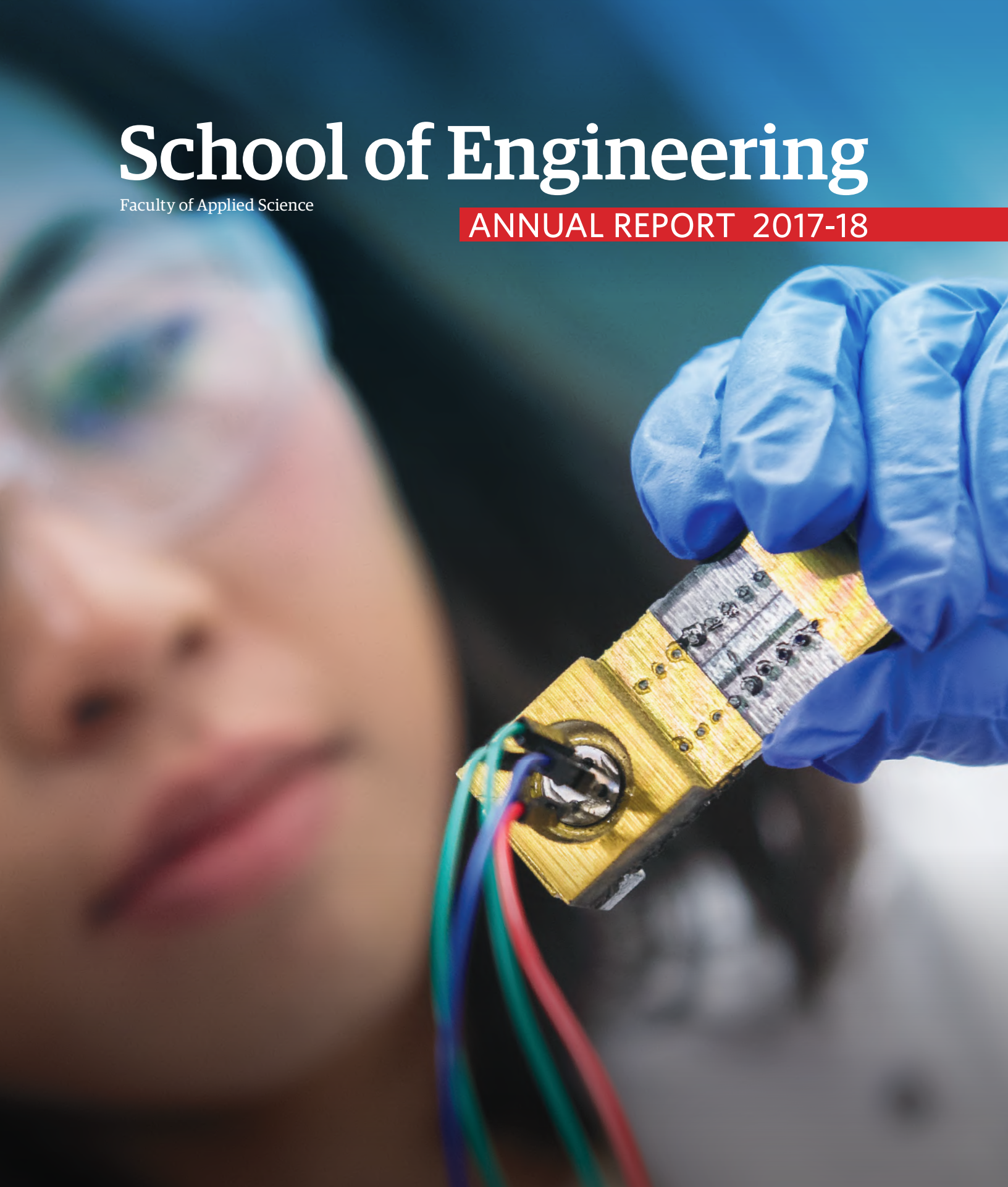


# School of Engineering

Faculty of Applied Science

ANNUAL REPORT 2017-18



THE UNIVERSITY OF BRITISH COLUMBIA

Okanagan Campus

## Welcome



### MESSAGE FROM THE DEAN

Welcome to UBC Okanagan's School of Engineering.

Every year we reach new heights in our goal of generating world-class academic and multi-disciplinary research that improves the social well-being of our community, province, country and planet. Once again, 2017 was no exception.

UBC Okanagan's School of Engineering shines as a leading example of transformation within the Faculty of Applied Science. The School has experienced immense growth since it was established in 2005, and with that, our momentum has accelerated.

With first-rate faculty and research facilities, rich selection of outreach and other extracurricular programs, and emphasis on experiential learning, the UBC Okanagan's School of Engineering aims to nurture its students to become the best. We are striving to foster an entrepreneurial spirit in our School and have invested in opportunities that support innovation and evolution in business.

I invite you to dive deeper into everything we have to offer at UBC Okanagan's School of Engineering. Over the past year, our School realized success in many areas, and alongside our pride in our accomplishments, I am confident the best is yet to come.

**James Olson, PEng, PhD, FCAE**  
Dean, Faculty of Applied Science  
Professor of Mechanical Engineering



### MESSAGE FROM THE ASSOCIATE DEAN

The School of Engineering is fast-approaching a pivotal juncture in its growth and this, our first annual report, illustrates how our Faculty continues to grow exponentially with respect to enrolment, programs and research.

While we celebrate the many contributions of our students, faculty and staff, it is important that we continue to look forward and strive to build upon those successes.

With this report, we are also unveiling our *Building for Tomorrow* 2025 Strategic Plan, which outlines our goals for the next seven years.

*Building for Tomorrow* maps out our trajectory by setting out a clear path towards achieving our goals in key areas such as community collaboration, inclusivity and diversity, teaching and research.

With the utmost confidence in our people and their drive to innovate, I confidently look towards the future with a sense of excitement.

Our goal remains the same as it was when we began: to be among the top-5 most reputable engineering research institutions in Canada.

**Rehan Sadiq, PEng, PhD**  
Associate Dean, School of Engineering  
UBC's Okanagan campus

On the cover: student Kim Tien Nguyen examines a gas sensor in the Advanced Thermo-Fluidic Laboratory at UBC Okanagan

# Growth & Inclusivity

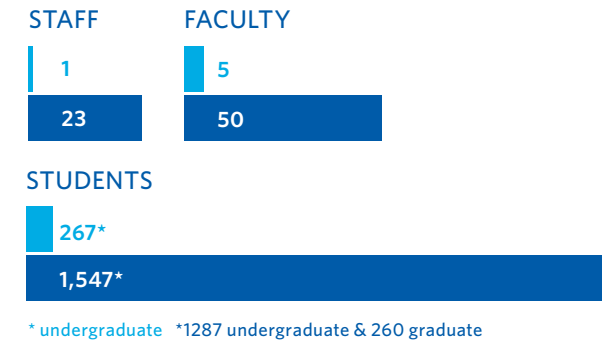
Growth and the School of Engineering have been synonymous from the beginning. Our enrolment numbers have climbed 60 per cent from 2013-14 to 2017-18. Over the same span, international student enrolment has grown more than 300 per cent, with representation from nearly 60 countries.

We continue to support and promote inclusivity and diversity within the School of Engineering. Female and Aboriginal enrollment has steadily increased since the first cohort of students, and we continue to make strides to augment those numbers further through numerous initiatives.



Graduate Student **Marie O'Brien** tests decision-making algorithms with an autonomous vehicle

## GROWTH FROM 2005 - 2017/18



**50.5%**  
annual equivalent average  
**research funding growth rate**  
since 2005

**35%**  
enrolment increase of  
Aboriginal students since 2013

**17%**  
of SOE students are female

**\$11.45M**  
operating budget

**227**  
courses offered in 2017

## Global Research

Our research clusters (advanced materials and manufacturing, advanced systems, clean technologies and environmental systems, health technologies and urban infrastructure and green construction) are making waves.

Engineering research conducted at UBC's Okanagan campus ranks above or on par with per publication outputs in top citation percentiles amongst the top 5 (engineering) universities in Canada. Over the past four years, our researchers have published almost 1,000 papers in top international journals with nearly 5,000 citations; that research is evenly distributed across all three programs: Civil, Electrical and Mechanical.

**\$5.46M**  
research funding

**19%**  
of all UBC NSERC CRD (UBC-wide) funding originates from SOE

**100%**  
success rate in NSERC Discovery Grants

**45%**  
of papers were published in Top 10 journals in their respective discipline (CiteScore)

**144**  
research projects

# Entrepreneurial Success

Our faculty and students are showing incredible entrepreneurial initiative by launching start-ups and IPs with great success. From rental accommodation apps and biomedical discoveries to smart-technology patents, our researchers are bridging their passion and work from the lab to address societal needs. This entrepreneurial spirit continues to propel our innovations forward.

## NOTABLE ACCOMPLISHMENTS

### EMINENCE FUNDING

- |   |              |
|---|--------------|
| Cluster of Research Excellence in Green Infrastructure          | Shahria Alam |
| Cluster of Research Excellence in Exosome Isolation             | Mina Hoorfar |
| 2017-18 ALT Fund Recipient for UBC Okanagan Design Thinking Hub | Ray Taheri   |

## LAUNCH OF NEW INTER-CAMPUS INSTITUTE BASED

### MATERIALS AND MANUFACTURING RESEARCH INSTITUTE

The institute brings together expertise, world-class facilities and centres from both campuses to explore innovative ideas in five core areas within the fields of materials and manufacturing:

- Aerospace & Transportation
- Biomedical & Biological
- Building & Construction
- Electromagnetic & Nanoscale
- Polymer & Natural Materials

# 84%

of all MITACS partnerships at UBC Okanagan (\$1.5M) are linked to the School of Engineering

**Mina Hoorfar**, Professor and Director of the School of Engineering adjusts the flow rate on a rotameter to calibrate a sensor



50  
faculty members

5.8:1  
graduate student  
to faculty ratio

## Faculty Expertise

Our faculty continue to be recognized for teaching excellence with internal and external awards. For example, **Jonathan Holzman** (above, right) received the 2017 Medal of Distinction in Engineering Education by Engineers Canada for “implementing a number of innovative teaching methods and for taking the time to explain practical applications” of integrated optics. In 2016, he was recognized by the Engineers and Geoscientists of BC with the EGBC President’s Teaching Award of Excellence. **Mina Hoorfar** (page 7) received the EGBC President’s Teaching Award of Excellence in 2017, recognizing her passion and dedication “to motivating students to succeed.”

Professor **Jonathan Holzman** (right) with student **Mitchell Westgate** work on a project related to solar technology

# Student Excellence

Our students are proven visionaries, taking the initiative to launch new clubs and societies to further build their skills and connections outside the classroom. In just a few years, the Motorsport and Aersopace Clubs have ignited the passion of our students while allowing for networking, competition and conference opportunities. Women in Engineering continues to encourage and mentor female students in our community through various initiatives such as "Go ENG Girl!" which has resulted in an increase in applications from female students.

The UBC Okanagan Concrete Toboggan team earned their best result to date in the annual Great Northern Concrete Toboggan race finishing 3<sup>rd</sup> amongst competitors from across North America and Europe.

Students in the School of Engineering regularly receive NSERC and other academic awards for their research. Other student achievements have been recognized with UBC Governor General awards.

## 16 student clubs/groups

- Engineering Society
- Alpha Omega Epsilon
- Aero Club
- BC Water & Waste Water Association Student Chapter
- Canadian Institution of Transportation Engineering
- CSCE Student Chapter
- CSME Student Chapter
- Engineers Without Borders
- EngiQueers
- Global Engineering Community
- Great Northern Concrete Toboggan Race
- IEEE Student Chapter
- Motorsports
- Mechatronics Club
- Sigma Phi Delta
- Women in Engineering



### DEGREES GRANTED IN 2017

179 Bachelor of Applied Science

21 Master's

9 PhD

13% increase from 2016

# Community Impact

Collaborations with industry and community groups such as Kal Tire, KF Aerospace and Metro Community Church continue to fortify our connections to the Okanagan community stay strong.

In 2017, we hosted "Geering Up" summer camps and after-school programs that enabled hundreds of children to immerse themselves in the worlds of science and engineering with instruction and guidance from Engineering students.

Our inaugural STEM Fair in 2017 was well-received by Vernon Community School. Student projects were incubated in a School of Engineering laboratory under the tutelage of our researchers. The STEM Fair will continue in 2018 with more schools and more faculty participation.

During the second annual School of Engineering Community Open House in October, hundreds of people from the community toured our labs and spoke to our students, faculty and staff.



3<sup>rd</sup> Year Engineering student Hannah Gomes supports middle school students at Go ENG Girl



THE UNIVERSITY OF BRITISH COLUMBIA

**School of Engineering**

Faculty of Applied Science  
Okanagan Campus

[engineering.ok.ubc.ca](http://engineering.ok.ubc.ca)