

Contextual material

This document provides an illustrative list of activities related to the purpose statement to help clarify the concepts of meaningful and substantial involvement of professional engineers in student education. These activities are intended as examples only and should not be interpreted as prescriptive requirements.

Purpose statement

The purpose of having substantial and meaningful involvement of professional engineers in the education of students is to ensure that graduates understand that the profession's foremost responsibility, within the context of a regulated profession in Canada, is to the public good.

Graduates must understand that licensure requires:

- technical competence,
- professionalism, and
- personal accountability.

Furthermore, graduates must understand that a self-regulating engineering profession must serve the public interest and that professional engineers must recognize their responsibilities and the expectations of government and society, thereby fostering an inclusive, ethically responsible professional community.

Definitions

Meaningful involvement is characterized by a clear and intentional educational approach that supports the students' understanding.

Substantial involvement refers to engagement that is meaningful, sustained, and integral to the educational experience.

Illustrative list of activities

1. Case study: analysis of a consultation process that did not achieve its intended outcome.
 - **What it looks like:** Students engage in a structured case study examining a real or realistic engineering project where the consultation/engagement process did not achieve its intended outcome. The activity focuses on how engineers engaged with affected parties, how concerns were (or were not) identified and addressed, and how professional responsibilities to the public interest were exercised.
 - **Evidence:** Documented group analyses or reports demonstrating students' ability to:
 - Identify shortcomings in an engineering consultation or engagement process.

- Reflect on professional responsibilities related to communication, respect, and public interest.
 - Articulate lessons learned and propose improvements for future professional practice.
2. Professional portfolio maintained by students throughout the program.
 - **What it looks like:** Students document interactions with professional engineers, co-op experiences, ethical decisions, and professional growth over time.
 - **Evidence:** Portfolio entries, reflection prompts, mapped outcomes, longitudinal samples showing development.
 3. Ethics workshops delivered by regulator practice review groups (with student assessment).
 - **What it looks like:** Students participate in regulator-led sessions on ethics, complaints, and professional conduct and complete an assessed artifact.
 - **Evidence:** Workshop materials, attendance, assessed reflections or case memos, rubrics.
 4. First-year in-course project aligned with health and safety regulations.
 - **What it looks like:** Students apply health and safety regulations to an early design or activity, identify hazards, and submit an assessed analysis reviewed with the input of a professional engineer.
 - **Evidence:** Hazard analyses, completed assessments, feedback notes, student reflections on professional responsibility.
 5. Student-led safety inspections in labs or project spaces with professional engineers coaching.
 - **What it looks like:** Students conduct inspections or audits, identify risks, and propose controls; a professional engineer reviews findings and reasoning.
 - **Evidence:** Inspection checklists, findings logs, corrective actions, review comments.
 6. Student projects and clubs (e.g., Formula SAE) connected to professionalism outcomes.
 - **What it looks like:** Students receive credit for club/project participation by demonstrating professional conduct, teamwork, safety, and accountability, with the input of a professional engineer.
 - **Evidence:** Project logs, safety plans, mentor feedback, assessed reflections tied to graduate attributes.
 7. Professional engineers-led engineering judgment scenarios (ethics and public safety).
 - **What it looks like:** Students respond to short scenarios requiring professional judgment and defend their decisions to a professional engineer.
 - **Evidence:** Written responses, scoring rubrics, debrief notes, evidence of improvement.

8. Incident or near-miss analysis with student teams.
 - **What it looks like:** Students analyze failures or close calls and identify professional responsibilities and preventive actions with the guidance of a professional engineer.
 - **Evidence:** Analysis reports, discussion notes, assessed reflections.

9. Site visits paired with structured student judgment tasks.
 - **What it looks like:** Students complete hazard/trade-off worksheets during or after site visits and debrief with a professional engineer.
 - **Evidence:** Completed worksheets, debrief summaries, assessed reflections.

10. Regulatory discipline case reviews.
 - **What it looks like:** Students review public decisions or summaries from engineering regulatory discipline cases and analyze how issues related to technical competence, ethical practice, professional judgment, or accountability affected the outcome, with guidance from a professional engineer.
 - **Evidence:** Case analyses, written reflections, discussion notes, or assessed assignments demonstrating students' understanding of professional responsibility, public protection, and the role of accountability in maintaining confidence in the profession.

11. Longitudinal professional identity milestones reviewed by a professional engineer.
 - **What it looks like:** At key points (entry, pre-co-op, capstone), students submit reflections or portfolio updates reviewed using a rubric.
 - **Evidence:** Rubric scores over time, samples showing growth, portfolio excerpts.