1. Assessment information collected

The assessment data collected on the graduating PhD students for the reporting period are targeted to the three outcomes from the PhD Program Plan and include:

a. Pass rates and dates of the oral and written comprehensive exams:

For this reporting period, all of these students passed the written and oral comprehensive exams on the first attempt.

b. An assessment of student’s abilities in four categories:

The graduating student’s committees were surveyed to assess (on a scale from 1 to 5) the student’s ability to:

- **Apply** knowledge of math, science, and engineering
- **Communicate** effectively
- Effectively use engineering **techniques, skills, and tools**
- Perform **independent research**

Below are the averages in each category for the graduating students:

<table>
<thead>
<tr>
<th>Committee Assessment Averages</th>
<th>3.00</th>
<th>3.50</th>
<th>4.00</th>
<th>4.50</th>
<th>5.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply knowledge</td>
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<tr>
<td>Communicate effectively</td>
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<tr>
<td>Use techniques</td>
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<td></td>
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<tr>
<td>Independent research</td>
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</tbody>
</table>
Scores ranged from 4.5 to 5 for this set of students and committee comments were very favorable.

**c. The initial employment placement of graduates:**

Of the four graduating students, three have taken positions, one in industry and two in academia. The fourth one, who is our most recent graduate, is actively looking for a position.

**General information on the program:**

The Engineering Ph.D. is a diverse program with 8 approved concentration areas within the 6 CEM engineering departments.

The end of the current reporting period represents the 17th year since this program enrolled its first student in Fall 2002. During that entire period, 75 students have entered the program, including:

- 37 students that graduated (49.3%),
- 16 students that are currently active (21.3%), and
- 22 students that left the program (29.3%)

The average time to complete the degree over this 17-year period was 4.14 years (8.27 semesters) and the average graduation rate was 2.18 students per year.

During the current 2-year reporting period (Fall 2016 to Spring 2018):

- Four new students entered the program:
  (1 Civil Eng. (with UAA), 1 Environmental Eng., 1 Mechanical Eng., 1 Mining Eng.)

- Four students graduated:
  (2 Civil Eng., 1 Mechanical Eng., 1 Mining Eng.)

**2. Conclusions drawn from the information summarized above**

In most years, many of the graduates have pursued non-academic careers in industry or government agencies, although some have gone into academia.

In this reporting period, one student took a position in industry or government (Doyon, Fairbanks AK), two students were offered academic positions (adjunct faculty at UAA and faculty at a university in China), and one graduate is currently actively seeking employment in Seattle, WA area.
The placement rate of our graduates shows that our students have important skills and are sought after to fill positions in their field. In the previous reporting period the placement rate was 100%. In this period, the placement is 75% because our latest graduate (Fall 2017) is still looking for a position. The committee assessment numbers also indicate that the faculty have witnessed good results in our PhD students. The communication category that was slightly lower than the others in the previous period (4.41), has now increased to 4.60.

The Engineering PhD program continues to provide an important capability for providing students with research opportunities and training within CEM, and is helping to grow the infrastructure at UAF that may warrant dedicated doctoral programs within select CEM departments in the future.

3. Curricular changes resulting from conclusions drawn above

Due to the diversified nature of this program (8 distinct concentration areas, with many sub-disciplines within those areas) and the small number of students, there is no curriculum that is common to a majority of students in this program. There are also no courses within CEM that are specifically offered to only doctoral students, except for the necessity of offering individual study courses as needed to provide the training in specific areas required by each student on a case-by-case basis. No curricular changes were made based on the conclusions drawn above.

4. Identify the faculty members involved in reaching the conclusions drawn above and agreeing upon the curricular changes resulting

Charles Mayer, CEM Associate Dean of Academics