Through a comprehensive suite of metrics, we evaluate our performance in engineering research and education, including the quality of applicants to our programs and the awards and honours earned by our faculty members. International rankings are complementary measures of excellence, capturing factors such as our research influence, reputation, learning environment and knowledge transfer.

Over the past decade, we have continued to strengthen our position as the highest-ranked engineering school in Canada. This rank is consistent across four organizations that produce world university rankings specific to engineering: the Quacquarelli Symonds World University Rankings (QS), the Times Higher Education World University Rankings (THE), Academic Ranking of World Universities (ARWU) published by ShanghaiRanking Consultancy and the National Taiwan University Performance Ranking of Engineering Papers (NTU; formerly HEEACT). Our Faculty also ranks in the top 10 of North American public universities. We are also the highest-ranked Canadian university across many subject-level rankings, from Chemical Engineering to Electrical Engineering.

While each organization’s assessments and methodologies are unique, our high standing across all major rankings is one of the factors that enables us to attract top students, faculty, staff and industry partners. We will continue to focus on maintaining and enhancing our global reputation in the years to come.
Comprehensive University Rankings

QS World University Rankings for Engineering and Technology

Figure 6.1a QS Top 50 World Universities, 2019

U of T Engineering ranked 22nd in the most recent QS World University Rankings for Engineering and Information Technology. This was a significant rise from last year’s ranking of 43rd and remains well ahead of our Canadian peer universities. Our standing among North American public universities remained in fourth place.

We rank as the top Canadian engineering school in three of the seven engineering and information technology subjects (Chemical Engineering, Computer Science & Information Systems, Electrical & Electronic Engineering) and second in three of the others (Civil & Structural Engineering, Materials Sciences, Mechanical, Aeronautical & Manufacturing Engineering) demonstrating our strength across a range of disciplines.
### Figure 6.1b QS Top North American Public Universities, 2019

<table>
<thead>
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<th>Rank</th>
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<tr>
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### Figure 6.1c Canadian U15 Universities in QS Top 200, 2019

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### Figure 6.1d  Canadian Universities in QS Top 200 by Subject, 2019

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#### Computer Science & Information Systems

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#### Electrical & Electronic Engineering

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#### Materials Sciences

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#### Mechanical, Aeronautical & Manufacturing Engineering

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<td>McMaster U</td>
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<td>U Alberta</td>
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#### Mineral & Mining Engineering

<table>
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<td>U British Columbia</td>
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<tr>
<td>U Toronto</td>
<td>22</td>
</tr>
<tr>
<td>U Laval</td>
<td>45</td>
</tr>
</tbody>
</table>
In the 13 years that Times Higher Education (THE) has published rankings in Engineering and Information Technology, our Faculty has consistently been ranked the top Canadian school and among the top 10 North American public universities, this year placing ninth. THE is characterized by the breadth of its evaluation, which uses 13 performance indicators in five weighted categories:

- Teaching: the learning environment (30%)
- Research: volume, income and reputation (30%)
- Citations: research influence (30%)
- International outlook: staff, students and research (7.5%)
- Industry income and innovation (2.5%)
Figure 6.2b **THE Top North American Public Universities, 2019**

- Georgia Inst of Tech
- U California, Berkeley
- U California, Los Angeles
- U Michigan-Ann Arbor
- U Texas at Austin
- U Illinois, Urbana-Champaign
- Purdue U, West Lafayette
- U California, Santa Barbara
- U Toronto
- U California, San Diego
- U Wisconsin, Madison
- Pennsylvania State U
- McGill U
- U Washington
- Texas A&M U
- Ohio State U
- U British Columbia
- Virginia Polytech Inst & State U
- U California, Davis
- U Maryland, College Park
- U Minnesota Twin Cities
- U California, Irvine
- U Colorado Boulder
- Arizona State U
- North Carolina State U

Figure 6.2c **Canadian U15 Universities in THE Top 200, 2019**

- U Toronto
- McGill U
- U British Columbia
- U Waterloo
- U Alberta
Academic Ranking of World Universities (ARWU) for Engineering Subjects

U of T Engineering is Canada’s top school across four of the engineering subject-level rankings provided by ARWU: Aerospace Engineering, Biomedical Engineering, Computer Science & Engineering and Materials Science & Engineering. We rank second or third in Canada in four more: Mechanical Engineering, Civil & Structural Engineering, Electrical & Electronic Engineering and Mineral Engineering.

ARWU is produced by ShanghaiRanking Consultancy, and has provided university-level rankings since 2003. The company also provided field-level rankings (e.g., Engineering, Science, Medicine) from 2007 to 2016. In 2016, ARWU first introduced subject-level rankings for engineering disciplines (e.g., Mechanical Engineering, Aerospace Engineering). These subject-level rankings have now replaced the field-level rankings that have formed the basis of our previous reporting. Of the 22 engineering-related fields, which we have chosen to report the nine most relevant to our programs.

The ARWU’s methodology has changed in recent years, and is currently based on five scoring measures:

- **PUB** – The number of papers authored by an institution in an academic subject during 2011-2015, as indexed in Clarivate’s InCites report.
- **CNCI** – Category Normalized Citation Impact: The ratio of citation of papers published by an institution in an academic subject during the period of 2011-2015 to the average citation of papers in the same category, of the same year and same type.
- **IC** – The extent of international co-authorship.
- **TOP** – The number of papers published in top journals.
- **AWARD** – The number of faculty members winning a significant award.

Below is the complete list of ARWU Subject Rankings in Engineering, with those relevant to our programs in bold:

- Aerospace Engineering
  - Automation & Control
- Biomedical Engineering
  - Biotechnology
- Chemical Engineering
  - Civil Engineering
- Computer Science & Engineering
- Electrical & Electronic Engineering
  - Energy Science & Engineering
- Environmental Science & Engineering
- Food Science & Technology
- Instruments Science & Technology
- Marine/Ocean Engineering
- Materials Science & Engineering
- Mechanical Engineering
  - Metallurgical Engineering
- Mining & Mineral Engineering
- Nanoscience & Nanotechnology
- Telecommunication Engineering
- Transportation Science & Technology
- Remote Sensing
- Water Resources
### Figure 6.3 Canadian Universities in ARWU Top 200 World Universities by Subject, 2018

#### Aerospace Engineering
- **U Toronto**: 15
- **McGill U**: 44

#### Biomedical Engineering
- **U Toronto**: 27
- **U British Columbia**: 72
- **McGill U**: 77
- **U Alberta**: 145
- **U Montréal**: 152
- **U Ottawa**: 196

#### Chemical Engineering
- **U Alberta**: 35
- **U Waterloo**: 56
- **U Calgary**: 110
- **U British Columbia**: 119
- **U Ottawa**: 137
- **Western U**: 141
- **U Toronto**: 155
- **McGill U**: 164
- **U Regina**: 169
- **McMaster U**: 177
- **U Laval**: 187

#### Civil & Structural Engineering
- **Western U**: 14
- **U British Columbia**: 25
- **U Toronto**: 28
- **McMaster U**: 30
- **McGill U**: 44
- **U Waterloo**: 61
- **U Alberta**: 71
- **U Ottawa**: 77
- **U Montréal**: 89
- **Concordia U**: 99
- **Carleton U**: 123
- **U Sherbrooke**: 139
- **Ryerson U**: 180
- **Queen’s U**: 185

#### Computer Science & Engineering
- **U Toronto**: 11
- **U British Columbia**: 32
- **U Waterloo**: 36
- **Simon Fraser U**: 69
- **McMaster U**: 73
- **U Montréal**: 80
- **McGill U**: 122
- **U Alberta**: 141
- **Western U**: 189
- **U Victoria**: 199

#### Electrical Engineering
- **U British Columbia**: 60
- **U Waterloo**: 62
- **McGill U**: 88
- **U Toronto**: 92
- **Queen’s U**: 98
- **U Montréal**: 118
- **U Victoria**: 135
- **McMaster U**: 141
- **Ryerson U**: 149
- **U Manitoba**: 158
- **Western U**: 165
- **Carleton U**: 170
- **U Québec**: 171
- **U Calgary**: 179
- **U Alberta**: 195

#### Materials Science & Engineering
- **U Toronto**: 69
- **U Waterloo**: 90
- **U British Columbia**: 128
- **Dalhousie U**: 195

#### Mechanical Engineering
- **McGill U**: 57
- **U Toronto**: 71
- **U British Columbia**: 104
- **U Alberta**: 112
- **U Waterloo**: 119
- **Concordia U**: 183
- **Ryerson U**: 197

#### Mineral Engineering
- **McGill U**: 9
- **U Alberta**: 17
- **U Toronto**: 25
- **U British Columbia**: 29
- **U Laval**: 72
National Taiwan University (NTU) Performance Ranking of Engineering Papers

U of T Engineering ranked first in Canada, eighth among top-tier North American public universities, and 55th in the National Taiwan University (NTU) Performance Ranking of Engineering Papers.

Unlike the other rankings in this section, the NTU rankings are based entirely on bibliometrics. It compares the top 200 universities in the world by subject, using eight weighted criteria grouped into three broad categories:

Research Productivity
- Total number of articles published in the past 11 years (2007–17) [10%]
- Total number of articles published in the most recent year reported (2017) [15%]

Research Impact
- Total number of citations in the past 11 years (2007–17) [15%]
- Total number of citations in the past two years (2016–17) [10%]
- Average annual number of citations over the past 11 years (2007–17) [10%]

Research Excellence
- H-index (measures productivity and impact of published work) of the past two years (2016–17) [10%]
- Number of highly cited papers in the past 11 years (2007–17) [15%]
- Number of papers published in high-impact journals in the current year (2016) [15%]

Figure 6.4a NTU Top 60 World Universities, 2018

- Tsinghua U
- Nanyang Tech U
- Harbin Inst of Tech
- U Chinese Academy of Sci
- Shanghai Jiao Tong U
- Zhejiang U
- National U Singapore
- Massachusetts Inst of Tech
- Huazhong U Sci & Tech
- Georgia Inst of Tech
- Xian Jiaotong U
- U California, Berkeley
- Stanford U
- U Sci and Tech of China
- South China U Tech
- Tianjin U
- Peking U
- City U Hong Kong
- Southeast U
- Beihang U
- Imperial College London
- Dalain U Tech
- Swiss Federal Inst of Tech, Lausanne
- U Cambridge
- King Abdullah U
- Harvard U
- U Texas, Austin
- Hong Kong Polytechnic U
- Central South U
- Seoul National U
- Swiss Federal Inst of Tech, Zurich
- Tongji U
- Fudan U
- U Michigan, Ann Arbor
- Wuhan U
- Northwestern U
- U Illinois, Urbana-Champaign
- Soochow U
- Northwestern Polytechnical U
- Nanjing U
- Korea Advanced Inst of Sci and Tech
- Delft U Tech
- U New South Wales
- U Sci and Tech Beijing
- Pennsylvania State U, University Park
- U California, Los Angeles
- Jin U
- Beijing Inst of Tech
- Hong Kong U of Sci and Tech
- U Chicago
- Qingping U
- Tech U Denmark
- U of Electronic Sci and Tech of China
- Shandong U
- Sichuan U

Figure 6.4b NTU Top North American Public Universities for Engineering, 2018

- Georgia Inst of Tech
- U California, Berkeley
- U Texas, Austin
- U Michigan, Ann Arbor
- U Illinois, Urbana-Champaign
- Pennsylvania State U, Univ Park
- U California, Los Angeles
- U Toronto
- Texas A&M U, College Station
- U Waterloo
- Purdue U, West Lafayette
- U Washington, Seattle
- U California, San Diego
- U California, Santa Barbara
- North Carolina State U
- U Maryland, College Park
- U Wisconsin, Madison
- U British Columbia
- U Alberta
- Ohio State U, Columbus
- U Tennessee, Knoxville
- U Minnesota, Twin Cities
- Arizona State U
- U Colorado, Boulder
- U Florida
- Virginia Polytech Inst and State U
- Rutgers U, New Brunswick
- U California, Davis
- McGill U
- Iowa State U

Tsinghua U
Nanyang Tech U
Harbin Inst of Tech
U Chinese Academy of Sci
Shanghai Jiao Tong U
Zhejiang U
National U Singapore
Massachusetts Inst of Tech
Huazhong U Sci & Tech
Georgia Inst of Tech
Xian Jiaotong U
U California, Berkeley
Stanford U
U Sci and Tech of China
South China U Tech
Tianjin U
Peking U
City U Hong Kong
Southeast U
Beihang U
Imperial College London
Dalain U Tech
Swiss Federal Inst of Tech, Lausanne
U Cambridge
King Abdullah U
Harvard U
U Texas, Austin
Hong Kong Polytechnic U
Central South U
Seoul National U
Swiss Federal Inst of Tech, Zurich
Tongji U
Fudan U
U Michigan, Ann Arbor
Wuhan U
Northwestern U
U Illinois, Urbana-Champaign
Soochow U
Northwestern Polytechnical U
Nanjing U
Korea Advanced Inst of Sci and Tech
Delft U Tech
U New South Wales
U Sci and Tech Beijing
Pennsylvania State U, University Park
U California, Los Angeles
Jin U
Beijing Inst of Tech
Hong Kong U of Sci and Tech
U Chicago
Qingping U
Tech U Denmark
U of Electronic Sci and Tech of China
Shandong U
Sichuan U
U Toronto
Hunan U
U Oxford
Monash U
Texas A&M U, College Station
Georgia Inst of Tech
U California, Berkeley
U Texas, Austin
U Michigan, Ann Arbor
U Illinois, Urbana-Champaign
Pennsylvania State U, Univ Park
U California, Los Angeles
U Toronto
Texas A&M U, College Station
U Waterloo
Purdue U, West Lafayette
U Washington, Seattle
U California, San Diego
U California, Santa Barbara
North Carolina State U
U Maryland, College Park
U Wisconsin, Madison
U British Columbia
U Alberta
Ohio State U, Columbus
U Tennessee, Knoxville
U Minnesota, Twin Cities
Arizona State U
U Colorado, Boulder
U Florida
Virginia Polytech Inst and State U
Rutgers U, New Brunswick
U California, Davis
McGill U
Iowa State U
In NTU’s rankings of engineering and information technology subject areas, U of T Engineering placed first among Canadian institutions in two out of six subject rankings and second in two more, as shown in Figure 6.4d. We are among the top 50 globally in Computer Science and Electrical Engineering.
### Figure 6.5a Number of Engineering Publications Indexed by Thomson Reuters for Association of American Universities (AAU) Public and Canadian Peer Institutions, 2013 to 2017

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<td>U Oregon</td>
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### Figure 6.5b Summary of U15 Bibliometrics for Publications, 2013 to 2017

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<th>Publication</th>
<th>Faculty Count</th>
<th>Publications per Faculty</th>
<th>Rank on Pub per Faculty</th>
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<tr>
<td>U Alberta</td>
<td>3,082</td>
<td>227</td>
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<tr>
<td>McGill U</td>
<td>2,672</td>
<td>143</td>
<td>18.8</td>
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<tr>
<td>U British Columbia</td>
<td>2,470</td>
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<tr>
<td>U Montréal</td>
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<tr>
<td>U Calgary</td>
<td>1,515</td>
<td>156</td>
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<tr>
<td>Western U</td>
<td>1,364</td>
<td>108</td>
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<tr>
<td>Laval U</td>
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<td>162</td>
<td>7.0</td>
</tr>
<tr>
<td>Queens U</td>
<td>1,075</td>
<td>127</td>
<td>8.5</td>
</tr>
<tr>
<td>U Ottawa</td>
<td>1,058</td>
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<td>Dalhousie U</td>
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<td>7.1</td>
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**Note 6.5 and 6.6:** Faculty counts are based on data from the Engineers Canada Resources Report (2017) Publication and citation data from Thomson Reuters InCites™, updated April 30, 2019.
The AAU index citation counts are based on the total number of papers cited over a five-year period, as well as the frequency of citations per faculty member and article. U of T Engineering placed first in Canada and ninth among North American public institutions in the total number of citations.

We ranked second in Canada for citations per faculty after McGill University, and retained the lead among Canadian universities in the number of citations per publication, which is the metric representing the relevance of our publications as cited by other researchers.

**Figure 6.6a** Number of Engineering Citations Indexed by Thomson Reuters for Association of American Universities (AAU) Public and Canadian Peer Institutions, 2013 to 2017

**Figure 6.6b** Summary of U15 Bibliometrics for Citations, 2013 to 2017

- **U Toronto**
  - Citations: 51,854
  - Faculty Count: 261
  - Citations per Faculty: 199.1
  - Rank on Citations per Faculty: 2
  - Citations per Publication: 16.4
  - Rank on Citations per Publication: 1

- **U Waterloo**
  - Citations: 44,588
  - Faculty Count: 296
  - Citations per Faculty: 150.7
  - Rank on Citations per Faculty: 5
  - Citations per Publication: 13.7
  - Rank on Citations per Publication: 3

- **U Alberta**
  - Citations: 36,545
  - Faculty Count: 227
  - Citations per Faculty: 160.9
  - Rank on Citations per Faculty: 3
  - Citations per Publication: 11.9
  - Rank on Citations per Publication: 7

- **McGill U**
  - Citations: 31,303
  - Faculty Count: 143
  - Citations per Faculty: 219.7
  - Rank on Citations per Faculty: 1
  - Citations per Publication: 11.7
  - Rank on Citations per Publication: 8

- **U Montréal**
  - Citations: 30,143
  - Faculty Count: 254
  - Citations per Faculty: 118.7
  - Rank on Citations per Faculty: 8
  - Citations per Publication: 14.0
  - Rank on Citations per Publication: 2

- **U British Columbia**
  - Citations: 27,495
  - Faculty Count: 195
  - Citations per Faculty: 141.2
  - Rank on Citations per Faculty: 6
  - Citations per Publication: 11.1
  - Rank on Citations per Publication: 9

- **Western U**
  - Citations: 17,063
  - Faculty Count: 108
  - Citations per Faculty: 158.0
  - Rank on Citations per Faculty: 4
  - Citations per Publication: 12.5
  - Rank on Citations per Publication: 5

- **McMaster U**
  - Citations: 15,715
  - Faculty Count: 156
  - Citations per Faculty: 100.9
  - Rank on Citations per Faculty: 11
  - Citations per Publication: 10.1
  - Rank on Citations per Publication: 11

- **U Calgary**
  - Citations: 15,516
  - Faculty Count: 159
  - Citations per Faculty: 97.6
  - Rank on Citations per Faculty: 10
  - Citations per Publication: 9.8
  - Rank on Citations per Publication: 13

- **U Ottawa**
  - Citations: 11,573
  - Faculty Count: 125
  - Citations per Faculty: 92.6
  - Rank on Citations per Faculty: 11
  - Citations per Publication: 10.9
  - Rank on Citations per Publication: 10

- **Laval U**
  - Citations: 11,246
  - Faculty Count: 162
  - Citations per Faculty: 69.4
  - Rank on Citations per Faculty: 15
  - Citations per Publication: 9.9
  - Rank on Citations per Publication: 12

- **U Saskatchewan**
  - Citations: 10,873
  - Faculty Count: 87
  - Citations per Faculty: 124.8
  - Rank on Citations per Faculty: 7
  - Citations per Publication: 12.6
  - Rank on Citations per Publication: 4

- **Queens U**
  - Citations: 10,228
  - Faculty Count: 127
  - Citations per Faculty: 80.5
  - Rank on Citations per Faculty: 14
  - Citations per Publication: 9.5
  - Rank on Citations per Publication: 14

- **Dalhousie U**
  - Citations: 8,796
  - Faculty Count: 104
  - Citations per Faculty: 84.5
  - Rank on Citations per Faculty: 12
  - Citations per Publication: 12.0
  - Rank on Citations per Publication: 6

- **U Manitoba**
  - Citations: 6,999
  - Faculty Count: 85
  - Citations per Faculty: 82.4
  - Rank on Citations per Faculty: 13
  - Citations per Publication: 9.1
  - Rank on Citations per Publication: 15
## Summary of Ranking Results

In the most recent results available, we strengthened our position as the top Canadian engineering school across all rankings. We placed in the top 10 among North American public universities, our closest peers. Although no ranking can decisively illustrate a school's performance, our high rankings enhance our ability to attract top students, faculty and collaborators from around the world.

### Figure 6.7 Summary of University of Toronto Engineering Performance in World Rankings

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<th>Ranking Organization</th>
<th>Release Date</th>
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<th>North American Public</th>
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