

## 9.0 Diversity

Diversity in all forms is critical to engineering. Diverse perspectives and new ideas deepen the creative process, strengthen innovation and enrich the learning environment. It is our Faculty's responsibility to ensure that the diversity of the engineering profession reflects that of our society at large.

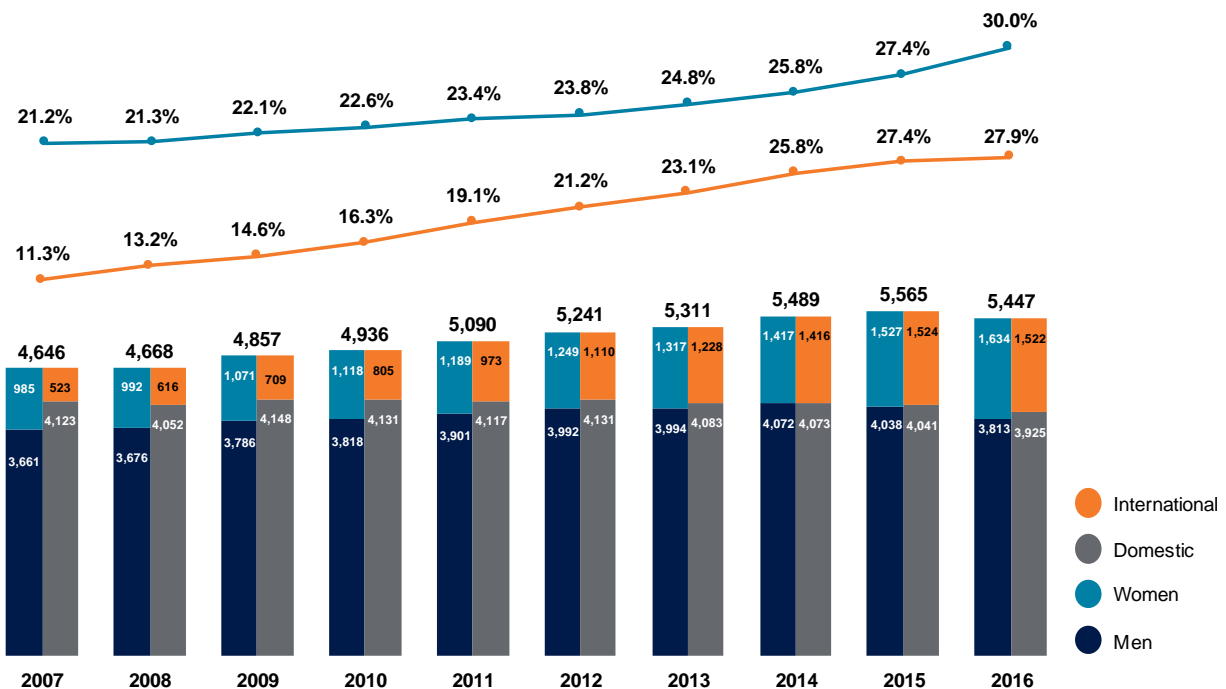
Women and indigenous peoples are underrepresented within the Canadian engineering community. Currently, less than 12 per cent of practicing, licensed engineers in Canada are women. To help counter this, we have joined a broad national coalition that aims to increase the proportion of women to 30 per cent of all newly licensed engineers by 2030<sup>1</sup>.

The significant progress our Faculty has made toward enhancing diversity, in all its forms, is highlighted below.

### 9.1 Students

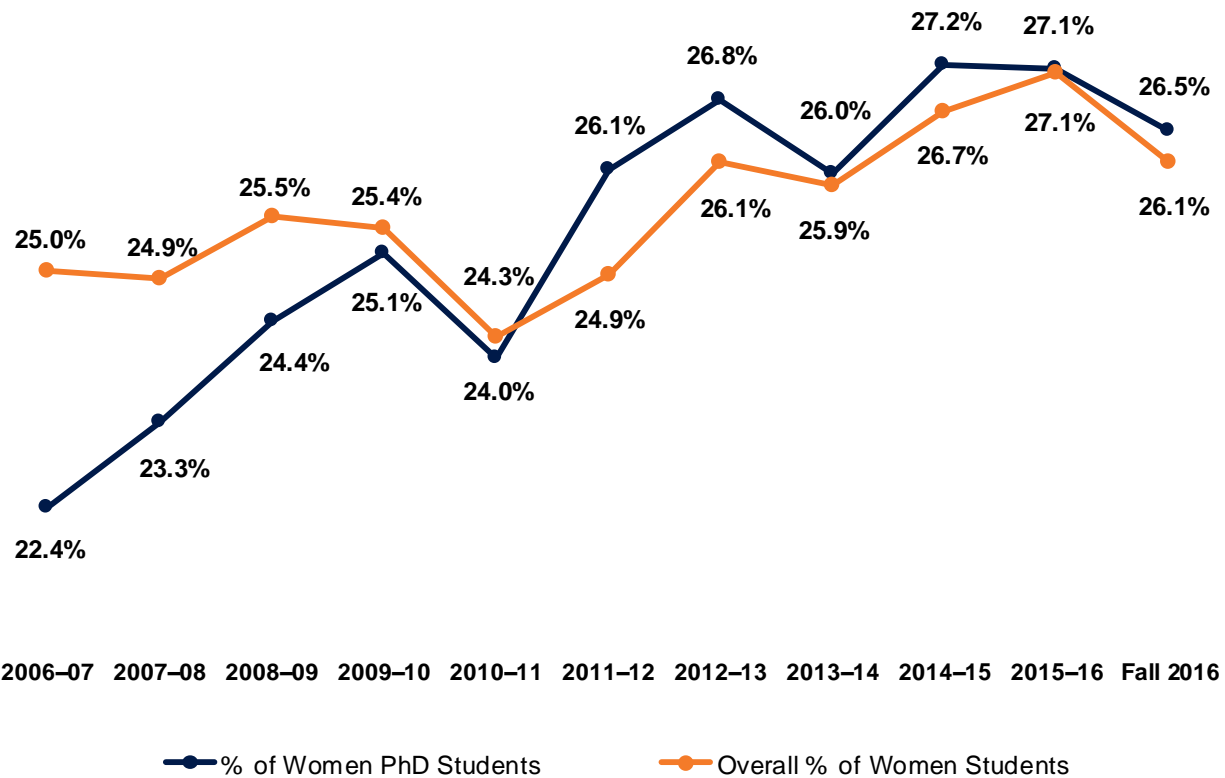
Our student body is becoming increasingly diverse. More than 25 per cent of our undergraduate students now come from outside of Canada, in line with the goals of our Academic Plan. The proportion of women in undergraduate programs is 30 per cent (**Figure 9.1**), a record high. Among graduate students, 33.6 per cent are from abroad and 26.1 per cent are women.

**Figure 9.1 Undergraduate Enrolment with Proportion of Women and International Students, 2007 to 2016**



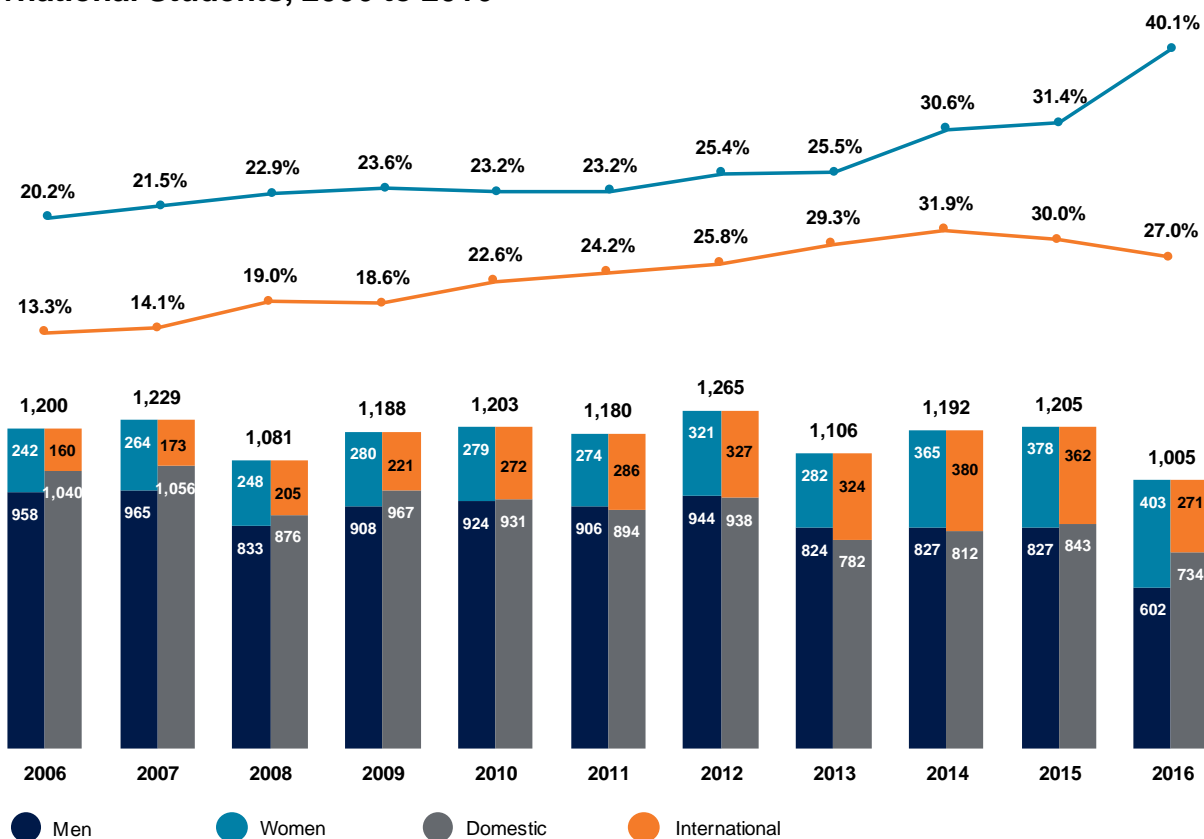
<sup>1</sup> Engineers Canada, <https://www.engineerscanada.ca/diversity/women-in-engineering>

**Figure 9.2 Graduate Students by Degree Type and Gender with Percentage of Women Students, 2006–2007 to 2015–2016**



These trends are more pronounced within the incoming undergraduate cohort. The proportion of incoming undergraduate women has been above 30 per cent over the last three years, reaching 40.1 per cent in the fall of 2016. The proportion of incoming international students has increased from 13.3 to 27.0 per cent over the last decade.

**Figure 9.3 Incoming First-Year Undergraduates with Percentage of Women and International Students, 2006 to 2016**



Support for diversity is a fundamental priority in our Faculty, and is woven throughout our activities. We work closely with female alumni and industry leaders to address our immediate goal of increasing diversity in the engineering profession, and to address systemic barriers in the long term. For example, since 2013, U of T Engineering has hosted the Women in Science and Engineering (WISE) national conference, which catalyzes change by providing a venue for students to connect with science and engineering leaders from all disciplines.

Gender diversity is also reflected in the engineering lecture series organized by our departments and institutes, and in the guest speakers we invite into engineering classrooms. We use various communications platforms — such as our alumni magazine *Skulematters*, Faculty website and social media feeds — to profile inspirational figures in science and engineering and to model the diversity we are working toward in our Faculty. In 2015, we supplemented these efforts with an integrated media campaign that combined proactive public relations, social media and online engagement to generate a national discussion on the role of diversity in science, technology and engineering, and to inspire young women (and their parents) across Canada to consider engineering as a vibrant and rewarding career option.

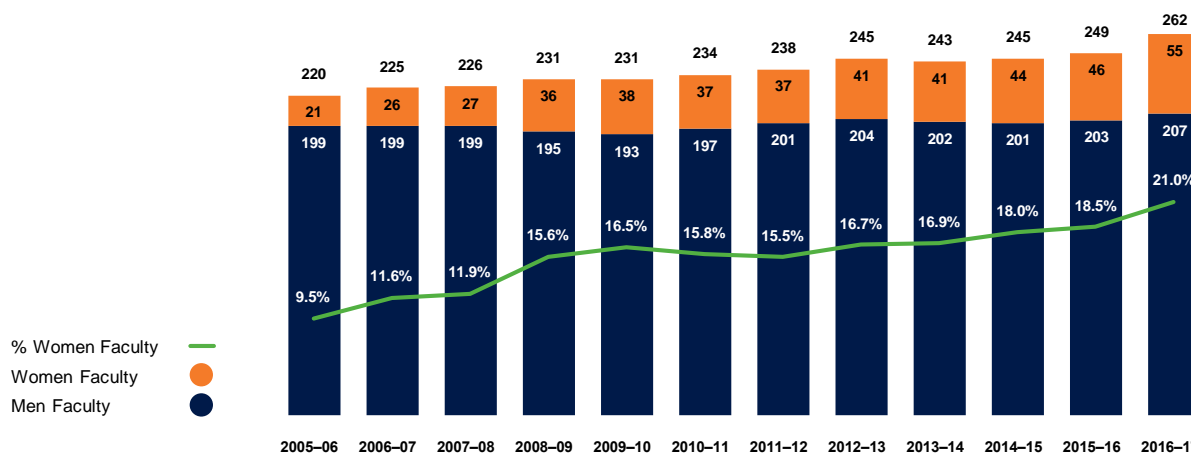
We engage with the wider community through high school classroom visits, alumni and industry engagement, applicant events, and workshops delivered by our professors and outreach and recruitment staff. Our goal is to inspire students of all backgrounds to learn more about the role of engineers in society and the positive impact they can make by joining the profession. This is reinforced by the engineering education workshops we hold for teachers and counsellors in elementary and high schools, who will continue to spread the message of engineering and diversity in their classrooms.

Our efforts also include events such as the Young Women in Engineering Symposium (YWIES) and the Girls' Leadership in Engineering Experience (GLEE), which enable talented young women to meet with the Dean, program chairs, professors, alumni and current students to learn about their experiences studying and working in engineering. GLEE, a weekend-long program for students who have offers of admission to U of T Engineering, inspires students to learn more about the contributions they can make as engineers and the unique opportunities our Faculty offers. In 2015, 91 per cent of the 87 students who participated in GLEE accepted their offers of admission.

## 9.2 Academic Staff and Leadership

Our Faculty attracts and recruits talented tenure- and teaching-stream faculty from around the world. The proportion of female professors at U of T Engineering, shown in Figure 9.4, has increased to 21.0 per cent from 15.8 in 2010, and 9.5 per cent a decade ago. Of 14 recently-hired professors, nine are female. As they join us in the coming months, they will further enrich our Faculty with innovative cross-disciplinary research and educational initiatives (Figure 6.1).

**Figure 9.4 Total Academic Staff with Proportion of Women, 2005–2006 to 2016–2017**



	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
<b>Assistant Professors</b>												
Assistant Professors	55	61	54	46	41	39	42	46	38	38	31	36
Women Assistant Professors	9	13	12	17	17	15	14	16	10	12	8	13
<b>% Women Assistant Professors</b>	<b>16.4%</b>	<b>21.3%</b>	<b>22.2%</b>	<b>37.0%</b>	<b>41.5%</b>	<b>38.5%</b>	<b>33.3%</b>	<b>34.8%</b>	<b>26.3%</b>	<b>31.6%</b>	<b>25.8%</b>	<b>36.1%</b>
<b>Associate Professors</b>												
Associate Professors	38	38	52	58	60	62	63	60	62	56	61	54
Women Associate Professors	6	5	6	8	10	13	13	13	17	14	17	16
<b>% Women Associate Professors</b>	<b>15.8%</b>	<b>13.2%</b>	<b>11.5%</b>	<b>13.8%</b>	<b>16.7%</b>	<b>21.0%</b>	<b>20.6%</b>	<b>21.7%</b>	<b>27.4%</b>	<b>25.0%</b>	<b>27.9%</b>	<b>29.6%</b>
<b>Professors</b>												
Professors	115	110	103	105	108	114	113	119	122	130	136	144
Women Professors	4	5	6	5	5	5	6	8	9	13	16	18
<b>% Women Professors</b>	<b>3.5%</b>	<b>4.5%</b>	<b>5.8%</b>	<b>4.8%</b>	<b>4.6%</b>	<b>4.4%</b>	<b>5.3%</b>	<b>6.7%</b>	<b>7.4%</b>	<b>10.0%</b>	<b>11.8%</b>	<b>12.5%</b>
<b>Teaching Professors</b>												
Teaching Professors	12	16	17	22	22	19	20	20	21	21	21	28
Women Teaching Professors	2	3	3	6	6	4	4	4	5	5	5	8
<b>% Women Teaching Professors</b>	<b>16.7%</b>	<b>18.8%</b>	<b>17.6%</b>	<b>27.3%</b>	<b>27.3%</b>	<b>21.1%</b>	<b>20.0%</b>	<b>20.0%</b>	<b>23.8%</b>	<b>23.8%</b>	<b>23.8%</b>	<b>28.6%</b>
<b>Total Faculty</b>												
Total Faculty	220	225	226	231	231	234	238	245	243	245	249	262
Women Faculty	21	26	27	36	38	37	37	41	41	44	46	55
Men Faculty	199	199	199	195	193	197	201	204	202	201	203	207
<b>% Women Faculty</b>	<b>9.5%</b>	<b>11.6%</b>	<b>11.9%</b>	<b>15.6%</b>	<b>16.5%</b>	<b>15.8%</b>	<b>15.5%</b>	<b>16.7%</b>	<b>16.9%</b>	<b>18.0%</b>	<b>18.5%</b>	<b>21.0%</b>

In contrast to 2005-2006, when none of our academic leadership positions were occupied by women, our current Dean is a female engineer, as are leaders of six of our multidisciplinary research centres and institutes, one department and one division. Our Faculty's female engineers also hold senior leadership positions within the University, including our former Vice-Dean, Undergraduate who has

been appointed the inaugural Vice-Provost, Innovations in Undergraduate Education and the President's Senior Advisor on Science and Engineering Engagement.

### **9.3 Diversity: Selected Highlights**

#### **Engineering Outreach**

We created the Engineering Outreach Office in 2009 to coordinate and support the delivery of outreach activities of students, staff and faculty. Today, the Engineering Outreach Office engages more than 9,000 pre-university students in science, technology, engineering and math (STEM) each year. We are committed to ensuring that all students, including women and girls, indigenous youth and other underrepresented communities, have the opportunity to learn more about STEM and to understand the impact they can make as engineers.

Outreach programs include:

- The Da Vinci Engineering Enrichment Program (DEEP) Summer Academy attracts high school students from around the world to U of T Engineering, allowing them to experience a variety of engineering, technology, business and science topics, from biotechnology to robotics, through a series of week-long, hands-on courses.
- Jr. DEEP and Girls' Jr. DEEP are summer day camps and Saturday programs that extend the DEEP experience to students in grades three to eight.
- Go Eng Girl and Go CODE Girl allows girls in middle and high school to explore computer coding and engineering.
- ENGage, a collaboration between U of T's Chapter of the National Society of Black Engineers and the Faculty of Applied Science & Engineering, highlights black role models, encourages literacy in science, technology, engineering and math (STEM), and promotes academic and social growth.

Our students also engage in outreach by partnering with national STEM education organizations. In 2016, a third-year MIE student was one of 12 selected from across Canada to facilitate the National Indigenous Youth in STEM (InSTEM) program run by Actua, a national STEM charity (3.8.1.2). For the past five years, a team of graduate students has partnered with the Sandy Lake First Nation in northern Ontario to deliver a series of workshops through another national STEM charity, Let's Talk Science. These programs help students learn more about the potential of engineering, regardless of their geographical location.

#### **Director of Engineering Pathways and Indigenous Partnerships**

In 2016, we created the position of Director of Engineering Pathways and Indigenous Partnerships within the Dean's Office. Working with engineering staff and faculty, the Director leads our response to the call of the Truth and Reconciliation Commission of Canada to reduce the educational gaps between indigenous and non-indigenous Canadians. The Director coordinates efforts across the Faculty to reach out to First Nations, Métis and Inuit communities, with the goal of increasing the rate of participation of indigenous students in engineering, and facilitates greater integration of existing outreach, recruitment and retention initiatives, both within the Faculty and across the University, that affect Indigenous engineering students.

#### **Positive Space**

Our Faculty has had representation on the Positive Space Committee since the committee's inception in 1996. The committee promotes safe and inclusive spaces for LGBTQ students, staff, faculty, alumni and allies, which are marked by rainbow triangle stickers posted on doors and in offices across

campus. At a 20th anniversary panel held in March 2016, a third-year undergraduate in Industrial Engineering spoke about the experience of being the first non-binary person to take on the role of Godiva's Crown, a spirit position within the Engineering Society that has historically been held by female students.

We also host a number of events that celebrate diversity and demonstrate our commitment to ensuring that all engineering space is positive space, including participation in Pink Shirt Day and Pride Month. In June 2014 at the World Pride festival in Toronto, U of T Engineering convened a first-of-its-kind panel discussion on LGBTQ experiences in the engineering profession. The panel, which was moderated by an alumnus and included eight members of the U of T Engineering community representing students, faculty, staff and alumni, drew an audience of more than 100.

### **International Diversity Initiative in Engineering Education**

Our Faculty joined more than 90 North American engineering schools in 2015 to lead a transformative movement to boost diversity in engineering by recruiting more women and underrepresented minorities in our student and faculty populations, and to foster a culture of inclusivity across our programs and the broader engineering profession.

### **New Godiva's Hymn Verses Celebrate Diversity in Engineering**

Godiva's Hymn is a traditional song set to the tune of the Battle Hymn of the Republic. It is often performed by university engineering students across Canada.

In January 2016, U of T Engineering held the Godiva's Hymn contest. Organized by the Engineering Society, the contest challenged our community to create lyrics to this traditional song that better convey the diversity and vibrancy of the profession in the 21st century. The winning entry was:

*I came across a girl whose skin was glazed a purple hue,  
Her aura proud, her spirit loud, her words were strong and true,  
She led a group of hundreds who were chanting far and near,  
And in my mind, I had no doubts — she led the engineers!*