Applicants have to meet minimum levels in seven Competencies graduate attributes used by the Canadian Engineering Accreditation Board (CEAB) to have their work experience evaluated. This paper outlines this competency-based experience registration process. There is an opportunity to incorporate such an exercise at other engineering programs.

### Introduction

- All Canadian Engineering Associations require demonstration of satisfactory workplace experience for professional registration.
- Engineers and Geoscientists BC (EGBC) assesses experience in terms of Competencies.
- Applicants are assessed using the BC web-based Competency Experience Reporting System (CERS) [1].
- Many other regulators are moving towards competency-based assessment of engineering experience [2].

**Competency** = Ability to perform the tasks and roles of an occupational category to standards expected and recognized by employers and the community at large.

- At BCIT, all 3rd year Civil Engineering students take a course “Engineering and Society”
- Students must have 300 hours of practical workplace experience.
- Knowles’ Andragogy: Adult learners prefer involvement in the planning and evaluation of their own learning.

As part of the course, students used the EGBC online CERS system to:
- Conduct a self-evaluation of their professional experience;
- Make recommendations for their own future professional development.

### Comparing CERS and CEAB Graduate Attributes [5]

<table>
<thead>
<tr>
<th>EGBC Competency Category</th>
<th>CEAB Graduate Attribute [6]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Technical Competence</td>
<td>#1 Knowledge Base for Engineering</td>
</tr>
<tr>
<td>2. Communication</td>
<td>#7 Communication skills</td>
</tr>
<tr>
<td>4. Team Effectiveness</td>
<td>#6 Individual and Team Work</td>
</tr>
<tr>
<td>5. Professional Accountability</td>
<td>#9 Impact of Engineering on Society</td>
</tr>
<tr>
<td>6. Social, Economic, Environmental and Sustainability</td>
<td>#10 Ethics and Equity</td>
</tr>
<tr>
<td>7. Personal Continuing Professional Development</td>
<td>#12 Lifelong Learning</td>
</tr>
</tbody>
</table>

### Results

- Increase in percentage Strongly Agreeing or Agreeing from Survey #1 (before guest lecture or assignment) to Survey #3 (after) for all ten questions
- Greater than 40% increase for four questions:
  - #2 Knowledge of EGBC experience evaluation process
  - #3 Familiarity with Competency Experience Reporting System
  - #5 Understanding of required competency levels for professional registration
  - #6 Identification of shortcomings in work experience

Percentage increase for above four questions was more significant between Survey #2 and Survey #3.

- Final survey (Survey #3): over 90% Agree or Strongly Agree with Questions 1, 2, 3, 5, 6, 7, 9, 10.

### References

2. Made-in-BC Tool to be Adopted by Other Regulators, Engineers & Geoscientists of British Columbia, April 13, 2018. Available as of April 18, 2018 from http://www.egbc.ca/News/Articles/CEAB-CEA-Competency-Assessment/Guide-
5. Glenn Pellegrin, “APEGBC’s Competency-Based Assessment System – A Perspective from an Educator and APEGBC Volunteer.” BCIT Engineering Symposium on Graduate Assessment & Program Improvement (Burnaby, BC: 20 May 2010). Available as of April 18, 2018 from https://www.egbc.ca/News/Articles/CEAB-CEA-Competency-Assessment/Guide-