

## Program-Level Assessment: Annual Report

Program: Aerospace 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: Jayaram

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 aerospace engineering program outcomes have been assessed during this assessment cycle. Partly due to the COVID crisis, our faculty have not met (in person) 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 homework, 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.

A new AE curriculum has been discussed among the program faculty for the last one year to make improvements and to simultaneously adjust the curriculum to incorporate the new University Common Core requirements. The program faculty have generated a proposal to address and implement the required changes and the proposal is currently going through various college level committees for approval.

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 described above, the aerospace engineering curriculum have been thoroughly examines as the university is preparing for the implementation of University Common Core. During this process, the program faculty have reviewed and examined all the student learning outcomes for the 2020 AY and how these outcomes map to ABET accreditation requirements, which will be used to satisfy HLC accreditation requirements. Major modifications proposed includes changing/modifying course content, creating new courses and labs as well as course scheduling frequency, and course sequencing/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?

We implemented two new laboratory experiments in AE 4111 Aerospace Engineering Lab course to give more hands-on experience coupled to numerical simulation as a comparison of experimental and numerical solutions. Another change was to change the laboratory reporting requirements, where students are now required to submit two individual authored reports rather than a number of group authored reports. We also coordinated with the local aerospace industry to identify an industry mentor to guide and mentor each senior design team, as part of better learning experience.

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). The industry mentoring of senior design teams has been going on for three years now with assessment every semester.

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.**