Program Type: Currently Non-Accredited Program (Seeking ABET Accreditation)

Program Name: B.S. in Electrical Engineering

Submitted By: Steve Daniels

Email: swdaniels@eiu.edu

Submission Date: 3/6/2026

Review Cycle: Odd Year Cycle

Year 6

Student Learning Outcomes (SLOs) for Academic Programs

Please list all of the student learning outcomes for your program as articulated in the assessment plan.

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. 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
3. An ability to communicate effectively with a range of audiences
4. 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
5. 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
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Overview of Measures/Instruments

Last spring the ABET Accreditation Committee worked on new SLOs so that our assessment and ABET assessment could work together. Members of the ABET Accreditation Committee included Dean Cheney, Dean Bonnekessen, Associate Dean Cornebise, Electrical Engineers Dr. Ha and Dr. Zou, Chairs Dr. Mertz, Dr. Daniels, and Dr. Al-Odeh, other faculty Dr. Reza, Dr. Israr, Dr. Boonsuk, Dr. Moh'd and Mr. Tillman. This team, led by Dean Cheney and Dr. Ha, spent countless hours crafting the Assessment instruments that are herein presented. The document will start out with the Assessment process that was developed. Then the standard EIU Assessment form is adapted for this system. Finally, you will find an example of the Assessment documentation that Dr. Zou created for one class. The measurement instruments for the SLOs are Performance Indicators. The Performance Indicators are evaluated on the

basis of rubrics that were developed specifically for each Performance Indicator. The list of SLOs, Performance Indicators and Rubrics are presented below

Student Outcome 1: An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

Performance Indicator 1-1: Identify engineering problems that have real-world applications

Level	Rubrics and Description
Exceeds criteria	The student clearly identifies the problem and considers additional factors—such as long-term stability, second-order effects, and performance degradation—that are critical for real-world applications, fostering an effective and careful approach to engineering problem-solving.
Meets criteria	The student can identify the engineering problem but may overlook some minor aspects, have limited insight into the full scope of the problem, or have a narrow view of ultimate real-world applications.
Does not meet criteria	The student is unable to identify relevant problems. Their understanding is unclear or incomplete, and they fail to recognize important factors and/or the ultimate real-world applications.

Performance Indicator 1-2: Formulate problem statements by defining key issues, objectives, and constraints

Level	Rubrics and Description
Exceeds criteria	The student clearly defines all key issues, objectives, and constraints with detailed analysis. The formulations are specific, measurable, and aligned with the problem context, demonstrating a deep understanding and logical structure.
Meets criteria	The student identifies key issues, objectives, and constraints clearly, but the formulations may lack full alignment or clarity. The problem statement addresses main challenges but lacks depth or detail for complete understanding.
Does not meet criteria	The student fails to define key issues, objectives, and constraints clearly, or omits one or more elements. The problem statement lacks clarity or logical structure, making it difficult to understand. The objectives are vague, and constraints are poorly defined or ignored.

Performance Indicator 1-3: Develop and implement solution strategies grounded in engineering, scientific, and mathematical principles

Level	Rubrics and Description
Exceeds criteria	The student develops a clear, highly effective strategy, applying appropriate analysis, relevant theories, optimization techniques, mathematical modeling, and/or simulations. The solution is data-driven, precise, and adheres to scientific principles, demonstrating depth and rigor.
Meets criteria	The student develops a clear strategy with a logical approach, following scientific and mathematical principles. The procedure is organized, but may lack depth or contain minor errors.
Does not meet criteria	The student struggles to develop a coherent strategy. The approach may be disorganized or ineffective, and procedures may lack clarity, precision, or scientific/mathematical accuracy.

Student Outcome 2: 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

Performance Indicator 2-1: Identify constraints and specifications of the engineering design task

Level	Rubrics and Description
Exceeds criteria	The student comprehensively identifies all relevant constraints and specifications, demonstrating a clear and thorough understanding of the design task and its requirements.
Meets criteria	The student identifies the key constraints and specifications relevant to the Engineering design task, but some elements may lack clarity or completeness.
Does not meet criteria	The student fails to identify key constraints and specifications, or the identified constraints are incomplete or irrelevant to the design task.

Performance Indicator 2-2: Establish performance targets to evaluate the acceptability and desirability of potential design solutions

Level	Rubrics and Description
Exceeds criteria	The student establishes specific, measurable, and well-justified performance targets for the engineering design that align with both the design objectives and broader project goals, in order to evaluate the solution's acceptability and desirability.

Meets criteria	The student establishes clear performance targets to evaluate the acceptability and desirability of the design solution, but some targets may lack specificity or full alignment with the design objectives.
Does not meet criteria	The student does not establish clear performance targets or sets targets that are irrelevant or unrealistic for evaluating the design solution.

Performance Indicator 2-3: Assess the cost-efficiency of the design while considering the diverse needs of the public based on social, economic, and environmental factors

Level	Rubrics and Description
Exceeds criteria	The student provides a detailed, well-rounded assessment of the design's cost-efficiency, thoroughly integrating social, economic, and environmental factors to ensure a balanced and sustainable solution.
Meets criteria	The student assesses the cost-efficiency of the design and considers some relevant social, economic, and environmental factors, but the analysis may lack depth or comprehensiveness.
Does not meet criteria	The student does not adequately assess cost-efficiency or neglects to consider the diverse social, economic, and environmental factors in the design process.

Student Outcome 3: An ability to communicate effectively with a range of audiences

Performance Indicator 3-1: Follow standard rules of grammar

Level	Rubrics and Description
Exceeds criteria	The student's written and oral communication is exceptionally clear, concise, and well-structured, with correct grammar and a high level of detail that enhances understanding.
Meets criteria	The student's written and oral communication is clear and effectively conveys the intended message, though it may contain minor grammar errors.
Does not meet criteria	The student's written and oral communication is unclear, poorly structured, or incomplete, with major grammar errors that hinder understanding.

Performance Indicator 3-2: Organize content in a logical manner

Level	Rubrics and Description
Exceeds criteria	The student organizes content exceptionally well, ensuring a logical Hlow that effectively delivers the message to the intended audience.
Meets criteria	The student organizes content logically, but some areas lack clarity or detail, requiring the audience to make additional effort to understand the message.
Does not meet criteria	The student fails to organize content logically, making key messages unclear and leading to misunderstandings or confusion.

Performance Indicator 3-3: Use appropriate technical terminology and adjust the level of communication based on the audience

Level	Rubrics and Description
Exceeds criteria	Technical terminology is precise and used effectively. Communication is clearly adjusted to match the audience's needs, ensuring clarity and engagement.
Meets criteria	Technical terminology is appropriate for the audience, with some adjustments in communication level, though not always fully effective.
Does not meet criteria	Technical terminology is used incorrectly or omitted. Communication is not adapted to the audience, leading to confusion or disengagement.

Performance Indicator 3-4: Integrate graphics and schematics to enhance the audience's understanding of engineering principles

Level	Rubrics and Description
Exceeds criteria	Graphics and schematics are clear, well-designed, and effectively enhance understanding, making complex concepts more accessible and engaging.
Meets criteria	Graphics and schematics are used to support the communication of engineering principles, but their clarity or relevance may be limited or underdeveloped.
Does not meet criteria	Graphics and schematics are either absent, unclear, or irrelevant, failing to enhance understanding of the engineering principles being discussed.

Student Outcome 4: 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

Performance Indicator 4-1: Demonstrate knowledge of and apply professional codes of ethics in engineering

Level	Rubrics and Description
Exceeds criteria	The student demonstrates a strong understanding of professional codes of ethics and consistently applies them appropriately in complex engineering situations, showing a high level of ethical reasoning.
Meets criteria	The student demonstrates a basic understanding of professional codes of ethics and applies them to engineering situations, though some key aspects may be overlooked or inadequately applied.
Does not meet criteria	The student shows little or no understanding of professional codes of ethics, and fails to apply them in engineering scenarios.

Performance Indicator 4-2: Evaluate competing social values and consider multiple perspectives (*e.g.*, legal, ethical, and technical) to make informed decisions about engineering solutions

Level	Rubrics and Description
Exceeds criteria	The student thoroughly evaluates competing social values and considers a broad range of perspectives (*e.g.*, legal, ethical, and technical) to make well-informed, balanced decisions, showing depth in the analysis.
Meets criteria	The student evaluates some competing social values and considers legal, ethical, and technical perspectives when making decisions, though the analysis may be incomplete or lack depth.
Does not meet criteria	The student fails to recognize or evaluate competing social values and perspectives, or makes decisions based on limited or irrelevant factors.

Performance Indicator 4-3: Understand the societal consequences of engineering failures

Level	Rubrics and Description
Exceeds criteria	The student demonstrates a comprehensive understanding of the societal consequences of engineering failures, considering both immediate and long-term impacts across various sectors (*e.g.*, social, economic, and environmental).
Meets criteria	The student demonstrates an understanding of the societal consequences of engineering failures, though the analysis may lack full consideration of all potential impacts.

Does not meet criteria	The student shows little to no understanding of the societal consequences of engineering failures and does not acknowledge the broader impact of such failures.

Student Outcome 5: 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

Performance Indicator 5-1: Demonstrate responsibility and recognize participant roles in teamwork, leadership, and communication within engineering projects

Level	Rubrics and Description
Exceeds criteria	The student consistently demonstrates strong leadership and responsibility within the team, actively recognizes and supports the roles of others, and communicates effectively to ensure the team functions smoothly.
Meets criteria	The student demonstrates a clear understanding of team roles and responsibilities, actively participates in teamwork, and communicates with team members, though they may not always take on leadership or initiative roles.
Does not meet criteria	The student shows little or no recognition of team roles or responsibilities. They may not actively participate or communicate effectively within the team.

Performance Indicator 5-2: Engage in constructive discussions, synthesize diverse opinions based on scientific evidence, and coordinate efforts to derive optimal engineering solutions

Level	Rubrics and Description
Exceeds criteria	The student actively leads and contributes to discussions, synthesizing diverse viewpoints with scientific evidence and coordinating team efforts to derive the most effective engineering solutions.
Meets criteria	The student engages in constructive discussions, incorporates scientific evidence and diverse opinions, and contributes to Hinding solutions. However, some coordination may be lacking, or opinions may not always be synthesized effectively.
Does not meet criteria	The student does not participate effectively in discussions or fails to incorporate scientific evidence or diverse perspectives into the decision-making process.

Performance Indicator 5-3: Cultivate a teamwork environment where all members feel valued, respected, and encouraged to share their ideas

Level	Rubrics and Description
Exceeds criteria	The student creates an inclusive and supportive team environment where all members feel valued, respected, and encouraged to share their ideas, actively promoting collaboration and inclusivity.
Meets criteria	The student fosters a generally respectful and collaborative team environment, but may not fully encourage all members to share their ideas or ensure equal participation.
Does not meet criteria	The student does not contribute to a positive team environment and may contribute to an atmosphere of disrespect or exclusion.

Student Outcome 6: An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

Performance Indicator 6-1: Identify and utilize appropriate equipment and tools for experimentation, data collection, and analysis in a safe and effective manner

Level	Rubrics and Description
Exceeds criteria	The student expertly identifies and uses the correct equipment and tools for experimentation, data collection, and analysis in a highly effective and safe manner, demonstrating proficiency and attention to detail in all aspects.
Meets criteria	The student identifies and uses appropriate equipment and tools for experimentation and data collection, with some attention to safety and effectiveness. Some minor errors in usage or safety practices may occur.
Does not meet criteria	The student does not identify or use appropriate equipment and tools for experimentation, or uses them incorrectly. Safety precautions are neglected or poorly followed.

Performance Indicator 6-2: Troubleshoot engineering malfunctions through logical reasoning and scientific analysis to identify the root cause of errors

Level	Rubrics and Description
Exceeds criteria	The student effectively troubleshoots complex engineering malfunctions, using strong logical reasoning and scientific analysis to identify the root cause with high accuracy and efficiency.

Meets criteria	The student is able to troubleshoot and identify common malfunctions using logical reasoning and scientific analysis, though the process may be incomplete or involve some incorrect assumptions.
Does not meet criteria	The student struggles to troubleshoot engineering malfunctions, demonstrating poor reasoning or scientific analysis. The root cause of errors is either missed or misidentified.

Performance Indicator 6-3: Validate experimental results using statistical methods to account for potential errors

Level	Rubrics and Description
Exceeds criteria	The student expertly uses advanced statistical methods to validate experimental results, thoroughly accounting for all potential sources of error and ensuring high accuracy and reliability in the conclusions drawn.
Meets criteria	The student applies basic statistical methods to validate experimental results, accounting for some potential sources of error, though the analysis may lack depth or comprehensive coverage of all factors.
Does not meet criteria	The student does not apply statistical methods to validate experimental results or overlooks potential sources of error in the analysis.

Student Outcome 7: An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Performance Indicator 7-1: Employ effective techniques, tools, and computer-based resources to enhance learning in engineering

Level	Rubrics and Description
Exceeds criteria	The student expertly utilizes a variety of effective techniques, tools, and computer-based resources to significantly enhance their learning and understanding of engineering concepts.
Meets criteria	The student employs basic techniques, tools, and computer-based resources to support learning in engineering, though the use may be limited or lack full effectiveness in enhancing understanding.
Does not meet criteria	The student does not effectively employ techniques, tools, or computer-based resources to enhance learning, or fails to use available resources altogether.

Performance Indicator 7-2: Adapt to evolving engineering resources to refine laboratory skills

Level	Rubrics and Description
Exceeds criteria	The student demonstrates a strong ability to quickly adapt to evolving engineering resources, proactively refining laboratory skills and integrating new tools and methods effectively.
Meets criteria	The student adapts to evolving engineering resources with some success, applying them to refine laboratory skills, though there may be occasional challenges or limited flexibility.
Does not meet criteria	The student shows little or no ability to adapt to evolving engineering resources, or struggles to apply new tools and methods in laboratory settings.

Performance Indicator 7-3: Recognize and practice the importance of punctual attendance while continuously evaluating and refining learning strategies for improvement

Level	Rubrics and Description
Exceeds criteria	The student consistently practices punctual attendance and regularly evaluates and refines their learning strategies, demonstrating a proactive commitment to continuous improvement and learning.
Meets criteria	The student recognizes the importance of punctual attendance and makes an effort to evaluate and refine their learning strategies, though the process may lack consistency or depth.
Does not meet criteria	The student does not prioritize punctual attendance or shows little to no effort in evaluating and refining learning strategies for improvement.

The SLOs have been put into the tabular form that was the standard for EIU Assessment. That table follows. The Performance Indicators are listed by their identification numbers. The entire assessment process was only decided on last spring. So there was only one semester in which to try to obtain data. The only course for which data was collected was EEN 4401, Signals and Systems. The assessment report for that class follows this SLO table.

SLO(s) *Note: Measures might be used for more than 1 SLO*	***ULG****	***Measures/Instruments*** *Please include a clear description of the instrument including when and where it is administered*	**How is the information Used?** *(include target score(s), results, and report if target(s) were met/not met/partially met for each instrument)*
1.An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	C, Q, W	Performance Indicators: 1.1 1.2 1.3	Documentation for ABET Accreditation See EEN 4401 data following table
2 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	C, R, W	Performance Indicators: 2.1 2.2 2.3	Documentation for ABET Accreditation
3. An ability to communicate effectively with a range of audiences	W, S	Performance Indicators: 3.1 3.2 3.3 3.4	Documentation for ABET Accreditation See EEN 4401 data following table
4. 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 .	R, W	Performance Indicators: 4.1 4.2 4.3	Documentation for ABET Accreditation
5. An ability to function effectively on a team whose members together provide leadership, create a	R, S, C	Performance Indicators: 5.1 5.2	Documentation for ABET Accreditation

SLO(s) *Note: Measures might be used for more than 1 SLO*	***ULG****	***Measures/Instruments*** *Please include a clear description of the instrument including when and where it is administered*	**How is the information Used?** *(include target score(s), results, and report if target(s) were met/not met/partially met for each instrument)*
collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.		5.3	
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	C, W, Q	Performance Indicators: 6.1 6.2 6.3	Documentation for ABET Accreditation
7 An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	C, W	Performance Indicators: 7.1 7.2 7.3	Documentation for ABET Accreditation See EEN 4401 data following table

**Please reference any University Learning Goal(s) (ULG) that this SLO, if any, may address or assess. C=Critical Thinking, W=Writing & Critical Reading; S=Speaking and Listening; Q=Quantitative reasoning; R=Responsible Citizenship; NA=Not Applicable*

ABET EE Assessment Classroom Reports

This report was generated to model the ABET Assessment process. The basis for the assessment is certain homework assignments that can be assigned in following semesters for direct comparison. These assignments were chosen by the instructor of the course.

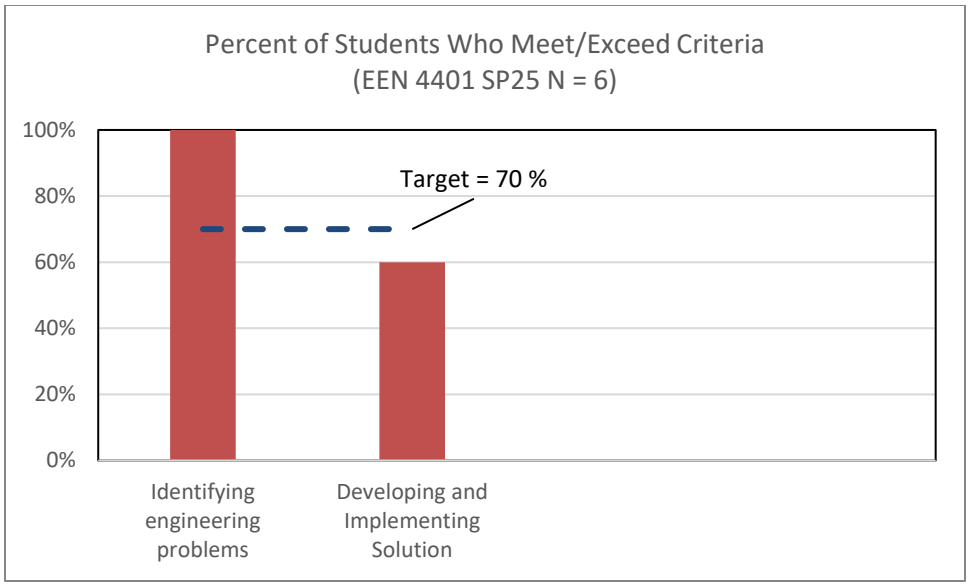
Course: EEN 4401 Signals and Systems Semester/Year: Spring 2025

Direct Measure: Homework 11, 1(b) and Homework 14, 3 (b) & (d) Indirect Measure: N/A

Homework 6, 2 (b) and Homework 15, 2

Student Outcome 1: An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics		
	Identifying engineering problems	Developing and Implementing Solution
Student 1	N/A (Did not turn in Homework 14)	Meets Criteria
Student 2	Meets Criteria	Does not meet criteria
Student 3	Meets Criteria	Does not meet criteria
Student 4	Meets Criteria	Meets Criteria
Student 5	N/A (Did not turn in Homework 14)	N/A (Did not turn in Homework 6 and 15)
Student 6	Meets Criteria	Meets Criteria

Note: PI 1-2 (Formulate problem statements by defining key issues, objectives, and constraints) is not assessed in this course.



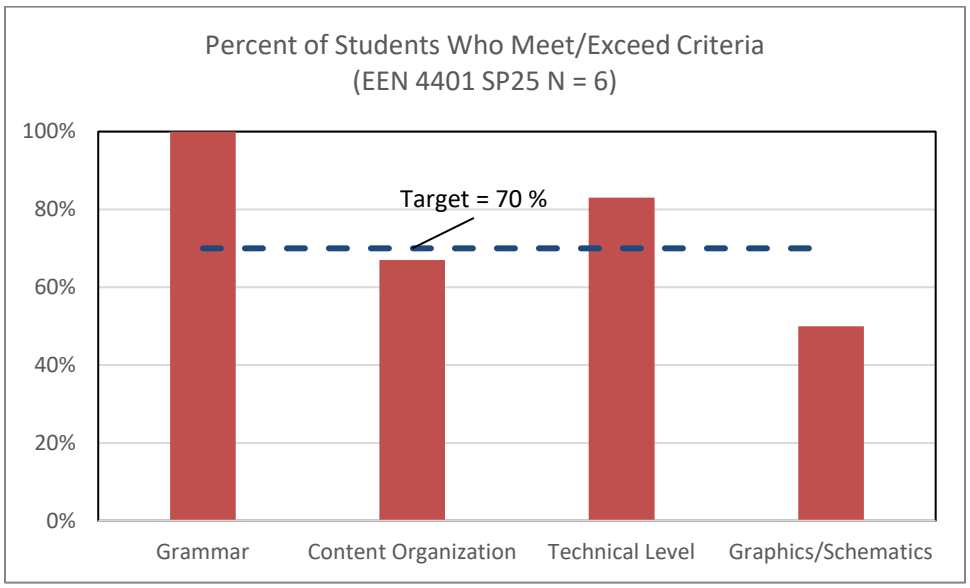
Instructor Recommendations:

1. Area for improvement is Developing and Implementing Solution. Some students lack a good grasp of fundamental laws, such as the Kirchoff's laws, and their applications. Some students also lack skills in calculus and its applications. It is recommended that students attend office hours regularly and have in-depth discussions with instructors early on in their curriculum to help improve the above weaknesses in their knowledge/skill set.

Course: EEN 4401 Signals and Systems Semester/Year: Spring 2025

Direct Measure: Class Project Report Indirect Measure: N/A

Student Outcome 3: An ability to communicate effectively with a range of audiences				
	Grammar	Content Organization	Technical Level	Graphics/Schematics
Student 1	Meets Criteria	Exceeds Criteria	Meets Criteria	Meets Criteria
Student 2	Meets Criteria	Does not meet criteria	Meets Criteria	Does not meet criteria
Student 3	Meets Criteria	Does not meet criteria	Meets Criteria	Does not meet criteria
Student 4	Exceeds Criteria	Exceeds Criteria	Exceeds Criteria	Meets Criteria
Student 5	Meets Criteria	Meets Criteria	Does not meet criteria	Does not meet criteria
Student 6	Exceeds Criteria	Exceeds Criteria	Meets Criteria	Meets Criteria



Instructor Recommendations:

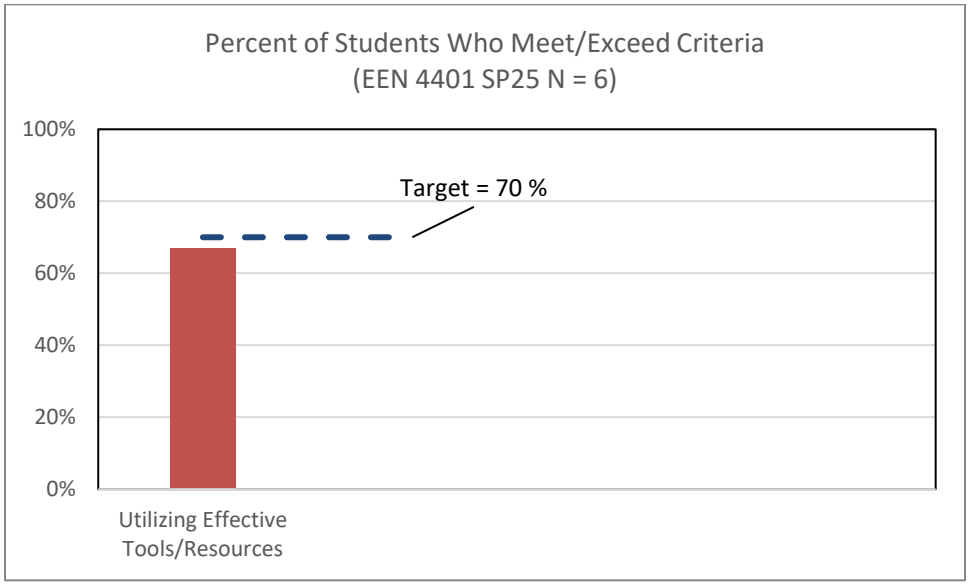
1. Areas for improvement include Content Organization and Graphics/Schematics. It is recommended that students be shown good samples of technical writing in terms of how to organize content logically and how to correctly incorporate graphics/schematics into the report, including how to write the figure captions and reference a figure within the text.
2. Although student performance in Technical Level has met the target, the class project report was written for a specific type of audience, the expert audience as represented by the professor, who evaluated the report. Students should be also given a chance to write the report at a different level, a level suitable for, for example, the general public.

Course: EEN 4401 Signals and Systems Semester/Year: Spring 2025

Direct Measure: Class Project Report Indirect Measure: N/A

Student Outcome 7: An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	
	Utilizing Effective Tools/Resources
Student 1	Meets Criteria
Student 2	Does Not Meet Criteria
Student 3	Does Not Meet Criteria
Student 4	Exceeds Criteria
Student 5	Meets Criteria
Student 6	Exceeds Criteria

Note: PI 7-2 (Adapt to emerging and evolving engineering resources to strengthen hands-on skills) is not assessed in this course.



Instructor Recommendations:

1. In completing the class project, some students relied on their team partner for acquiring and applying new knowledge or failed to demonstrate what tool/resources they utilized in acquiring and applying new knowledge. It is recommended that instructor emphasize equal contribution and independence in completing the team project so that students clearly understand the expectations.

Improvements and Changes Based on Assessment

1. Provide a short summary (1-2 paragraphs or bullets) of any curricular actions (revisions, additions, and so on) that were approved over the past four years as a result of reflecting on the student learning outcomes data. Are there any additional future changes, revisions, or interventions proposed or still pending?

   This program is now starting a new Assessment cycle as the ABET Committee redefined almost all of the assessment processes. However, this new cycle will follow the processes that ABET is looking for and so will benefit the University in the long run.

2. Please provide a brief description or bulleted list of any improvements observed/measured in student learning over the past four years. Be sure to mention any intervention made that has not yet resulted in student improvement (if applicable).

   Clearly, the ABET Accreditation Committee has provided intervention that has not yet resulted in student improvement.

   There is no way to measure student improvements since there is no more than one data point for the upper level courses. And the low numbers of students in the classes makes statistics useless.

3. Using the form below, please document annual faculty and committee engagement with the assessment process (such as the review of outcomes data, revisions/updates to assessment plan, and reaffirmation of SLOs).

History of Annual Review		
Date of Annual Review	**Individuals/Groups who Reviewed Plan**	**Results of the Review (i.e., reference proposed changes from #1 above, revised SLOs, etc...)**
5/2/22	EE Advisory Board	Approved of new course implementation
11/12/22	EE Advisory Board	Reviewed curriculum and approved overall classes
12/15/22	EE Steering Committee	Proposed ideas related to Senior Design Suggested additional courses for the program Project Management Communications Theory Embedded Systems These courses would have to be electives in the program
3/31/23	EE Advisory Board	Reviewed curriculum and approved entirety. Also approved the creation of the Computer Engineering Program.
Spring 2025 Weekly Meetings	ABET Accreditation Committee	Redefined the Assessment process for the EE Program.

Dean Review & Feedback

As was noted in the report, the B.S. in Electrical Engineering assessment program has been completely overhauled this year to better align it with ABET accreditation standards. As a result, the data collected thus far are preliminary, but over time will provide meaningful feedback that can be used to improve the program and ensure EE students are well-prepared when they complete their coursework. It should also be noted that the EE curriculum was revised this year in an effort to strengthen and streamline the program. Overall, the program report is well-presented and provides a comprehensive overview of the recent assessment changes.

Michael Cornebise, Associate Dean — 3/10/2026

Dean or Designee — Date

Academic Affairs –Review & Feedback

Suzie Park — 3/20/26

VPAA — Date