Annual Assessment Report 2022-2023

BS Mechanical Engineering

Mechanical Engineering

College of Engineering

CONTACT
Name of Program Assessment Lead Paul Nissenson
Name of Person Completing Report Paul Nissenson

DISCIPLINARY ACCREDITATION Yes

DEVELOPMENT AND DOCUMENTATION OF STUDENT LEARNING OUTCOMES
How were the program's SLOs developed? (select all that apply)
   o   Our disciplinary accrediting agency has <u>required</u> learning outcomes, so we use them.

Other than the [CPP Catalog](#) and the [Office of Assessment and Program Review website](#), where else are your SLOs published? Select all that apply.
- Department Website - provide URL: https://www.cpp.edu/engineering/me/currentstudents/bsme_program.shtml

ASSESSMENT ACTIVITIES IN 2022-2023

This section provides the opportunity for programs to share and discuss assessment activities conducted in **AY 2022-2023.** This includes data collection, rubric development, data analysis, discussion of findings, development or implementation of closing the loop improvement strategies, update of your assessment plan and/or curriculum matrix, etc.

How many total SLOs does your program assess according to your assessment plan?
- 7

How many SLOs did your program assess this past year in 2022-2023?

- My program assessed SLOs in AY 2022-2023 (e.g., artifact collection, scoring, closing the loop, etc.). May also have engaged in assessment planning activities unrelated to specific SLOs (e.g., modified curriculum matrix, assessment plan, etc.).

Please list the SLOs examined

- SLO #1: Students completing the Mechanical Engineering program will attain an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- SLO #2: Students completing the Mechanical Engineering program will attain an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- SLO #3: Students completing the Mechanical Engineering program will attain an ability to communicate effectively with a range of audiences.
- SLO #4: Students completing the Mechanical Engineering program will attain an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- SLO #5: Students completing the Mechanical Engineering program will attain 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.
- SLO #6: Students completing the Mechanical Engineering program will attain an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- SLO #7: Students completing the Mechanical Engineering program will attain an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Student Learning Outcome (SLO): **Students completing the Mechanical Engineering program will attain an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.**

Assessment Activities	Evidence Used	Evaluation and Interpretation of Evidence
• Collected direct evidence (e.g., student work, exam items, etc.) • Scored direct evidence of student learning • Interpreted and made meaning of findings for direct evidence	• Capstone product (e.g., project, senior thesis, etc.) • Exam created by external organization (e.g., professional licensure)	• Used rubric or scoring guide • External organization/person analyzed data (e.g., extenal organization administered and scored the NCLEX)
• Collected indirect evidence of student learning (e.g., surveys, interviews, focus groups, etc.) • Scored indirect evidence of student learning	• Student survey/interview/focus group with self-reports of SLO achievement • Alumni survey/inteview/focus group that contains self-report of SLO achievement • Employer meetings/discussions/survey/interview of student SLO achievement	

Findings			
N of Artifacts	**Criterion Used**	**Goal Met**	**Eye-opening Result**
17 students took the FE Exam in Fall 2022; 170 students took the Senior Exit Survey in Spring 2022 (data was analyzed in 2022-2023); 50 alumni took the Alumni Survey in Spring 2022 (data was analyzed in 2022-2023). 19 alumni took the Employer Survey in Fall 2022; 19 senior project reports from Spring 2022 were evaluated (evaluations conducted in 2022-2023)	FE Exam: We want to at least meet the national average in all subject areas related to this SLO; Senior Exit Survey, Alumni Survey, Employer Survey: We want to obtain an average score of at least 3 out of 5 in all questions related to this SLO (5 point scale); Senior Project Report Review: We want to obtain an average score of at least 3 out of 5 in this SLO (5 point scale)	Yes	Nothing stood out

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IMPROVING THROUGH ASSESSMENT

Overall, what best describes how the program used the results in 2022-2023? Select all that apply.
- Results indicated no action needed because students met expectations.

Ideas to improve student learning can come from different constituents. With whom did the program discuss assessment planning and/or share results during AY 2021-2022? Select all that apply.
- Program/department faculty as whole
- Program/department assessment committee
- Advisory board(s): ME Industrial Advisory Council
- Students

The past academic year posed both challenges and opportunities. Please share any assessment discoveries (e.g., insights about assessment procedures, great achievements, etc.) regarding program assessment in 2022-2023 so that others may learn from your experiences.
This was the first year implementing a standardized template for ME student senior project reports. It has led to a much more consistent quality of report and made it much easier to evaluate them for assessment purposes.

Please share how the program triangulates various data sources to determine student success. Consider assessment findings, CPP's GI2025 markers, CSU Dashboard, CPP's Student Success Dashboard on Tableau, course evaluations, etc.
Our department has created and continues to update/support a large video tutorial repository named ME Online (www.cpp.edu/meonline). Prior studies of our students indicate ME Online is a valued resource for all students. Latino/Latina/Latinx students and first-generation students used ME Online more frequently than other students, and generally rated the resource more highly than other groups. In particular, they noted the importance of being able to pause and control the pace of delivery, which is especially useful for non-native English-speaking students. We will continue to support and grow ME Online as a way to enhance equity.

Does the program offer a certificate or credential (e.g., teaching credential)?
- No

The most current assessment plan and curriculum matrix we have on file for your program may be found here. To ensure we have the most updated assessment plan and curriculum matrix for your program, and for posting on our website, please upload the following documents:

Assessment Plan - Yes

Curriculum Matrix - Yes