# The Required Materials for a CEAB Visit Working Group Report

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## Required Materials Working Group

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### Executive summary

A consistent set of required materials for CEAB visits has been determined based on the Minimum Path and Weakest Link principles and based on best practices of audits. The requirements have been simplified and explicitly tied to accreditation criteria, as summarized in Table 1. Required information on graduate attribute and program operations are specified. Detailed syllabi are required for all courses on the minimum path, as are assignment, project, lab, and other significant deliverable descriptions. Courses requiring student work focus on the last two years of study.

Student work is heavily sampled in the culminating design experiences, and ten other courses taken by all students in the final years of study. graduate attributes at an intermediate or advanced level of instruction in Design, Communication, Impact of Engineering on Society and the Environment, Ethics and Equity, and Economics and Project Management must be provided. These examples of student work should demonstrate minimal levels of acceptable student achievement as judged by the instructor, or if all examples meet expectations, should represent the lowest quality products.

This list of requirements is stable until significant criteria change, due to its explicit ties to the Criteria, allowing HEIs to plan assessments in advance, if they choose.

# Required materials for CEAB visits

## 1. Purpose of materials for a CEAB visit

During a visit, the visiting team evaluates the Higher Educational Institution (HEI) on adherence to criteria specified in The Accreditation Criteria and Procedures Report. When a visiting team reviews a program, materials such as policy documents, procedures, teaching materials, and curriculum committee meeting minutes are required to triangulate information to develop an accurate picture of the HEI's ability to educate students to depth and breadth quality standards required by the provincial and territorial engineering regulators (hereafter, the "regulators").

## 2. Current Issues

The Required Materials Working Group was convened to identify the needs of a visiting team to determine the depth, breadth, and quality of a program, including the outcomes assessment program (such as, but not limited to, the course materials, curriculum committee minutes, and details of outcomes). The required materials have varied at least since 2014, and the HEIs are looking for consistency. In addition to the lack of consistency, additional challenges to the current scenario were noted:

- Information requests vary between Visiting Team Chairs, making it difficult for the HEI to plan collection before a Visiting Team Chair has been announced.
- Preparation is intensive for HEIs, and uncertainty with respect to material collection adds to the preparation efforts.
- Information review is intensive for the visiting team.
- Disconnections between course content and competencies, particularly with respect to design, lead to a lack of understanding of courses by the visiting team.
- Engineering programs with a heavy science component sometimes lack student samples in senior courses taught outside the Engineering faculty.
- Information from the HEI may not be standardized from course to course, and may not be organized in a manner conducive for efficient review by the visiting team.
- Some HEIs have issues with information access and confidentiality guidelines at their institution with respect to student work.

Promulgated detailed and consistent expectations will help both the visiting teams and HEIs manage workloads and expectations. Not all of these other issues can be addressed by standardizing the required materials (and are outside the scope of the Required Materials Working Group's mandate) but focusing on the minimum materials needed to assess the current criteria is a step on the path forward.

## 3. Requirement changes for course materials in Visit Cycle 2014 to 2020

Compounding the current issues, the requirements for course materials have varied in the last six years:

- **2014:** All compulsory and elective courses (not necessarily non-technical elective courses) need to provide a lecture-by-lecture course outline, a statement on course format and student expectations including learning outcomes, and a grading scheme. Samples of student work for each assessment tool are needed so that a range of student performances (poor, average, above average) is seen for one graded problem set, all graded mid-term tests, all graded examinations, and all laboratory reports.
- **2015:** For each learning activity in a program's curriculum, institutions are expected to maintain up-to-date documentation on content (on a week-by-week or similar basis and including laboratory and project work if any), learning objectives and performance assessment methods. Such documentation would typically be distributed to students and should be available to the Accreditation Board visiting teams on site for every learning activity in the program.

  A collection of 15 to 20 courses need to provide a lecture-by-lecture course outline, a statement on course format, student expectations including learning outcomes, and a grading scheme. In those courses, include samples of student work for each assessment tool in all graduate attributes (GAs) so that a range of student performances (poor, average, above average) is seen for one graded problem set, all graded mid-term tests, all graded examinations, and all laboratory reports.
- **2016 – 2018:** For each learning activity in a program's curriculum, institutions are expected to maintain up-to-date documentation on content (on a week-by-week or similar basis and including laboratory and project work, if any), learning objectives and performance assessment methods. Such documentation would typically be distributed to students and should be available to the Accreditation Board visiting teams on site for every learning activity in the program.

  A collection of 15 to 20 courses need to provide a lecture-by-lecture course outline, a statement on course format and student expectations including learning outcomes, and a grading scheme. In addition, samples of student work for each assessment tool in all GAs are needed so that a range of student performances (poor, average, above average) is seen for graded student work, graded mid-term tests, graded examinations, and laboratory reports.
- **2019 (rescinded)** A collection of 15 to 20 courses covering the assessment of graduate attributes (each attribute should appear at least once), and all courses on the minimum path, that contributed Engineering Design or Engineering Science Accreditation Units (AUs) need to provide a lecture-by-lecture course outline, a statement on course format and student expectations including learning outcomes, and a grading scheme. In addition, samples of student work for each assessment tool in all GAs are needed so that a range of student performances (poor, average, above average) is seen for graded student work, graded mid-term tests, graded examinations, and laboratory reports.

Currently, course syllabi are required for all learning activities, typically courses, regardless of whether or not they are on the minimum path. The course syllabi comprise a detailed outline of the topics, defines expectations and responsibilities, includes learning outcomes, lists graduate attributes taught, and contains a description of course assessments. Assignments, quizzes, and exams with assessment schemes are appended, as well as any laboratory descriptions given to the students, assignment expectations, and assessment schemes, if any (answer keys with point distributions). Often lecture slides are included.

Marked student work is also required for a selection of engineering design, engineering science, and complementary studies taught in the engineering faculty on the minimum path. All deliverables in the capstone projects (reports, drawings, models, doodads) are required.

Policy documents relating to Health and Safety, Academic Integrity, Diversity, Transfer Credits, and Degree Audits need to be available on site. In addition, manuals and procedures that relate to health and safety practices in the unit should be readily available to the team. Typically, they are compiled and brought to the visiting team's meeting room.

The visiting team should have access to data and tools used to make continual improvement decisions (such as curriculum committee minutes) since last CEAB visit. A special document does not have to be created for the visit.

## 4. Minimum information needed to base CEAB decisions

Although the scope of this working group was to determine necessary information to make an accreditation decision, minimizing information the HEI needs to provide and the visiting team needs to review was considered. The material requirements were evaluated against the need for the information to support demonstration and validation of compliance. Principles of good audit and assessment were applied:

- Sampling is an accepted means of assessment.
- A focus on high value and highest risk elements for samples leads to credible assessments.
- Review and acceptance of lowest performer elements indicates higher performers are also acceptable.

Material requirements are based on the assumption that HEIs have policies that support accreditation, processes which implement the policies, controls to ensure the policies are followed, and evidence to support the controls are in use.

This approach recognizes the duty of care the CEAB has to Engineers Canada to provide accreditation services in a manner that is efficient for CEAB, the visiting teams, and the HEIs.

## 5. Detailed marking schemes and student work

The necessity of gathering samples of student work was discussed in length by this working group, as gathering examples of all work places a significant burden on the HEI. Detailed marking schemes and rubrics were discussed as alternatives to allow the visiting team to understand the level of expected student knowledge. Not all instructors use a written marking scheme (and this requirement is outside some collective agreements) and marking schemes may not provide enough detail to discern what is considered marginally acceptable work by the instructor. Often rubrics require subjective judgement, which is difficult to discern without examples of work.

Other accreditation organizations in Canada use student work to aid their assessment of programs. A non-exhaustive summary is found in Attachment B. Some organizations require additional exams before entry to practice, and some do not.

To determine the student work requirements needed to judge the weakest link on the minimum path, the visiting team needs to view at least ten engineering design culminating projects (or all projects if the HEI has fewer than 10), and examples of at least 75 per cent of the total marks in courses with Engineering Science and Engineering Design AUs in their final years of study. These examples should include GAs at an intermediate or advanced level (or equivalent) of instruction in Design, Communication, Impact of Engineering on Society and the Environment, Ethics and Equity, and Economics and Project Management.

As the focus of accreditation is to assure the regulators that all students who graduate from an HEI's accredited program meet the academic requirements for licensure, three examples of student work deemed marginally meeting expectations are required. These samples of student work, **in the opinion of the instructor,** meet the minimum acceptable standard for the assessment at the time of the assessment. The HEI may provide up to three additional examples if they wish to highlight better student work.

## 6. Link between criteria and required materials

The proposed material requirements are explicitly tied to accreditation criteria. To ensure the materials requirements for a visit were based on the criteria, linkages between current criteria and information needed for triangulation were identified, as summarized in tabular form in Attachment A. That detailed table identifies the timing of the information during a typical on-site visit in 2019. This information was transposed to show how the required material requirements for a visit are linked to the criteria in Table 1. This table will be provided to HEIs to use to compile and prepare material for future accreditation visits[1].

[1] Information from Attachment A can be used to train visitors on when to expect the information, and better inform HEIs on information needs, and where a visitor will look for information.

Minimum Path and Weakest Link principles were used to create this list, so that the material specifically demonstrates that the weakest students that pass the program will meet the requirements of the provincial and territorial engineering regulators. HEIs may provide examples of higher achievement but are not required to do so. The requirements are broken into six groups:

- **Program operational information** requirements are explicitly stated, eliminating the need for the visiting team to search HEI websites, and HEIs to describe their processes in the questionnaire. This information is already a requirement in the questionnaire.
- **Program operational information for graduate attributes and continual improvement documentation** details information that should be included in the Questionnaire Exhibit 1.
- **Graduate attributes and continual improvement detailed explanation** is the information typically provided during presentations and question/answer periods at the HEI, to help guide the HEI in their planning process for the visit.
- **Detailed syllabi** are required for all courses on the minimum path claiming Mathematics, Natural Sciences, Engineering Science, Engineering Design, and Complementary Studies AUs or equivalent curriculum measurement scheme(s). These syllabi are readily available at most HEIs, and part of the current information collection.
- **Documentation of assigned work and assessments** requires all problem set questions, lab information, project descriptions and quizzes, tests, exams, and other summative assessments with detailed marking schemes or detailed rubrics, if available.
- **Evaluated student work** is required for specified courses:
    - For the culminating design experience[2], provide all deliverables from ten projects (or fewer if there are less than ten participants/groups in a course). Among these projects, provide three that, in the opinion of the instructor, are of the lowest quality.
    - For ten courses (other than the Engineering Design Culminating Experiences) taken by all students in the program in the final two years of study, provide exams, quizzes, tests, or other summative assessments that are worth in combination at least 75 per cent of the total mark in course. For each assessment, provide three examples of work that, in the opinion of the instructor, marginally meet expectations. If all work meets expectations, examples that, in the instructor's opinion, are the lowest quality products will be provided. Up to three more examples may be added at the HEI's discretion.
    - Provide additional examples of GAs at an intermediate or advanced level of instruction in any GA that has not been provided in the culminating design experience, or the ten courses selected. These examples should be chosen from courses on the minimum path. HEIs can measure acquisition of skills apart from where they are taught. The HEI does not have to create a separate GA dossier for this work. For each assessment, provide three examples of work that, in the opinion of the instructor, marginally meet expectations. If all work meets

[2] Some institutions have a capstone course as the culminating design experience.

**Table 1. Required materials to support a CEAB visit**

| Requirement | Criteria |
|---|---|
| **A. Program operational information (Questionnaire)** | 3.3.1 |
| 1. Provide documentation or links to documentation for general admission. | 3.3.2 |
| 2. Provide documentation or links to documentation of transfer credits. | 3.3.3 |
| 3. Provide documentation or links to policies and procedures for graduation. | 3.3.4 |
| 4. Provide documentation or links to policies and procedures for academic advising of students. Include documentation and links for policies and practices concerning students with disabilities. | 3.4.7<br>3.4.8 |
| 5. Provide documentation or links to academic integrity policies. | |
| 6. Provide documentation or links to policies, procedures, and regulations for degree auditing. Provide a sample of 10 anonymous students for audit, including students with transfer credits. | |
| 7. Provide a description of how program changes to curriculum are made. | |
| 8. Provide a description of the Engineering Faculty Council (or equivalent) mandate. | |
| 9. Provide documented evidence that supports a culture of safety in the program. | |
| **B. Program operational information for graduate attributes and continual improvement documentation (Questionnaire Exhibit 1)** | 3.1 |
| 1. Summarize organization, including a process diagram and/or org chart. | 3.2 |
| 2. Describe and illustrate how GA and indicators are linked to the curriculum. Reference curriculum maps included in section 6C of the Questionnaire and provide in other formats, as necessary. | |
| 3. Include a comprehensive list of indicators and a description of the assessment tools used to measure the indicators. | |
| 4. Describe the program's overall improvement process, and how GA analysis factor into decision making. | |
| 5. Describe the internal and external stakeholders, their role, frequency, and format of consultations. Include examples of stakeholder input, and considerations that have improved the programs. | |
| 6. Summarize improvement actions, including changes to the assessment process, and their implementation, and timelines since the last CEAB visit. | |
| 7. Provide details of analysis of assessment results since the last visit. | |
| 8. Provide three examples where assessment results were considered as a part of program improvement actions, including how the identifiable improvements to the program were identified, what evidence was used to support the change, and the decision made. Evidence could include, but is not limited to, relevant GA/CI curriculum meeting minutes, data, and tools used to analyze the data. | |
| C. **Graduate attributes and continual Improvement detailed explanation**<br>This information may be given at a presentation to all visiting team members or provided at other meetings during the visit. | 3.1<br>3.2 |
| 1 Explain the strategy of GA/CI, including involvement of teaching staff, curriculum or other committees involved with the process, how the procedures and processes are implemented at program, faculty, and institutional levels, and how these levels participate in the process. | |
| 2 Describe the philosophy behind the curriculum, including sequencing of courses, highlighting linkages. | |
| 3 Explain the choice of indicators, linking to course learning objectives. | |
| 4 Explain philosophy and choice of assessment tools. | |
| 5 Explain compilation and interpretation of results. | |
| 6 Explain the improvement process, and how GAs contribute to decisions. | |
| 7 Describe the program's internal and external stakeholder consultations. | |
| 8 Discuss improvement actions, their implementation, and timelines. | |
| 9 Provide three examples where assessment results were considered as a part of program improvement actions. | |
| 10 Evaluate the overall GA/CI process, discuss what is working, what is not working, and any improvements that have been identified and implemented. | |
| **D. Detailed syllabi**<br>For learning activities on the minimum path claiming Mathematics, Natural Sciences, Engineering Science, Engineering Design, and Complementary Studies AUs[1], provide a detailed, week-by-week (or equivalent) syllabi of course content and expectations, indicating engineering tool use and lab experience. | 3.1<br>3.4 |
| E. **Documentation of assigned work and assessments**<br>Document assigned work and exams for each of the program's learning activities on the minimum path claiming Engineering Science or Engineering Design AUs[1,4]. | 3.1<br>3.4.4<br>3.4.6 |
| 1. Provide problem set questions. If questions are from a textbook, provide the text or copies of the questions. | 3.4.7 |
| 2. Provide laboratory information given to students, as well as detailed marking schemes or detailed rubrics. When detailed marking schemes or detailed rubrics are not available, provide at least 3 examples of student work deemed marginally meeting expectations at the time of assessment as judged by the instructor; up to 3 additional examples may be added at the HEI's discretion. | |
| 3. Provide project descriptions with detailed marking schemes or detailed rubrics. | |
| 4. Provide quizzes, tests, exams, and other summative assessments with detailed marking schemes or detailed rubrics, if available. | |
| F. **Evaluated student work[5]** | 3.1 |
| 1 For culminating design experiences, provide all deliverables from ten projects[2] including the 3 examples that, in the opinion of the instructor, are of the lowest quality[6]. | 3.4.4<br>3.4.6 |
| 2 For ten substantial learning activities (other than the Engineering Design Culminating Experiences) taken by all students in the program in the final two years of study, provide exams, quizzes, tests, or other summative assessments[3] that are worth in combination at least 75 per cent of the total mark in the course. For each assessment, provide three examples of work that, in the opinion of the instructor, marginally meet expectations[6]. Up to three more may be added at the HEI's discretion.<br>If the program requires all students take fewer than ten common courses in their final two years, the HEI can choose to submit common courses in the previous year, or high enrolment courses in the final years. The HEI should provide sufficient information to demonstrate compliance to the Criteria. | 3.4.7 |
| 3 Provide additional examples of GAs an intermediate or advanced level[1] of instruction in any GA that has not been provided if they have not been provided in the culminating design experience or the ten learning activities selected in point 2 above. These examples should be chosen from courses on the minimum path. The HEI does not have to create a separate GA Dossier for this work. For each assessment, provide three examples of work that, in the opinion of the instructor, marginally meets expectations[6]. Up to 3 additional examples may be added at the HEI's discretion. These student work examples may also be used to fill requirements for Requirements F1 and F2. | |

Notes:
[1] or equivalent
[2] If less than 10 projects were completed in the course, include all projects. Projects may include written reports, physical models, or mathematical models.
[3] may include labs, projects, or other work
[4] Access to on-line resources or files is acceptable in lieu of paper copies.
[5] Written documentation may be hardcopy or electronic.
[6] If all work meets expectations, please provide works that, in the instructor's opinion, are the lowest quality products.

- expectations, examples that in the instructor's opinion are the lowest quality products will be provided. Up to three more examples may be added at the HEI's discretion.

These guidelines provide the HEI with additional guidance when preparing for visits, and the visiting team with knowledge of what information to expect. This information can be provided electronically if the HEI chooses.

These new requirements provide HEIs with more flexibility and guidance as to the student examples that are needed, with the explicit acknowledgement that student examples used to demonstrate graduate attributes are not necessarily unique from those that demonstrate depth and breadth of instruction and expected achievement, alleviating some of the current workload and ambiguity at the HEIs.

Although marked work from introductory courses is no longer required, detailed syllabi, and documentation of assigned work and assessments in courses in the first two year are required (Requirements D and E). These materials will be examined, and the instructors may be contacted during the visit with questions. Attaining knowledge from these fundamental courses are crucial to success in later courses, vital for adaptation to new fields and technology, and thus important for the success of a student after graduation.

Safety manuals are not required to be compiled; however, a culture of safety must be demonstrated. Safety tools, including meeting minutes, should be available upon request during the visit.

## 7. Comparison of current and proposed required materials

Although the goal of this work is to establish a consistent set of materials provided by an HEI that would allow a visiting team to evaluate an engineering program with respect to the Criteria, some of the other issues identified by the group were addressed:

- Information requests are consistent from visit to visit, allowing the HEI to plan collection before a Visiting Team Chair has been announced. The information requests will change only with criteria changes.
- Engineering programs with a heavy science component only need student samples in senior courses taught outside the Engineering Faculty if the course is on the minimum path, and is used to fulfill criteria for GAs (3.1), Engineering Science, or Engineering Design (3.4.4, 3.4.6, and 3.4.7).
- Course information requirements are clearly spelled out, so information such as instructor presentations are no longer required.
- Material collection requirements have been reduced, saving time for both the HEI and the visiting team.
- Material collection requirements are better communicated, eliminating overcollection by the HEI to ensure visiting team needs are met.

Table 2 provides a high-level comparison of existing and proposed required materials to support a visit. A more detailed comparison is found in Attachment C. These requirements should reduce the load on the HEI from their current levels.

**Table 2. Comparison of existing and proposed required materials to support a CEAB visit**

| Existing request | Proposed request | Change | Workload savings |
|---|---|---|---|
| Description of the policies and regulations that cover various aspects of the program, including, but not limited to admission, appeals, grade approval and practices. | Links to source materials online that describe the appropriate policies, procedures, and regulations. | Description no longer required.<br>Links to source documents are sufficient.<br>More Precise specification of visiting team needs. | Written descriptions are replaced by documents, or links to documents. |
| Syllabi for all learning activities in the program curriculum. | Syllabi for courses on the minimum path that incorporate Math, NS, ES, ED, and CS. | Syllabi are only required for courses on the minimum path. | Fewer courses need to be documented. |
| Assessment materials and three examples of student work from the low, middle, and high end of each assessment in 15 to 20 courses.<br>All graded lab and design reports. | Assessment materials and three examples of student work with the lowest acceptable performance as judged by the instructor at the time of assessment, representing 75 per cent of the final course assessment for ten course taken by all students with ES, ED, and GAs.<br>Instructor's discretion to add any three more. | Only ten courses on the minimum path are sampled.<br>Only 75 per cent of the assessment is required.<br>Only examples of the lowest acceptable work are required, other samples are at the instructor's discretion. | Fewer assessment materials required.<br>All learning activities do not need to be sampled: only 75 per cent of assessments are required. |
| Ten examples of the culminating design experience. | Ten examples of the culminating design experience, including the three minimum acceptable examples. | The three minimum acceptable samples must be included. | No difference. |
| Dossiers with examples for 15-20 courses which measure the graduate attributes. | Examples of minimum acceptable student work in courses on the minimum path with attributes at the D or A level. | These samples are only required if not included with the assessment covering ES + ED. | A separate dossier of GAs with samples is no longer needed. |
| Exhibit 1 | Exhibit 1 – detailed expectations | No change – requirements are specified in detail. | Less time spent preparing documentation as expectations are clearer. |

**Table 2. Comparison of existing and proposed required materials to support a CEAB visit**

| Existing request | Proposed request | Change | Workload savings |
|---|---|---|---|
| GA/CI presentation | GA/CI presentation – detailed expectations | No change – requirements are specified in detail. | Less time spent preparing presentation as expectations are clearer. |
| Health and safety manuals required. | Health and safety manuals not required. | No safety manuals required. Safety culture will be assessed on-site. | No time spent gathering manuals. |
| Changes in data collection requirements made every year. | Changes in data collection requirements made every six years. | Requirements are frozen for six years at a time. | Less time spent preparing as information can be gathered over several years. |
| Collection requirements not explicitly tied to criteria. | Every requirement is tied to a specific criterion. | Criterion-based data collection. | Less time spent preparing as HEI knows how information will be used by visiting team. |

## 8. Implementation plan

After stakeholder consultation and final approval by the CEAB, the requirements should be included in the questionnaire (or as an addendum to the questionnaire) as appropriate and promulgated.

The working group should be stood down.

After promulgation, this required materials list request should remain unchanged for a period of six years. After three years, the list should be reviewed and necessary changes made. The new requirements may be announced but will not be in force until the end of the six-year period. HEIs will have a minimum of two years notification before the requirements are applied.

# Attachment A

# Connections between criteria and information

**Table A-1. Connections between criteria and information.**

**B = Before visit, O = Available on-site, P = Presentation, I = Interview, Q = Questionnaire, QE1 = Exhibit 1**

| 2019 Criteria | Decision bases |
|---|---|
| **3.1 Graduate attributes** | |
| 3.1.1 **Organization and engagement:** There must be demonstration that an organization structure is in place to assure the sustainable development and measurement of graduate attributes. There must be demonstrated engagement in the processes by faculty members and engineering leadership. | B: QE1 1.2. Summarize organization, including a process diagram and/or org chart.<br>P: Explain philosophy and strategy of GA/CI, including involvement of teaching staff.<br>I: Discuss of understanding of GA/CI with instructors. |
| 3.1.2 **Curriculum maps:** There must be documented curriculum maps showing the relationship between learning activities for each of the attributes and semesters in which these take place. A comprehensive, sustainable assessment plan for all attributes must be clearly indicated by the map. | B: QE1. Table 3.1.1, 3.1.1a, 3.1.1b, 3.1.1c.<br>O: Any other curriculum maps.<br>P: Explain philosophy and strategy of curriculum, highlighting linkages between courses.<br>I: Discuss curriculum requirements for the courses taught. |
| 3.1.3 **Indicators**: 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. | B: QE1. Table 3.1.2. Include a comprehensive list of indicators.<br>P: Explanation of philosophy and choice of indicators, linking to learning objectives if possible.<br>I: Discuss indicators in specific courses, and how these indicators fit into the curriculum with instructors. |
| 3.1.4 **Assessment tools**: 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. | B: QE1. Describe assessment tool connection to indicators.<br>P: Explain philosophy and choice of assessment tools.<br>I: Discuss assessment tools in specific courses, and how they fit the associated graduate attribute with instructors. |
| 3.1.5 **Assessment results**: At least one set of assessment results must be obtained for all twelve attributes over a period of six years or less. The results should provide clear evidence that graduates of a program possess the above list of attributes. | B: QE1. Describe assessment result summary and analysis, at least since most recent CEAB visit.<br>O: Details of analysis<br>P: Explain interpretation of results<br>I: Discuss assessment results with course instructors, and how the results fit the curriculum map. |

**Table A-1. (cont.) Connections between Criteria and Information.**
**B = Before visit, O = Available on-site, P = Presentation, I = Interview, Q = Questionnaire, QE1 = Questionnaire Exhibit 1**

| 2019 Criteria | Decision bases |
|---|---|
| **3.2 Improvement process** | |
| 3.2.1 **Improvement process:** There must be processes in place that demonstrate that program outcomes are being assessed in the context of the graduate attributes, and that the results are validated, analyzed and applied to the further development of the program. | B: QE1 2.1. Describe improvement process, including, but not limited to, GA analyses.<br>P: Explain the improvement process, and how GAs contribute to decisions.<br>I: Discuss how improvement process operates with faculty members. |
| 3.2.2 **Stakeholder engagement:** There must be demonstrated engagement and involvement of stakeholders both internal and external to the program in the continual improvement process. | B: QE1 2.2. Describe stakeholders consulted, how often, and in what manner.<br>P: Describe stakeholders consulted, how often, and in what manner.<br>I: Discuss improvement process with stakeholder group(s) or representatives, and improvement process committee. |
| 3.2.3 **Improvement actions:** There must be demonstration that the continual improvement process has led to consideration of specific actions corresponding to identifiable improvements to the program and/or its assessment process. This criterion does not apply to the evaluation of new programs. | B: QE1 2.3. Summarize improvement actions, including changes to the assessment process, and their implementation, and timelines.<br>P: Discuss of improvement actions, including changes to the assessment process, and their implementation, and timelines.<br>I: Discuss improvement actions with students, faculty members, administrators, other stakeholders. |

**Table A-1. (cont.) Connections between Criteria and Information.**
**B = Before visit, O = Available on-site, P = Presentation, I = Interview, Q = Questionnaire, QE1 = Questionnaire Exhibit 1**

| 2019 Criteria | Decision bases |
|---|---|
| **3.3 Students**<br>Accredited programs must have functional policies and procedures that deal with quality, admission, counselling, promotion and graduation of students. Although all accreditation criteria connect directly and indirectly with their education, particular attention is drawn to admission, promotion and graduation, and academic advising. | |
| **3.3.1 Admission:** There must be documented processes and policies for admission of students. Admission involving advanced standing, prior studies, transfer credits and/or exchange studies must be in compliance with the associated Accreditation Board regulations. (See 3.4.8.1) | B: Q 3.3.1, 3.3.1.1. Provide documents or links to documentation for general admission and transfer credits.<br>B/O: Provide documentation for general admission and transfer credits if not provided earlier.<br>I: Discuss admission with person(s) in charge of admission (may be at faculty or university level). Discuss with departmental person in charge of transfer credits, including exchange. |
| 3.3.2 **Promotion and graduation:** Processes and policies for promotion and graduation of students must be documented. The institution must verify that all students have met all its regulations for graduation in the program identified on the transcript and that the curriculum followed is consistent with that of the accredited program. The program name must be appropriate for all students graduating from the program. (See 3.4.8) | B: Q 3.3.2. Provide documentation or links to policies and procedures for graduation. Table 4.3.<br>I: Discuss promotion and graduation with people (faculty and/or staff) responsible in department or faculty (or both) for graduation and promotion. |
| 3.3.3 **Academic Advising:** There must be processes and sufficient resources in place for the academic advising of students. Clear statements of such policies and procedures should be available to faculty and students. Depending on the governance structures in place, aspects of students advising should normally be at both the program and Faculty levels. | B: Q 3.3.3. Provide documentation or links to policies and procedures for academic advising of students.<br>I: Discuss academic advising with people (faculty and/or staff) responsible in department or faculty (or both). Discuss with students. |
| 3.3.4 **Degree auditing:** A requirement for accreditation is that the institution has verified, using methodologies accepted by the Accreditation Board, that all its student-related policies, procedures, and regulations apply to, and are met by, all students. | B: Q 3.3.4. Document degree auditing methodologies, including policies, procedures and regulations. Provide sample of 10 anonymous students for audit, including students with transfer credits.<br>I: Discuss auditing with people (faculty and/or staff) responsible in department or faculty (or both) for graduation and promotion. |

**Table A-1. (cont.) Connections between criteria and required information.**
**B = Before visit, O = Available on-site, P = Presentation, I = Interview, Q = Questionnaire, QE1 = Questionnaire Exhibit 1**

| 2019 Criteria | Decision bases |
|---|---|
| **3.4 Curriculum content and quality**<br>The curriculum content and quality criteria are designed to assure a foundation in mathematics and natural sciences, a broad preparation in engineering sciences and engineering design, and an exposure to non-technical subjects that supplement the technical aspects of the curriculum. All students must meet all curriculum content and quality criteria. The academic level of the curriculum must be appropriate to a university-level engineering program. | |
| 3.4.1 **Approach and methodologies for quantifying curriculum content** | |
| 3.4.1.1 **Accreditation units (AU)** are defined on an hourly basis for an activity which is granted academic credit and for which the associated number of hours corresponds to the actual contact time between the student and the faculty members, or designated alternates, responsible for delivering the program:<br>one hour of lecture (corresponding to 50 minutes of activity) = 1 AU<br>one hour of laboratory or scheduled tutorial = 0.5 AU<br>This definition is applicable to most lectures and periods of laboratory or tutorial work. Classes of other than the nominal 50-minute duration are treated proportionally. In assessing the time assigned to determine the AU of various components of the curriculum, the actual instruction time exclusive of final examinations should be used. | B: Q 3.4.4.1. CIS. Provide detailed, week-by-week syllabi of course schedule and expectations.<br>I: Discuss courses with faculty members, students, lab support. |
| 3.4.1.2 For an activity for which contact hours do not properly describe the extent of the work involved, such as significant design or research projects, curriculum delivered through the use of problem-based learning, or similar work officially recognized by the institution as a degree requirement, an equivalent measure in accreditation units, consistent with the above definition, should be used by the institution. | B: Provide accurate and complete CIS. Describe alternative measures. Provide detailed, week-by-week syllabi of course schedule and expectations.<br>P: Discuss alternative measurement technique, other than K<br>I: Discuss activities with faculty members, Curriculum Committee, Department Head. |
| 3.4.1.3 One method for determining an equivalent measure in AU is a calculation on a proportionality basis. This method relies on the use of a unit of academic credit defined by the institution to measure curriculum content. Specifically, a factor, K, is defined as the sum of AU for all common and compulsory courses for which the computation was carried out on an hourly basis, divided by the sum of all units defined by the institution for the same courses. | B: Q 3.1.1.4. Provide explicit calculation of K factor, if used.<br>I: Discuss with Department Head, Curriculum Committee. |

| 2019 Criteria | Decision bases |
|---|---|
| 3.4.1.4 The Accreditation Board can give consideration to departures from this approach and these methodologies in any case in which it receives convincing documentation that well-considered innovation in engineering education is in progress. | B: Q 3.1.1.4. Provide accurate and complete CIS. Describe alternative measures. Provide a detailed, week-by-week syllabi of course schedule and expectations of courses that use an alternate approach to AUs or K factor.<br>P: Discuss alternative measurement technique, other than K<br>I: Discuss with faculty members |
| 3.4.2 Minimum curriculum components<br>An engineering program must include the minima for each of its components.<br>• The entire program must include a minimum of **1,950 AU**<br>• Mathematics: Minimum 195 AU<br>• Natural sciences: Minimum 195 AU<br>• Mathematics and natural sciences combined: Minimum 420 AU<br>• Engineering science: Minimum 225 AU<br>• Engineering design: Minimum 225 AU<br>• Engineering science and engineering design combined: Minimum 900 AU<br>• Complementary studies: Minimum 225 AU<br>• Laboratory experience and safety procedures instruction | See below for details |
| 3.4.3 **A minimum of 420 AU of a combination of mathematics and natural sciences.** Within this combination, each of mathematics and natural sciences must not be less than 195 AU. An Interpretive Statement on Natural Sciences is attached as an appendix to this document. | B: Provide accurate and complete CIS. Table 4.4a, 4.4b, 4.4c.<br>O: Provide detailed, week-by-week syllabi of course schedule and expectations, problem set questions, labs with marking scheme (if available), quizzes with marking scheme (if available), exams with marking scheme (if available) for courses in the 420 AU mathematics + natural sciences on the minimum path.<br>I: Discuss with instructors, students. |
| 3.4.3.1 A minimum of 195 AU in mathematics is required. Mathematics is expected to include appropriate elements of linear algebra, differential and integral calculus, differential equations, probability, statistics, numerical analysis, and discrete mathematics. | B: Provide accurate and complete CIS. Table 4.4a, 4.4b, 4.4c.<br>B/O: Provide detailed, week-by-week syllabi of course schedule and expectations, problem set questions, labs with marking scheme (if available), quizzes with marking scheme (if available), exams with marking scheme (if available) for courses in the 195 AU mathematics<br>I: Discuss with instructors, students. |

| 2019 Criteria | Decision bases |
|---|---|
| 3.4.3.2 A minimum of 195 AU in natural sciences is required. The natural sciences component of the curriculum must include elements of physics and chemistry; elements of life sciences and earth sciences may also be included in this category. These subjects are intended to impart an understanding of natural phenomena and relationships through the use of analytical and/or experimental techniques. | B: Provide accurate and complete CIS. Table 4.4a, 4.4b, 4.4c.<br>B/O: Provide detailed, week-by-week syllabi of course schedule and expectations, problem set questions, labs with marking scheme (if available), quizzes with marking scheme (if available), exams with marking scheme (if available) for courses in the 195 AU natural sciences on the minimum path.<br>I: Discuss with instructors, students. |
| 3.4.4 **A minimum of 900 AU of a combination of engineering science and engineering design:** Within this combination, each of Engineering Science and Engineering Design must not be less than 225 AU. | B: Provide accurate and complete CIS. Table 4.4a, 4.4b, 4.4c.<br>B/O: Provide detailed, week-by-week syllabi of course schedule and expectations, problem set questions, labs with marking scheme (if available), quizzes with marking scheme (if available), exams with marking scheme (if available) for all courses constituting a minimum of 900 AUs of engineering science and engineering design on the minimum path.<br>I: Discuss with instructors, students. |
| 3.4.4.1 A minimum of 600 Accreditation Units (AU) of a combination of engineering science and engineering design curriculum content in an engineering program shall be delivered by faculty members holding, or progressing toward, professional engineering licensure as specified in the *Interpretive statement on licensure expectations and requirements*. | B: Provide accurate and complete CIS. Table 4.3, 4.4a, 4.4b, 4.4c.<br>B/O: Provide detailed, week-by-week syllabi of course schedule and expectations, problem set questions, labs with marking scheme (if available), quizzes with marking scheme (if available), exams with marking scheme (if available) for all courses constituting a minimum of 600 AUs of engineering science and engineering design from licensed faculty on the minimum path.<br>I: Discuss with instructors, students. |
| 3.4.4.2 A minimum of 225 AU in engineering science is required. Engineering science subjects involve the application of mathematics and natural science to practical problems. They may involve the development of mathematical or numerical techniques, modeling, simulation, and experimental procedures. Such subjects include, among others, the applied aspects of strength of materials, fluid mechanics, thermodynamics, electrical and electronic circuits, soil mechanics, automatic control, aerodynamics, transport phenomena, and elements of materials science, geoscience, computer science, and environmental science. | B: Provide accurate and complete CIS. Table 4.4a, 4.4b, 4.4c.<br>B/O: Provide detailed, week-by-week syllabi of course schedule and expectations, problem set questions, labs with marking scheme (if available), quizzes with marking scheme (if available), exams with marking scheme (if available) for all courses constituting a minimum of 225 AUs of engineering science on the minimum path.<br>I: Discuss with instructors, students. |

| 2019 Criteria | Decision bases |
|---|---|
| 3.4.4.3 In addition to program-specific engineering science, the curriculum must include engineering science content that imparts an appreciation of the important elements of other engineering disciplines. | B: Q 4.4.3. Provide accurate and complete CIS. Table 4.4a, 4.4b, 4.4c.<br>B/O: Provide detailed, week-by-week syllabi of course schedule and expectations, problem set questions, labs with marking scheme (if available), quizzes with marking scheme (if available), exams with marking scheme (if available) for courses imparting information on other disciplines on the minimum path.<br>I: Discuss with instructors, students. |
| 3.4.4.4 A minimum of 225 AU of engineering design curriculum content in an engineering program shall be delivered by faculty members holding professional engineering licensure as specified in the *Interpretive statement on licensure expectations and requirements*. | B: Provide accurate and complete CIS. Table 4.3, 4.4a, 4.4b, 4.4c.<br>B/O: Provide detailed, week-by-week syllabi of course schedule and expectations, problem set questions, labs with marking scheme (if available), quizzes with marking scheme (if available), exams with marking scheme (if available) for courses on the minimum path claiming design units taught by licensed engineers.<br>I: Discuss with instructors, students. |
| 3.4.4.5 A minimum of 225 AU in engineering design is required. Engineering design integrates mathematics, natural sciences, engineering sciences, and complementary studies in order to develop elements, systems, and processes to meet specific needs. It is a creative, iterative, and open-ended process, subject to constraints which may be governed by standards or legislation to varying degrees depending upon the discipline. These constraints may also relate to economic, health, safety, environmental, societal or other interdisciplinary factors. | B: Provide accurate and complete CIS. Table 4.4a, 4.4b, 4.4c.<br>B/O: Provide detailed, week-by-week syllabi of course schedule and expectations, problem set questions, labs with marking scheme (if available), quizzes with marking scheme (if available), exams with marking scheme (if available) for work in courses on the minimum path where students do design. Provide at least 3 examples of the lowest acceptable student projects.<br>I: Discuss with instructors, students. |
| 3.4.4.6 The engineering curriculum must culminate in a significant design experience conducted under the professional responsibility of faculty licensed to practise engineering in Canada. The significant design experience is based on the knowledge and skills acquired in earlier work and it preferably gives students an involvement in teamwork and project management. | B: Q 3.4.4.6. Provide accurate and complete CIS. Table 4.3.<br>B/O: Provide detailed, week-by-week syllabi of course schedule and expectations, problem set questions, labs with marking scheme (if available), quizzes with marking scheme (if available), exams with marking scheme (if available) for courses on the minimum path claiming design and example(s) of the three lowest acceptable student projects (minimum path) for the culminative significant design course(s).<br>I: Discussions with instructors, students |
| 3.4.4.7 Appropriate content requiring the application of modern engineering tools must be included in the engineering sciences and engineering design components of the curriculum. | B: Q 3.4.4.7. Provide accurate and complete CIS. Table 4.2. Provide detailed, week-by-week syllabi of course schedule and expectations, including tools used.<br>I: Discussions with instructors, students |

| 2019 Criteria | Decision bases |
|---|---|
| 3.4.5 **A minimum of 225 AU of complementary studies:** Complementary studies include humanities, social sciences, arts, languages, management, engineering economics and communications. | B: Provide accurate and complete CIS. Table 4.4a, 4.4b, 4.4c.<br>I: Discussions with instructors, students |
| 3.4.5.1 While considerable latitude is provided in the choice of suitable content for the complementary studies component of the curriculum, some areas of study are essential in the education of an engineer. Accordingly, the curriculum must include studies in the following:<br>Subject matter that deals with the humanities and social sciences;<br>Oral and written communications;<br>Professionalism, ethics, equity and law;<br>The impact of technology and/or engineering on society;<br>Health and safety;<br>Sustainable development and environmental stewardship;<br>Engineering economics and project management. | B: Provide accurate and complete CIS.<br>B/O: Provide detailed, week-by-week syllabi of course schedule and expectations, problem set questions, labs with marking scheme (if available), quizzes with marking scheme (if available), exams with marking scheme (if available) for complementary studies on the minimum path that covers the detailed subjects.<br>I: Discussions with instructors, students. |
| 3.4.6 The program must have a minimum of 1,950 Accreditation units that are at a university level. | B: Provide accurate and complete CIS. Table 4.4a, 4.4b, 4.4c.<br>I: Discussions with instructors, students |
| 3.4.7 Appropriate laboratory experience must be an integral component of the engineering curriculum. Instruction in safety procedures must be included in preparation for students' laboratory and field experience. | B: Provide accurate and complete CIS. Table 4.2.<br>B/O: Provide detailed, week-by-week syllabus of course schedule and expectations, problem set questions, projects with marking scheme (if available), quizzes with (if available), and exams with (if available), for courses on the minimum path that have a laboratory or field component.<br>I: Discussions with instructors, students, lab staff. |
| 3.4.8 The requirements for curriculum content must be satisfied by all students, including those claiming advanced standing, credit for prior post-secondary- level studies, transfer credits and/or credit for exchange studies. The document entitled *Regulations for granting transfer credits* is available as an appendix in this document. (see 3.3.2) | B: Q 3.3.2.<br>O: Provide documentation or links to policies and procedures for graduation. Table 4.3.<br>I: Discuss promotion and graduation with people (faculty and/or staff) responsible in department or faculty (or both) for graduation and promotion. |
| 3.4.8.1 It is recognized that, for programs at some institutions, some of the mathematics, natural sciences and complementary studies components of the curriculum may have been covered in prior university level (or post-secondary) education and this circumstance must be considered in the institution's admission policy. (see 3.3.1) | B: Q 3.3.1, 3.3.1.1.<br>O: Provide documents or links to documentation for general admission and transfer credits.<br>I: Discuss admission with person(s) in charge of admission (may be at a faculty or university level). Discuss with departmental person in charge of transfer credits, including exchange. |

| 2019 Criteria | Decision bases |
|---|---|
| 3.4.8.2 These criteria do not limit accreditation to any particular mode of learning. In the case of distance learning, the Accreditation Board will rely on the *Interpretive statement on distance learning*, which is attached as an appendix to this document. | B: Q 3.4.8.2.<br>I: Discussions with instructor(s), Curriculum Committee. |

**Table A-1. (cont.) Connections between criteria and information.**

**B = Before visit, O = Available on-site, P = Presentation, I = Interview, Q = Questionnaire, QE1 = Questionnaire Exhibit 1**

| 2019 Criteria | Decision bases |
|---|---|
| **3.5 Program environment**<br>The Accreditation Board considers the overall environment in which an engineering program is delivered. | |
| 3.5.1 **Quality of the educational experience:** Major importance is attached to the quality of the educational experience as reflected by the following: | |
| 3.5.1.1 The quality, morale, and commitment of:<br>students<br>faculty<br>support staff<br>administration | B: Q 3.5.1.1<br>I: Discuss with students, faculty, support staff, and administration. |
| 3.5.1.2 The quality, suitability, and accessibility of:<br>laboratories<br>library<br>computing facilities<br>non-academic counselling and guidance other supporting facilities and services | B: Q 3.5.1.2<br>P: Tour(s) of the campus.<br>I: Discuss with students, faculty, support staff. |
| 3.5.2 **Faculty:** The character of the educational experience is influenced strongly by the competence, expertise, and outlook of the faculty. The faculty delivering the program must have the following characteristics: | |
| 3.5.2.1 There must be sufficient faculty to cover, by experience and interest, all areas of the curriculum. | B: Table 4.3<br>I: Discussions with faculty, Curriculum Committee, Department Head. |
| 3.5.2.2 Even though the faculty involved in delivery of program elements may include full-time and part-time members, there must be a sufficient number of full- time faculty members to assure adequate levels of student-faculty interaction, student curricular counselling, and faculty participation in the development, control, and administration of the curriculum. | B: Q 3.5.2.2, Table 4.3<br>I: Discuss with faculty, students. |
| 3.5.2.3 Faculty administrative and teaching duties should be appropriately balanced to allow for adequate participation in research, scholarly work, professional development activities, and industrial interaction. | B: Q 3.5.2.3, Table 4.3<br>I: Discuss with faculty, students. |
| 3.5.2.4 Under no circumstances should a program be critically dependent on one individual. | B: Q 3.5.2.4, Table 4.3<br>I: Discuss with faculty, students. |

| 2019 Criteria | Decision bases |
|---|---|
| 3.5.3 **Leadership:** The dean of engineering (or equivalent officer) and the head of an engineering program (or equivalent officer with overall responsibility for each engineering program) are expected to provide effective leadership in engineering education and to have high standing in the engineering community. They are expected to be engineers licensed to practice in Canada. | B: Table 4.4<br>I: Discuss with Dean, (or equivalent officer with overall responsibility for each engineering program), faculty. |
| 3.5.4 **Expertise and competence of faculty:** Faculty delivering the engineering curriculum are expected to have a high level of expertise and competence, and to be dedicated to the aims of engineering education and of the self-regulating engineering profession, which will be judged by the following factors:<br>The level of academic education of its members.<br>The diversity of their backgrounds, including the nature and scope of their non-academic experience.<br>Their ability to communicate effectively.<br>Their experience and accomplishments in teaching, research and/or engineering practice.<br>Their degree of participation in professional, scientific, engineering, and learned societies.<br>Their appreciation of the role and importance of the self-regulating engineering profession, and of positive attitudes towards professional licensure and involvement in professional affairs. | B: Q 3.5.4<br>I: Discuss with Dean, Faculty, and students. |
| 3.5.5 **Professional status of faculty members:** Faculty delivering curriculum content that is engineering science and/or engineering design are expected to be licensed to practise engineering in Canada. | B: Q 3.5.4, Table 4.1.<br>I: Discuss with Dean, Department Head, Faculty. |
| 3.5.6 **Financial resources:** Financial resources must be sufficient to ensure that:<br>Qualified academic staff can be recruited, retained, and provided with continuing professional development.<br>Qualified support staff can be recruited, retained, and provided with continuing professional development.<br>Infrastructure can be acquired, maintained, and renewed.<br>Equipment can be acquired, maintained, and renewed. | B: Q 3.5.6.<br>I: Discuss with President/Chancellor, Dean, Department Head, Lab Head. |

| 2019 Criteria | Decision bases |
|---|---|
| 3.5.7 **Authority and responsibility for the engineering program:** The Engineering Faculty Council (or equivalent engineering body) must have clear, documented authority and responsibility for the engineering program, regardless of the administrative structure within which the engineering program is delivered. | B: Q 3.5.7.<br>B/O: Description of Engineering Faculty Council mandate.<br>I: Discuss with Dean, Department Head(s). |
| 3.5.8 **Curriculum committee:** Engineering program curriculum changes are expected to be overseen by a formally structured curriculum committee. The majority of the voting members of the committee are expected to be licensed to practise engineering in Canada. | B: Q 3.5.8. Description of changes to curriculum. Table 4.5.<br>I: Discuss with curriculum committee members, faculty. |

**Table A-1. (cont.) Connections between criteria and information.**

**B = Before visit, O = Available on-site, P = Presentation, I = Interview, Q = Questionnaire, QE1 = Questionnaire Exhibit 1**

| 2019 Criteria | Decision Bases |
|---|---|
| **3.6 Additional criteria** | |
| 3.6.1 For purposes of accreditation, a program is characterized by a formally approved and published curriculum that is regarded as an entity by the institution and that can be considered independently. All options in the program are examined. Following the principle that a program is only as strong as its "weakest link", a program is accredited only if all options meet the criteria. | B: Q 3.6.1. Table 4.3, 4.4a, 4.4b, 4.4c<br>I: Discuss with Department Head and Dean. |
| 3.6.2 An accredited program must have the word "engineering" in its title. | B: Q Title Page.<br>I: Discuss with Department Head and Dean. |
| 3.6.3 The title of an accredited engineering program must be properly descriptive of the curriculum content. | B: Table 4.3, 4.4a, 4.4b, 4.4c. Provide accurate and complete CIS.<br>I: Discuss with Department Head and Dean. |
| 3.6.4 If a program, by virtue of its title, becomes subject to the content requirements for two or more engineering curricula, then the program must meet the Accreditation Board requirements for each engineering curriculum named. | B: Q 3.6.4. Table 4.3, 4.4a, 4.4b, 4.4c. Provide accurate and complete CIS.<br>I: Discuss with Department Head and Dean. |
| 3.6.5 The Accreditation Board must have evidence that all engineering options contain a significant amount of distinct curriculum content and that the name of each option is descriptive of that curriculum content. | B: Q 3.6.5. Table 4.3, 4.4a, 4.4b, 4.4c. Provide accurate and complete CIS.<br>I: Discussion with Department Head and Dean. |
| 3.6.6 The Accreditation Board must have evidence that the program name is appropriate for all students graduating in the program regardless of the option taken. | B: Q 3.6.4. Table 4.3, 4.4a, 4.4b, 4.4c. Provide accurate and complete CIS.<br>I: Discuss with Department Head and Dean. |

**Table A-2. Onsite material requirements 2020/2021 cycle.** Requirements A1, B, C, and D have explicit linkages to criteria. A2 has an implied linkage, although 3.1 and 3.4 criteria can be determined from requirement A1.

| Requirement | Criteria |
|---|---|
| A1. For each learning activity in a program's curriculum, institutions are expected to maintain up-to-date documentation on content (on a week-by-week or similar basis and including laboratory and project work if any), learning objectives and performance assessment methods. Such documentation would typically be distributed to students and should be available to the Accreditation Board visiting teams on site for every learning activity in the program.<br><br>Assessment materials issued to students, including as may be applicable, homework assignments, laboratory instruction sheets, project instructions, quizzes, mid-term, and final exam question papers should also be available on site for every learning activity in the program. | 3.1<br>3.4 |
| A2. In addition to the materials specified in A1, dossiers of the materials listed below should be available on site for a selection of 15 to 20 of the program's learning activities. The HEI should select the 15 to 20 learning activities from amongst those used by it to assess the levels of achievement for the graduate attributes. The selection should be such that assessment of each of the attributes is dealt with in at least one of the dossiers.<br>• Samples of graded student work and examinations for each assessment tool, so as to include a range of student performances including as may be appropriate:<br>• Graded tests, problem sets and examinations<br>• Graded laboratory and design reports | |
| B. Exhibit 1 | 3.1<br>3.2 |
| B. Three examples where change to a program was considered. The evidence should identify the threshold for change, whether the decision was to make a change to the program or that no change was required and illustrate the process that lead to the decision. Evidence could include (but is not limited to): relevant GA/CI curriculum meeting minutes, data, tools used to analyze the data, etc.) | 3.2 |
| C. At the beginning of the visit, the HEI will make a presentation to the visiting team on Graduate Attributes/Continual Improvement. This presentation shall describe the institution's overall GA/CI process including the functions of the GA/CI committee (or equivalent), their interactions with internal and external stakeholders, and how the procedures and processes are implemented at an institutional level. The HEI is also asked to reflect on the overall GA/CI process, discuss what is working and what is not working and whether any improvements have been identified and (if applicable) have been implemented. | 3.1<br>3.2 |
| D. Please provide copies of any manuals and/or policies and procedures documentation that relate to health and safety practices in the unit. | 3.4.5.1 |

# Attachment B

# Student work xamples in accreditation (a non-exhaustive summary)

METHODOLOGY

The two questions below have been circulated to the members of the AAAC. Feedback received has been gathered and is presented here.

| ACCREDITATION BODY | Does your accreditation process require/recommend evaluators review samples of completed and graded student assignments? | | Do graduates of your accredited programs have to write exams to confirm sufficient academic preparation as part of their licensure process? | |
|---|---|---|---|---|
| **Canadian Council for Accreditation of Pharmacy Programs** | Does not ask for graded assignments | NO | Yes, graduates must write National Board Examinations before becoming licensed to work in Canada. The examinations are the responsibility of the Pharmacy Examining Board of Canada. | YES |
| **Ontario College of Teachers** | Accreditation panels do review completed assignments, grading criteria, assessment rubrics, as well as completed practicum evaluations. | YES | No, however, the Ontario government has recently imposed a requirement for certification that includes successful completion of the Math Proficiency Test. | NO |
| **Physiotherapy Education Accreditation Canada** | No, the program provides:<br>1) course outlines with learning objectives relevant to the relevant standard/criterion<br>2) how the course content is taught (PowerPoint, small group activity, problem-based learning etc. - specific examples such as the PowerPoint slides that address the particular learning objective)<br>3) how students are assessed (exam, practical test, assignment) to demonstrate how the program knows the student has achieved the learning objective( they submit the particular exam question, assignment deliverable relevant to the learning objective) and the associated marking rubric.<br>No student-specific assignments/exams etc.. | NO | Yes, sort of. More than academic preparation, the national exams are to determine competence to be licensed to practice. To practice physiotherapy, graduates from accredited programs are eligible to challenge the National Physiotherapy Competency Exam administered by the CAPR (alliancept.org). | YES |

| | | | | |
|---|---|---|---|---|
| **Technology Accreditation Canada** | Yes. Auditors review a sample of student work for each of the course learning outcomes selected by the program as evidence the course learning outcomes have been achieved. | YES | No. An accredited program must demonstrate that graduates have achieved the general and discipline learning outcomes. | NO |
| **Canadian Architectural Certification Board** | | YES | | YES |
| **Federation of Law Societies** | No. Our process does not include visits to the law schools, and we do not review student materials. | NO | Yes, as part of bar admissions in the provinces and territories, although most jurisdictions' exams focus more on skills and practice issues than on what was learned in law school. | YES |
| **Professional Standards Board for the Planning Profession** | does have reviews of graduate and student work as part of its site visit process for accreditations and re-accreditations. The documents are either viewed live or included as part of the documentation the program submits as part of their accreditation application, which is reviewed before the site visit. | YES | Graduates are not required to complete an exam regarding academic qualifications – if graduating from an accredited degree, they must simply have had their degree conferred within the years of the accreditation and be currently employed in planning to qualify to complete the certification process to become a Registered Professional Planner. | NO |
| **Canadian Association of Occupational Therapists** | Occasionally teams will request these but the requirement to review these is not explicit in the standards. | NO | Yes, we have a separate national exam required for licensure in all provinces except Quebec. Quebec requires graduation from an accredited program. | YES/ NO |

Attachment C

# Detailed comparison of current and proposed required materials

| Current Requirement | Proposed requirement | Difference |
|---|---|---|
| **Questionnaire** | **A. Program operational information (Questionnaire)**<br>1. Provide documentation or links to documentation for general admission.<br>2. Provide documentation or links to documentation of transfer credits.<br>3. Provide documentation or links to policies and procedures for graduation.<br>4. Provide documentation or links to policies and procedures for academic advising of students. Include documentation and links for policies and practices concerning students with disabilities.<br>5. Provide documentation or links to academic integrity policies.<br>6. Provide documentation or links to policies, procedures, and regulations for degree auditing. Provide a sample of ten anonymous students for audit, including students with transfer credits.<br>7. Provide a description of how program changes to curriculum are made.<br>8. Provide a description of the Engineering Faculty Council (or equivalent) mandate. | HEIs can provide a link rather than verbiage. Includes some information we ask for on campus. These items should be incorporated in the Questionnaire. |
| A1. For each learning activity in a program's curriculum, institutions are expected to maintain up-to-date documentation on content (on a week-by-week or similar basis and including laboratory and project work if any), learning objectives and performance assessment methods. Such documentation would typically be distributed to students and should be available to the Accreditation Board visiting teams on site for every learning activity in the program. | **D. Detailed syllabi**<br>For courses on the minimum path claiming Mathematics, Natural Sciences, Engineering Science, Engineering Design, and Complementary Studies AUs, provide a detailed, week-by-week (or equivalent) syllabi of course content and expectations, indicating engineering tool use and lab experience. | The requirement is reduced from needing detailed week-by-week syllabi for all learning activities, to those on the minimum path with Mathematics, Natural Sciences, Engineering Science, Engineering Design, and Complementary Studies AUs or equivalent curriculum measurement scheme(s). |
| **A1** For each learning activity in a program's curriculum … Assessment materials issued to students, including as may be applicable, homework assignments, laboratory instruction sheets, project instructions, quizzes, mid-term, and final exam question papers should also be available on site for every learning activity in the program.<br><br>Graded laboratory and design reports | **E. Documentation of assigned work and exams**<br>Document assigned work and exams for each of the program's courses on the minimum path claiming Engineering Science or Engineering Design AUs.<br>1. Provide problem set questions. If questions are from a textbook, provide the text or copies of the questions.<br>2. Provide laboratory information given to students, as well as detailed marking schemes or detailed rubrics. When detailed marking schemes or detailed rubrics are not available, provide at least three examples of student work deemed marginally meeting expectations at the time of assessment as judged by the instructor; up to three additional examples may be added at the HEI's discretion.<br>3. Provide project descriptions with detailed marking schemes or detailed rubrics.<br>4. Provide quizzes, tests, exams, and other summative assessments with detailed marking schemes or detailed rubrics, if available. | Assessment materials are needed for courses on the minimum path with Engineering Science or Engineering Design AUs or equivalent curriculum measurement scheme(s), rather than all learning activities in the curriculum.<br><br>The number of courses where required assessment materials are needed remains approximately the same, but requirements are better defined.<br><br>Access to learning platforms may be provided in lieu of providing questions, particularly if assignments are generated randomly on the learning platform<br><br>Student samples of problems sets, laboratory products or project work does not necessarily need to be made available if detailed marking schemes and rubrics are available, and if the HEI decides they are among the materials that will not be submitted as part of F. |

| Current Requirement | Proposed requirement | Difference |
|---|---|---|
| **A2**. In addition to the materials specified in A1, dossiers of the materials listed below should be available on site for a selection of 15 to 20 of the program's learning activities. The HEI should select the 15 to 20 learning activities from amongst those used by it to assess the levels of achievement for the graduate attributes. The selection should be such that assessment of each of the attributes is dealt with in at least one of the dossiers.<br>• Samples of graded student work and examinations for each assessment tool, so as to include a range of student performances including as may be appropriate:<br>• Graded tests, problem sets and examinations | **F. Evaluated student work**<br>1 For the Engineering Design Culminating Experiences, provide at least ten examples of marked final products including the three examples with the lowest acceptable level of performance for the assessment, as judged by the instructor at the time of assessment.<br>2 For ten courses (other than the Engineering Design Culminating Experiences) taken by all students in the program during the final two years of study, provide summative assessments that are worth in combination at least 75 per cent of the total mark in the course. Provide at least three samples of work deemed marginally meeting expectations at the time the assessment as judged by the instructor; up to three more may be added at the HEI's discretion.<br>If the program requires all students take fewer than ten common courses in their final two years, the HEI can choose to submit common courses in the previous year, or high enrolment courses in the final years. The HEI should provide enough information to sufficiently satisfy the criteria.<br>3 For courses on the minimum path with GAs at an intermediate or advanced level of instruction in Design, Communication, Impact of Engineering on Society and the Environment, Ethics and Equity, and Economics and Project Management, provide at least three examples of student work demonstrating each of these attributes, including the three examples of student work deemed marginally meeting expectations at the time of assessment as judged by the instructor; up to three additional examples may be added at the HEI's discretion. These student work examples may also be used to fill requirements for Requirements F1 and F2. | Rather than a selection of ill-defined achievement levels, three examples with the lowest acceptable level of performance for the assessment, as judged by the instructor are requested, with an additional three allowed at the HEIs discretion. If all examples meet expectations, work that in the instructor's opinion are the lowest quality products are requested. This specification allows an equitable evaluation on the riskiest areas.<br><br>The focus on evaluated student work has moved to courses later in the student's academic career, focussing on the culminating design experiences, and courses where students extend knowledge gained from earlier coursework. The integrity of the visiting team process remains constant as these examples provide a better representation of the minimal abilities of graduating students.<br><br>The courses providing student examples are specified as on the minimum path for the program (or options, if the program has fewer than ten common courses in the final years), rather than electives, eliminating HEI and visiting team questions as to whether courses with student examples are appropriate.<br><br>The number of courses where required assessments are reduced.<br><br>Examples need to be shown for only 75 per cent of the marks in the course, eliminating the need for small assignments. |
| **Exhibit 1** | **B. Program operational information for graduate attributes and continual improvement documentation (Questionnaire Exhibit 1)**<br>1. Summarize organization, including a process diagram and/or org chart.<br>2. Describe and illustrate how Graduate Attributes and indicators are linked to the curriculum. Reference curriculum maps included in section 6C of the Questionnaire and provide in other formats, as necessary.<br>3. Include a comprehensive list of indicators and a description of the assessment tools used to measure the indicators.<br>4. Describe program's overall improvement process, and how GA analysis factor into decision making.<br>5. Describe the internal and external stakeholders, their role, frequency, and format of consultations. Include examples of stakeholder input and considerations that have improved the programs.<br>6. Summarize improvement actions, including changes to the assessment process, and their implementation, and timelines since the last CEAB visit.<br>7. Provide details of analysis of assessment results since the last visit.<br>8. Provide three examples where assessment results were considered as a part of program improvement actions, including how the identifiable improvements to the program were identified, what evidence was used to support the change, and the decision made. Evidence could include, but is not limited to, relevant GA/CI curriculum meeting minutes, data, tools used to analyze the data. | More details are provided in Requirement B than in the current Exhibit 1. These items should be incorporated in Exhibit 1. |

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| C. At the beginning of the visit, the HEI will make a presentation to the visiting team on Graduate Attributes/Continual Improvement. This presentation shall describe the institution's overall GA/CI process including the functions of the GA/CI committee (or equivalent), their interactions with internal and external stakeholders, and how the procedures and processes are implemented at an institutional level. The HEI is also asked to reflect on the overall GA/CI process, discuss what is working and what is not working and whether any improvements have been identified and (if applicable) have been implemented. | **C. Graduate attributes and continual improvement detailed explanation**<br>This information may be given at a presentation to all visiting team members or provided at other meetings during the visit.<br>1. Explain the strategy of GA/CI, including involvement of teaching staff, curriculum or other committees involved with the process, how the procedures and processes are implemented at program, faculty, and institutional levels, and how these levels participate in the process.<br>2. Describe the philosophy behind the curriculum, including sequencing of courses, highlighting linkages.<br>3. Explain the choice of indicators, linking to course learning objectives.<br>4. Explain philosophy and choice of assessment tools.<br>5. Explain compilation and interpretation of results.<br>6. Explain the improvement process, and how GAs contribute to decisions.<br>7. Describe the program's internal and external stakeholder consultations.<br>8. Discuss improvement actions, their implementation, and timelines.<br>9. Provide 3 examples where assessment results were considered as a part of program improvement actions.<br>10. Evaluate the overall GA/CI process, discuss what is working, what is not working, and any improvements that have been identified and implemented. | More details are provided than in the current Requirement C. |
| D. Please provide copies of any manuals and/or policies and procedures documentation that relate to health and safety practices in the unit. | No longer required. | The GV focus has shifted in 2019 from an occupational health and safety perspective, to a safety culture perspective. |