

Program-Level Assessment: Annual Report

Program: Mechanical Engineering

Department: N/A

Degree or Certificate Level: UG

College/School: Parks College / School of Engineering

Date (Month/Year): 11-5-20

Primary Assessment Contact: McQuilling

In what year was the data upon which this report is based collected?

In what year was the program's assessment plan most recently reviewed/updated?

1. Student Learning Outcomes

Which of the program's student learning outcomes were assessed in this annual assessment cycle?

To date, none of the mechanical engineering program outcomes have been assessed during this assessment cycle. Partly due to the Covid crisis, our faculty have not met this year for accreditation purposes. We will resume accreditation meetings beginning with the spring 2021 semester.

2. Assessment Methods: Artifacts of Student Learning

Which artifacts of student learning were used to determine if students achieved the outcome(s)? Please identify the course(s) in which these artifacts were collected. Clarify if any such courses were offered a) online, b) at the Madrid campus, or c) at any other off-campus location.

See answer for number 1 above, along with the descriptions provided in the "**Program-Level Assessment Plan**" document prepared together with this document.

3. Assessment Methods: Evaluation Process

What process was used to evaluate the artifacts of student learning, and by whom? Please identify the tools(s) (e.g., a rubric) used in the process and include them in/with this report.

As described in the "**Program-Level Assessment Plan**" document, artifacts include copies of exam problems and projects which demonstrate various levels of progress and achievement towards the program objectives. These artifacts are collected by individual faculty across several courses at early, middle, and late stages in their curriculum plan, and all program faculty review the assessment forms at a meeting dedicated to discussing program assessment.

4. Data/Results

What were the results of the assessment of the learning outcome(s)? Please be specific. Does achievement differ by teaching modality (e.g., online vs. face-to-face) or on-ground location (e.g., STL campus, Madrid campus, other off-campus site)?

As mentioned above in number 1, the Covid crisis has prevented our program from holding the appropriate meetings during the 2020 calendar year as faculty were concerned with managing the changes necessary for new methods of instruction.

However, the synchronous need to adjust curriculum for the University Common Core has focused faculty discussion over the last year to what a new mechanical engineering curriculum could be, and we have discussed how to incorporate changes to the curriculum to satisfy the Core as well as modernize the curriculum. The program faculty have generated a proposal to address the required changes, and this proposal is currently being evaluated at the Parks College level. Assessment plans will be revisited and any necessary changes to the current plan will be discussed and formalized during the spring 2021 semester for a fall 2021 start with hopefully a new program curriculum and accompanying assessment strategies.

5. Findings: Interpretations & Conclusions

What have you learned from these results? What does the data tell you?

See above for description of activities occurring during the 2020 calendar year to address curriculum and assessment changes.

6. Closing the Loop: Dissemination and Use of Current Assessment Findings

A. When and how did your program faculty share and discuss these results and findings from this cycle of assessment?

See above for description of activities occurring during the 2020 calendar year to address curriculum and assessment changes.

B. How specifically have you decided to use these findings to improve teaching and learning in your program? For example, perhaps you've initiated one or more of the following:

Changes to the Curriculum or Pedagogies

- Course content
- Teaching techniques
- Improvements in technology
- Prerequisites

- Course sequence
- New courses
- Deletion of courses
- Changes in frequency or scheduling of course offerings

Changes to the Assessment Plan

- Student learning outcomes
- Artifacts of student learning
- Evaluation process

- Evaluation tools (e.g., rubrics)
- Data collection methods
- Frequency of data collection

Please describe the actions you are taking as a result of these findings.

As mentioned above, all courses have been examined as we prepare for the University Common Core and the evolution of the mechanical engineering curriculum. In doing so, program faculty have reviewed all course learning outcomes over the 2020 calendar year and how they map to our ABET accreditation needs, which will also be used to satisfy HLC accreditation needs. Actions have included changing existing course content, creating new courses, consideration of course scheduling frequency, and course sequencing and pre-requisite chains.

If no changes are being made, please explain why.

7. Closing the Loop: Review of Previous Assessment Findings and Changes

A. What is at least one change your program has implemented in recent years as a result of assessment data?

One change involves the ESCI 3201 Fluids Lab course, where we changed the previous assessments of requiring a report for every lab experiment to a combination of reports and presentations based on our perception of students needing more professional, engineering based presentation experience before they arrive to the senior level MENG 4004 Design I course. This perception was gained from program faculty watching and discussing senior design presentations.

B. How has this change/have these changes been assessed?

Again, due to the Covid crisis and requirement of changes to address the Common Core, our faculty have not met this year to discuss assessment and have instead focused their time on addressing the needs of students during this difficult time as well as planning curriculum evolution (which has at times included informal assessments of various courses and performances of various student groups).

C. What were the findings of the assessment?

As mentioned previously, no official recording of assessments during the 2020 calendar year have been recorded specifically for assessment purposes. These will resume for the spring 2021 semester.

D. How do you plan to (continue to) use this information moving forward?

After the spring 2021 semester, program faculty will meet 2-3 times each year to discuss various aspects of our ABET and HLC assessments. As part of that process we will continue to review past assessment changes and rationale to make sure we don't repeat previous behaviors and methods which required changes from the previous assessment-related decisions.

IMPORTANT: Please submit any assessment tools and/or revised/updated assessment plans along with this report.