



“The Canadian Federation of Engineering Students believes that as the future engineers of a global society, Canadian engineering students should have the opportunity to take elective language skills courses as part of their undergraduate degree program.”

The Students’ Position

- The current accreditation policy governing language electives has been interpreted and enacted unevenly at different institutions, and must be applied consistently in order to give students a full and appropriate range of elective choices.
- Knowledge of an additional language is a valuable asset for engineers practicing both internationally and domestically, and imparts many additional advantages to students.
- Canadian engineering students should have the opportunity to pursue elective courses that principally impart language skills to fulfill certain degree requirements.

The Issue

Language learning is a pursuit which has positive impacts beyond basic comprehension and translation. Learning an additional language has been shown to enhance creative ability by promoting unique problem solving, flexibility, and creative thinking (Lee & Kim 2011). It can also help improve task focus, multi-tasking, and working memory, while positively influencing the development of reading and spelling skills in one’s first language (Morales et. al. 2013; Prior & MacWhinney 2010). All of these additional benefits clearly contribute to the overall competence of a professional engineer. In addition to these benefits, knowledge of an additional language can be a valuable tool for a practicing engineer, both within and outside of Canada.

Among the 12 Graduate Attributes that Canadian engineering programs are expected to impart to their graduates is communication skills, which entails “an ability to communicate complex engineering concepts within the profession and with society at large” (CEAB 2017). As the scale of business and engineering projects becomes increasingly international, the ability to communicate engineering information across language barriers becomes an increasingly valuable subset of engineering communication skills. The CFES National Student Survey concluded that 41.0% of Canadian engineering students speak only one language, with rates of multilingualism varying significantly between international and domestic students, and between students in different regions of Canada (CFES 2018). Canadian engineers are also given an education that meets substantial equivalency requirements with 18 other countries under the Washington Accord through the International Engineering Alliance (IEA 2017). The knowledge of an additional language gives Canadian engineers an edge when working internationally or with domestic companies that conduct business internationally.

Skills in an additional language are an asset even within Canada. While engineers registered in any Canadian province are qualified to apply for licensure in any other province, each provincial regulator retains the right to enforce their own language requirements, which require an appropriate knowledge of French to practice in Quebec, an appropriate knowledge of either French or English to practice in New Brunswick, and an appropriate knowledge of English in all other provinces (Engineers Canada 2017). Engineering students who have been given the opportunity to study a second of Canada’s official languages are in an advantageous position to be successful in all locations across Canada.

In addition to French and English, over 60 Aboriginal languages are spoken in Canada, with 213,500 Canadians speaking an Aboriginal language as a first language, and 213,400 Canadians speaking an Aboriginal Language most often or regularly at home (Statistics Canada 2011). In Engineers Canada's position statement on Infrastructure on First Nations Reserves and in Remote Communities, they state that engineers are well positioned to help address shortcomings in essential infrastructure on First Nations Reserves and in remote communities, and that "the engineering profession seeks to honour traditional and cultural practices while working with the Indigenous peoples of Canada" (Engineers Canada 2017). Several schools with engineering programs also offer language courses in Aboriginal languages, including the University of Saskatchewan (Cree), University of Manitoba (Cree and Ojibwe), Lakehead University (Ojibwe), and Queen's University (Ojibwe, Mohawk, and Inuktitut) (University of Saskatchewan 2017; University of Manitoba 2017; Lakehead University 2017; Queen's University 2017). Certainly, engineering students at these universities who enroll in Aboriginal language classes should be especially well suited to communicate engineering ideas in the context of traditional and cultural practices when working in remote First Nations communities, where day-to-day use of Aboriginal languages is most prominent.

In any engineering program, the number of non-technical electives open to students is limited by the high number of necessary technical courses. With the opportunity to only take one or two language skills courses during an engineering degree, no student is likely to obtain conversational fluency in a new language before graduation. However, ensuring that students are not restricted from taking these courses allows them to begin the process of learning a new language, and opens the door for the further development of this skill set during their professional careers.

Currently, language skills courses are not available to students in many Canadian engineering programs. While the University of Ottawa offers engineering courses in both English and French, and Université de Moncton (a French language institution) requires engineering students without adequate skills in English to take an English course, there are many institutions where language courses available to the general student population cannot be counted for credit as any component of an engineering degree (University of Ottawa, 2017; Université de Moncton 2017). The Accreditation Criteria and Procedures governing Canadian programs classify language courses under the 225 Accreditation Units dedicated to "complementary studies", and include a specific clause distinguishing languages courses from other complementary electives:

"3.4.5.2 Language instruction may be included within complementary studies provided it is not taken to fulfill an admission requirement. Furthermore, curriculum content that principally imparts language skills can be counted toward the required AU of complementary studies but cannot be used to satisfy the requirements for subject matter that deals with central issues, methodologies, and thought processes of the humanities and social sciences." (CEAB 2017)

This criterion draws a distinction between courses that focus on the culture surrounding a certain language from a humanities perspective, and courses which principally impart language skills, which institutions typically classify differently. A study of how this policy has been enacted across Canada conducted in 2017 found that engineering programs at 60% of research-intensive U15 universities allow language skills courses as a complementary elective, as do 52% of programs at non-U15 institutions (Abdulnabi & Kresta 2017). It was concluded that this was not the consequence of a restrictive accreditation policy, but rather of choices made at an institutional level. Schools which permit language skills electives also tend "to allow a large list of liberal studies / women's studies [courses], and the like", while "institutions at the other end of the spectrum tend to be very prescriptive of acceptable complementary studies courses" (Abdulnabi & Kresta 2017). Discussion of this topic at the September 2017 meeting of the Accreditation Board suggested that many engineering programs may be offering electives on a more restrictive basis because they had not updated their course offerings when accreditation criteria governing complementary electives were loosened in recent years (Cassidy 2017).

If these assertions are correct, then an effort should be made to align the student options in all accredited

programs within an appropriately broad understanding of the current criteria. This responsibility falls on the Accreditation Board to assist with the correct interpretation of their policies, on the faculties of individual programs to re-examine their course offerings, and the students of these institutions to advocate for this change. According to the CFES National Student Survey, 38.6% of Canadian engineering students whose programs do not offer language skills courses would consider taking an additional language course if one were available (CFES 2017). In the interest of preparing these future engineers for maximum competence both domestically and internationally, all stakeholders have a part to play to fixing the current mismatch between language skills course criteria and the reality in engineering programs.

What the CFES is doing

- The CFES began a discussion on the interpretation of language course policy at the September 2017 meeting of the Accreditation Board, which was reported to the Engineers Canada Policy & Procedures Committee for further consideration.

What the CFES plans to do

- The CFES will provide resources on language electives to equip its member schools with the information they require to advocate for elective changes at individual institutions.

Recommendations to Partners, Stakeholders, and Other Entities

- The CFES calls on the National Council of Deans of Engineering and Applied Science (NCDEAS) to encourage its member faculties to review their complementary elective offerings, and to allow the enrolment of engineering students in language courses for credit wherever possible.
- The CFES calls on the Canadian Engineering Accreditation Board to assist institutions with the interpretation of their existing policy on complementary electives by publishing an official interpretive statement on the subject.

Sources

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