

Accreditation Board Update 4th Graduate Attribute and Curriculum Improvement Process Summit

Wayne MacQuarrie, FEC, P.Eng.
Chair, CEAB
December 7, 2017



Presentation topics


GA/CI Update

- **The Accreditation Board and what it does (refresher)**
- **Recent Documentation Changes**
- **Curriculum Assessment and GA/CI Update**

Accreditation Improvement program

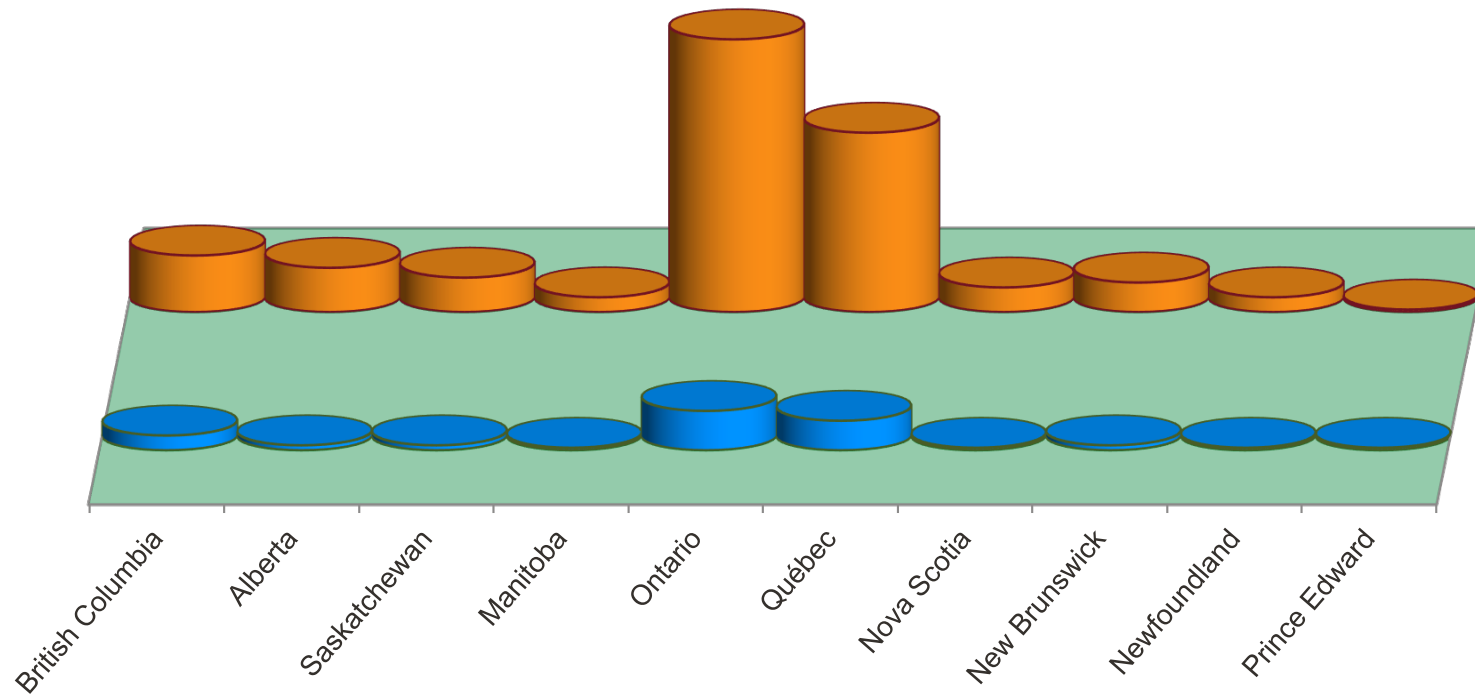
AU Task Force update

About the Accreditation Board

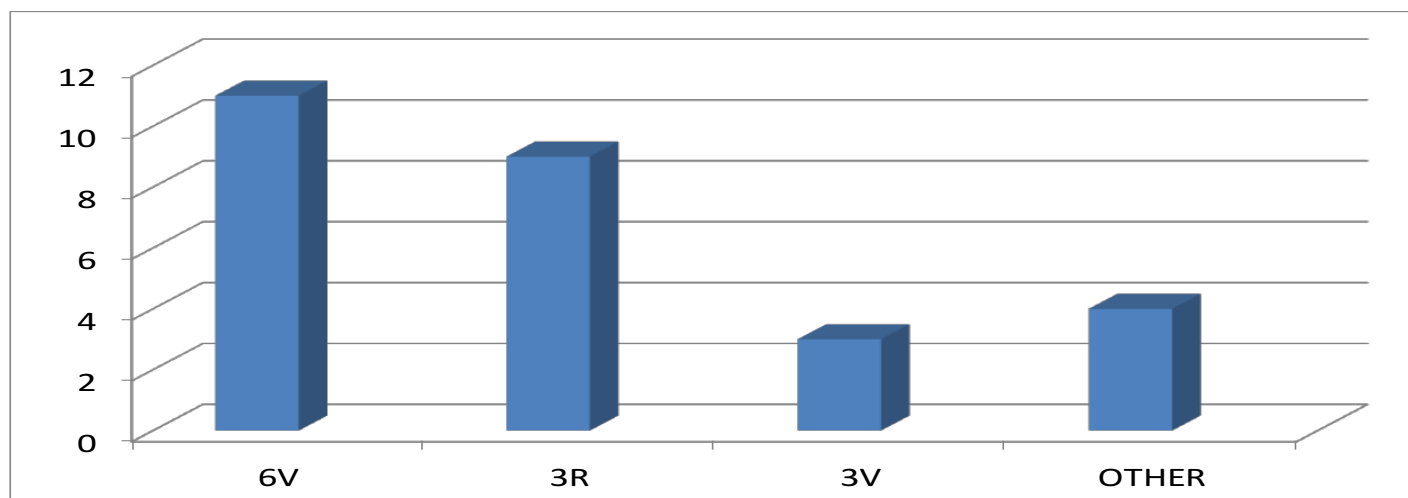
- 17 P.Eng./ing. make up the Accreditation Board
 - Board members are all volunteers who represent various engineering disciplines
 - Accreditation Board Members are deans, former deans, senior faculty members, and industry representatives
 - Most members from academia have also worked in industry
 - 35% of members are women, 40% of members are bilingual
 - Most members serve a maximum of 3 - 3 year terms
- 

Engineering Education in Canada

There are currently more than 280 accredited programs at 44 Higher Education Institutions in Canada.




Accreditation Visit Results (June 2017)



- 27 program decisions at 15 HEIs
- 74% of decisions were either 6V or 3R (20 of 27)
- 8% were 3V decisions (2 of 27) for new programs
- other decisions were made for a variety of reasons: focused visits, program closed, new programs (requiring closer monitoring)

Anticipated visits next few cycles

- 2018/2019 cycle: 66 programs at 14 institutions
 - 2019/2020 cycle: 42 programs at 13 institutions
 - 2020/2021 cycle: 61 programs at 17 institutions
 - 2021/2022 cycle: 38 programs at 7 institutions
- 

Recent Documentation Changes

- CEAB criterion 3.5.3 and 3.5.5 pertaining to the licensure of deans, program heads and faculty members teaching engineering science and engineering design
- These criteria have been amended to remove the requirement for licensure within the jurisdiction where the institution is located. Licensure in Canada is the requirement

Recent Documentation Changes

- The following have been modified:

Appendix 7 - Interpretive Statement on Significant Program Changes – AB feedback on proposed changes

Appendix 12 – Conflicts of Interest Guidelines – 6 years

Appendix 13 – Program Development Advisory Procedure – informal communications, curriculum assessment, and informal visit

Recent Documentation Changes

- The assessment criterion for CI- Improvement Actions has been changed;

*There must be a demonstration that the continual improvement process has led to consideration of specific actions corresponding to identifiable improvements in the program and/or its assessment process. **Note, if the evidence suggests no change is warranted, then no change is necessary.** This criterion does not apply to new programs.*

Curriculum Assessment - Breadth and Depth

Minimum Path Criteria (Input Assessment)

- ✓ *Student* breadth and depth criteria
- ✓ Prescribed curriculum categories, minimum AU requirements, and curriculum qualitative requirements

Curriculum Assessment - Breadth and Depth

Outcomes Assessment

- ✓ *Program* depth criteria
- ✓ Graduate attributes compliance and continual curriculum improvements

Let's talk...

Graduate Attributes

Continual Improvement

Organization and Engagement

Improvement Process

Curriculum Maps

Stakeholder Engagement

Indicators

Improvement Actions

Assessment Tools

Assessment results

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
- Future AB focus is expected to be more on GA/CI processes versus GA assessment results
- Many institutions are implementing curriculum improvements at both the program and faculty levels

Organization and Engagement - Observations

*There must be demonstration that an organizational structure is in place to assure the **sustainable development and measurement of graduate attributes***

*There must be demonstrated **engagement in the process by faculty members and engineering leadership***

- Most HEIs have implemented adequate organizational structures
- In some HEIs the structure is relatively new or incomplete
- The degree of faculty engagement continues to vary between institutions – in some HEIs faculty do not feel fully engaged in the assessment and improvement processes
- In most cases the GA collection and assessment processes within individual HEIs is uniform across programs

Curriculum Maps - Observations

*There must be documented curriculum maps showing the **relationship between learning activities for each of the attributes and the semesters in which these take place.***

- HEIs do a very good job mapping attributes to learning activities
- It is not always obvious from the CIS why certain attributes are being identified – the issue relates to poorly described learning outcomes
- Assessments are not always reasonably distributed over time – there tends to be a large number of assessments conducted during terms 6-8
- For some programs the number of assessments 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 in terms 6-8

Graduate Attribute		Semester												
		1	2	3	4	5	6	7	8	9	10			
Knowledge base	Fundamental engineering science		ENGG225											
				ENEL353		ENEL441								
								ENEL586						
	Specialized engineering science			ENEL353		ENEL441								
								ENEL586						
Problem analysis			ENGG225	ENEL101										
						ENEL475								
Investigation		ENGG201						ENEL453						
				ENEL353										
Design		ENGG200						ENEL453						
					ENEL300	ENEL400								
									ENEL500					
Use of engineering tools		ENGG233												
				ENEL101										
									ENEL489					
										ENEL574				
Individual and team work		ENGG200			ENEL300	ENEL400								
									ENEL500					
Communication		ENGG200			ENEL300	ENEL400								
									ENEL500					
Professionalism					ENEL300									
										ENGG513				
Impact of engineering on society and the environment								ENGG481						
								ENEL469						
										ENGG513				
Ethics and equity								ENGG481		ENGG513				
Economics and project management					ENEL300							ENGG209		
									ENEL500					
Life-long learning								ENGG481						
									ENEL489					
										ENGG513				

Graduate Attribute		Summary Graduate Attribute Curriculum Map									
		Semester									
		1	2	3	4	5	6	7	8	9	10
Knowledge base	Fundamental engineering science	ENGG233			ENSF409		SENG401				
								SENG521			
	Specialized engineering science				ENSF409		SENG401				
								SENG521			
Problem analysis		ENGG201	ENGG225		ENSF409						
		ENGG201									
Investigation							SENG471				
								SENG521			
Design		ENGG200					SENG401				
								EDEL500			
Use of engineering tools		ENGG233					SENG401				
								SENG521			
Individual and team work		ENGG200						EDEL500			
							SENG401				
Communication		ENGG200						EDEL500			
							SENG437				
Professionalism									ENGG513		
Impact of engineering on society and the environment							ENGG481				
							SENG437		ENGG513		
Ethics and equity							ENGG481		ENGG513		
								SENG533			
Economics and project management							SENG401			ENGG209	
								EDEL500			
Life-long learning							ENGG481				
							SENG401		ENGG513		



For each attribute, there must be a set of measurable, documented indicators that describe what students must achieve in order to be considered competent in the corresponding attribute.

Indicators - Observations

- Generally speaking, indicators are well-aligned with GAs and span the important components of most Gas
- Identifying the appropriate number of indicators and ensuring a sustainable data collection program for some GAs can be a challenge – too many or too few attributes
- The level of measurable indicator detail varies between HEIs and programs - learning outcomes as a proxy for indicators raises a number of challenges

Assessment Tools - Observations

*There must be **documented assessment tools that are appropriate to the attribute** and used as the basis for obtaining data on student learning with respect to all twelve attributes over a cycle of six years or less.*

- In most cases the assessment tools used by programs are appropriate and the rationale for their use is reasonable
- A proper balance between direct and indirect assessments is suggested - a heavy reliance on student and employer surveys is not encouraged
- At least 1 HEI has utilized external consultants to measure GA #8, #10 and #12 competencies and to identify curriculum opportunities for greater exposure to these attributes

Assessment Results - Observations

At least one set of assessment results must be obtained for all twelve attributes over a cycle of six years or less. The results should provide clear evidence that the graduates of a program possess the attributes or that remedial action is in progress.

- Most programs are assessing all attributes within a cycle of 4 years
- Student non-compliance in meeting HEI minimum compliance requirements for some attributes is common
- Conflicting compliance results between direct and indirect assessments creates problems
- In some cases assessment results are incomplete or have not been compiled or documented properly, making remedial action decisions difficult

Improvement Process - Observations

*There must be processes in place that demonstrate that **program outcomes are being assessed in the context of graduate attributes**, and that the **results are validated, analysed and applied to further development of the program.***

- Most HEIs have implemented adequate CI processes
- In many cases the CI processes are relatively new and are experiencing growing pains
- In most cases changes are based on reliable assessment results – unwarranted changes are not being implemented

Stakeholder Engagement - Observations

*There must be demonstrated **engagement of stakeholders both internal and external** to the program in the continual improvement process.*

- HEIs have focused on establishing effective internal stakeholder engagement
- Not all HEIs have adequate external stakeholder engagement - the extent of external stakeholder engagement varies between institutions
- In some cases faculty are not fully engaged in the internal CI process

Improvement Actions - Observations

*There must be a demonstration that the **continual improvement process has led to consideration of specific actions corresponding to identifiable improvements in the program and/or its assessment process.***

Note, if the evidence suggests no change is warranted, then no change is necessary. This criterion does not apply to new programs.

- All HEIs have implemented curriculum improvements or changes to its assessment processes
- HEIs are not implementing unwarranted changes
- The time it takes to implement curriculum change varies between institutions
- Most institutions are assigning reasonable reasonable timelines and accountability for change implementation

CEAB Discussions – GA/CI Processes

CEAB Decision to focus on GA/CI processes – February, 2018 AB Meeting

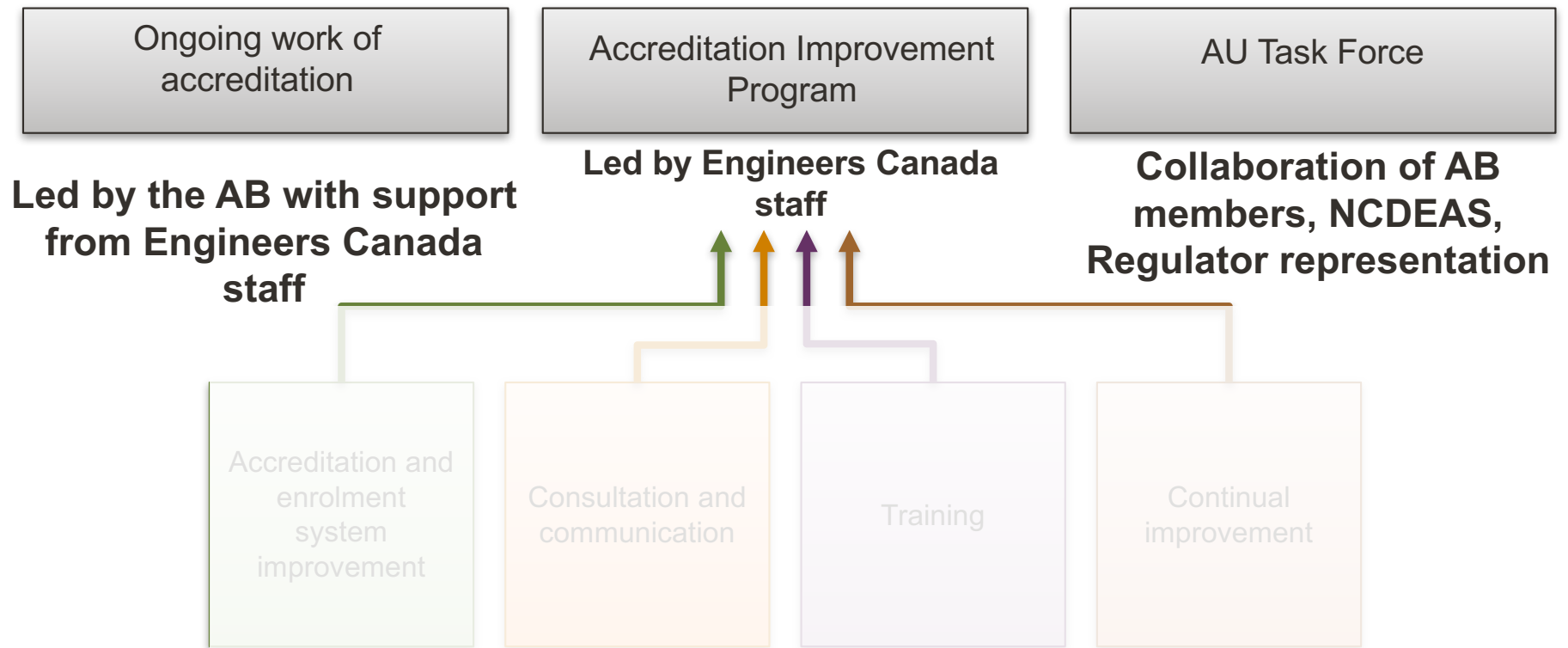
AU/GA Linkage Work (assessing student exposure to each GA) - to be discussed with the AU Task Force and the CEAB between now and February

Pre-visit introductory meeting between Visiting team chairs and programs for 2018/19 HEI Visits – February 2018

Other regional GA/CI HEI discussions – as requested



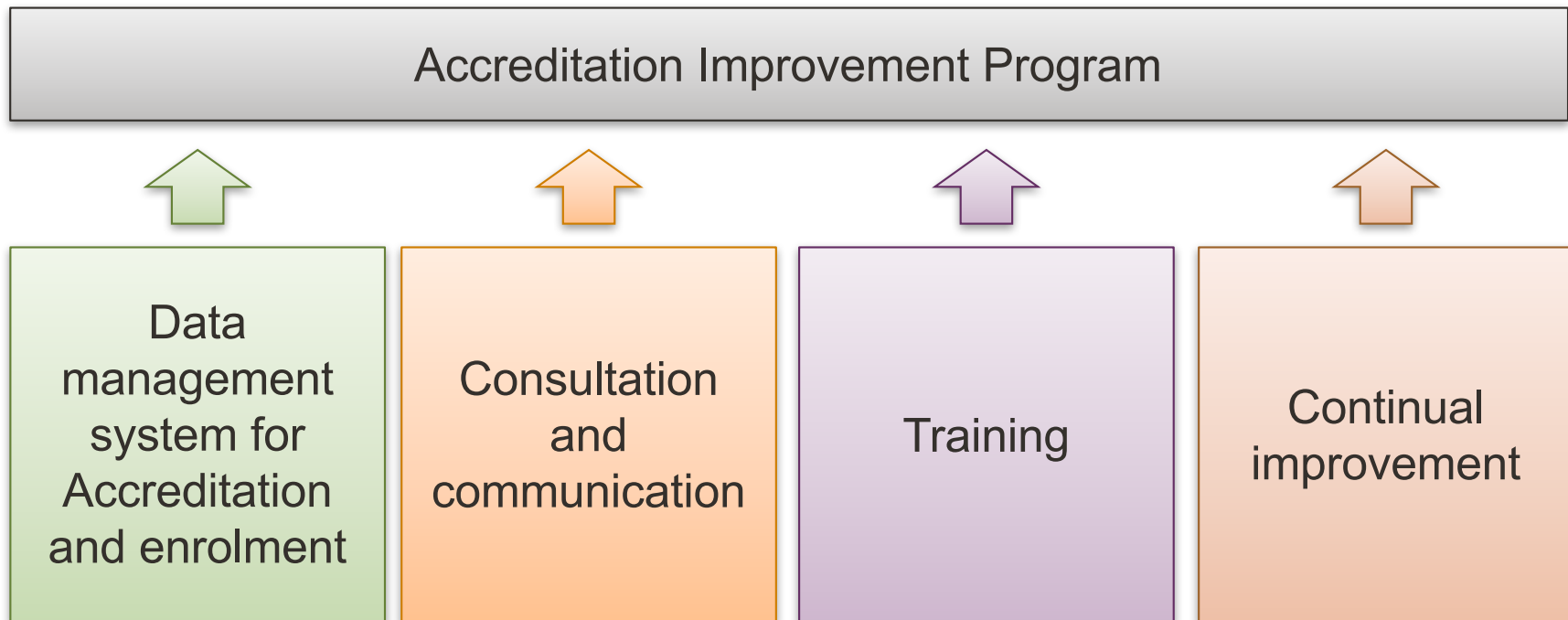
Understanding Engineers Canada's accreditation portfolio



Accreditation Improvement Program



Accreditation Improvement Program



Data Management

Move to a modern digital system

Enrolment and Degrees Awarded and
Accreditation will benefit

Information management will be
streamlined



Consultation and communications

Word is getting out!

200+ individuals subscribed to receive program updates



Communications

Word is getting out!

200+ individuals subscribed to receive program updates

Aim:

ensure the appropriate level of stakeholder

consultation

involvement and

awareness

of any changes planned or in progress



Training

Ensure all involved have the tools and training they need

Will be ongoing and specific to ensure timeliness for enrolment process and accreditation process

Currently, online training is available for visiting team members. HEIs are provided access. A presentation template is available for team chairs to orient the visit team.

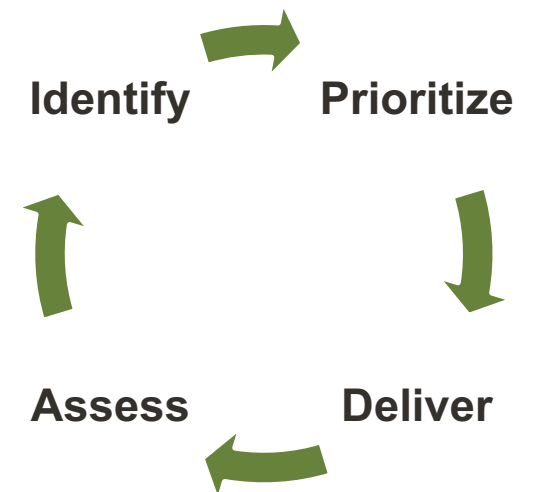


Continual Improvement

Establishing a repeatable and sustainable approach to identify, prioritize and deliver ongoing improvements

Currently, the system in place includes institution providing pre-visit feedback on the self-assessment and after the visit on the entire process.

The feedback is reviewed to identify improvements.



Accomplishments since last update

Consultation with stakeholders – face-to-face

Email campaign

Website set up for program information

Advisory Committee Established

Necessary resources acquired



Accomplishments since last update

Consultation with
stakeholders –
face-to-face



Accomplishments since last update



engineerscanada
ingénieurscanada

Accreditation Improvement Program

technology communications training continual improvement

Accreditation Improvement Program Update

November 2017

Your input is needed

Check-in on the Accreditation Improvement Program

Engineers Canada wants to know how well we have kept you informed about the Accreditation Improvement Program and why it's happening. Do you feel you have a good sense of its benefits and how it will impact your work? Do you feel prepared to benefit from the program's outcomes? Your feedback now and at key milestones throughout will provide us with a clearer picture of where the program is succeeding and where it needs to be improved.

Please complete the survey by Friday, December 15, 2017. If you have any difficulty accessing it, please contact accreditation@engineerscanada.ca.

[Take the survey now ▶](#)

News



engineerscanada
ingénieurscanada

Programme d'amélioration de l'agrément

technologie communications formation amélioration continue

Mise à jour sur le programme d'amélioration de l'agrément

Novembre 2017

Nous sollicitons votre avis

Contrôle périodique du Programme d'amélioration de l'agrément

Ingénieurs Canada aimerait savoir dans quelle mesure nous vous avons bien renseignés au sujet du Programme d'amélioration de l'agrément et de sa raison d'être. Pensez-vous avoir une bonne idée des avantages de ce programme et de l'incidence qu'il aura sur votre travail? Vous sentez-vous prêts à tirer parti de ses résultats? Les réponses que vous nous fournirez maintenant et aux étapes clés du parcours nous permettront de voir plus précisément les points forts du programme et les aspects qui doivent être améliorés.

Ayez l'amabilité de remplir le sondage d'ici le vendredi 15 décembre. Si vous avez des difficultés à y accéder, veuillez nous en aviser à agrement@ingenieurscanada.ca.

Accomplishments since last update

The screenshot shows the top of the Engineers Canada website. On the left is the logo with the text "engineerscanada" and "ingénieurscanada". On the right are links for "Français", "Contact", "FAQs", "Home", and "Member Login", along with social media icons for Twitter, Facebook, LinkedIn, and YouTube. Below this is a search bar with a magnifying glass icon and a green "Search" button. A horizontal navigation menu contains the following items: "About", "Accreditation", "Become an Engineer", "Regulatory Excellence", "Public Policy", "Diversity and the Profession", "Reports", "Services for Engineers", "News and Events", and "Awards and Honours". Below the menu, the word "ACCREDITATION" is underlined in blue, followed by the main heading "Accreditation Improvement Program".

This screenshot shows the main content area of the website. On the left is the logo. On the right are links for "English", "Nous rejoindre", "FAQ", "Accueil", and "Member Login", along with social media icons. Below this is a search bar with a magnifying glass icon and a green "Recherche" button. A horizontal navigation menu contains the following items: "À propos", "Agrément", "Devenir ingénieur", "Excellence en matière de réglementation", "Politiques publiques", "Diversité au sein de la profession", "Rapports", "Services aux ingénieurs", "Nouvelles et événements", and "Prix et distinctions". Below the menu, the word "AGRÉMENT" is underlined in blue, followed by the main heading "Programme d'amélioration de l'agrément". The text below the heading reads: "Le Programme d'amélioration de l'agrément est essentiel pour garantir que l'agrément de la formation en génie continue d'être offert de la façon la plus efficace et la plus efficiente possible. L'agrément repose sur le travail de centaines d'experts bénévoles dont le temps doit être utilisé le plus efficacement possible. Les responsables des programmes de génie consacrent des ressources importantes pour collaborer à l'agrément. Il s'agit notamment pour eux de rassembler les données permettant de démontrer la conformité du programme aux normes d'agrément et de mener à bien tous les préparatifs nécessaires aux visites. Le Programme d'amélioration de l'agrément vise à exploiter au mieux les". To the right of the text is a blue box with the text "Abonnez-vous aux mises à jour sur le programme" and "Suivez nos progrès, trouvez des occasions de participer et apprenez de quelle façon les changements".

ering
efficient
expert
le.
tion; this
h criteria and
Improvement
e continual
ely contribute
nal mobility

cience to
m engineering
ng frequently
required
ers Canada is
ently with the
are common

ev stakeholders

The form is a dark blue box with a white header that says "Subscribe to receive program updates". Below the header is a white text area containing the text: "Stay informed on the progress we're making, find out when there are opportunities for your involvement, and learn how these changes may affect you." Below the text area is a white input field with the placeholder text "Enter your email address". At the bottom of the box is a yellow button with the text "Subscribe".

Accomplishments since last update

(Accreditation System) Advisory Committee Established

The Advisory Committee will include Engineers Canada staff, Accreditation Board Member, and representatives of the HEIs as follows:

- ✓ *4 HEI's (Faculty, Administration, Assistant Dean)*
- ✓ *1 National Council of Deans of Engineering and Applied Science member*
- ✓ *1 Engineers Canada staff member*
- ✓ *1 Accreditation Board member*

The Systems Advisory Committee



Marc Landry
Université Laval



Laurent Mydlarski
McGill University



Nicholas Krouglicof
University
of Prince Edward Island



Carol Jaeger
University
of British Columbia



Pemberton Cyrus
Dalhousie University



Jake Kaupp
Queen's University



Adam Rodrigues
Engineers Canada

Accomplishments since last update

Necessary resources **acquired**:

Change Management specialist resources

Program Manager resources

Business System Analyst

Budget allocation\$ \$secured

What you need to know

SIGNING UP FOR UPDATES

The Accreditation Improvement Program
Subscription Links for the French and English Mail Chimp E-mail Campaign

French: <http://eepurl.com/cVAMdf>

English: <http://eepurl.com/cU9jIX>

AU Task Force Update



AU Task Force Update

June 5, 2017: AB chair and Ishwar Puri, the new chair of NCDEAS meet in Hamilton to discuss next steps in addressing the issues raised by the Deans and the expectations of the newly reconstituted AU Task Force

June 12, 2017: AB chair and the chair of the NCDEAS meet with Bob Dony to discuss AU Task Force changes and the need to make significant progress over the next 6 months in addressing NCDEAS issues

Mid June/early July: Composition of AU Task Force is broadened

AU Task Force Update



July 18, 2017: A face-to-face meeting of the AU Task Force, with other key observers invited. The purpose of the meeting was to re-confirm the terms of reference for the Task Force and to develop a revised action plan

August 22, 2017: Task force met by teleconference to review and confirm the action plan and next steps

Task Force's Action plan

The Task Force has an action plan which includes the following initiatives:

Circulate a survey (through NCDEAS) to better identify the non-traditional education delivery methods to see how they fit within the AU definition (which may or may not warrant a change to the definition of an AU).

Better emphasis on reporting on results of accreditation visits and the acknowledgement that institutions would appreciate a breakdown of the range of AUs across each category. This may aid in reducing the fear factor associated with AUs which leads to some institutions “padding” their AU count for fear of a reduction below the minimum threshold during the visit.

Task Force's Action plan

More on the Task Force action plan....

The circulation of regular accreditation bulletins which may reduce in frequency as the initiative continues.

Establishing a clear link between the Graduate Attributes and the AUs



AU Task Force Update

Sept 27: Bob Dony provided an update to Engineers Canada's Board of Directors on progress to date. He provided details of the action plan. The Board and the regulators provided positive feedback on the progress

October 13: AB chair provided an update on the work of the Task Force to the NCDEAS

October 26: Face to face working meeting to advance progress. In particular work on survey, AU ranges and linking GA and AU

October 27: AU Task Force chair reported to Policies and Procedures committee meeting

What's next for the AU Task Force?

The survey was circulated on October 26. Respondents were given until November 15 to respond. The responses have been compiled and a report noting “themes” or trends has been developed. This report is currently under review by the Task Force members

AU Task Force is working on a final report for the Engineers Canada Board's consideration in February 2018

Thank you

For more information:

Accreditation@engineerscanada.ca | 613.232.2474
engineerscanada.ca

