

— B. S. in Electrical Engineering —

2018-19 Assessment Report

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Starting with the 2018-19 academic year, the faculty decided at Convocation on 19 September 2018 that we will begin assessing using the new (1)-(7) ABET student outcomes below

(1)

Student Outcome	2018-19	2019-20	2020-21	2021-22
(1) Principles				
(2) Design				
(3) Communication				
(4) Ethics				
(5) Teams				
(6) Experimentation				
(7) Learning				

Table 3 BSEE Outcome Assessment Cycle. Bullets () indicate standard assessment outcomes

The BSEE faculty conducted formal assessment during the 2018-19 academic year using direct measures, such as designated assignments and evaluation of coursework normally assigned. Additionally, the student outcomes were assessed using indirect measures, primarily results from a graduate exit survey.

3.2.2 Methodology for Assessment of Student Outcomes

At the beginning of the assessment cycle, an assessment plan is generated by the Assessment Coordinator in consultation with the faculty. This plan includes the outcomes to be assessed during that assessment cycle (according to Table 1), as well as the courses and terms where these outcomes will be assessed.

The BSEE mapping process links specific tasks within BSEE course projects and assignments to program outcomes and on to program educational objectives in a systematic way. The program outcomes are evaluated as part of the course curriculum primarily by means of assignments. These assignments typically involve a short project requiring the student to apply math, science, and engineering principles learned in the course to solve a particular problem requiring the use of modern engineering methodology and effectively communicating the results.

The mapping process aims to systemize the assessment of engineering coursework, and to provide a mechanism that facilitates the design of engineering assignments that meet the relevant outcomes, particularly those that are more distant from traditional engineering coursework. Rather than considering how the outcomes match the assignment, the assignment is designed to map to the program outcomes.

A systematic, rubric-based process is then used to assess the level of attainment of a given program outcome, based on a set of performance criteria. The work produced by each student is evaluated according to the different performance criteria, and assigned a level of 1-developing, 2-accomplished, or 3-exemplary. The results for each outcome are then summarized in a table, and reviewed by the

associated with that outcome are evaluated by the faculty, and based on the evidence, the faculty decides the adequate course of action. The possible courses of action are these:

- Collect more data (if there is insufficient data to reach a conclusion as to whether the outcome is being attained or not); this may be the appropriate course of action when assessment was conducted on a class with low enrollment, and it is recommendable to re-assess the outcome on the following year, even if it is out-of-cycle, in order to obtain more data
- Make changes to the assessment methodology (if the faculty believe that missing the performance target on a specific outcome may be a result of the way the assessment is being conducted, and a more proper assessment methodology may lead to more accurate numbers); for example, this could be the suggested course of action if an outcome was assessed in a lower-level course, and the faculty decide that the outcome should be assessed in a higher-level course before determining whether curriculum changes are truly needed.
- Implement changes to the curriculum (if the faculty conclude that a curriculum change is needed to improve attainment of a particular outcome). A curriculum change will be the course of action taken when the performance on a given outcome is below the target level, and the evidence indicates that there is sufficient data and an adequate assessment methodology already in place, and therefore there is no reason to question the results obtained.

If the faculty decide to take this last course of action and implement curriculum changes, the data from the direct assessments is analyzed and the faculty come up with a plan for continuous improvement, which specifies what changes will be implemented to the curriculum to improve outcome performance.

In addition to direct assessment measures, indirect assessment of the student outcomes is performed on an annual basis through a senior exit survey.

The results of the direct and indirect assessment, as well as the conclusions of the faculty discussion at the closing-the-loop meeting are included in the annual BSEE assessment report, which is reviewed by the department chair and the director of assessment for the university. The suggested changes to the curriculum are presented and discussed with all the department faculty at the annual convocation meeting in the fall, as well as with the Industry Advisory Board at the following IAB meeting. If approved, these changes are implemented in the curriculum and submitted to the University Graduate Council (if catalog changes are required) for the following academic year.

3.2.3 Targeted Direct Assessment Activities

The sections below describe the 2018-19 targeted assessment activities and detail the performance of students for each of the assessed outcomes. Unless otherwise noted, the tables report the percentage of students performing at a developing level, accomplished level, and exemplary level for each

An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

Portland Metro, EE 225, EE 461, Spring 2019, Dr. Robert Melendy

This outcome was assessed in EE 461 — & R Q W U R O. The assignment was a final, comprehen-

In addition to direct assessment measures, the student outcomes (1) through (7) were indirectly assessed through a senior exit survey. Senior Exit Surveys are conducted every year in the spring term. The 2018-19 data collected in spring of 2019 was used in this assessment report, which covers the period of fall 2018 through spring 2019.

Twenty-five BSEE graduating seniors completed the Senior Exit Survey out of a total of 49 graduating

5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, interpret data analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using learning appropriate learning strategies

More than 80% of the respondents rated themselves, upon completion of the BSEE program, they were “Proficient” or “Highly Proficient” in all categories

These results align with the direct assessment results

Outcome	Limited Proficiency	Some Proficiency	Proficient	Highly Proficient	Proficient & Highly Proficient
(1) Principles	0	0	2	16	100%
(2) Design	0	2	6	10	89%
(3) Communication	0	1	6	11	94%
(4) Ethics	0	0	10	8	100%
(5) Teams	0	0	7	11	100%
(6) Experimentation	0	0	5	13	100%
(7) Learning	0	0	5	13	100%

Table 7. Results of the indirect assessment of proficiency for ABET outcomes from the Senior Exit Survey (2018-19).

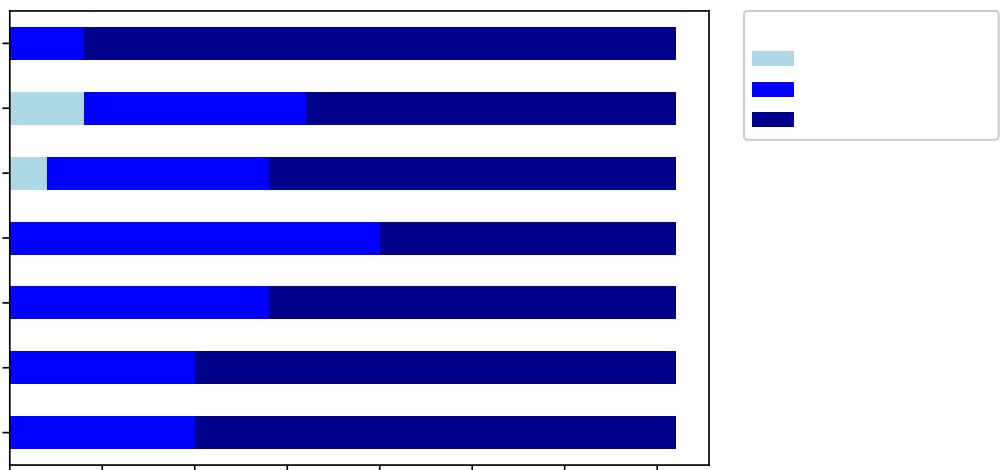


Figure 1: Self-assessment as “Proficient” or “Highly Proficient” for ABET outcomes as reported in the Senior Exit Survey (2018-19).

This section describes the changes resulting from the assessment activities carried out during the academic year 2018-19. It includes any changes that have been implemented based on assessment in previous assessment cycles, from this or last year, as well as considerations for the next assessment cycle.

The BSEE faculty met on September 18, 2020 to review the assessment results and determine whether any changes are needed to the BSEE curriculum or assessment methodology based on the results presented in this document. The Closing-the-Loop meeting provides faculty a chance to reflect and assess data and trends with regards to continuous improvement.

The objective set by the BSEE faculty was to have at least 80% of the students perform at the level of accomplished or exemplary in all performance criteria of the assessed outcomes. Table 6 provides a summary of the 2018-19 assessment results. Table 8 shows how these assessments relate to those from previous assessment cycles.

	2015-16	2016-17	2017-18	2018-19
(4) Ethics	N = 18	N = 5		N = 12
	R X W F R P H I		R X W F R P H I	
Recognize	94%	100%		100%
Identify	80%	100%		83%
Judge	—	—		83%
(6) Experimentation	N = 56	N = 8		N = 17
	R X W F R P H E		R X W F R P H E	
Design and Conduct	71% or 84%	100%		82%
Analyze and Interpret	64%	100%		82%
Engineering Judgement	—	—		82%

Table 8 Comparison of results with those from previous assessment years. The percentage of students scoring 2 (accomplished) or 3 (exemplary) is shown for 2018-19 and the previous assessment year. Sample size and results includes combined total of students for each outcome evaluated within the assessed year. In prior years, ABET outcomes (f) and (b) were matched to (4) and (6) respectively.

The results of the 2018-19 assessment indicate that the minimum acceptable performance level of 80% was met on every performance criterion for every assessed outcome. Below is a detailed report of the discussions from the closing-the-loop meeting held on September 18, 2020.

Faculty noted that the Klamath Falls campus was not assessed in the 2018-19 report. This oversight will be addressed in the next academic year: outcomes 4 & 6 will be assessed in Klamath Falls in addition to the regularly scheduled assessments.

The direct and indirect assessment results show that the threshold of attainment of this outcome was exceeded in all performance criteria

Recommendation: The faculty identified no problem with this outcome, and therefore recommended no changes at this time.

4.2 Outcome (6): Experimentation

Results: The direct and indirect assessment results show that the threshold of attainment of this outcome was exceeded in all performance criteria

Recommendation: The faculty identified no problem with this outcome, and therefore recommended no changes at this time.

5 Rubrics

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