collectively, with the generous support of alumni and friends, along with Faculty and University commitments, we have raised almost \$80 million toward this transformative project. We have continued to manage our resources strategically and maintained a strong financial position, with a 7.5 per cent increase in revenue in 2014–2015 compared with the previous year.

Together, we made tremendous progress and impact over the past four years, and we invite you to read more about our achievements in the following report. We look forward to another year of excellence in our final year of the Academic Plan.

## 2. Culture of Excellence

At U of T Engineering, we promote and nurture a culture of excellence. We are committed to strengthening our position among the best engineering schools in the world, and continuing to innovate by enriching our offerings, fostering research excellence and preparing our graduates to lead in a complex global engineering environment. We measure our progress toward our organizational goals in numerous ways.

### Awards and Honours

Our Faculty continues to be the leader among our Canadian peers in awards and honours, while also making excellent progress with our strategy to nominate junior faculty for early-career awards. In 2014, we earned 25 per cent of all major awards received by engineering faculty across the country with only 5.5 per cent of the overall faculty members in Canada. This is three times as many awards as the next most successful Canadian engineering school. Our early-career professors and alumni also won a remarkable number of major emerging leader awards, further reflecting our reputation for attracting the most talented young engineering scholars. These included:

- the American Society for Engineering Education's Top 20 under 40;
- the Alexander von Humboldt Fellowship for Experienced Researchers;
- the Borg Early Career Award;
- Ontario Professional Engineers Awards Young Engineer Medal; and
- the E.W.R. Steacie Fellowship.

In 2014 our professors and alumni received more than 40 international, national and provincial awards for excellence in their respective fields, including eleven 2014 and 2015 Canadian Academy of Engineering Fellows/Honorary Fellows, two Engineering Institute of Canada Fellows and the PEO gold medal. The success of our faculty in winning honours not previously awarded to U of T Engineering attests to the growing impact of our research and innovation. These awards included the Ernest C. Manning Principal Award, Foreign Associate of the Institute of Medicine of the U.S. National Academies of Science and the L'Oréal-UNESCO "For Women in Science" Laureate for North America. In 2015, the University of Toronto also honoured our Faculty with three Inventor of the Year awards, three Distinguished Professorships, the Vivek Goel Faculty Citizenship Award, and one University Professorship.

U of T Engineering is also proud of the awards we received in recognition of our outstanding educational and teaching achievements, such as the Joan E. Foley Quality of Student Experience Award, the President's Teaching Award and the Engineers Canada Medal for Distinction in Engineering Education.

## **Student and Alumni Achievements**

Our outstanding students and graduate alumni have embraced innovation and excellence, and this past year, we continued to see their tremendous achievements. A number of companies were created including Onyx Motion, which is building the next generation of artificial intelligence for sports coaching, and Nvest, a social network that allows users to trade stock tips and transparently track their success. The Entrepreneurship Hatchery's 2015 Demo Day highlighted many new student startups including Kepler Communications, which hopes to revolutionize communications infrastructure in space and TeleHex, a unique telescoping hex key that simplifies bicycle repair.

Our talented and driven alumni include many entrepreneurs who created companies such as Cast ConneX, a startup that designs steel castings to strengthen buildings for earthquake resistance, and Attollo, a social entrepreneurship initiative aimed at improving the vocabulary of children in developing countries. Across diverse disciplines and sectors, U of T Engineering continues to have a profound impact, both locally and globally.

## **Diversity in Faculty and Student Recruitment**

Our outstanding reputation and culture of excellence are key drivers in attracting world-class students and faculty. We continue to create opportunities for interdisciplinary and collaborative research and nurture engaging, experiential learning for students. In addition to last years' addition of three stellar cross-appointed female professors, we are currently undertaking an interdisciplinary academic search for three new faculty members, focusing on cross-disciplinarity, diversity, research and teaching excellence. The proportion of international and female students relative to our total enrolment continues to grow. In 2014, 31.9 per cent of the first-year class was comprised of international students, and 30.6 per cent were female. Our faculty members are also becoming more diverse, since 2005–2006, the number of female faculty members has doubled from 21 to 44, and the proportion of faculty members who are women has grown from 9.5 to 18.0 per cent — a testament to our recruitment efforts, but there is still progress to be made in this area.

Strategic outreach efforts to encourage more women to consider a career in engineering begin at an early age, through the Faculty's pre-university recruitment initiatives. We created and delivered a number of successful programs targeted at girls from elementary school age through high school to interest them in science, technology, engineering and math (STEM). For the fourth year in a row, we hosted Girls' Leadership in Engineering Experience (GLEE), a weekend-long program that empowers and inspires female engineering applicants by connecting them with women faculty, students and alumni. In 2015, 89 per cent of the 88 students participating in GLEE accepted our offer of admission, compared with 77 per cent in 2014. After the success of the inaugural Young Women in Engineering Symposium, we held the second annual event in October 2015, attracting more than 70 top female high school science students from across the Greater Toronto Area.

### **Curriculum Innovation**

To strengthen our place as the premier engineering school in Canada and among the very best in the world, we continue to lead in evaluating and improving our curriculum and teaching within the Faculty. To that end, this year the first-year Core Curriculum Review Task Force delivered its final report and we are implementing recommendations coming out of the review. Areas of focus include improved first-year teaching and course delivery, in-depth mathematics and science curriculum reviews, integration between courses, and transition to the University learning experience.

We also assess our progress within departments and units through cyclical external or internal reviews. In 2014, we started the practice of conducting comprehensive internal reviews of academic programs, extra-departmental units (EDUs) and administrative units, structured with a self-study, two-day review team visit and subsequent report and administrative response. This past year, we initiated review of the Engineering Outreach Office and completed reviews of the Lassonde Mineral Engineering Program, the Engineering Communications Program and the Institute for Leadership Education in Engineering (ILead) resulting in enhancements in programming and sustainability. In 2015–2016, we will perform external reviews and academic leadership searches for Chemical Engineering & Applied Chemistry, Engineering Science and the University of Toronto Institute for Aerospace Studies. Our reflective department and institute self-studies, with subsequent external reviews, result in thoughtful recommendations and praise for the excellent quality of our educational programs, research, faculty and students, while noting any areas to fine-tune or adjust. This coming year we will also complete internal reviews of the Engineering Career Centre/Professional Experience Year (PEY) and the Cross-Disciplinary Programs Office.

## CULTURE OF EXCELLENCE: YEAR 4 PROGRESS HIGHLIGHTS

### 2.1 Maintain a strong Faculty vision for excellence in engineering education and research.

- Maintained our position as the premier Canadian engineering institution and one of the best in the world in all international rankings
- Garnered 25 per cent of major national and international engineering awards received by engineering faculty across Canada, three times as many as any other Canadian engineering school, while representing only 5.5 per cent of Canadian engineering faculty (up from 21.3 per cent of 5.6 per cent overall faculty in 2013)

### 2.2 Measure our progress in achieving our mission and vision.

- Assessed our progress through key metrics and published our 7th *Annual Report of Performance Indicators* in September 2015
- Reviewed our actions towards achieving our Academic Plan goals and in October 2015 presented to Faculty Council our Year 4 Progress Report

### 2.3 Increase diversity, focusing on gender diversity among students and faculty.

- Initiated an interdisciplinary academic search for three new faculty members, focusing on cross-disciplinarity, diversity, research and teaching excellence
- Increased percentage of women academic staff to 18.0 per cent (up from 16.9 per cent in 2013–2014)
- Reached a tremendous milestone in increasing gender diversity among students: 30.6 per cent of 2014 incoming undergraduate students were female, the largest proportion of women in any incoming engineering class in Canada
- Achieved an impressive gender mix among all students in 2014–2015: 25.8 per cent of all undergraduate students were female (up from 24.8 per cent in 2013–2014) and 26.7 per cent of graduate students were female (up from 25.9 per cent in 2013–2014)
- In 2014–2015, our students came from 109 different countries: 25.8 per cent of all undergraduate and 27.1 per cent of graduate students were international students (up from 23.1 per cent and 24.6 per cent in 2013–2014)
- Continued to offer robust outreach initiatives to support strategic recruitment; for example, 89% of the 88 female high school students who attended the 2015 Girls' Leadership in Engineering Experience (GLEE), an event for female high school students with offers of admission to the Faculty, subsequently accepted our offers (up from 77% in 2013–2014)
- Held the second annual Young Women in Engineering Symposium, attracting more than 70 top female high school science students from across the Greater Toronto Area (October 2015)

## **2.4 Support the development of faculty members as outstanding engineering educators and researchers.**

- Won a remarkable number of major emerging leader/early career awards, including the Ontario Professional Engineers Awards Young Engineer Medal and the E.W.R. Steacie Fellowship
- Held a lunch-time panel series for faculty on best practices in research, including a session on collaborative and partnership research
- Prepared junior faculty to apply for Early Research Awards (ERA) by hosting a panel called “Succeeding in the ERA” and initiating an internal expert review during the competition to critique each of the Faculty’s applications
- Enhanced the nomination process for disciplinary awards at the departmental/institute level by establishing awards committees in each unit
- Enhanced the Faculty’s Awards and Honours portfolio by adding a partial administrative position to build the capacity within units to develop nomination and award strategies
- Held the third annual First-Year Instructors Day, which helps ensure consistency in the student experience and raises awareness of the various support systems that are in place (September 2015)
- Initiated a year-long teaching and learning workshop series coordinated jointly by the office of the Vice-Dean, Undergraduate, the Teaching Methods and Resources Committee, and students in the Masters/PhD collaborative program in Engineering Education
- Hosted the biannual Educational Technology Workshop “EdTech” to help instructors share best practices for innovative teaching and learning (May 2015)

## **2.5 Support our students by strategic efforts to build upon educational, extracurricular and co-curricular experiences.**

- Supported expansion of programs including the Peking University Cross-Cultural Capstone Design Projects and Brazil’s *Ciência sem Fronteiras*
- Signed memoranda of understanding with Shanghai Jiao Tong University, Warsaw University of Technology, and the National Institute for Materials Science (Tsukuba, Japan), and a letter of intent with CAF, the development bank of Latin America, to enhance and support various education and research collaborations
- Reached a record of 724 engineering students participating in the Professional Experience Year in 2014–2015 (up from 705 in 2013–2014)
- Stream-lined the process for student club funding by creating the Centralized Process for Student Initiative Funding (CPSIF) which allows student groups to apply to various funding resources from within the Faculty of Applied Science & Engineering in a single application
- Established new certificates in:
  - Communication;
  - Engineering Leadership; and

➤ Renewable Resources.

- Created a new minor in Nanoengineering
- Developed a new Engineering Science major in Robotics Engineering
- Launched minor in Biomedical Engineering
- Continued growth in minor enrolment and completion, with 31 per cent of 2014–2015 graduating students completing a minor
- Developed a list of major student awards to improve the process for student nominations; in conjunction with the Registrar, developed a process in which the committee responsible for allocating internal scholarships will also seek candidates for the above-mentioned student awards
- Experienced another successful summer program through The Entrepreneurship Hatchery; of the 50 teams (150 students) who applied, 37 teams (109 students) were accepted and 13 teams (42 students) presented at Hatchery Demo Day (September 2015)

**2.6 Maximize the skills of our staff members and create opportunities to strengthen their performance and develop them as integral contributors to the Faculty’s mission.**

- Relocated the Human Resources office to the Fields Institute to improve service delivery
- Recognized the successes and contributions of staff through several Faculty awards
- Encouraged secondments throughout the Faculty as appropriate to enable staff to develop new skills
- Contributed to staff skill development for business administrative staff and student support staff through network groups and presentations from University experts on relevant issues, policies and procedures
- Offered three staff sessions on the services/mental health support provided by the Employee and Family Assistance Program and offered a mental health session to chairs and directors to assist in supporting staff and faculty

**2.7 Increase staff retention and enhance succession planning within the Faculty.**

- Continued to foster collaboration and communication between Human Resources, the Business Administration group and the Engagement & Development Network to share information and best practices
- Contributed to the engagement of faculty and staff with the first “Engineering Family Outreach Day”, inviting children of staff and faculty from Grades 1 through 8 to take part in engaging, hands-on activities related to STEM

**2.8 Build upon alumni involvement with the Faculty to share their world-based expertise and perspectives, to strengthen our reputation and to inspire the next generation of U of T engineers towards innovation and excellence.**

- Continued to offer mentorship and sponsorship opportunities for alumni through The Entrepreneurship Hatchery

- Enhanced the “You’re Next” Career Network to strengthen the Alumni Mentorship Program
- Strengthened outreach and engagement through strategic events and topical seminars in the Asia-Pacific, Silicon Valley and Middle East regions, and through a new initiative that connects professors emeriti and retired staff with recent graduates
- Hosted 68 alumni events, with 13 taking place outside of Canada (San Francisco, Palo Alto, Turkey, Dubai and Asia-Pacific (Hong Kong, Korea, Singapore and Taiwan))
- Hosted our first Dean’s reception for parents, in conjunction with an alumni event in Dubai, to engage parents of current international students and raise the profile of the University in the region
- Proactively participated in events such as the U of T Arbor Awards to ensure dedicated alumni are recognized
- Supported alumni volunteerism, with more than 167 alumni participating in various committees and advisory boards at both the Faculty and University level
- Organized an engaging Spring Reunion with events including the Skule™ Young Alumni Reunion and Skule™ Reunion Picnic
- Expanded partnerships between our Engineering Recruitment Office and the Central Recruitment Office through:
  - a postcard campaign inviting alumni in key regions to serve as recruitment ambassadors;
  - a pilot with the Engineering Recruitment Office to invite select alumni to participate in a post-offer reception in Vancouver;
  - improved coordination of alumni contacts between offices; and
  - analysis of current student geographic demographics to predict future alumni regional trends.
- Engaged 30 alumni with the Alumni Assessor Program to review applicant personal profiles as part of the Faculty’s enhanced broad-based admissions process
- Partnered with the Engineering Society to launch Skule™ Alumni Outreach (SkuleAO), a student-run program to assist alumni who wish to support and enhance the experiences of current students
- Expanded engagement with current students — our future alumni — by creating a new Alumni Outreach Director position on the Engineering Society, initiating the inaugural Engineering Society Reunion of current and past officers of the Engineering Society and increasing participation in Gratitude, which encourages graduating students to give back to future students

## **2.9 Enhance governance processes, cyclical reviews and quality assurance processes.**

- Completed the first internal review at the Decanal level of an extra-departmental unit, the Institute for Leadership Education in Engineering (ILeAD)
- Completed an internal review of the Lassonde Mineral Engineering Program (LMEP)

- Initiated a review of the Engineering Outreach Office and completed an internal review of the Engineering Communications Program
- Commissioned external reviews of Chemical Engineering & Applied Chemistry, Engineering Science and the University of Toronto Institute for Aerospace Studies
- Submitted interim reports to the Canadian Engineering Accreditation Board for engineering science, electrical engineering, computer engineering and the mineral engineering programs
- Delivered governance orientation sessions to relevant stakeholders
- Shared annual progress reports on department and institute external review recommendations at regularly scheduled chairs and directors meetings

#### **2.10 Strengthen communications both internally and externally**

- Enhanced the e-newsletter for faculty and staff with a new design and content strategy to share information more effectively across the Faculty, with the average open rate increasing by five percentage points
- Started a survey for staff and faculty to assess the volume of communications that students are receiving as part of a Faculty-wide initiative to enhance and create best practices for student communications
- Increased collaboration, knowledge-sharing and skills-building for the Faculty communicators who make up the Engineering Communications Network (ECN) through more frequent gatherings, professional development and ongoing use of the ECN Hub
- Grew the Engineering Engagement & Development Network— a cross-Faculty group for staff and faculty — to more than 80 members, helping them engage in and become more aware of activities and events happening across the Faculty and providing professional development-oriented workshops, webinars and discussion forums

#### **2.11 Continue to acknowledge the accomplishments of our students, faculty and administrative staff**

- Held the 8<sup>th</sup> Annual Celebrating Engineering Excellence Reception to honour recipients of staff, teaching and research awards (April 2015)
- Increased internal and external media coverage of student and faculty accomplishments through the U of T Engineering News, *The Engineering Newsletter* and the Faculty's websites
- Ensured that senior administrative staff were nominated for and participated in the University's New Manager Academy and Business Manager Leadership Program

### 3. Positioning

Another year of remarkable advances and exceptional achievements provided opportunities for our Faculty to increase our visibility and enhance our profile regionally, nationally and internationally. U of T Engineering was once again recognized as the premier engineering school in Canada and among the world's best across all major international rankings. We continued to leverage our innovative undergraduate and graduate programs, our world-leading research and the remarkable accomplishments of our current students, faculty and alumni to attract the most talented domestic and international students, increase the diversity of our research and learning community, and foster relationships with our alumni, friends and industry partners.

Our mandate is to be a global leader among the very top engineering schools and we strive to disseminate and transfer the knowledge created through our groundbreaking teaching and research. In Year 4 of our Academic Plan, this vision informed our strategy to accomplish our goals related to positioning and effectively communicating U of T Engineering's unique messages. In the past year, we further fine-tuned our positioning and communications strategies to support and enhance the Faculty's priorities and seize emerging opportunities through print and media channels.

We continue to utilize a variety of communication vehicles to celebrate the excellence of our diverse U of T Engineering community and ensure we effectively highlight the wealth of stories we have to tell. In 2014–2015, we had a total of 12,985 stories in the media, an increase of 38 per cent over the previous year. Our impressions — the estimated number of people who may have interacted with a story based on circulation (newspaper/magazines), viewers (TV), listeners (radio) and unique monthly visitors (online) — reached 6.6 billion, an increase of 62 per cent over the previous year. Robust media coverage built the Faculty's and University's national and international reputation in strategic areas of focus and raised the profile of several key Faculty initiatives in bioengineering/health, sustainability, engineering experiential learning and entrepreneurship. Our social media presence grew as we enhanced efforts to drive audiences to our online content. We increased our average monthly Twitter impressions by 14 per cent and doubled our engagement to 2 per cent, nearly double from the previous year. Our Facebook followers also doubled, and the Faculty's Instagram account, which gained more than 300 followers in its first six months, continues to grow.

We demonstrated our commitment to effective and transparent communication with two major publications in 2015. Our *Annual Report of Performance Indicators*, now in its seventh edition, measures our progress over the past 10 years in key areas and highlights

major activities from the previous year. While the *Annual Report of Performance Indicators* primarily serves an internal audience, its companion document, *Innovation Lives Here – Year in Review 2015*, is a succinct and strategic piece for alumni, key donors, industry partners and secondary external audiences such as parents, media and the general public. The *Year in Review* distils the more comprehensive performance indicator information found in our Annual Report and provides a snapshot of the Faculty's progress and contributions in education, research, awards, finances and philanthropy. Both publications provided updates on the progress of our new building, the Centre for Engineering Innovation and Entrepreneurship (CEIE), which will open in 2017.

In 2014–2015, we refined our strategic communication foci to support our Academic Plan objectives, alongside the University's strategic priorities. We completed several initiatives this year, including the launch of the new engineering news site, which enables us to better profile our Faculty's innovative and world-leading research. Since the launch of the site, we have gained traction in our local and international readership, with a total of 125,874 pageviews, up nearly 70 per cent from the previous year. Average pageviews per article also increased 70 per cent on the new platform, with a 140 per cent increase in readership from the United States and 57 per cent more readers from outside North America. In 2014–2015, our top stories on the Engineering News and U of T News websites were:

- *Machine learning reveals unexpected genetic roots of cancers, autism and other disorders (December 2014);*
- *New technique offers spray-on solar (November 2014);* and
- *U of T Engineering celebrates record number of female first-year students (February 2015).*

In addition to launching the engineering news site, we also redesigned our Faculty website in May 2015 to enhance our online presence, communicate more effectively with our diverse audiences and provide better integration with social media channels. Our website is often the first point of contact with prospective students and media from around the world and we developed a clean, modern design with improved information architecture that is more user-friendly and easily accessible to the increasing proportion of visitors who interact with our website on tablets and mobile phones. The site also complies with the World Wide Web Consortium Web Content Accessibility Guidelines (WCAG) 2.0.

Engaging our faculty, staff, students and alumni and fostering a culture of involvement, community and pride continues to be a priority. We redesigned *The Engineering Newsletter* for faculty and staff in January 2015 to increase engagement and share information more effectively across the Faculty. We implemented the new format after a survey of faculty and

staff indicated that internal groups wanted more concise and curated information. Increased open rates, combined with relatively level engagement (measured as average click rate), indicate that these changes were effective in meeting the needs of our internal audience.

As we move forward into the last year of our Academic Plan, our Faculty will improve stakeholder engagement via social media and establish further communication benchmarks, in addition to aligning our message with the core themes identified by U of T Engineering and the University. We will also establish specific recruitment and research communications goals and continue to enhance and strengthen our media relations strategy by developing and promoting stories that profile our research excellence and innovative educational programs.

## **POSITIONING: YEAR 4 PROGRESS HIGHLIGHTS**

### **3.1 Deliver a plan that articulates our communication goals, maintains consistency of our branding and products, keeps on top of markets, and clearly outlines methods so that we can remain competitive and set the Faculty apart.**

- Completed in early 2013; refined strategic communications foci in 2014–2015
- Updated plan to align editorial content with the Faculty’s Academic Plan, the Boundless Campaign and the University’s strategic priorities, including the following areas of focus for the foundation of our media outreach, news stories and overall Faculty messaging including:
  - world-class research;
  - entrepreneurship and innovation;
  - student experience; and
  - enriching engineering education.

### **3.2 Strengthen the Faculty’s key messages and customize them for target audiences.**

- Assessed metrics in key areas and published our seventh *Annual Report of Performance Indicators*
- Launched our new Faculty website to further enhance our online presence, communicate more effectively with our diverse audiences and provide better integration with social media channels
- Executed our first targeted media campaign to celebrate women in engineering and build on our successful efforts to recruit more women to U of T Engineering, including a microsite, online news stories, social media and focused media relations efforts; campaign highlights included 12,500+ reads and a 653,000-impression social media reach on a web story celebrating record-high female enrolment, as well as 120 media stories with more than 23 million impressions over four months in mainstream, industry

and peer publications; campaign won a 2015 Silver Leaf Award of Excellence in Marketing Communication from the International Association of Business Communicators

- Conducted a readership survey for our *Skulematters* alumni magazine, following the completion of the issue on entrepreneurship and commercialization, to ensure we are meeting the interests of our alumni; feedback gathered was used to enhance the content and layout in the fall 2015 *Skulematters* highlighting “Women in Engineering: A Tradition of Excellence”
- Published the second *Innovation Lives Here – Year in Review 2015*, a 20-page publication highlighting key accomplishments within the Faculty and targeted toward alumni, key donors, industry partners and secondary external audiences such as parents, media and the general public
- Enhanced the e-newsletter for faculty and staff with a new design and content strategy to share information more effectively across the Faculty, with the average open rate increasing by five percentage points
- Supported the Engineering Student e-News, a monthly publication from the Registrar’s Office
- Produced several new research inserts on water, advanced manufacturing, healthcare engineering, nanoengineering and sustainable mining to support corporate outreach activities and industry partnerships
- Launched a number of strategic initiatives, including proactive media outreach, an enhanced online presence and improved marketing materials, aimed at strengthening our visibility and our reputation for excellence
- Completed and executed a comprehensive communications strategy for the Centre for Engineering Innovation and Entrepreneurship (CEIE) groundbreaking ceremony in June 2015
- Completed a foreword for a book by Dr. Lynnette Madsen of the U.S. National Science Foundation, entitled *Successful Women Ceramic and Glass Scientists and Engineers: 100 Inspirational Profiles*, for The American Ceramic Society on the topic of women glass scientists and engineers
- Partnered with U of T Alumni Relations and Advancement Communications to refresh the Engineering Alumni Association’s word mark; the renewed design will be launched after consultation with the U of T Engineering alumni community and will reflect the Association’s new identity as the U of T Engineering Alumni Network

### **3.3 Establish the Faculty as the go-to resource for media looking for comments and engineering expertise on breaking news issues.**

- Continued to build the Faculty’s national and international reputation in strategic areas of focus by securing significant media coverage in 2014–2015, including 12,985 media stories (38 per cent increase over 2013–2014) with 6.6 billion impressions (62 per cent increase over 2013–2014)
- Increased proactive pitching tied to breaking news and current affairs and secured media stories along strategic communications themes by proactively offering our professors as

experts for media; examples include senior administrative leaders commenting on recent nation-wide reports about the lack of diversity in STEM (*Globe and Mail, Maclean's*) and a U of T civil engineering professor commenting in national media coverage on the urban-related Toronto Mystery Tunnel (*National Post, CBC The National, Ottawa Citizen, Montreal Gazette*)

- Grew international media presence and secured ongoing regional, national and international media coverage through proactive pitching, with stories in non-Canadian outlets increasing proportionately to 60 per cent (from 47 per cent in 2013–2014)

Highlights included:

- **Bioengineering/Health**
  - ECE researchers published a paper in *Science* on decoding the human genome using machine learning (*Globe and Mail, Scientific American, WIRED Magazine, National Post, Ottawa Citizen, Vancouver Sun*).
  - Two IBBME PhD students won the Canadian James Dyson Award for a 3D skin bio-printer (*CBS News, Fast Company, Huffington Post, CBC News Online*).
- **Sustainability (including Sustainable Cities)**
  - A CivE researcher published two different papers, one in *Nature Climate Change* that demonstrated how electricity must come from low-carbon sources for green technologies to lower emissions, and another in the Proceedings of the National Academy of Sciences that tracked resource use in megacities (*BBC World Service, Quartz, NBC News, The Atlantic CityLab, NU.nl, Tendencias21, Globe and Mail, CBC Radio One, Smithsonian Magazine, Discovery News*).
  - ChemE researchers demonstrated that air pollution from vehicles travels farther than thought (*CBC The National, VICE Motherboard, Toronto Star, CP24, 680 News, Huffington Post Canada*).
  - ECE postdoctoral fellow designs technology that could enable spray-on solar cells (*UK Daily Mail, Popular Science, Fast Company, GigaOm, Futurism, Gizmag, CBC News, Discovery Channel, Space Channel*).
- **Engineering Experiential Learning**
  - Engineering students design fuel-efficient car and win international Eco-Marathon (*Fast Company, About.com, CBC News, FOX News Online*).
  - U of T breaks ground on new Centre for Engineering Innovation & Entrepreneurship (*680 News Toronto, Canadian Architect*).
  - Engineering students design, build and race concrete canoes across Toronto's waterfront in the 2015 Canadian National Concrete Canoe Competition (*Global News National, CTV News National, CBC Radio One, CP24 Toronto, Fairchild TV*).
  - U of T joins U.S. engineering education initiative announced at White House (*Metro Toronto, Daily Commercial News, Yonge Street Media*).
- **Entrepreneurship**

- U of T Engineering startup OTI Lumionics expands with organic LED manufacturing (*Financial Post, TreeHugger, Forbes, Canadian Manufacturing, Ottawa Business Journal, Gizmag*).
- Engineering alumni startup Bionym continues to develop and expand Nymi, its wearable, encrypted, bracelet-like device (*Forbes, Business Insider, Tech Crunch, Denver Post, CNET, Globe and Mail, BC's The Province*).

### **3.4 Continue to increase the quality of our storytelling, journalism and communications processes and tools to make our practices best-in-class and in pace with emerging technologies and their uses by our target audiences.**

- Increased pageviews on our Engineering News site to 125,874 (up nearly 70 per cent from 74,661 in 2013–2014), by posting more engaging, shareable, strategic and mobile-friendly content; also contributed to an increase in average pageviews per story of more than 70 per cent
- Attracted more international interest in our stories, with pageviews from the United States reaching 14,106 (up more than 140 per cent from a year earlier) and pageviews from outside North America reaching 17,554 (up 57 per cent from a year earlier)
- Continued to integrate more multimedia components, such as photo galleries, infographics, illustrations and animated GIFs, into web communications to enhance our storytelling
- Explored new methods of news storytelling, such as leveraging events with large visual opportunities and interview prospects to tell news stories using video only, such as for the Multidisciplinary Capstone Design Projects showcase
- Hosted several professional development sessions in web writing, editing and news writing for the more than 30 Faculty communicators who make up the Engineering Communications Network
- Continued to improve stakeholder engagement via social media and establishing communication benchmarks
- Set specific recruitment and research communications goals through special media campaigns
- Continued to use social media during events to increase engagement and public awareness

### **3.5 Remain flexible to changing media and technologies, nurture blogger and social media relationships, and build relationships and communications with traditional media.**

- Created and shared new multimedia assets, such as illustrations, animated GIFs and videos, for use when pitching online media outlets, which resulted in Faculty-created visual assets being distributed across significant news sites, such as *Gizmodo, VICE Motherboard, WIRED Magazine, the Toronto Star* and others
- Regularly updated our social media platforms, such as Twitter, Facebook, Instagram and Flickr

- Improved reach in online coverage, with almost 86 per cent of overall media articles coming from online news outlets, blogs and websites, up almost three quarters from the previous year

### **3.6 Increase the Faculty's presence, visibility and reputation on modern social media platforms.**

- Enhanced social media engagement across each of our social media feeds (Twitter, Facebook and YouTube), providing additional opportunities to steer traffic to our comprehensive online content, with Twitter monthly impressions and engagement up 14 per cent and 82 per cent over the previous year and Facebook followers increasing by 105 per cent over the previous year
- Launched an Instagram account and scaled our use of social photos to reach current and prospective students with engaging multimedia content
- Created concise YouTube videos to share on social media and drive engagement, such as a 16-second YouTube video to accompany our spray-on solar story that secured more than 50,000 views in three months
- Secured more clickthrus to our new stories from social channels, with a web story celebrating high female enrolment breaking a new record of more than 2,000 clickthrus on Twitter and Facebook

## 4. Educating Future Engineers and Student Experience

As Canada's top engineering school and one of the world's best, we are committed to offering outstanding academic programs and unparalleled co-curricular opportunities that prepare our students to become global engineering leaders. As we enter the final year of our Academic Plan, we have already achieved or exceeded our goals in many of these areas and are making strong progress toward the rest.

Our academic excellence, outstanding international reputation and recruitment activities attracted some of the brightest students from around the world in 2014–2015, drawing a record 10,989 applications for only 1,130 undergraduate places. From that pool, we admitted the most accomplished first-year class in our history, with the mean entering average of Ontario secondary school students increasing to 92.4 per cent. It was also the most diverse: 30.6 per cent of our first-year students were women, the highest proportion of any entering class in Canada, and 31.9 per cent were international students. To continue admitting the most talented undergraduate students, we implemented a new component in our broad-based admissions process for candidates seeking entry in fall 2015. This pilot project — the first of its kind among Canadian engineering schools — uses videos and timed written responses to give our admissions committee more comprehensive knowledge of each applicant. Growth also remained strong in our doctoral and masters programs, with the graduate cohort increasing to 2,194 students in 2014–2015 after surpassing our Academic Plan goal of 2,000 graduate students in 2013–2014, two years ahead of schedule.

U of T Engineering is a leader in advancing diversity, which deepens the engineering creative process, prepares our students to engage different perspectives and enriches our profession. Women now comprise more than one-quarter of our undergraduates thanks to our robust pre-university outreach programs, such as Girls' Leadership in Engineering Experience (GLEE) and the Young Women in Engineering Symposium (YWIES). We also leveraged the record number of women in the 2014–2015 entering class to launch an award-winning media campaign in early 2015 that celebrated women in engineering and drew attention to U of T's leadership in this area. Thanks to our excellent international reputation and strategic recruitment in key global regions, we also attracted outstanding students from around the world, with international students making up 25.8 per cent of undergraduates, in line with our Academic Plan goal of 25.0 per cent by 2015.

We continue to be at the forefront of curriculum innovation and experiential and collaborative learning opportunities that prepare our students to lead in a complex global engineering environment. In December 2014, we received the final report of the Dean's

Task Force for Core Curriculum Review and appointed a working group to oversee implementation of the Task Force's recommendations to improve our first-year curriculum and overall student experience. In fall 2015, we strengthened opportunities for undergraduate students to customize their education by launching a minor in Nanoengineering, a certificate in Communication and an Engineering Science major in Robotics Engineering. We continued to pilot a Technology Enhanced Active Learning (TEAL) room in the Sandford Fleming building to inform decisions about the design of TEAL rooms in the Centre for Engineering Innovation and Entrepreneurship (CEIE). We also offered online versions of some key courses, as well as an "inverted classroom" model, where students watch lectures online prior to class and use classroom time to engage in experiential learning. Participation continued to grow in our multidisciplinary design courses, which offer students in different disciplines opportunities to work in teams on industry challenges. Our Professional Experience Year (PEY), the largest optional internship program of its kind in Canada, also engaged an increasing number of students. In 2014–2015, 724 students — or more than 60 per cent of those eligible — participated in 12 to 16-month work placements, and the number of international positions rose to 61, nearly double the number at the beginning of the Academic Plan in 2011. The PEY program benefits participating students, who can then apply their newly acquired engineering competencies in a professional environment, as well as their employers who gain fresh perspectives and ideas. This past year, demand for our MEng program increased as we strengthened our offerings with new emphases in Sustainable Energy and Advanced Manufacturing and approved creation of a new MEng in Biomedical Engineering, beginning in 2016, which will focus on medical device design.

We are committed to ensuring student success and supporting teaching excellence. Our first-to-second-year undergraduate retention rate increased to 96.3 per cent in 2014–2015, from 94.6 per cent the previous year, due to our enhanced selectivity and the range of supports we offer to transition from high school to university, including Success 101, a summer workshop for admitted students that teaches time management, studying and note-taking skills. We introduced new mechanisms for students to interact with their instructors and provide feedback on courses, and incorporated new training requirements for teaching assistants for different types of tutorials and labs. In May 2015, our biannual Educational Technology Workshop drew 250 instructors from the Faculty, the University and our hospital partners to learn how to integrate the latest learning technologies into their teaching. In 2015, we issued a call for proposals for the Engineering Instructional Innovation Program (EIIP), which was created in 2013 to foster curriculum innovation through strategic investments to improve learning pedagogies and the student experience. From this call, we supported a project to re-energize engineering mathematics instruction through enhanced and focused teaching techniques, and a project to create "parallel

classrooms”, which will enable us simultaneously to deliver integrated and complementary courses to MEng students from a classroom in the Mechanical Engineering Building and a classroom at the University of Toronto Institute for Aerospace Studies (UTIAS), which is located about 20 kilometres north of the St. George campus. Members of our Faculty garnered recognition for teaching excellence both inside and outside the University, including in 2015 the President’s Teaching Award, U of T’s highest teaching honour, and the Ontario Confederation of University Faculty Associations Teaching Award.

We offer an unparalleled student experience through our rich and vibrant co-curricular activities, international opportunities and student clubs. Fostering entrepreneurship continues to be a key priority of the Faculty, and we have two incubator programs that offer mentoring, networking and resources to help students take their ideas from prototype to startup. In 2015, 37 teams comprised of 109 students worked throughout the summer on their startup ideas at The Entrepreneurship Hatchery, with 13 teams of 42 students pitching their ideas at Hatchery Demo Day in September 2015. Prize-winning projects included a system that could revolutionize satellite communications in space and a telescoping hex tool that simplifies bicycle repair. Throughout the year, the Hatchery held 44 events aimed at nurturing student entrepreneurship, including a speaker series and weekly “idea markets.” The Hatchery Circle is a new forum for women to discuss entrepreneurship and innovation. A second incubator program, Start@UTIAS, encourages UTIAS graduate students to use the knowledge and competencies they have gained through their education to create startups. In 2015, it provided mentoring and funding to 15 teams, with six of those teams presenting their ideas at a pitch event in fall 2015. Our students can also nurture their passions and interests through more than 80 U of T Engineering student clubs and teams, ranging from the Skule™ Orchestra to the Blue Sky Solar Racing team, and hundreds more student activities across U of T. They can also gain recognition for the competencies they develop in these activities through the U of T Co-Curricular Record. We remain committed to listening to students, and to holding regular Dean’s Town Hall events on topics such as undergraduate research opportunities, improving assessment feedback for students and “ask us anything” sessions.

The CEIE is a cornerstone of our strategy to enhance our academic programs and innovative co-curricular opportunities and strengthen our position among the world’s leading engineering schools. When it opens in 2017, this state-of-the-art building will foster experiential learning, heighten opportunities for cross-disciplinary collaboration and offer flexible space for students clubs, sparking a new era in engineering education.

## **4.1 EDUCATING FUTURE ENGINEERS: YEAR 4 PROGRESS HIGHLIGHTS**

**4.1.1 Maintain and strengthen our high-quality education through continued review and assessment of our programs and curricula for currency, vision and relevance. Establish desired learning outcomes for graduate and undergraduate students to ensure they are well prepared as future engineers. Evolve our cyclic reviews and plan for continuous quality assessment within the new UTQAP and CEAB Graduate Attribute systems.**

- Received the final report of the Dean's Task Force for Core Curriculum Review in December 2014 and appointed a working group to guide and oversee the implementation of these recommendations to improve our first-year curriculum and overall student experience
- Continued meetings of the Graduate Attributes Committee and collected data through various initiatives for analysis
- In the process of creating a common database for generating the required curriculum maps for the Canadian Engineering Assessment Board (CEAB) review and developing the documentation processes to monitor curriculum changes; reviewed the terms of reference of the Undergraduate Curriculum Committee to ensure this will occur in a systematic and organic approach

**4.1.2 Further integrate professional competencies, such as global engineering, entrepreneurship, leadership and communication into undergraduate and graduate curricula. Define, assess and measure our programs and curricula successes through the UTQAP UDLEs, GDLEs and cyclic reviews and through the CEAB Graduate Attributes.**

- Launched the undergraduate certificate in Communication in fall 2015
- Enhanced experiential learning opportunities with a team-based, industry-sponsored multidisciplinary design project course; to date more than 150 students have participated in 37 projects sponsored by 23 clients
- Conducted internal reviews of the Lassonde Mineral Engineering Program and the Institute for Leadership Education in Engineering (ILead) in fall 2014

**4.1.3 Enrich the quality of undergraduate academic experience by increasing flexibility in the undergraduate curriculum, continuing to develop progressive opportunities for students to pursue their professional interests, and integrating professional competencies throughout the curriculum.**

- Experienced tremendous growth in minor enrolment and completion, with 31% of the 2014–2015 graduates completing an Engineering minor
- Saw particularly strong interest in the Engineering Business minor and certificate, with 29 per cent of graduates receiving one of these qualifications

- Launched new undergraduate cross-disciplinary programs in fall 2015 to strengthen opportunities for students to customize their degrees, including a minor in Nanoengineering and a certificate in Communication
- Introduced a new Engineering Science major in Robotics Engineering
- Increased Professional Experience Year (PEY) placements to 724, from 705 in 2013–2014, with 61 students completing their work terms outside Canada
- Launched the 2015 internal review of the Engineering Career Centre/Professional Experience Year (PEY) and the Cross-Disciplinary Programs Office

**4.1.4 Continue to support and enhance undergraduate students' opportunities for self-directed learning and study time, and participation in the enriching extracurricular activities within our Faculty, across the University, and beyond.**

- Offered four first-year courses online in fall 2015 to allow students more choice in how they access educational material: APS 160 — Mechanics, APS 162 and 163 — Calculus for Engineers I and II, and APS 164H1 — Introductory Chemistry from a Materials Perspective
- Continued lecture capture for most first-year classes to provide more flexibility to students and enable them to review lectures outside of class
- Drew more than 11,000 people to our second massive open online course (MOOC), Wind, Wave and Tides: Alternative Energy Systems

**4.1.5 Enhance our instructional space to facilitate innovative teaching methods and create efficiencies on how we share space. This includes flexible interactive teaching space for substantial numbers of students, design and group project space and lecture/lab combination space.**

- Enhanced teaching and design facilities and upgraded undergraduate laboratory space including:
  - the installation of a new audio-visual system in the IBBME undergraduate teaching lab to improve content delivery;
  - renovation of the Unit Operations Laboratory in the Wallberg Building to create an additional 200 net assignable square metres (NASMs) of wet lab space and increase student capacity from 48 to 60;
  - phase 2 renovations to the ECE Electrical Energy Systems Lab to install new infrastructure to expand the lab's capabilities to support a wider array of courses; and
  - addition of digital displays outside undergraduate computer labs to show the status of all labs, including course bookings, drop-in availability and open seat counts.
- Began construction in June 2015 on the Centre for Engineering Innovation & Entrepreneurship (CEIE), which will offer Technology Enhanced Active Learning (TEAL) rooms, a 500-seat auditorium featuring small-group seating and highly interactive learning and communications technology and prototyping and light fabrication facilities

- Continued to test a prototype TEAL room in the Sandford Fleming building that will inform the design of TEAL rooms in the CEIE
- Through the EIIP, supported a joint project by UTIAS and MIE to create “parallel classrooms” to allow MEng students in each program to participate simultaneously in lectures delivered from either of two locations
- Undertook a space audit of undergraduate teaching labs, with the final report expected in December 2015

**4.1.6 Provide reliable, accessible, effective computing services and study spaces within and outside computer laboratories, library and classrooms to enhance efficient interactive learning and socialization where today’s student “lives.”**

- Added 87 student study spaces to the Bahen Centre inventory of hallway seating
- Currently installing another 63 student study spaces in the Bahen Centre and 20 spaces in the Wallberg Building
- Renovated space in the Lassonde Mining Building for a study space and conferencing centre
- Launching a 2015 review of student computing services

**4.1.7 Link the quality of student learning, the quality of their education and their improved future performance with teaching effectiveness. Continue to inspire and support the Faculty’s culture of teaching excellence and encourage Faculty members and teaching assistants to reflect upon their teaching effectiveness through enhanced feedback mechanisms. Support teaching initiatives and opportunities that will improve their professional development as educators.**

- Supported through the EIIP a project to re-energize engineering mathematics instruction through improved and focused teaching techniques
- Held the third annual First-Year Instructors Day, which helps ensure consistency in the student experience and raises awareness of the various support systems that are in place (September 2015)
- Hosted the biannual Educational Technology Workshop “EdTech” to help instructors share best practices for innovative teaching and learning (May 2015)
- Garnered major teaching awards, including the President’s Teaching Award, U of T’s highest teaching honour, and the Ontario Confederation of University Faculty Associations Teaching Award
- Introduced new feedback mechanisms, including broader use of Piazza, an online platform where instructors can answer students’ questions, the use of an online anonymous feedback tool and teaching assistant coordinators for Calculus I, II and Linear Algebra
- Incorporated new training requirements for different types of tutorials and labs into teaching assistant training

**4.1.8 Continue to attract and retain diverse, outstanding students from a wide range of backgrounds in order to provide an exceptional education for future global engineers and leaders. In particular, we must strive to attract more female students into our programs.**

- Drew a record 10,989 undergraduate applications for the fall 2014 incoming class
- Admitted the most accomplished and diverse first-year class in our history:
  - Mean entering average of Ontario secondary school students was a record 92.4%
  - 30.6% women, the highest proportion of any entering engineering class in Canada, and 31.9% international students
- Leveraged the record number of women in our entering class to launch a targeted media campaign in early 2015 that celebrated women in engineering and drew attention to U of T's leadership in this area; this campaign won a 2015 Silver Leaf Award of Excellence in Marketing Communication from the International Association of Business Communicators
- Continued to offer robust outreach initiatives to support strategic recruitment; for example, 89% of female high school students who attended the 2015 Girls' Leadership in Engineering Experience (GLEE), an event for female high school students with offers of admission to the Faculty, subsequently accepted our offers, up from 77% in 2014
- Held the second annual Young Women in Engineering Symposium, attracting more than 70 top female high school science students from across the Greater Toronto Area (October 2015)
- Continued to increase diversity across our student body in 2014–2015:
  - 25.8% of undergraduate students and 26.7% of graduates students were women
  - 25.8% of undergraduates and 27.1% of graduate students were international students, with our study body coming from 109 countries
- Increased undergraduate recruitment efforts in South and Central America, with events in Peru, Colombia, Costa Rica, Guatemala and Brazil, to broaden the geographical diversity of our student body and increase their global outlook
- Hosted a reception in Dubai for alumni and parents of U of T Engineering students, which provided opportunities to engage with parents of current and prospective students and raise the profile of the Faculty in this region (December 2014)
- Expanded the broad-based admissions process for candidates seeking admission to our undergraduate programs in fall 2015 with videos and timed essays; this pilot project, the first of its kind among Canadian engineering schools, gives our admissions committee more comprehensive knowledge of each applicant

#### **4.1.9 Strategically award admission scholarships to meet our student recruitment goals.**

- Introduced two new entrance scholarships for international students; the U of T Engineering International Scholar Award covers the full cost of tuition (up to \$45,700) and is renewable for four years; awarded two scholarships to students from Jordan and Singapore
- Improved the visibility of our entrance scholarship program by overhauling the “Money” section of the Discover Engineering website to better communicate scholarship opportunities to prospective students; the scholarship page now includes basic tables indicating available awards, dollar amounts, and eligibility criteria
- Communicated available scholarship and financial assistance (UTAPS) opportunities and related deadlines through targeted applicant updates

#### **4.1.10 Reduce the dwell time for MASc and PhD students and address time-to-graduation issues.**

- Awarded a record number of graduate degrees in 2014–2015, with 772 students completing their degrees
- Held time to graduation to an average of 5.3 years for PhD students and 2.0 years for MASc students
- Implemented a new software tracking system in ECE to record the progress of PhD students, which will also be available for use in other departments and institutes

#### **4.1.11 Continue to develop vibrant MEng programs and offer a larger variety of courses suitable to MEng students.**

- Launched new MEng emphases in Sustainable Energy and Advanced Manufacturing, bringing the total number of areas of emphasis to 11
- Offered more than 15 graduate courses aimed at only MEng students
- Approved creation of an MEng in Biomedical Engineering, to launch in fall 2016, that will focus on medical device design

**4.1.12 Increase graduate student enrolment to reach 2,000 graduate students by 2015, with particular focus on increasing PhD and MEng students and aiming to reach an average of one PhD graduated annually per faculty member. At the same time, we will endeavor to reduce our undergraduate student enrolment to 4,000 by 2015, with 25% of undergraduates consisting of international students. In fall 2010, Full-Time Equivalents (FTEs) were 4,599 undergraduate and 1,527 graduate students, a percentage ratio of 75.1% to 24.9%.**

- Increased graduate students to 2,194 in 2014–2015 after surpassing our Academic Plan goal of 2,000 in 2013–2014, bringing us closer to our longer-term objective of enrolling 1.5 undergraduates for every graduate student
- Continued to participate in a consortium of top Canadian engineering schools to seek out candidates for our research-stream graduate programs
- Continued to expand enrolment in professional masters degrees to 712, up 75 per cent from five years ago, and expanded offerings in these programs
- Increased PhD enrolment to 876, up 26 per cent over the past five years
- Surpassed goal of enrolling 25% international undergraduate students, reaching 25.8%, up from 23.1% the previous year

## **4.2 STUDENT EXPERIENCE: YEAR 4 PROGRESS HIGHLIGHTS**

**4.2.1 Ensure that all our undergraduate curricula provide students with sufficient self-directed time to fully reflect on and understand the material in their program, the vision and relevance to ‘learn how to learn,’ and the advantage of taking opportunities to experience and engage in University life outside the classroom through extracurricular and co-curricular activities.**

- Increased first-to-second-year retention rate in 2014 to 96.3%, from 94.6% the previous year
- Used the inverted classroom model, in which students watch lectures online prior to class, in classes such as ECE 221 — Electricity and Magnetism and CIV 235 — Civil Engineering Graphics
- Accepted 37 teams comprised of 109 students in The Entrepreneurship Hatchery’s summer program, culminating in investor pitches by 13 teams of 42 students in September 2015
- Implemented the University’s Co-Curricular Record (CCR), an official U of T document that provides students with recognition for the competences they gain through their roles on athletic teams, student government, cultural clubs, design teams and other campus organizations:
  - In 2014–2015, the CCR expanded the list of roles it recognizes from 15 to 215
  - U of T Engineering offers and supports more than 80 student clubs and teams

**4.2.2 Engage more undergraduates in faculty research activities. Enhance summer opportunities for our undergraduates by expanding the Engineering Summer Internship Program (eSIP) and by increasing summer research opportunities both within the Faculty and through agreements with international institutions.**

- Provided summer research opportunities to 282 undergraduate students in 2014–2015, including 64 who participated in research abroad
- Launched in 2015 a new credit course APS 299Y — Summer Research Abroad, for students who wish to receive degree credit for summer research
- Held the 2015 Undergraduate Research Day UnERD, a one-day research symposium for students to celebrate undergraduate engineering research carried out over the summer and allowing students to gain key competencies through abstract writing and collaborative networking (August 2015)

**4.2.3 Enhance our students' access to electives outside technical courses.**

- Signed an Interdivisional Teaching Agreement with the Faculty of Arts & Science, which includes an academic framework to enable the two Faculties to work together to achieve our educational mission for the benefit of students and faculty, and allow us to focus on pedagogy rather than funding (June 2015) — including a number of course slots guaranteed at the Faculty of Arts & Science for engineering students
- Added four complementary studies courses:
  - APS 444 – Positive Psychology for Engineers
  - APS 445 – The Power of Story
  - APS 446 – Leadership in Project Management
  - APS 343 – Foundations of Engineering Leadership

**4.2.4 Enhance our undergraduate and graduate students' non-traditional educational opportunities, including international academic exchanges and internships, courses offered abroad, field courses, and credit for work in extracurricular activities such as design teams.**

- Sent six students and one faculty member to Peking University in Beijing, China through the Global Educational Exchange (Globex) program for an intensive, three-week program that exposed them to new ideas, research, people and culture
- Welcomed 64 exchange students from universities around the world and sent 94 U of T Engineering students to 26 partner institutions in Europe, Asia, Australia, India, Mexico, Turkey and Israel
- Welcomed 83 new students in fall 2014 through Brazil's *Ciência sem Fronteiras* program (formerly Science without Borders), bringing the total number of students the Faculty has hosted through this program since 2012 to 490 — enrolment per session for all students was 260 in September 2014 and 78 in January 2015
- Enhanced our partnership with Technion Israel Institute of Technology for graduate student and postdoctoral fellow exchanges and accelerated joint research initiatives,

supported by a \$1 million gift to U of T Engineering from alumnus Lyon Sachs (IndE 4T9)

- Offered guidance, tools and resources through The Entrepreneurship Hatchery to 37 teams comprised of 109 students who wanted to develop startups, with 13 teams of 42 students pitching their ideas at Hatchery Demo Day in September 2015

#### **4.2.5 Continue to inspire the Faculty's culture of teaching excellence and support teaching initiatives that improve student experience, support their connections with course content, increase in-class engagement and strengthen students' understanding of course relevance.**

- Received recommendations from the Dean's Task Force for Core Curriculum Review in December 2014 and appointed a working group to guide and oversee the implementation of these recommendations to improve our first-year curriculum and overall student experience
- Held the third annual First-Year Instructors Day, which helps ensure consistency in the student experience and raises awareness of the various support systems that are in place (September 2015)
- Piloted a TEAL room and inverted classroom models in several courses
- Through the Engineering Instructional Innovation Program (EIIP), supported several projects, including one to re-energize engineering mathematics instruction through improved and focused teaching techniques

#### **4.2.6 Promote extracurricular activities through communications, faculty mentoring and suitable space and facilities.**

- Continued to develop plans for versatile student club space on the lower level of the Centre for Engineering Innovation & Entrepreneurship, which will include storage, fabrication spaces and meeting rooms
- Stream-lined the process for student club funding by creating the Centralized Process for Student Initiative Funding (CPSIF) which allows student groups to apply to various funding resources from within the Faculty of Applied Science & Engineering in a single application
- Held third annual Pink Shirt Day to raise awareness about bullying and discrimination, including a photo booth where people recorded statements about diversity

#### **4.2.7 Actively engage and support students in their unique academic and non-academic experiences as soon as they enter our Faculty, so they can thrive throughout their studies.**

- Offered a range of academic supports, such as:
  - Success 101, a summer workshop offered free-of-charge to newly admitted undergraduates that teaches diverse styles of learning, time management, studying and note-taking;

- the First-Year Foundations program, which helps students sharpen their technical skills, become familiar with the campus, meet future classmates and gain valuable advice from current students and professors;
- embedded counsellors who provide guidance and identify students who may benefit from extra support;
- Peer-Assisted Study Sessions (PASS), led by highly successful upper- year students; and
- Supports for international students including international student transition advising, online chats from June to September for international students to ask questions and receive assistance, and the International Foundation Program, which allows academically strong students to gain conditional admission as non-degree students while they complete intensive English-language training and the Engineering Strategies and Practice course series.
- Connected students with programs offered by the Centre for International Experience, including:
  - iConnect, an intercultural mentorship program; and
  - Step Up, a week-long, residential pre-orientation program that prepares international students for their studies at U of T with the Engineering First-Year Office providing engineering-specific input to Step Up.
- Held send-off events in Calgary and Istanbul, Turkey, where alumni and current students welcomed newly admitted students and their parents to U of T Engineering

#### **4.2.8 Engage Master of Engineering (MEng) students to improve the quality of their experience.**

- Engaged MEng students with graduate student associations reaching out to involve them in social and professional development opportunities
- Offered MEng-only orientations in many departments to meet specific needs of professional graduate students
- Hosted a welcome event for new MEng students in September 2015, which attracted more than 150 students

#### **4.2.9 Enrich graduate students' academic life and build a stronger sense of community among graduate students across the Faculty.**

- Welcomed first cohort in the collaborative program in Engineering Education (EngEd), a partnership with the Ontario Institute for Studies in Education (OISE)
- Offered the Prospective Professors in Training program, which gives PhD candidates who are interested in careers in academia the opportunity to design courses and research programs, develop effective academic curriculum vitae, teaching dossiers and research statements, and prepare for academic job interviews

## 5. Research Foci

Our Faculty is an international leader in research and innovation and we are known for addressing complex global challenges. The impact of our research is local, national, and international in scale. Our multidisciplinary collaboration and ingenuity drive new technologies and processes that power economic development, improve lives and protect the planet. Our engineers are known as creators and innovators and at U of T Engineering we continue to distinguish ourselves as the premier engineering school in Canada and among the best in the world.

The innovation at U of T Engineering attracts top researchers and students from across Canada and internationally, and enables us to leverage the agency funding and industrial partnerships necessary to continue our groundbreaking work. In addition, our distinguished research institutes and centres contain unique facilities and expertise. Inherently multidisciplinary and collaborative, we bring together technical knowledge and diverse perspectives to solve the complex problems society faces today.

Our Academic Plan outlined a key goal with respect to our research portfolio: to increase our Tri-Council funding to \$25 million per year by 2015. We surpassed this goal three years early, reaching \$26.3 million in 2012–2013, and are making excellent progress toward our new goal of \$32 million by 2015–2016. The importance of this funding is underscored by the fact that the national reallocation of Canada Research Chairs (CRCs), which occurs every two years, is based on the proportion of Tri-Council and Networks of Centres of Excellence (NCE) funding that each university receives. CRCs represented \$3.5 million in revenue for the Faculty in 2013–2014, and \$3.9 million in each of 2014–2015 and 2015–2016. The growth in Tri-Council funding translated into U of T Engineering receiving an additional two Tier II equivalent CRCs in the 2015 reallocation.

In 2013–2014, U of T Engineering attracted \$81.6 million in research infrastructure and operating funds — the highest annual total in our Faculty’s history and a 21 per cent increase over the previous year. Through our collective efforts, we have pursued and attracted more support for our research programs, including \$3.1 million from the Canadian Institutes of Health Research (CIHR), which has tripled in the past decade from \$1 million in 2004–2005. This increase is in line with our Academic Plan goals and supports our world-renowned research in biomedical engineering and health-systems research. We have also received significant support to enhance our outstanding research infrastructure. In January 2015, six professors in our Faculty received a total of more than \$1 million from the Canada Foundation for Innovation’s (CFI) John R. Evans Leaders Fund to build their research capacity with new, cutting-edge equipment. The new infrastructure

will support research that will facilitate the creation of new telecommunications devices and the development and use of chemical isotopes to track emerging environmental contaminants, such as pharmaceutical products in wastewater.

In July 2015, the University of Toronto was awarded the first grant through the Federal Government's Canada First Research Excellence Fund (CFREF). The \$114 million initiative *Medicine by Design* is a collaborative project with U of T Engineering, our partner research hospitals, the Faculties of Medicine, Pharmacy and Arts & Science and other academic and industry collaborators. *Medicine by Design* will enhance U of T Engineering and U of T's position as leaders in transformative research and clinical translation in regenerative medicine. In addition, the initiative will enhance capability in synthetic biology and computational biology, will foster clinical impacts and will lead the evolution of Canada's global medical industry with the significant creation and supply of regenerative medicine technologies.

Our collaborations and partnerships with industry allow us to not only leverage funding opportunities but also enhance commercialization and knowledge transfer. In the past year, we attracted numerous corporate partners, including those leveraged through the Natural Sciences and Engineering Research Council's (NSERC) Strategic Partnership Grants (SPG), which seek to increase research and training in targeted areas that could enhance Canada's economy, society or environment. In 2014–2015, our Faculty received \$3.5 million in funding from the NSERC SPG program for eight new initiatives. These include research into new catalysts that can convert waste gas into useful fuels and a project investigating the use of nanofibre membranes for water filtration and treatment.

In total, more than 300 partners provide funding through sponsored research agreements or as part of consortia. In support of corporate outreach activities and new industry partners, this year we also created a series of insightful new research inserts in key areas of focus. These publications highlight the benefits of partnership with U of T Engineering and emphasize strategic research and development strengths within the Faculty. We also relaunched our main Faculty website — including a redesigned Research and Innovation page — to further support marketing to and communications with potential and existing partners. In November 2015, we will also hold our fourth annual Industry Partners Reception, our premier networking event to facilitate introductions that could lead to new partnerships and ideas for collaborative projects.

In addition to our NSERC SPG success, in 2014–2015, U of T Engineering had the lead role on nine NSERC Collaborative Research and Training Experience (CREATE) grants, including two new grants awarded during the year. The CREATE program allows us to enhance our

capacity to develop highly qualified students and postdoctoral fellows through innovative initiatives that encourage collaborative and integrative approaches to research. Students and postdoctoral fellows will then be able to successfully transition into the workforce. In May 2015, Professor Hugh Liu received a \$1.65 million CREATE grant to train 150 new experts in the use of unmanned aerial vehicles (UAVs) for a variety of purposes, from agriculture to environmental monitoring. Liu's team, the Flight Systems and Control Research Laboratory, develops algorithms that can help UAVs respond intelligently to a variety of inputs. The CREATE grant will build on previous work and allow Liu and his collaborators to design UAVs for many other possible applications, including scouting for mineral deposits or other natural resources, monitoring pipelines or railways for damage, checking on crops and applying fertilizers. In July 2014, Professor Brent Sleep received a CREATE for the Remediation Education Network (RENEW). This award supports student training in environmental remediation, such as determining new methods for decontaminating groundwater.

Across U of T Engineering we have actively worked on numerous programs that will benefit our entire community, including faculty members at all stages of their careers, undergraduate and graduate students and our collaborative stakeholders in industry, academia and partner research hospitals. All our initiatives provide support and resources across the Faculty and ensure our continued success and excellence in research.

## **RESEARCH FOCI: YEAR 4 PROGRESS HIGHLIGHTS**

### **5.1 Create new and support current research centres around strategic research themes that make significant, relevant impacts on society.**

- Supported two U of T Engineering institutes submitting proposals to FedDev
- Assisted researchers and our Faculty-appointed Principal Investigator (PI) via Faculty participation in the Canada First Research Excellence Fund (CFREF); resulting in a \$114 million award to the U of T for *Medicine by Design*, a collaborative project enhancing U of T's position as a leader in regenerative medicine
- Supported NSERC CREATE applications
- Advanced U of T Engineering NSERC Strategic Research Networks
- Reinvested in the Centre for Healthcare Engineering (formerly the Centre for Research in Healthcare Engineering)

### **5.2 Increase our Tri-council funding level to \$25 million per annum by 2015.**

- Met and surpassed goal three years early, reaching \$26.3 million in 2012–2013; made excellent progress toward new goal of \$32 million by 2015–2016, achieving a record \$27.4 million in Tri-Council funding in 2013–2014

**5.3 By 2015, increase the number of Canada Research Chairs by eight (to a total of 30), increase Industrial Research Chairs by six (to a total of 10) and increase Endowed Chairs and Limited Term Chairs by 13 (to a total of 40).**

- Actively worked to identify new Industrial Research Chair (IRC) and Endowed Chair prospects — currently we have 7 IRCs and 27 Endowed Chairs — across the Faculty we have a total of 71 research chairs held by 63 individual chairholders
- Increased number of CRC Tier II equivalents by 2 to 41 in 2014–2015
- Gained four new CRCs in 2014–2015, bringing the total to 27 across the Faculty
- Continued to share best practices through the Faculty’s Research Committee to foster growth of sponsored research, which in turn impacts the Faculty’s CRC allocation

**5.4 Develop additional funding sources through the Social Sciences and Humanities Research Council (SSHRC), the Canadian Institutes of Health Research (CIHR), corporations, industries and international granting agencies.**

- Hosted the third annual U of T Engineering Industry Partners Reception to celebrate existing collaborators and welcome new ones, with more than 120 people attending (November 2014)
- Pursued CIHR-NSERC partnerships funding such as CHRP (Collaborative Health Research Projects)
- Supported NSERC Strategic Partnership Grants applications
- Provided support to Ontario Research Fund–Research Excellence (ORF-RE) team applications and worked with faculty to build their industry consortia
- Focused on industry-sponsored research and matching funding for various granting agency competitions
- Actively pursued opportunities with top corporate prospects to leverage partnerships and add value to research and technology development

**5.5 Support junior faculty members and emerging research leaders to ensure that they successfully secure external research funding from industry, federal and provincial sources.**

- Worked with junior faculty, through the Faculty’s Research Committee and Directors of Corporate Partnerships, to identify and pursue industry partners
- Held a lunch-time panel series for faculty on best practices in research, including a session on collaborative and partnership research
- Prepared junior faculty to apply for Early Research Awards (ERA) by hosting a panel called “Succeeding in the ERA” and initiating an internal expert review during the competition to critique each of the Faculty’s applications
- Successfully supported faculty, resulting in six receiving Connaught New Researcher Awards

**5.6 Raise awareness and promote our research contributions and breakthroughs with peers, funding agencies, industry and the public.**

- Awarded the third annual Research Leader Award to Professor Honghi Tran for leadership in interdisciplinary and multiple investigator initiatives that have enhanced the Faculty's research profile with the broader community
- Produced several new research inserts on water, advanced manufacturing, healthcare engineering, nanoengineering and sustainable mining to support corporate outreach activities and industry partnerships
- Launched a number of strategic initiatives, including proactive media outreach, an enhanced online presence and improved marketing materials, aimed at strengthening our visibility and our reputation for excellence
- Increased proactive pitching tied to breaking news and current affairs and secured media stories along strategic communications themes by proactively offering our professors as experts for media
- Celebrated with the University of Toronto community, the announcement of the largest CFREF award in Canada, *Medicine by Design*, with Minister of State for Science and Technology Ed Holder in attendance
- Participated in the University of Toronto Science & Engineering Engagement (SEE U of T) event for Sustainability & Engineering, with a presentation on "Environmentally Sustainable Aviation" (September 2015)

**5.7 Generate synergistic research partnerships with peer institutions within Canada, and strategic international partners, while taking on leadership roles at the national and international levels.**

- Enhanced collaboration and partnership with the Vice-President of University Relations and the Vice-President, Research and Innovation on international partnership development
- Partnered with multiple Canadian institutions on NSERC CREATE, Strategic Research Network, and CFREF applications
- Recruited a Director of Government, International and Corporate Partnerships

**5.8 Increase participation and provide leadership on external review committees in granting agencies such as the Natural Sciences and Engineering Research Council (NSERC), Ontario Centres of Excellence (OCE), and the Ontario Ministry of Research and Innovation (MRI).**

- Worked with the Office of the Vice-President, Research and Innovation (OVPRI) and the Ontario Council of University Research (OCUR), to successfully make the case to Ontario's Ministry of Research and Innovation to improve transparency in its review process for the ORF-RE program

- Continued engagement with the Ontario Centres of Excellence to provide matching support for the Heffernan Entrepreneurship Fellowships
- Presented highlights of U of T Engineering sustainability research to NSERC staff in Ottawa (February 2015)

#### **5.9 Enhance multidisciplinary, collaborative research endeavors.**

- Established the Translational Biology and Engineering Program (TBEP) in collaboration with the Faculties of Medicine and Dentistry (April 2015)
- Awarded the first federally-funded Canada First Research Excellence Fund (CFREF); the \$114 million grant to the U of T for *Medicine by Design*, a collaborative project among the Faculty of Applied Science & Engineering, the Faculties of Medicine, Pharmacy and Arts & Science, partner research hospitals and other academic and industry collaborators
- Attracted two new NSERC CREATE grants, bringing the total U of T Engineering lead roles to nine
- Ramped up the newly established Ontario Centre for Characterization of Advanced Materials (OCCAM), the Toronto Institute of Advanced Manufacturing (TIAM) and the Centre for Healthcare Engineering (CHE)
- Enabled 13 collaborative research centres and initiatives through the Dean's Strategic Fund, including the Centre for Aerial Robotics Research and Education, the Institute for Neural Engineering and EMH:Seed: Seeding Innovative Research Partnerships between Engineering, Medicine, and the Research Hospitals, the latter which provides seed funding to enable significant, externally-supported projects and encourage multidisciplinary collaborations
- Awarded eight NSERC Strategic Partnership Grants (SPGs), a 2014 success rate of 30 per cent, up from the 2013 success rate of 22 per cent, and improving over the typical Canadian national average of 23 to 25 per cent
- Attracted two new ORF-RE grants with total project value over \$30 million (of which \$9 million is from the Province of Ontario)

#### **5.10 Engage more undergraduate and international graduate students in faculty research activities**

- Hosted a roundtable on undergraduate research opportunities at the Dean's Town Hall (September 2015)
- Held the 2015 Undergraduate Research Day UnERD, a one-day research symposium for students to celebrate undergraduate engineering research carried out over the summer and allowing students to gain key competencies through abstract writing and collaborative networking (August 2015)
- Increased the number of international PhD graduate students to 278 in 2014–2015, from 256 in 2013–2014

## 6. Outreach, Collaboration and Influence

Successful collaborations and outreach allow us to influence and engage within our Faculty and the University of Toronto, and with our external community. U of T Engineering continues to nurture and establish new relationships and initiatives that strengthen our ability to create innovative learning environments, shape best practices in engineering education, recruit the most promising students and support groundbreaking research and knowledge translation.

To achieve our goals, we pursue strategic collaborations with industry, individuals, government and peer academic organizations to grow and communicate our expertise as educators, researchers and global leaders in advancing solutions to the world's most critical challenges. The Faculty's activities and partnerships extend across sectors and borders to attract internationally renowned scholars, enhance linkages with prospective donors and alumni and build strong connections with other stakeholders.

As Canada's premier engineering school and one of the world's best, we recruit top exchange students from around the globe. In 2014–2015, we welcomed 147 students from more than 30 peer institutions and sent 94 of our own students to 26 partner universities in 17 countries including Australia, Japan, China, Germany and Ireland. Our partnership with Brazil's *Ciência sem Fronteiras* program (formerly Science without Borders) continues to be successful and we remain the first choice for students studying in science, technology, engineering and math (STEM). Since the program's inception, 490 students have come to U of T Engineering. Whether inbound or outbound, educational exchanges allow for cross-cultural learning, diverse experiences and an enhanced world view of today's pressing issues. Exchanges are also a form of outreach that allow us to engage and influence internationally. We know that when students leave U of T Engineering they act as ambassadors in their home countries, disseminating information about our outstanding educational programs and student experience.

We continue to create opportunities to bring our outstanding research to the world and ensure our students expand their global fluency through dedicated initiatives for a fulfilling and comprehensive experiential education. In 2014–2015 we solidified relationships with peer universities in Brazil, China, Japan and Poland. We also signed a letter of intent (LOI) with CAF, the development bank of Latin America, to explore sustainable urban development. This past year we strengthened relationships in China by signing a memorandum of understanding (MOU) with Shanghai Jiao Tong University (SJTU) to support aerospace research and education collaboration. We also developed a 3+1+1 pilot program with Tianjin University that will allow some of the brightest students from Tianjin

to complete their fourth year of undergraduate studies at U of T Engineering and gain conditional acceptance to our MEng program in Electrical and Computer Engineering. We also signed an MOU with the Faculty of Transport at Poland's Warsaw University of Technology, to further educational and research collaboration. In conjunction with U of T Engineering's Department of Materials Science & Engineering, we also established an MOU with the National Institute for Materials Science (NIMS) in Tsukuba, Japan, in the area of nanomaterials and nanotechnology to promote the exchange of personnel and scientific and technical information, host joint symposia and expand research opportunities.

In addition to formal agreements with other peer institutions, we have numerous opportunities within the Faculty for students to address today's complex world issues. Through the Centre for Global Engineering (CGEN), we offer the Engineering and Globalization Certificate which enables our students to develop the wide range of professional skills necessary to solve the evolving technological challenges in an increasingly global society. The Interdisciplinary Approach to Global Challenges course — JRC1000Y — has worked on several initiatives including air pollution and childhood malnutrition in developing countries.

Outreach includes building meaningful relationships with other University of Toronto Faculties. This year, in addition to the Canada First Research Excellence Fund (CFREF) grant for *Medicine by Design* with the Faculties of Medicine, Pharmacy and Arts & Science, we also established the Translational Biology and Engineering Program (TBEP) within the Ted Rogers Centre for Heart Research (TRCHR) in collaboration with the Faculties of Medicine and Dentistry. We also established two new certificates in Communication and Renewable Resources, with course options in the Faculty of Arts & Science and the Faculty of Forestry.

The U of T Engineering alumni community is truly global and includes more than 47,000 graduates across North America, South America, Africa, Europe, Asia and Oceania. Our passionate alumni are proud of our Faculty, and we continue to build and cultivate these important relationships. Skule™ alumni are our ambassadors to the world, acting as our representatives and advocates and ensuring we are successful globally with our outreach, collaborative initiatives and resulting influence. Our Faculty's dedicated alumni contribute back to Skule™ in myriad ways, in time, expertise and financial gifts. Our alumni participate in a range of initiatives, such as assessing applications through our broad-based admissions process, mentoring student startups through The Entrepreneurship Hatchery and through generous donations to student scholarships, awards and now the Centre for Engineering Innovation & Entrepreneurship (CEIE). In 2014–2015, more than 167 alumni

participated in various committees and advisory boards at both the Faculty and University level, making a difference to U of T Engineering and our broader community.

Engaging new strategic industry partnerships and strengthening existing ones expands sources of funding and other resources that are available for Faculty initiatives. These partnerships are mutually beneficial, with industry collaborators gaining access to our cutting-edge research and the best academic researchers and facilities to create, test and commercialize new products, technologies and processes. Through departmental open houses, topic-specific research days and Faculty-wide programming, we continue to foster our relationships with industry, while increasing our outreach efforts to establish new ones. For example, this year we hosted the third annual U of T Engineering Industry Partners Reception, and will be holding a fourth event in November 2015. We also produced several new research inserts to support corporate outreach activities and industry partnerships.

We strengthened outreach and engagement with our alumni not only through strategic events and topical seminars throughout the Asia-Pacific, Middle East, U.S. and across Canada, but also through the creation of a new program that connects professors emeriti and retired staff with recent graduates. To build and support U of T Engineering alumni communities across the globe, in 2014–2015, Dean Amon hosted alumni events in North America (San Francisco, Palo Alto, Calgary and Vancouver), Turkey and Asia-Pacific (Hong Kong, Korea, Singapore and Taiwan). In Dubai, we hosted the first Dean's reception for parents, in conjunction with an alumni event. This was very well received and will act as a model for future events to engage parents of current international students in strategic regions. On campus we expanded engagement with current students — our future alumni — by creating new outreach initiatives and increasing participation in Graditude, our program for fourth-year graduates to give back to future students. This year we will increase the number of topical events held in the Asia-Pacific region and continue our efforts to strengthen the ties and traditions that connect us to our largest alumni base outside of Canada. We also aim to build a stronger sense of community among our alumni, and impact philanthropic giving in a positive and substantive way. To continue philanthropy in the region, in fall 2015 the Dean will travel to Hong Kong and Singapore to host several advancement events and meet with donors, alumni and other supporters of U of T Engineering and the University. Part of the focus of the trip will be to continue fundraising for the remaining \$20 million for the CEIE.

In 2014–2015, U of T Engineering experienced a highly successful fundraising year, securing another \$34.9 million in philanthropic and research gifts, including support of entrepreneurship in our aerospace program through a generous \$1 million gift from

Francis Shen, one of our dedicated and committed alumni, and a \$20.5 million gift from the Rogers Family — part of the unprecedented \$130 million gift to create the TRCHR. To date we have secured more than \$80 million towards the CEIE, which is one of the cornerstones of our Boundless Campaign. Our philanthropy success is a testament to the strong commitment of our alumni, friends, faculty, staff and students to our shared vision for our Faculty's future. We are committed to our fundraising to fully offset the remainder of the CEIE financing, drive research innovation, further enhance the student learning experience and pursue other Faculty initiatives, such as supporting endowed chairs and student scholarships.

## **OUTREACH, COLLABORATION AND INFLUENCE: YEAR 4 PROGRESS HIGHLIGHTS**

### **6.1 Better understand the breadth of the Faculty's current outreach, collaborative and influencing efforts, then efficiently manage, support, develop and communicate these activities.**

- Completed our main Faculty website redesign, meeting with stakeholders to assess their perceptions and needs of the site and working with test groups on the launch
- Started a survey for staff and faculty to assess the level to which different groups are communicating with students as part of a Faculty-wide initiative to enhance and create best practices for student communications
- Conducted a readership survey for our *Skulematters* alumni magazine, following the completion of the issue on entrepreneurship and commercialization, to ensure we are meeting the needs and interests of our alumni; feedback gathered was used to enhance the content and layout in the fall 2015 *Skulematters* highlighting "Women in Engineering: A Tradition of Excellence"
- Created a marketing insert distributed through *Skulematters* to more than 600 alumni in the Asia-Pacific region that demonstrates our many research, student and alumni connections in the region, fostering stronger ties between Asia-Pacific alumni and U of T Engineering
- Partnered with U of T Alumni Relations and Advancement Communications to refresh the Engineering Alumni Association's word mark; the renewed design will be launched after consultation with the U of T Engineering alumni community and will reflect the Association's new identity as the U of T Engineering Alumni Network
- Continued analysis and increased targeted media pitching of research stories along four key strategic communications themes by proactively offering our professors as experts for media
- Produced several new research inserts on water, advanced manufacturing, healthcare engineering, nanoengineering and sustainable mining to support corporate outreach activities and industry partnerships

## **6.2 Continue building meaningful involvement and relations with Engineering alumni.**

- Hosted 68 alumni events, including 13 outside of Canada (USA, Turkey, Dubai and the Asia-Pacific (Hong Kong, Korea, Singapore and Taiwan))
- Showcased engineering leadership through BizSkule events in San Francisco, Calgary and Toronto that featured compelling speakers and panelists
- Strengthened outreach and engagement through strategic events and topical seminars in the Asia-Pacific, Silicon Valley and Middle East regions, and through a new initiative that connects professors emeriti and retired staff with recent graduates
- Continued supporting alumni volunteerism, with more than 167 alumni participating in various committees and advisory boards at both the Faculty and University level
- Partnered with the Engineering Society to launch Skule™ Alumni Outreach (SkuleAO), a student-run program to assist alumni who wish to support and enhance the experiences of current students
- Engaged 30 alumni with the alumni assessor program to review applicant personal profiles as part of the Faculty's broad-based admissions process

## **6.3 Strengthen relationships with other University of Toronto Faculties.**

- Established two new certificates in Communication and Renewable Resources, with course options in the Faculty of Arts & Science and the Faculty of Forestry
- Launched the Master's/PhD collaborative program in Engineering Education with the Ontario Institute for Studies in Education (OISE)
- Signed an Interdivisional Teaching Agreement with the Faculty of Arts & Science, which includes an academic framework to enable the two Faculties to work together to achieve our educational mission for the benefit of students and faculty, and allow us to focus on pedagogy rather than funding (June 2015) — including a number of course slots guaranteed at the Faculty of Arts & Science for engineering students
- Collaborating with the Faculties of Medicine, Pharmacy and Arts & Science, and other partners, was awarded the Canada First Research Excellence Fund (CFREF), resulting in a \$114 million grant to the U of T for *Medicine by Design* (July 2015)
- Offered through the Centre for Global Engineering (CGEN), JRC1000Y — the Interdisciplinary Approach to Global Challenges course which brought together graduate students from U of T Engineering, the Dalla Lana School of Public Health, the Rotman School of Management and the Munk School of Global Affairs
- Established the Translational Biology and Engineering Program (TBEP) in collaboration with the Faculties of Medicine and Dentistry (April 2015)

#### **6.4 Further develop sustainable collaborations with industry partners, and expand established partnerships with affiliated hospitals and research institutes.**

- Hosted the third annual U of T Engineering Industry Partners Reception to celebrate existing collaborators and welcome new ones, with more than 120 people attending, with a fourth event planned (November 2014)
- Actively pursued opportunities with top corporate prospects to leverage partnerships and add value to research and technology development
- Engaged through the University of Toronto Institute for Multidisciplinary Design & Innovation (UT-IMDI), numerous industry clients such as Pratt & Whitney and Magellan Aerospace for summer projects and multidisciplinary capstone design projects
- Continued to offer mentorship and sponsorship opportunities for alumni in industry through The Entrepreneurship Hatchery
- Established *Medicine by Design*'s inaugural international partners, including China's Peking University, Technion Israel Institute of Technology, the United Kingdom's Regenerative Medicine Program, Sweden's Karolinska Institutet and Germany's REBIRTH Cluster of Excellence at Hannover Medical School
- Published our second external annual report, *Innovation Lives Here – Year in Review 2015*, in summer 2015 to share key achievements with industry partners, alumni and prospective donors

#### **6.5 Further develop connections with local communities, businesses and the City of Toronto.**

- Contributed to better urban development through the creation of the upcoming iCity, which will allow planning officials to demonstrate how different transportation projects, such as a new subway or LRT line, or building “complete streets,” will affect communities and the surrounding city
- Worked to improve social services with the Centre for Social Services Engineering (CSSE), which applies industrial and systems engineering techniques — including mathematical analysis, big data and machine learning — to improve the delivery of goods and services to vulnerable populations in urban centres
- Participated in Scotiabank's Nuit Blanche, highlighting the CEIE's 276-foot street art installation (October 2015)
- Continued for a fifth year the Sky Garden, a roof-top garden on the Galbraith Building that in 2015 donated more than 225 kilograms of vegetables to local charitable organizations
- Engaged and worked with local communities through the University of Toronto Transportation Research Institute (UTTRI), with several initiatives including a workshop on Travel Methods for the Greater Golden Horseshoe (October 2014), the Intelligent Transportation Systems Research Day (December 2014) and the fourth Freight Day Symposium (February 2015)

## **6.6 Build upon high school outreach and continue to assess our pre-university activities with the goal of optimizing faculty and student involvement.**

- Inspired more than 7,000 youth through our pre-university outreach programs, including the In-School Workshop program for students in grades three to eight, March Break programs, Saturday workshops, and the Da Vinci Engineering Enrichment Program (DEEP), reaching students in Grades 3 through 12 and allowing participants to explore cutting-edge engineering applications such as sustainable energy, biomedical engineering and robotics
- Contributed to the engagement of faculty and staff with the first “Engineering Family Outreach Day”, inviting children of staff and faculty from Grades 1 through 8 to take part in engaging, hands-on activities related to STEM
- Offered for a fourth year the Girls’ Leadership in Engineering Experience (GLEE), which drew 88 female students with offers of admission and engaged them in a weekend of community-building activities; 78 of these participants accepted their offer of admission (a ratio of acceptances to attendees of 89% in 2015 vs. 77% in 2014)

## **6.7 Develop strategic relationships with desirable peer, national and international Engineering schools.**

- Participated for the third year in the Global Educational Exchange (Globex) initiative with Peking University
- Established U of T Engineering as a leading partner in Brazil’s *Ciência sem Fronteiras* program, welcoming 490 students from September 2012 through December 2015
- Hosted 64 exchange students from universities around the world and sent 94 U of T Engineering students outbound to 26 different partner institutions in Europe, Asia, Australia, India, Mexico, Turkey and Israel
- Enhanced our partnership with Technion Israel Institute of Technology for graduate student/postdoctoral fellow exchanges and accelerated joint research initiatives, supported by a \$1 million gift from alumnus donor Lyon Sachs
- Further strengthened our relationship with Shanghai Jiao Tong University (SJTU), China through an MOU to support aerospace research and education collaboration
- Developed a 3+1+1 pilot program with the School of Electronic Information Engineering, Tianjin University, China that will allow select top students from Tianjin to complete their fourth year of undergraduate studies at U of T Engineering, with conditional acceptance to our MEng program in ECE
- Signed a LOI with CAF — the development bank of Latin America — to explore innovative methods for sustainable urban development
- Hosted a high-level delegation from Poland that included members of Parliament, the Senior Trade Commissioner, Commercial Department, Embassy of Canada in Warsaw, and professors from the Faculty of Transport, Warsaw University of Technology; culminated in the signing of an MOU to further education and research collaboration

- Established an MOU with the National Institute for Materials Science (NIMS) in Tsukuba, Japan

#### **6.8 Increase influence in government and public policy decisions.**

- Worked with the Office of the Vice-President, Research and Innovation (OVPRI) and the Ontario Council of University Research (OCUR) to successfully make the case to Ontario's Ministry of Research and Innovation to improve transparency in its review process for the Ontario Research Fund-Research Excellence (ORF-RE) program
- Continued engagement with the Ontario Centres of Excellence to provide matching support for the Heffernan Entrepreneurship Fellowships
- Presented highlights of U of T Engineering sustainability research to NSERC staff in Ottawa (February 2015)

#### **6.9 Develop a culture of stewardship and gratitude to the alumni and donors who provide philanthropic support to the Faculty.**

- Publicly recognized major donors through communications and celebration events
- Organized our fourth Annual Dean's Dinner to recognize donors and acknowledge their generous gifts in support of the Faculty (September 2015)
- Celebrated eight alumni at the U of T Arbor Awards (September 2015)
- Fostered dialogue with alumni and friends in support of our Engineering Campaign goals
- Planned and hosted a dynamic groundbreaking ceremony for the Centre for Engineering Innovation & Entrepreneurship (CEIE) that engaged donors and the broader U of T community (June 2015)
- Held the Engineering Alumni Association Awards Dinner to celebrate and recognize alumni for their outstanding achievements (November 2015)

#### **6.10 Encourage the participation of administrative staff in professional associations related to their area of expertise, and in the mentoring programs offered by the University.**

- Ensured that senior administrative staff were nominated for and participated in the University's New Manager Academy and Business Manager Leadership Program
- Through regular meetings of departmental business officers and our new Human Resources office, explored opportunities for formal and informal initiatives to encourage staff development
- Continued to foster collaboration and communication between Human Resources, the Business Administration group and the Engagement & Development Network to share information and best practices

## 7. Resource Allocation

Our resources directly impact our ability to achieve the important and ambitious academic goals we have set in our Academic Plan. Over the past year, we effectively and strategically used our resources, including space, budget, infrastructure and personnel, to advance our excellence in research and innovation, support faculty and staff, and create an extraordinary learning environment for our students.

In 2014–2015, we maintained a strong financial position, with total revenue growing 7.5 per cent over the previous year, due primarily to increases in research funding, tuition and international student enrolment. Revenue growth, in conjunction with careful fiscal management and judicious budgeting, supported ongoing infrastructure upgrades and investments in strategic Faculty initiatives, and built financial reserves for future renewal and other key priorities.

The Dean's Strategic Fund (DSF) held its fifth annual call for proposals for projects that will have a broad impact within the Faculty, such as furthering our Academic Plan goals in developing multi-departmental and collaborative initiatives. From this call, we committed \$3.97 million for 13 initiatives, bringing total funding to \$18 million since the DSF was created in 2011. DSF projects funded in 2015 include:

- Engineering Education for Sustainable Cities in Africa, an initiative from the Centre for Global Engineering and the departments of Civil (CivE) and Mechanical & Industrial Engineering (MIE). This cross-disciplinary research program will focus on developing engineering education strategies that can lead to sustainable infrastructure for future global mega-cities, particularly for African cities that are expected to experience tremendous population growth in the coming decades.
- The Collaboratory for Advanced Learning and Innovation in Bioengineering Research and Education, from the Institute of Biomaterials and Biomedical Engineering (IBBME). This initiative will provide enhanced learning opportunities in synthetic biology, physiology and advanced functional imaging. In addition, there will be an expansion of the related IBBME laboratories and development of a suite of cross-departmental collaborative courses between U of T Engineering and the Faculty of Medicine.

We allocate part of the DSF to the Engineering Instructional Innovation Program (EIIP) to support the development of new teaching approaches and better curriculum to improve the student experience. In 2014–2015, we funded an additional three initiatives through this program, bringing the total number of EIIP initiatives to eleven:

- The University of Toronto Institute for Aerospace Studies (UTIAS) and MIE received funding to offer integrated and complementary courses to MEng students in both programs by renovating two classrooms — one at UTIAS’s Downsview location and one in the Mechanical Engineering Building on the downtown campus. The leading-edge tools and equipment will allow students to participate in lectures delivered from either location. A pilot graduate course designed specifically for “parallel classrooms” will also be developed with content from both fields.
- An initiative known as *Re-engineering Mathematics Education* will improve engineering education and re-energize engineering mathematics instruction.
- Funding was also awarded for development work to enhance instruction in thermodynamics, which will better connect theory with practice.

Previously funded initiatives also made excellent progress in 2014–2015. These include a project in Chemical Engineering & Applied Chemistry to develop collaborative skills in technical courses using team-based learning, and an initiative through Materials Science & Engineering to redesign the entire first-year materials program to improve the student experience through the creation of several types of reusable learning objects.

We made tremendous progress in 2015 toward our vision for the Centre for Engineering Innovation & Entrepreneurship (CEIE). Significant milestones included demolition of the existing structure on the site (February), rezoning by the City of Toronto (May), and tendering and awarding the construction contract (March and June). The commitment and generosity of our entire U of T Engineering community enabled us to break ground on June 24, 2015, at a celebratory event with more than 200 alumni, faculty, staff, students, industry partners and friends. Construction has progressed well over the summer and fall, and we are on track for this transformative new building to open in 2017.

We are maximizing our facilities through strategic renovations and innovative approaches to revitalizing existing spaces. We continue to test the pilot Technology Enhanced Active Learning (TEAL) room in the Sandford Fleming Building, which serves as a prototype for the active and collaborative learning spaces in the CEIE. We are testing different layouts and technologies and gathering feedback to determine the most effective design to ensure these unique rooms will encourage dynamic group work and successfully facilitate blended modalities of teaching and design. In addition, we are currently in discussion with Academic and Campus Events (ACE) to trade use of TEAL rooms in the CEIE for other classrooms located in U of T Engineering. CEIE is a Faculty of Applied Science & Engineering building and we will be able to optimize the use and capacity of all our classrooms by allowing ACE to use the CEIE TEAL rooms when they are not used by the

Faculty in exchange for the Faculty gaining space in current ACE rooms. This partnership will expand the options for our faculty and students and will increase the number of classrooms available to us.

While the CEIE is a key component in our strategy to alleviate our urgent space issues, we also continue to audit our existing facilities and infrastructure to ensure our faculty members can continue their innovative research and our students have access to the best laboratories, classrooms, club and study spaces. In 2014–2015, we made significant improvements to several facilities, including the installation of hallway study seating in the Bahen Centre, which accommodates 87 students. This seating gives Engineering students opportunities to study and complete assignments between classes and is part of our goal to continually improve the student experience. In the Galbraith Building, we completed the first and second phases of renovations to the Electrical Energy Systems Lab, with the design and replacement of the supporting high-voltage electrical infrastructure and stations. The third phase of the project is underway and will entail the purchase of equipment infrastructure and the development of new experimental systems to teach undergraduate and graduate courses that will focus on the creation of micro-grids, renewable energy and enabled smart grids. In summer 2015, our Human Resources team moved into newly renovated space in the Fields Institute to improve service delivery to the U of T Engineering community.

In 2014, the Ontario Centre for Characterization of Advanced Materials (OCCAM) opened to offer highly specialized tools to understand and manipulate matter at the atomic scale. The centre also emphasizes collaborative and multidisciplinary investigations and expects to facilitate more than 350 different research programs annually involving academic researchers and private companies. To support these programs, we renovated existing research labs to install electromagnetic shielding systems and a suite of electron microscopes. Other projects completed this past year included washroom renovations in the Galbraith Building to provide additional capacity and improve the distribution of men's and women's facilities, and completion of an electronic access control system for the Wallberg Building/D.L. Pratt Building complex to improve security for students, faculty and staff.

While we continue to be strategic and prudent in managing our resources, advancement remains a critical part of ensuring we can address both our academic and capital priorities. We had a highly successful fundraising year for philanthropic and research gifts in 2014–2015, with support from alumni, graduating students and other members of our vibrant community reaching \$34.9 million. Alumni around the world have generously supported the CEIE and we are working with many of our engineering Asia-Pacific alumni groups

toward ambitious fundraising goals. Together with gifts from industry partners, this support will enable us to set a new standard for engineering education and research. In addition to the CEIE, we attracted strong support for research, education and entrepreneurship across diverse disciplines, including major gifts for biomedical engineering and for an entrepreneurship incubator at UTIAS. With our 2014–2015 advancement results, we have raised more than \$152 million toward our campaign goal of \$200 million for Boundless: The Campaign for the University of Toronto. We will continue our efforts to seek new and repeat donations to fully offset the remaining CEIE mortgage financing by the time the building opens in 2017.

## **RESOURCE ALLOCATION: YEAR 4 PROGRESS HIGHLIGHTS**

### **7.1 Maximize quality academic time and effectiveness by increasing engagement in high value activities that support students' academic experience, contribute to knowledge creation, and advance engineering research frontiers.**

- Added two administrative directors to further the mandates of BioZone and the Centre for Water Innovation, and one administrator to support the Institute for Robotics and Mechatronics and the Toronto Institute of Advanced Manufacturing, all starting in summer 2015
- Lowered our undergraduate-to-graduate student ratio to 2.24 in 2014–2015, from 2.35 the previous year, marking progress toward our long-term goal of 1.5 to help optimize academic time and classroom resources
- Reviewed with our academic units the local workload policies in conjunction with the University's Workload Policy and Procedures for Faculty and Librarians (WLPP)

### **7.2 Place emphasis on Engineering's strategic research areas when considering faculty hires.**

- Initiated an interdisciplinary academic search for three new faculty members, focusing on cross-disciplinarity, diversity, research and teaching excellence, after successfully hiring three new interdisciplinary cross-appointed faculty members in 2013–2014

### **7.3 Provide a supportive environment for faculty members through mechanisms such as start-up funding, teaching skills workshops, and assistance via Associate Chairs, Research to create successful research proposals.**

- Held a lunch-time panel series for faculty on best practices in research, including a session on collaborative and partnership research
- Prepared junior faculty to apply for Early Research Awards (ERA) by hosting a panel called "Succeeding in the ERA" and initiating an internal expert review during the competition to critique each of the Faculty's applications

- Supported NSERC Strategic Partnership Grants (SPG) and Collaborative Research and Training Experience (CREATE) applications
- Focused on industry-sponsored research and matching funding for various granting agency competitions
- Provided support to Ontario Research Fund–Research Excellence (ORF-RE) team applications and worked with faculty to build industry consortia
- Worked with faculty, particularly junior faculty, through the Faculty’s Research Committee and Directors of Corporate Partnerships, to identify and pursue industry partners
- Continued to share best practices through the Research Committee to foster growth of Tri-Council sponsored research, which in turn affects the Faculty’s Canada Research Chair (CRC) allocation
- Initiated a year-long teaching and learning workshop series coordinated jointly by the office of the Vice-Dean, Undergraduate, the Teaching Methods and Resources Committee, and students in the Masters/PhD collaborative program in Engineering Education

**7.4 Improve our chances of being awarded funding for capital projects by pre-planning for various opportunities consistent with our goals and suitable for external funding sources such as CFI, Ontario Ministry of Training, Colleges and Universities (MTCU) and other capital grants. Increase the quality and quantity of space particularly through fundraising for new and revitalized buildings.**

- Received six CFI John R. Evans Leaders Fund grants for a total of over \$1 million
- Received two CFI Innovation Fund grants for a total of over \$3.3 million
- Increased Research Infrastructure Funds to \$17.3 million in 2013–2014 (up from \$5.9 million in 2012-2013)
- Raised almost \$80 million to date in support of the CEIE building

**7.5 Enhance teaching and design facilities, upgrade undergraduate laboratory space, and make flexible space available for extra-curricular activities.**

- Supported several new initiatives to upgrade facilities and equipment through the Dean’s Strategic Fund including:
  - renovation of the Unit Operations Laboratory in the Wallberg Building to create an additional 200 net assignable square metres (NASMs) of wet lab space and increase student capacity from 48 to 60;
  - Faculty-wide video conferencing facilities to develop three systems in each of the Wallberg, Bahen and the Mechanical Engineering buildings;
  - purchase of precision machining equipment for engineering capstone projects to give undergraduate and graduate students experience in the use of high-precision manufacturing equipment and metrology and improve the performance of the manufactured prototypes; and

- improvement of prototyping services to researchers and students through the Toronto Nanofabrication Centre.
- Continued to evaluate the renovated Sandford Fleming TEAL room to aid in the final design of the TEAL spaces in the CEIE

**7.6 Provide reliable, accessible, effective computing services; create study spaces within and outside computer laboratories, library and classrooms so as to enhance interactive learning and socialization where today's student 'lives'.**

- Added 87 student study spaces to the Bahen Centre inventory of hallway seating
- Currently installing another 63 student study spaces in the Bahen Centre and 20 spaces in the Wallberg Building
- Initiated renovation in the Lassonde Mining Building for a student study area and conferencing centre
- Completing an undergraduate teaching laboratory space audit, with the final report expected in December 2015

**7.7 Encourage timely degree completion among doctoral stream students; increase research funding and graduate fellowships to support graduate students.**

- Held time to graduation to an average of 5.3 years for PhD students and 2.0 years for MSc students
- Implemented a new software tracking system in ECE to record the progress of PhD students, which will also be available for use in other departments and institutes
- Continued to develop detailed data on time-to-completion, fast-tracking and scholarship success rates with the goal of using this data to identify and share best practices, as well as identify problems to be addressed
- Increased total graduate funding by 5.2% to \$42.8 million in 2013–2014, up from \$40.7 million in 2012–2013

**7.8 Establish a strong Case for Support that addresses the Faculty's resource requirements and aligns the Faculty's critical need for improved space in the context of addressing educational and research priorities.**

- Raised almost \$80 million to date in support of the CEIE building, the cornerstone of our Engineering campaign
- Designated nearly half of all funds raised in 2014–2015 to research, student experience and programs, and student scholarships and awards
- Relocated the Human Resources office to the Fields Institute to improve service delivery

### **7.9 Increase long-term philanthropic support by strengthening the culture of advancement within the Faculty.**

- Conducted advancement stakeholder meetings in the departments of Chemical Engineering & Applied Chemistry, Civil Engineering and Mechanical & Industrial Engineering to facilitate philanthropy and alumni relations priorities
- Supported and actively worked throughout the year with each U of T Engineering department and institute advisory board
- Actively pursued opportunities with top corporate prospects to leverage partnerships and add value to research and technology development
- Carried out successful fundraising campaigns in Asia-Pacific for named rooms in the CEIE
- Partnered with the Engineering Society to launch Skule™ Alumni Outreach (SkuleAO), a student-run program to assist alumni who wish to support and enhance the experiences of current students
- Expanded engagement with current students — our future alumni — by creating a new alumni outreach director position on the Engineering Society, initiating the inaugural Engineering Society Reunion of current and past officers of the Engineering Society and increasing participation in Gratitude, which encourages graduating students to give back to future students

## 8. Conclusion

Through dedication and commitment, our U of T Engineering community has achieved tremendous progress in Year Four of our *Academic Plan 2011-2016*. We have already surpassed several of our ambitious goals, and set new ones to capture emerging priorities.

As we move forward into the final year of our Academic Plan, collectively we will continue to broaden our influence and outreach, enhance our international reputation, support our multidisciplinary and collaborative research and ensure we create new initiatives and opportunities for the best student experience possible.