1. Assessment information collected
Per ABET procedures, course outcomes are monitored for various MIN courses. A total of 12 ABET outcomes (which included communication) were assessed every year in the 2016-2018 period. This period included a visit by ABET.
Exit interview of graduating seniors
Program review by faculty
Fundamentals of Engineering (FE) examination pass rate
Review of senior mine design project by industry professionals
Advisory Board feedback

2. Conclusions drawn from the information summarized above
Learning outcomes continue to be met at the program level, though faculty identified areas of improvements in their courses. The program was visited by ABET in 2017 as part of the normal accreditation cycle. The academic side of the mining program was well received by the ABET evaluator.

The national FE exam (2016 & 2017) results are also a confidence builder. The pass rate for UAF-mining engineering was 90% compared to 68% for national (mining engineering) pass rate. This continues a long trend of UAF mining engineering students passing the FE exam at a rate higher than the national rate.

The job market softened significantly in 2014 due to a dramatic downturn in metal prices and, therefore, placement was not 100%. However, placement was still solid in the last two years with most graduates finding work in the mining or related industries in technical positions.

Faculty workload and space challenges continue to constrain the program. Some required courses have not been offered every year. Faculty size, already low, was severely impacted with the sudden departure of a faculty member in 2017. Electives are often not offered. Space challenges have also frustrated students. Issues with both – faculty size and space - were noticed by the ABET evaluator during the 2017 visit. The program received one “Weakness” and one “deficiency”. Deficiency is the most
significant citation a program can receive and can lead to loss of accreditation if not addressed. The deficiency occurred because the evaluator deemed the mineral processing laboratory in the agricultural barn an unsafe laboratory. Weakness is a major citation and a step lower in severity than deficiency. The weakness was assigned due to faculty size being too low due to attrition.

The mineral processing laboratory has been moved to a new space in Duckering building. This is expected to resolve the deficiency. A search is on for a tenure track faculty position in mining engineering. If the position is filled, it may resolve the weakness.

3. Curricular changes resulting from conclusions drawn above
Several courses have undergone gradual modifications over the last few years. These include MIN 202, MIN 370, MIN 454 and MIN 482. The Silver Fox mine continues to be used as a laboratory despite logistical challenges.

Learning outcomes have improved as a result of curricular changes.

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

All faculty of mining engineering.

5. Has your SLOA plan been updated to include assessment of the program’s Communication Plan, as required by Faculty Senate motion?

Yes. The ABET process includes assessment of communication across a range of audiences.
Student Learning Outcomes Assessment Summary

Data

The actual data is not being presented here for its sheer volume. Data is collected and analyzed regularly. Outcomes are being met. Key indicators from 2016-2018:

- 2017 senior design written report was ranked third nationally.
- Following presentations at Alaska Miners Association meetings, Alaskan mining professionals rated senior design projects very highly.
- Job placement solid despite lower commodity prices
- Exit surveys of graduating seniors do not reveal any major issue in the program
- FE exam pass rate for 2016-2018 is much higher (90%) than national pass rate (68%).

Indicators from Long term / Periodic assessment

The pass rate for mining engineering majors in the Fundamentals of Engineering exam for the five year period (2011-2016) is 76.5%, which is greater than both the national pass rate, and the College of Engineering and Mines pass rate. The 2016 alumni survey (very high survey return rate) indicates that alumni in the last five years were very happy with their education. The survey takers had primarily graduated in 2011 or after. These alumni rate their achievement of the various student outcomes at satisfactory level or above (4 out of a scale of 5; no achievement, insignificant achievement, average achievement, satisfactory achievement and significant achievement). Additionally, on average, about 43% of the alumni achieved all 12 outcomes at a level of ‘significant achievement’. The senior mine design report finished in the top three nationally four times in the last five years (1st – 2014; 2nd- 2015; 3rd-2013, 2017). Members of the Alaska Miners Association consistently rate senior mine design projects highly. Employers indicate that UAF mining engineering graduates are on par with graduates from other universities.

Annual Data Collection /Review ('Yes' indicates data was collected).

<table>
<thead>
<tr>
<th>Student Outcomes (12 ABET Outcomes)</th>
<th>2016-2017</th>
<th>2017-2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN Course Assessments</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Exit Interview of Graduating Seniors</td>
<td>Yes</td>
<td>Yes’</td>
</tr>
<tr>
<td>Senior Mine Design Eval by External Professionals</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>External Advisory Board Meeting</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Program review by faculty: Evaluation of program based on available data</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*: The feedback is unknown currently. The exit interview is not conducted by mining engineering faculty ensure students speak freely. For the same reason, the feedback is not released to the faculty until students have left.
Multi-year Data Collection

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Date of Most Recent Data</th>
</tr>
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<tbody>
<tr>
<td>Alumni Survey</td>
<td>2016</td>
</tr>
<tr>
<td>Employer Survey</td>
<td>2016</td>
</tr>
<tr>
<td>Advisory Board Curricular Review</td>
<td>2016</td>
</tr>
<tr>
<td>FE Exam Statistics</td>
<td>2016</td>
</tr>
</tbody>
</table>