Futures of Engineering Accreditation

Path forward co-design session

April 17-18, 2024 | Toronto, Ontario

Summary

The two-day collaborative design session in Toronto, Ontario provided an opportunity for a representative cohort of interest holders to consider the implications of the Futures of Engineering Accreditation (FEA) project's proposed purpose of accreditation and National Academic Requirement for Licensure (NARL) on the engineering ecosystem. The session was designed to:

1. Explore the proposed concepts, insights, gaps, and recommendations as they have been outlined in the purpose of accreditation and academic requirement for licensure documents;
2. Understand the changes we might see in our work going forward; and
3. Identify gaps and key priorities for the Path Forward Report to address.

The 37 participants included representation from the Canadian Engineering Accreditation Board (CEAB), the Canadian Engineering Qualifications Board (CEQB), Engineers Canada staff, select members of Engineering Deans Canada (EDC), and the FEA project Steering Committee and Regulator Advisory Group. Together, participants:

1. Identified key focus areas for further development by the team working on the Path Forward Report;
2. Provided ideas and guidance on possible actions and approaches that could enable the implementation of the proposed concepts; and
3. Strengthened the collective understanding of potential systems change(s) and identified recommendations for risk mitigation.

Over the two days, through lively and passionate discussions, six main themes emerged:

1. **Co-Design:** Throughout the session, we heard from numerous participants (both in small group conversations and in plenary) about the importance of collaborative design (co-design). The co-design methodology has been used throughout the FEA project. It seeks to actively involve representatives of all major interest holder groups in understanding the full problem scope and identifying possible solutions based on a range of perspectives. The bullet points below highlight the main themes we heard about co-design:
    - There is a desire to continue using a co-design methodology in this project, as well as to incorporate it into the future accreditation system and the design and maintenance of the Full Spectrum Competency Profile (FSCP).
    - Co-design will help maintain the momentum of this work and ensure the outcomes reflect the diverse set of needs and perspectives within the engineering ecosystem.
    - Co-design will help create inclusive solutions to the opportunities identified through this project, ensuring that many of the people who will be impacted by specific changes can be part of the design and recommendation process. Participants indicated they believed co-design would ensure continued support and clear next steps for this work.

2. **National Academic Requirement for Licensure (NARL):** There is excitement for the NARL, a framework for the academic assessment of individuals pursuing engineering licensure who hold a degree from a program accredited by the CEAB and those who do not. However, there was also recognition that more work needs to be done ahead of the Path Forward Report and into 2025 (such as defining the competencies and associated indicators and exploring the assessment methodologies of these competencies). The bullet points below highlight the main themes we heard about the National Academic Requirement for Licensure:
    - It will be important to develop and communicate the rationale for the selection of the 16 competencies that make up the NARL and the role of accredited programs in the assessment of the NARL competencies vs. what programs are expected to teach.

- Critical to the success of the FSCP and the NARL will be demonstrating how they address issues of fairness and equity when assessing CEAB and non-CEAB applications for licensure.
- There was considerable discussion about the competency requirements at the "know," "know-how," and "show" stages. This also contributed to a discussion about how classroom and experience-based learning would be demonstrated by both CEAB and non-CEAB graduates.
- As the competencies are developed across the FSCP, it will be important to consider how the spectrum is communicated and what candidates need to know at each point of the continuum. Clarity is necessary not just for the defensibility of the NARL, but also to ensure key interest holders understand the proposed changes and are comfortable implementing them.

3. **Proposed Purpose of Accreditation:** The renewed accreditation system must be designed so that (1) engineering regulators have confidence in realizing its proposed purpose, (2) it isn't overly burdensome to the Higher Education Institutions (HEIs), and (3) it contributes to the preparation of students as they take the next steps in their futures. Participants felt that the proposed purpose of accreditation moved the accreditation system in the appropriate direction. The bullet points below highlight the main themes we heard about the proposed purpose of accreditation:
    - There are aspects of the design criteria behind the proposed purpose that will need more direction, such as the necessity of faculty licensure and incorporating learning environment factors into accreditation decisions.
    - It will be necessary to confirm that the proposed purpose of accreditation and design parameters maintain alignment with the requirements of the Washington Accord and other international agreements to which Engineers Canada is a signatory.

4. **A prototype/pilot:** Participants believe that a pilot is needed to demonstrate the feasibility of implementing the concepts across the engineering licensure and accreditation systems. It was suggested that the pilot could involve selecting a small subset (3-5) of the FSCP competencies, including at least one technical competency and one professional competency, developing the competencies and the associated indicators, and applying

the resulting framework in both the accreditation and licensure environments.

- The pilot should involve a range of interest holders, including engineering regulators and HEIs, and be advanced quickly. The pilot could help inform the process of fully developing the NARL and the FSCP and demonstrate their applicability in the engineering ecosystem.

5. **Incremental and iterative change:** Participants agreed that any change journey takes time and that the FEA project has thus far provided a solid foundation on which to build. While many of FEA's proposals are transformational in nature (development of the FSCP and the NARL and transitioning to an outcomes-focused accreditation system), participants felt that taking an "incremental" and "iterative" approach to many aspects of the proposed changes would be beneficial. The benefits of this approach include the ability to properly identify areas of the existing system that will have to adjust, time to approach each aspect of the transition thoroughly, and, importantly, the ability to advance change while ensuring the existing system continues to perform. The pilot/prototype (see point four above) is a form of incremental change and would provide helpful learning as additional competencies are developed. Participants also identified changes that could be implemented without delay. These included:
    - Eliminating input measurements from the current accreditation system (Accreditation Units (AUs) as a measurement of curriculum content and associated minimum path analysis) and moving to an outcomes-focused methodology (currently expressed as Graduate Attributes).
    - Separating the CEAB policy and audit functions.
    - Co-designing all policies with interest holders moving forward.

6. **Communication:** The FEA project has implications for interest holders across the engineering ecosystem, from prospective students to HEIs, engineering regulators, Engineers Canada, the CEAB, the CEQB, employers, and job seekers. Representatives of most interest holder groups have participated in a variety of activities to shape the outcomes of the project. Moving forward, it will be important to ensure that outputs and outcomes, along with recommendations and decisions, continue to be communicated across the

system. The bullet points below highlight the main themes we heard about communication:

- Many participants thought a graphic showing the project's key milestones, learnings, and decisions would be a useful tool to help anyone stepping into the project understand the "how" and "why" of where the project is today.
- A lot of work has been completed and there is a desire to share progress and findings to a broader audience in a concise and graphical manner.

The FEA project team and Steering Committee will use the themes presented in this document to inform the next stages of the project and the contents of the Path Forward Report. The report will be developed over the spring and summer of 2024 and contain the Steering Committee's final recommendations and proposed activities for 2025 and beyond.

About the Futures of Engineering Accreditation project

Futures of Engineering Accreditation (FEA) is an initiative by Engineers Canada and part of its 2022-2024 Strategic Plan. The objective of the FEA project is to leverage the insights, perspectives, and expertise of members of the Canadian engineering ecosystem to examine the current accreditation system, understand how it is serving contemporary needs, and consider how it can chart a new path for the future of the engineering profession. The strategic priority aims to bring together the diverse perspectives of the Canadian engineering ecosystem to create an accreditation system that moves everyone forward together. Expected project outcomes include:

1. All interest holders understand the purpose of accreditation.
2. Regulators have an academic requirement for licensure, applicable to all.
3. Engineers Canada, including the CEAB and CEQB, have direction to implement systems aligned with the purpose and the academic requirement for licensure.

This project is done in partnership with Coeuraj, a design and facilitation consultancy. The "project team" includes Engineers Canada staff and Coeuraj personnel.

For more information, visit https://engineeringfutures.ca/.