



Academic Program Assessment Report for AY 2023-2024

Program: Master of Science in Industrail and Systems Engineering (MSISE)

(Due: June 1, 2025)

Date report completed: 6/2/2025

Completed by: Leonardo Bedoya-Valencia

Assessment contributors (other faculty involved): None.

Please describe the 2024-2025 assessment activities and follow-up from prior years for your program below. Please complete this form for each undergraduate major and graduate program (e.g., B.A., B.S., B.A.S, M.S., DNP, etc.) as well as stand-alone minors, or certificates in your department. Please copy any addenda (e.g., rubrics) and paste them in this document, save and submit it to both the Dean of your college/school and to the Associate Provost as an email attachment by June 1, 2025. You'll also find this form on the assessment website at <https://www.csupueblo.edu/assessment-and-student-learning/resources.html>. Thank you.

Brief statement of Program mission and goals:

I. Assessment of Student Learning Outcomes (SLOs) in this cycle. Including processes, results, and recommendations for improved student learning. Use Column H to describe improvements planned for 2024-2025 based on the assessment process.

A. Which of the program SLOs were assessed during this cycle? Please include the outcome(s) verbatim from the assessment plan.	B. When was this SLO <u>last</u> reported on prior to this cycle? (semester and year)	C. What method was used for assessing the SLO? Please include a copy of any rubrics used in the assessment process.	D. Who was assessed? Please fully describe the student group(s) and the number of students or artifacts involved (N).	E. What is the expected proficiency level and how many or what proportion of students should be at that level?	F. What were the results of the assessment? (Include the proportion of students meeting proficiency.)	G. What were the department's conclusions about student performance?	H. What changes/improvements to the <u>program</u> are planned based on this assessment?
Apply industrial engineering knowledge in facility design, operations	Fall 2024 and Spring 2025.	Methods: EN 575 Facilities Planning and Design (Fall 2024), and 577	In EN 575, one (1) MSISE graduate student and	80% or more of the students should meet or exceed	In the research project report composed of	Since 100% of the students performed well; we conclude that the goal was met.	The course instructors continue to guide the students to focus on research problems related to contemporary issues by using both conferences and scholarly

planning, operations research, and simulation.		Operations Planning and Control Spring 2025). EN 577 was not taught in Spring 2025 due to the lack of students. EN 571 Operations Research was taught by a visiting faculty and no assessment was performed. Rubrics: Design Strategy, Solutions, and Tools.	one (1) MSE student were enrolled in Fall 2024. In EN 577, nobody was enrolled in Spring 2025.	expectations .	a literature review, a detailed review and the replication and expansion of a current topic on IE, 100% of the students in EN 575 were able to demonstrate their knowledge on IE when dealing with current problems.		journals dealing with industrial and systems engineering.
Apply engineering principles in the design and analysis of a system or process to meet specified needs.	Fall 2024.	Methods: EN 575 Facilities Planning and Design (Fall 2024). Rubrics: Design Strategy and Constraints and Variables.	In EN 575, one (1) MSISE graduate student and one (1) MSE student were enrolled in Fall 2024. In EN 577, nobody was enrolled in Spring 2025.	80% or more of the students should meet or exceed expectations .	100% of the students in EN 575 were able to understand and solve problems both in manufacturing and services industries by using optimization and	All students (100%) performed well. We conclude that the goal was met.	Students continue to be offered problems from real applied research existing in the most recent literature presented in both conferences and scholarly journals dealing with industrial and systems engineering.

					programmin g.		
Communicate effectively in writing and orally.	Fall 2024 and Spring 2025.	Methods: Reports and Presentations in EN 520 (Spring 2025) and 593 (Fall 2024) Rubrics: <i>written:</i> Articulation, organization, neatness, grammar and spelling, writing style, document formatting <i>Oral:</i> Delivery, length and detail, mechanics, dialect, visual aides, appearance, and listening and response to questions.	In EN 593, nine (2) MSE and three (3) MSISE graduate students were enrolled during the Fall 2024. In EN 520, one (1) MSISE and one (1) MSE graduate students were enrolled during Spring 2025.	80% or more of the students should meet or exceed expectations .	The students in EN 593 wrote literature reviews, academic critiques on thesis and disssertations, and did presentations each on a potential topic for their master thesis. A 100% of the students exceeded the expectation for this SLO. In EN 520, the students met the expectation for the research project presentations. The students in EN 520 wrote and	Since 100% of the students performed well we conclude that the goal was met. Instead of course specific student surveys in both EN 520 and EN 593, feedback through the grading method was given to the students.	Keep on encouraging students in the EN 593 Graduate Seminar and EN 520 Simulation Experiments to work and use proper referencing in their academics reports including research papers and thesis. Additionally, students were encouraged to use the Writing center for editing their works.

					presented a research project composed of a literature review, a detailed analysis and the replication and expansion of a current problem on IE solved by using simulation.		
--	--	--	--	--	--	--	--

Comments on part I reporting: This coming academic year, 2024-2025, the school of Engineering will perform a review of the assessment procedure for the MSISE program. Also, similarly to the last academic year (2023-2024), most of the MSISE students are 3+2 students. For this reason, the student learning outcome 3, Communicate effectively in writing and orally, was highlighted as a priority for assessment in the MSISE program again. In particular, the main point was on performing literature review and using proper referencing when writing and presenting research projects. In the most recent four assessment cycles, in collaboration with the Library and the Writing Center, the performance of the MSISE students have improved substantially. Most of the students have written master thesis and their articulation, organization, neatness, grammar and spelling, writing style, and document formatting exceed expectations.

II. Closing the Loop. Describe at least one data-informed change to your curriculum during the 2023-2024 cycle. These are those that were based on, or implemented to address, the results of assessment from previous cycles.

A. What SLO(s) or other issues did you address in this cycle? Please include the outcome(s) verbatim from the assessment plan.	B. When was this SLO last assessed to generate the data which informed the change? Please indicate the semester and year.	C. What were the recommendations for change from the previous assessment column H and/or feedback?	D. How were the recommendations for change acted upon?	E. What were the results of the changes? If the changes were not effective, what are the next steps or the new recommendations?
Communicate effectively in writing and orally.	Fall 2024 and Spring 2025.	Stress the importance of proper referencing, articulation, organization, neatness, grammar and spelling, writing style, document formatting when writing academic reports.	Training sessions with the Library and the Writing Center on writing, proper referencing, and use of on campus databases for literature review. Working sessions in the MSISE courses intended to teach students to prepare reports and presentations of research projects.	All MSISE and MSE students continue writing their research reports by following the Institute of Electric and Electronics Engineering (IEEE) style and referencing format. Additionally, through the library training, the MSISE and MSE students are capable of using software to prepare the references in their written reports.

Comments on part II follow through: Since some of the students in the MSISE program are international students who have some issues meeting expectations for the student learning outcome 3, Communicate effectively in writing and orally, for the last 7 years the School of Engineering, working jointly with the Library and the writing center, has been providing workshops to all the master students on writing, using the academic resources and proper referencing.

Degree Program Action Plan Update (from last Program Review)

Program/ Department/Person completing: MSISE/School of Engineering/Leonardo Bedoya-Valencia

Date of last program review: March 2025

Date of next program-specific accreditation review (if applicable): NA

Date of this update: June 1, 2025

Dean's approval:

- Briefly summarize annual updates to the program status including major accomplishments and challenges.
- Be sure to include any program accreditation updates, where appropriate.

	Program Impact	Proposed actions (if applicable)
Accomplishments Description		
Challenges Description	<p>Improve the performance of master students on outcome 3, Communicate effectively in writing and orally.</p> <p>Based on the outside reviewer for the MSISE program, in order to increase enrollment in the MSISE program, these changes can be implemented:</p> <ol style="list-style-type: none"> 1. Enhance Data Analytics and AI Integration. 2. Develop and require MSISE students to take a Software-Focused Course. 3. Course Rebranding and Curriculum Adjustment applied to most of the MSISE's core and elective courses. 	<p>Keep on working jointly with the Library and the writing center in order to provide workshops to all the master students on writing, using the academic resources and proper referencing for preparing research reports.</p> <p>Start the discussion for implementing the changes proposed by the MSISE reviewer with the School of Engineering faculty this Fall 2025.</p>
Program Accreditation updates or challenges	NA	NA

Indicate progress within the last year(s) on items from the current program action plan.

Specific Item from Action Plan	Progress made on Action Plan item (indicate when completed)	Recommendations and projected timeline for further action	Resources Needs update (current, reallocation, new)	Person Responsible for further action

Improve the performance of master students on outcome 3, Communicate effectively in writing and orally.	Workshops and working sessions with master students keep taking place in EN 593 Graduate Seminar and EN 520 Simulation Experiments. These activities are intended to help master students in their communication skills.	Every academic year during both the fall and spring semester.	Time with the Library and Writing Center Staff.	Leonardo Bedoya-Valencia.
MSISE Proposed Program Changes	Starting the discussion withing the School of Engineering about the changes in the MSISE curriculum according to the recommendations provided by the outside reviewer.	Submit the changes to the CAP Board during the 2025-2026 academic year.	Time allocated to work on the curriculum changes.	Leonardo Bedoya-Valencia