



Academic Program Assessment Report for AY 2021-2022

Program:__ M.S. in Mechatronics Engineering

(Due: June 1, 2022)

Date report completed: ____ June 10, 2022 ____

Completed by:____ Nebojsa Jaksic _____

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Please describe the 2021-2022 assessment activities and follow-up for your program below. Please complete this form for each undergraduate major, minor, certificate, and graduate program (e.g., B.A., B.S., B.A.S, M.S.) 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 Executive Director for Assessment as an email attachment by June 1, 2022. 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 2019-2020 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?
Analyze and/or design a mechatronic system	Spring 2021	Methods: EN 563 Final Course Exam and/or Project Reports	Three MSME second year graduate students who were enrolled in Spring 2022	At least 80% of the students should meet or exceed expectations	All students (100%) were able to analyze and/or design a mechatronic system. Students'	The students' performance was excellent. However, the sample size (3) was too small for a valid	Changes for remote/face-to-face delivery mode were implemented well. However, face-to-face will be emphasized with addition of some lab simulations performed at home. There are still some

		Rubrics: Design Strategy, Solutions, and Tools			designs demonstrated correct design strategies (Final), solutions (Final), and the use of computer tools like MATLAB (Homework Assignments). An exit interview was administered to one student who was graduating.	statistical analysis. This will most likely continue even though we are expecting more 3+2 students next year.	technological challenges that have to be addressed for implementation of home/in-cloud labs.
Apply advanced engineering principles in the design and analysis of a system or process to meet specified needs	Spring 2021	Methods: EN 561 Final and/or Homework, EN 513 Homework/ Mini-Projects, and Final Project Rubrics: Design Strategy and Constraints	In EN 561 there were three students enrolled in Fall 2021. EN 513 had three MSME student in Spring 2022.	At least 80% of the students should meet or exceed expectations	As in the previous year, all students in EN 561 were able to apply correct state-space design strategy under given constraints. They were able to demonstrate their knowledge when solving complicated problems.	All MSME students (100%) in EN 561 and EN 513 performed well. However, again, no firm conclusions could be reached due to the small sample size.	Due to the Tech building renovations, the state of the EN 513 labs (Virtual Reality) is somewhat uncertain. In case that an appropriate lab becomes unavailable, a different (free for students) programming environment will be used.

					All students in EN513 were capable of applying appropriate modern AI/ML methods, tools and technologies to solve engineering problems, analyze data, and interpret results.		
Communicate effectively in writing and orally.	Spring 2021	<p>Methods: : EN 593: Written and oral presentations EN 507: Project report evaluation EN 563: Review paper evaluation</p> <p>Rubrics: <i>Written:</i> Articulation, organization, neatness, grammar and spelling, writing style, document formatting, and</p>	Two MSME first-year graduate students who were enrolled in EN 593 (Fall 2021) Three MSME graduate students who were enrolled in EN 507 (Fall 2021) Three MSME graduate students who were enrolled in	At least 80% of the students should meet or exceed expectations	The students in EN 507 wrote a project report. They all (100%) exceeded the expectation for this SLO. The students in EN 563 wrote a review paper on a robotics topic. They all (100%) met the expectation for this SLO.	All MSME students met or exceeded expectations for this SLO.	In EN 563, a project report will be required again if the robotics lab becomes available. Otherwise, a review paper will be required and the hands-on robotics labs/projects will be replaced by a simulated robotic labs requiring a lab report.

		proper referencing of the sources. <i>Oral:</i> Delivery, length and detail, mechanics, dialect, visual aides, appearance, and listening and response to questions	EN 563 (Spring 2022)				
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Comments on part I:

II. Closing the Loop. Describe at least one data-informed change to your curriculum during the 2021-2022 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?
Analyze and/or design a mechatronic system	Spring 2020	There were no recommendations for change.	N/A	N/A

Apply advanced engineering principles in the design and analysis of a system or process to meet specified needs	Spring 2020	For EN513, a synchronized online teaching method was used for Spring 21, and it was successful. We can continue offering this class using remote learning pedagogy and techniques.	A synchronous and face-to-face methods of content delivery were implemented.	This change was largely ineffective due to the computer technology inadequacy as well as different pedagogical methods required. Thus, this mixed method (synchronous and f2f) will be abandoned.
Communicate effectively in writing and orally	Spring 2020	<p>In EN 563, students did not meet the expectations for this SLO. Thus, in addition to a review paper, a short project report will be required to strengthen this SLO. A set of instructions on writing review papers will be distributed to the students.</p> <p>For EN 593, the instructor will keep on encouraging students to work and use proper referencing in their academics reports including research papers and thesis. Additionally, students will be encouraged to keep using the Writing Center for editing their work.</p> <p>The remote delivery mode based on Community of Inquiry was planned and implemented. This can become a permanent change if EN 563 is to be offered remotely.</p>	<p>In EN 563, in addition to a review paper a short project/homework report was required. A set of instructions on writing review papers was distributed and discussed in class.</p> <p>Due to the changes in course classification and University policies on remote offering of courses, the remote delivery method was not implemented this year for EN 563.</p>	The addition of another report and a discussion on the report writing helped with this SLO, where all students in EN 563 met or exceeded expectations.

Comments on part II: