

Current status of accreditation from the perspective of the CEAB

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Discussion topics:

WHY accreditation matters

WHO is involved

WHAT accreditation volunteers do

UPDATE on last accreditation decisions

UPDATE on recent accreditation activities

OBSERVATIONS on GA/CI activities

DIALOGUE on how we experience the accreditation process?

Why engineering education accreditation matters

- Regulators need to know which applicants have the right education to begin the journey towards licensure
- The public needs to know which engineering education programs meet the regulators' high education standards
- Graduates need to be able to show they have met internationally recognized standards

Who's involved in accreditation?

Engineers Canada

- Engineers Canada and its 12 provincial and territorial engineering regulators members work together to advance the public interest and the profession
- Engineers Canada recognizes that specialized knowledge is required to perform engineering education accreditation. It established the Accreditation Board to do this important work. The Accreditation Board's main job is to accredit undergraduate engineering educational programs

About the Accreditation Board

15+ P.Eng./ing. make up the Accreditation Board:

- All are volunteers. They are drawn from the private, public and academic sectors
- Majority of members are deans, senior faculty members. Others are from industry (vice-presidents of private companies, senior executives)
- They represent a wide range of disciplines
- Most members serve for the maximum 9 years

About the Accreditation Board

Workload of an Accreditation Board member:

- Take charge of one or more accreditation visits every year
- Work on task group assignments
- Review reports from engineering programs throughout the year. Provide an opinion regarding compliance with criteria based on report information
- Meet face-to-face at least three times a year
- Speak to programs officials or other interested groups about accreditation

About the Accreditation Board

These are volunteers! Why do they do all this?

- Many are academics. They've been at the receiving end of an accreditation visit!
- Those from industry are interested in making sure the next generation of engineers/employees remain the best in the world
- They are passionate about engineering education!

Goals of the Accreditation Board

- Engineering programs offered by Canadian institutions will meet or exceed minimum educational standards acceptable for professional engineering licensure in Canada
- The quality and relevance of engineering education will continuously improve
- The Engineers Canada Board of Directors will be provided with advice and recommendations on international matters relating to engineering accreditation and education

Who's involved in accreditation?

Relevant relationships

- The Accreditation Board and the Deans regularly discuss improvements to the accreditation process
- Representatives from the Canadian Federation of Engineering Students (CFES) are invited to Accreditation Board meetings and to Engineers Canada Board meetings
- Regulators routinely send senior staff members to observe accreditation board meetings

Linkages to Engineers Canada

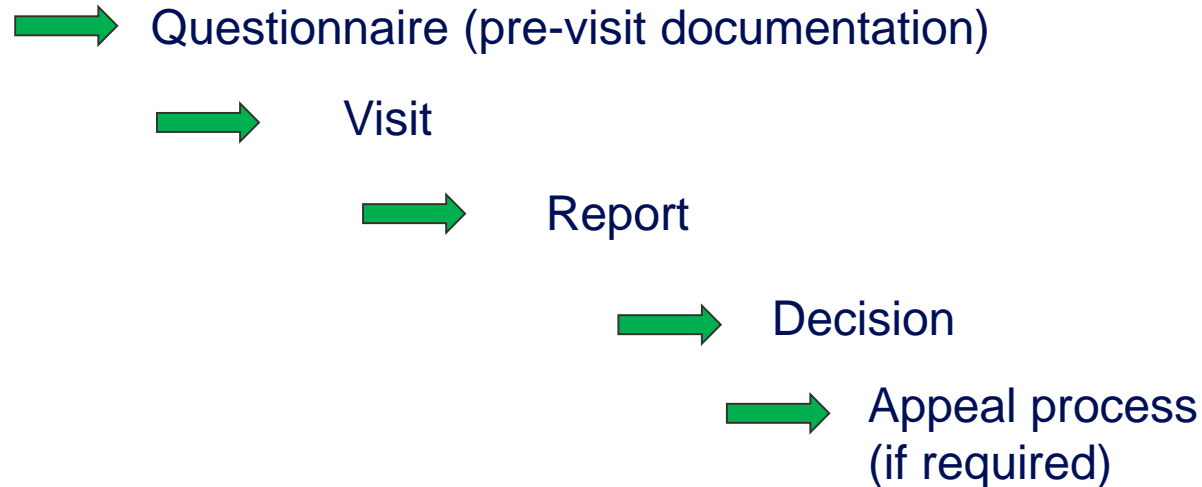
- The Accreditation Board has the delegated authority to make accreditation decisions.
- However, changes to the accreditation criteria or the Accreditation Board terms of reference must be approved by the Engineers Canada board.
- The Accreditation Board chair is an advisor to the Engineers Canada board. The chair is invited to Engineers Canada board meetings and workshops.

WHAT does the Accreditation Board Do?

- The Accreditation Board's major deliverables are accreditation decisions
- Some have compared the process as an “audit”:
 - Teams of experts review program information, both on paper and on-site
 - They gather information about the programs in a visit report
 - This report, plus any additional relevant information, as well as the Board's collective experience is used to produce accreditation decisions

HOW do they do it? Accreditation visits

Invitation (by institution)



Accreditation Process

The processes of accreditation place emphasis on the quality of the:

- curriculum
- students
- academic staff
- support staff
- facilities and resources

Accreditation Process

The accreditation criteria reflect the need for:

- engineers to be adaptive, creative, resourceful, and responsive
- graduates understand the role and responsibilities of professional engineers to society
- the professional engineer to function as an effective member of a team and to communicate effectively

Accreditation Process

- Concept of minimum path assures regulators that graduates meet the academic requirements for licensure
- Canada is the only jurisdiction where graduates of accredited programs are not required to write technical examinations for licensure

Major accreditation criteria components

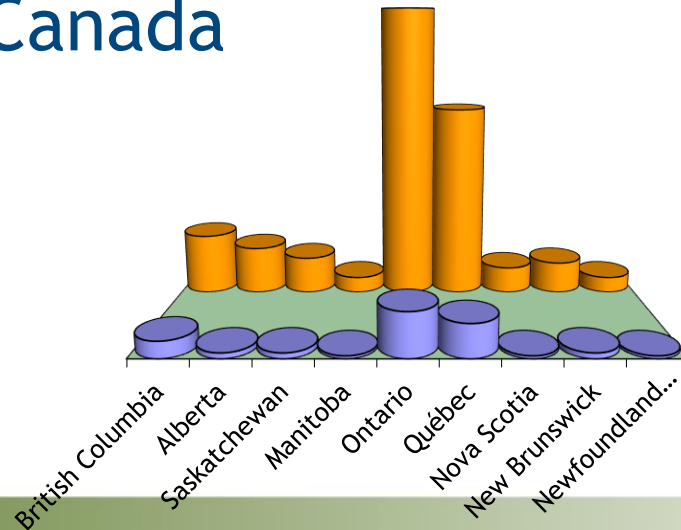
- Curriculum content and quality. Measured by “Accreditation Units” (AU). This measure is applied to students. All students must meet the minimum(s)

Major accreditation criteria components

- “Graduate Attributes”: Statements that describe what program graduates are expected to know and be able to do by the time of graduation. Also known as “outcomes assessment”. This measure is applied to programs. Not all students must meet all graduate attributes

Engineering education in Canada

- There are currently 283 accredited programs at 43 Higher Education Institutions in Canada

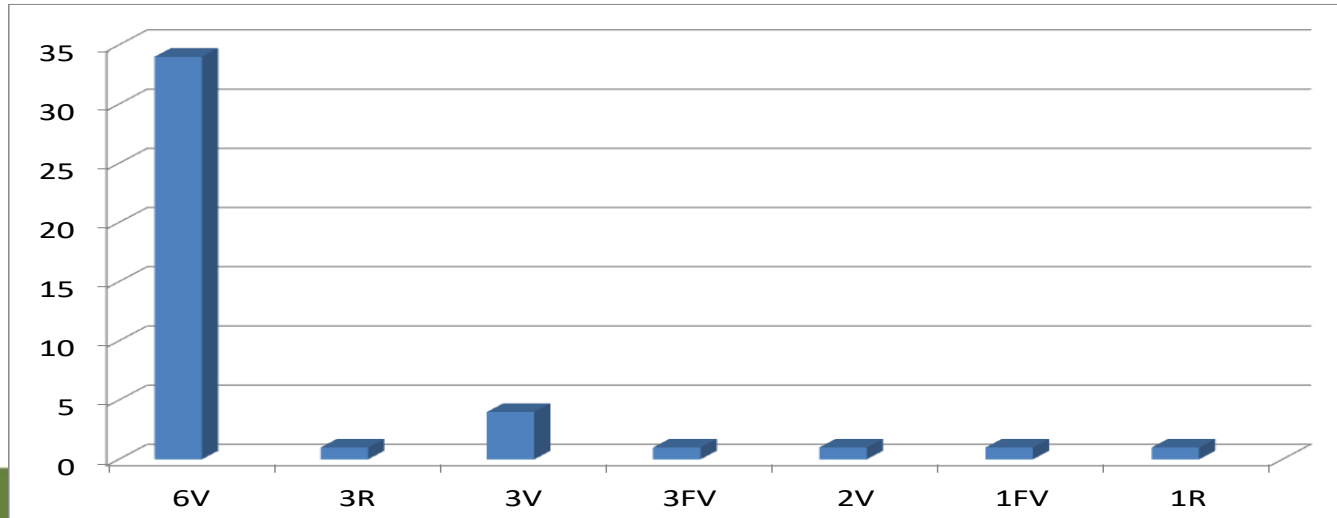


Update on Accreditation Board decision meeting (June 2016)

- The Accreditation Board met on June 10-12, 2016 to make accreditation decisions and to provide constructive feedback to programs
- Decisions made on 43 programs at 10 institutions
- Close to 100 volunteers provided feedback and suggestions for improvement to the programs receiving visits, as part of the visit process

2016 Accreditation Results

- 43 program decisions at 10 HEIs
- 81% (35 of 43) decisions were either 6V (34) or 3R (1)
- 4 decisions were 3V (2 were for new programs)



2016 Accreditation Results

- 179 issues (concern, weakness, deficiency) identified
 - 41(23%) issues resolved
 - 57(32%) issues pertaining to GA criteria
 - Insufficient results, Indicators not appropriate or too few
 - 42(23%) issues (primarily formative feedback) pertaining to CI criteria
 - Narrow stakeholder groups, continual improvement process not yet in use
- 39(22%) others (curriculum, program environment)
 - Design content, # of staff or faculty, classrooms/laboratories (space, culture of safety)

Engineers Canada's Forum on Accreditation

Meeting of stakeholders to over two days, August 17-18, 2016.

- ***The intent of the Forum was to focus on clarifying a shared vision for the future of accreditation and on exploring the roles of all stakeholders within an open and collaborative accreditation process.***
- Approximately 115 participants representing a diverse cross-section:
 - Accreditation Board members
 - Engineers Canada Board Directors
 - Regulators
 - Academics
 - Industry (Employers) and
 - Engineering Students.

Engineers Canada's Forum on Accreditation

- The following intention question focused participants in their discussions throughout the Forum:

“What do we need to do, together, to ensure that accreditation is done in a manner that brings greatest benefit to the profession?”

- The goal of achieving a shared long-term vision of accreditation was not achieved.

Engineers Canada's Forum on Accreditation

Discussion at the Forum included:

- possible alternatives to the AU curriculum assessment process such as the use of academic credit
- better communication on significant change initiatives
- risk-based auditing to reduce redundancies and costs
- regular meetings of stakeholders
- digital based information exchange
- ongoing stakeholder communication and student involvement in accreditation.

Engineers Canada's Forum on Accreditation

- The Engineers Canada Board will be convening a planning session in the new year regarding the recommendations from the Accreditation Forum
- Engineers Canada's Executive Committee acknowledges the issues that NCDEAS has raised.
- Ideas and recommendations from the Forum will help determine the way forward

Chair's Personal GA/CI Observations

General

- Majority of HEIs have implemented adequate GA/CI processes – some HEIs have struggled
- CEAB recognizes that at least 2 cycles of assessment will be required to better define assessment procedures and to implement improvement measures
- CEAB expectations have been tempered in its GA/CI assessments to date

Chair's Personal GA Observations

Organization and Engagement

- Most HEIs have an adequate organization structure in place with both faculty and engineering leadership engagement
- The degree of faculty engagement varies between institutions
- Cooperation of curriculum service providers is not always assured

Mapping

- Assessments are reasonably distributed over time
- Many assessment points is unsustainable
- Many GA are heavily dependent on the Capstone Design project
- GAs #8-#12 are often supported by only 1 or 2 learning outcomes

Chair's Personal GA Observations

Indicators

- The level of detail of indicators varies between HEIs
- General indicators make it difficult to determine whether the full scope of the attribute is being assessed

Assessment Tools

- Assessment tools are reasonable
- A heavy reliance on student surveys is not encouraged

Assessment Results

- Common to see student non-compliance in meeting HEI minimum requirements
- Unreliable data is often blamed on the assessment tools selected
- Student performance levels should be limited to 3 or 4

Chair's Personal CI Observations

Improvement Process

- Acceptable improvement processes are in place in most cases

Stakeholder Engagement

- Primarily internal stakeholder engagement- limited external engagement

Improvement Actions

- In many cases, significant changes have not been implemented because of a lack of confidence in assessment data
- A decision not to proceed with changes because of a lack of data confidence is the right decision

Let's talk...

Graduate Attributes

Organization and Engagement

Curriculum Maps

Indicators

Assessment Tools

Assessment results

Continual Improvement

Improvement Process

Stakeholder Engagement

Improvement Actions

Let's talk...

- Are the GA/CI Questionnaire information requests reasonable and adequate?
- Is the GA/CI assessment rubric used by the CEAB reasonable?
- If not, what is missing or needs to change?

Let's talk...

- Is there a need for more detailed GA/CI discussions on;
 - the challenges engineering faculties/programs are facing in satisfying the CEAB information requirements?
 - The CEAB assessment rubric ?
- What is the appropriate feedback mechanism that could be established for the exchange of timely information/feedback?

Other Questions?

Thank you

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