Program-Level Assessment Plan

Program: Biomedical Engineering	Degree Level (e.g., UG or GR certificate, UG major, master's program, doctoral program): B.S.
Department: Engineering	College/School: Parks College of Engineering, Aviation, and Technology
Date (Month/Year): October 2020	Primary Assessment Contact: Scott Sell

Note: Each cell in the table below will expand as needed to accommodate your responses.

#	Student Learning Outcomes What do the program faculty expect all students to know or be able to do as a result of completing this program? Note: These should be measurable and manageable in number (typically 4-6 are sufficient).	Curriculum Mapping In which courses will faculty intentionally work to foster some level of student development toward achievement of the outcome? Please clarify the level at which student development is expected in each course (e.g., introduced, developed, reinforced, achieved, etc.). I – INTRODUCED R – REINFORCED E – EMPHASIZED	Assessment Methods Artifacts of Student Learning (What) 1. What artifacts of student learning will be used to determine if students have achieved this outcome? 2. In which courses will these artifacts be collected?	Assessment Methods Evaluation Process (How) 1. What process will be used to evaluate the artifacts, and by whom? 2. What tools(s) (e.g., a rubric) will be used in the process? Note: Please include any rubrics as part of the submitted plan documents.
1	Graduates will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. **(ABET 1)**	BME 3200 (R) BME 3400 (R) BME 4200 (E) BME 4950 (E)	BME 3200: Homework, quizzes, exams, in-class activities BME 3400: Homework, quizzes, exams BME 4200: Homework, in-class activities BME 4950: Preliminary design report, proposal	1. The instructor for each course will provide an initial analysis, and the faculty within the program will review the instructor analysis at the annual assessment meeting, held at the conclusion of the academic year. 2. While faculty are responsible for assessing each artifact individually, outcomes are assessed via Form 3.5 and Student Learning Outcomes rubrics each year
2	Graduates will demonstrate an ability to function effectively on	BME 1000 (I) BME 1010 (I)	BME 1000: In class design challenge 1 Parachute	1. The instructor for each course will provide an initial analysis,

	a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives. **(ABET 5)**	BME 3200 (I) BME 3400 (R) BME 4200 (E) BME 4400 (R) BME 4950 (E)	BME 1010: In class design challenges 2 and 3 Accessing and Treating Atherosclerosis BME 3200: Report BME 3400: Specification sheet, presentation, written report BME 4200: Group project 1, project 2, group project 3, In-class activities BME 4400: Group project, Homework #3 BME 4950: Team application and resume, team peer assessment, Preliminary design report	and the faculty within the program will review the instructor analysis at the annual assessment meeting, held at the conclusion of the academic year. 2. While faculty are responsible for assessing each artifact individually, outcomes are assessed via Form 3.5 and Student Learning Outcomes rubrics each year
3	Graduates will demonstrate an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts. **(ABET 4)**	BME 1000 (I) BME 1010 (I) BME 3400 (R) BME 4200 (E) BME 4400 (I) BME 4950 (E)	BME 1000: Reflection homework assignment, semester reflection essay BME 1010: Reflection homework assignment #6, reflection homework assignment #8 BME 3400: Engineering ethics assignment, recyclability of materials activity, specification sheet, written report, presentation BME 4200: In-class activities BME 4400: Exam 3 BME 4950: Preliminary design report, case study reviews	1. The instructor for each course will provide an initial analysis, and the faculty within the program will review the instructor analysis at the annual assessment meeting, held at the conclusion of the academic year. 2. While faculty are responsible for assessing each artifact individually, outcomes are assessed via Form 3.5 and Student Learning Outcomes rubrics each year
4	Graduates will demonstrate communicate effectively with a range of audiences. **(ABET 3)**	BME 1000 (I) BME 1010 (I) BME 3400 (R) BME 4200 (E) BME 4400 (E) BME 4950 (E)	BME 1000: Reflection homework assignment, semester reflection essay BME 1010: Reflection homework assignment #5, reflection homework assignment #8 BME 3400: Specification sheet, presentation, written report	1. The instructor for each course will provide an initial analysis, and the faculty within the program will review the instructor analysis at the annual assessment meeting, held at the conclusion of the academic year. 2. While faculty are responsible for

			BME 4200: Group project 1, project 2, group project 3, in-class activities BME 4400: Group project, Homework #3 BME 4950: Preliminary design report written and oral components	assessing each artifact individually, outcomes are assessed via Form 3.5 and Student Learning Outcomes rubrics each year
5	Graduates will be able to solve bio/biomedical engineering problems, including those associated with the interaction between living and non-living systems. **(ABET BME B)**	BME 3200 (R) BME 3400 (R) BME 4200 (E) BME 4400 (R) BME 4950 (E)	BME 3200: Homework, quizzes, exams, in-class activities, Report BME 3400: Specification sheet, presentation, written report BME 4200: Homework, in-class activities, final exam BME 4400: Exams, homework, quizzes, group project BME 4950: Preliminary design report	1. The instructor for each course will provide an initial analysis, and the faculty within the program will review the instructor analysis at the annual assessment meeting, held at the conclusion of the academic year. 2. While faculty are responsible for assessing each artifact individually, outcomes are assessed via Form 3.5 and Student Learning Outcomes rubrics each year

Use of Assessment Data

1. How and when will analyzed data be used by program faculty to make changes in pedagogy, curriculum design, and/or assessment practices?

   An annual assessment meeting will be held at the end of the academic year. Faculty will review and discuss the assessment data, and determine any changes that are necessary.

2. How and when will the program faculty evaluate the impact of assessment-informed changes made in previous years?

   Data will be compared to previous years at an annual assessment meeting to determine if changes from previous years had an effect, what the effect was, and if the effect was as intended.

Additional Questions

1. On what schedule/cycle will program faculty assess each of the program's student learning outcomes? (Please note: It is <u>not recommended</u> to try to assess every outcome every year.)

Outcomes will be assessed and reviewed every 3 years in alignment with our ongoing professional assessment processes required by ABET.

2. Describe how, and the extent to which, program faculty contributed to the development of this plan.

The plan presented here is derived from our ABET processes, and faculty participate in review of the plan once each year. The current assessment plan was developed prior to most of the BME faculty joining the program, however, each faculty participates in an ongoing basis and has the opportunity to contribute to changes in our processes each year.

IMPORTANT: Please remember to submit any rubrics or other assessment tools along with this plan.