

## THE ENGINEERING PROFESSION'S POSITION

- Government support of science, technology, engineering, and math (STEM) education is key to ensuring that Canada remains a leader in the provision of intelligent capital to the global market place.
- Programs dedicated to improving STEM education are critical in preparing the youth of today for the jobs of tomorrow.
- Canada is moving rapidly towards a knowledge-based jobs economy and STEM education can help provide adequate graduates to address the current gap.
- Canada must continue to be a leader in STEM education to place the country in a position to protect intellectual capital and strengthen its evidence-based decision-making ability.

### The issue

Although it is difficult to predict labour market demands in the long-term, the increasing automation across industries as well as rapid changes in technology, are potential factors that will influence education curriculums as well as the way in which Canadians will work.

Foundational skills in STEM will prepare Canadian youth by equipping them with the right knowledge base to succeed during times of economic uncertainty.

To ensure Canadians are prepared to meet coming challenges, the federal government must invest in STEM literacy and support the development of STEM skills for Canada's youth. Support for STEM education, specifically engineering education, is vital to address the challenges of the future with evidence-based solutions.

### How Engineers Canada has contributed

Engineers Canada is actively engaged in supporting the development of STEM literacy in education and supporting engineering education.

Engineers Canada leads [National Engineering Month](#), which is Canada's largest celebration of engineering excellence. Each March, volunteers engage youth in over 500 events through hands-on STEM activities that expose Canadian youth to engineering.

Engineers Canada also leads the Future City program in Canada, which, in partnership with DiscoverE, supports elementary schools in delivering a STEM-based curriculum that integrates the engineering design process with project-based learning.

Engineers Canada worked collaboratively with the Girl Guides of Canada to create the first engineering crest. This crest is awarded to girl guides who complete engineering-related activities under the supervision of a member of the engineering community such as a professional engineer, engineer-in-training, engineering graduate, or engineering student. These activities are designed to illustrate the many ways that engineering shapes everyday life. By participating in the program, girls also gain a better understanding of engineering.

Futhermore, Engineers Canada is a key supporter of the Go Eng Girl program, an initiative that is expanding across Canada and is credited with strong increases of female enrolment in undergraduate engineering programs across Ontario.

Engineers Canada accredits undergraduate engineering programs. The Canadian Engineering Accreditation Board holds institutions to some of the highest standards in the world, which helps create some of the best engineers. These programs are certified as meeting the academic requirements needed to be licensed as a professional engineer in Canada. Engineers Canada accredits undergraduate engineering programs to help maintain the capacity for producing highly trained and skilled individuals to meet future economic demands.

Engineers Canada also supports the [Canadian Federation of Engineering Students \(CFES\)](#), a national, bilingual organization that represents approximately 60,000 engineering students across Canada. The CFES aims to provide opportunities in support of an all-encompassing education for engineering students in Canada to become unparalleled professionals in their field.

## Recommendations to the federal government

Proactive and long-term education strategies must include investments in building fundamental STEM literacy. This strategic approach will help Canada maintain the capacity for producing highly trained and skilled individuals to meet future economic demands.

Too often when discussing STEM education is the emphasis placed on science, technology,

and mathematics; ignoring the importance of engineering altogether. However, it is crucial that policies related to STEM literacy and skills place a larger emphasis on engineering to grow the public's understanding of the profession. Engineering is crucial to solving the challenges that the Canadian public increasingly face. Engineers, amongst their many other important contributions to society, create, maintain, refurbish, and decommission public infrastructure, uphold the integrity of drinking water, and deliver solutions to adapt to Canada's changing climate.

A lack of understanding around the work of engineering is one of several factors that contribute to a disproportionately low representation of women and Indigenous peoples in the profession. By including the contributions of previously untapped talent, the profession will be better prepared to serve the public and to address complex problems in society.

Federal support towards supporting STEM education, mentorship opportunities, and initiatives will help to grow the leaders and influencers of the future. This support can come in many forms, such as bursaries, funding for co-operative engineering placements, funding for engineering-specific initiatives at universities, colleges, elementary schools, and incubators, and placing an emphasis on engineering-related program funding through the Natural Sciences and Engineering Research Council of Canada (NSERC). Support can also come through the provinces and territories to obtain concurrence on STEM skills as a national priority.