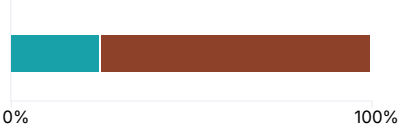
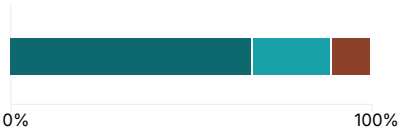
Academic year 2024-2025

BS in Industrial Engineering - BS-INEN Learning Outcomes

Math and science NOT MET

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

MEASURES	RESULTS	ACTIONS
Senior Design Project A review of senior design projects from a 2 semester senior design course. The written document is review. Faculty also attend the oral presentation. Direct - Assignment *IE Design: INEN 4385* **Target** For example, 70% of the students will achieve a score of 3 or above. rubrics.docx	NOT MET Senior Design Project Met Approached  0% 100% Met: 25% Approached: 75% Met Total: 25% Not Met Total: 75% ABET Rubric 2025 Aggregate_Calculations_v2.xlsx **Analysis** Math and science performance is a concern in senior design. The faculty discussed this topic at our meeting on 5/13/25. The faculty concluded that the issue was due to a mixture of project topic and lack of focus on analytic focus in the reports and presentations. The team developed several action plans based on the assessment: 1. Greater role for mentors 2. Corporate sponsorship of projects with full faculty review of unsponsored project 3. Greater focus on analytical techniques in grading and feedback.	**Revise Curriculum** COMPLETE Senior design will have a greater focus on analytical methods. The professor and department chair will stress the importance of testing and model in the grading of the course. Recommended Due Date: 05/13/2025 **Revise Curriculum** COMPLETE Have all projects corporate sponsored. Any projects that are needed that are not corporate sponsored must be review with the chair and faculty during the faculty meeting. Recommended Due Date: 05/13/2025 **Revise Curriculum** COMPLETE Have mentors with the authority to suggest grades for all senior design projects. While mentors are currently used in senior design, many teams do not meet with the mentor. By giving the mentor the ability to recommend part of the grade to the instructor, the teams will hopefully be more active in meeting the mentor and implementing suggestions for modeling. Recommended Due Date: 05/13/2025
Program Exam based on Sample FE in IE Questions The program review test is a closed book, closed note test questions that are inspired by the Fundamentals of Engineering (FE) test for Industrial Engineering. The FE test allows the NCEES-supplied reference handbook with 4 minutes per question, where as our program review test is closed book and closed note with one minute per question. The topics are similar, and the difficulty of the questions is adjusted for the reduced time and closed book requirement. The assessment committee choose the closed book closed note format, so that the test examines information remembered as opposed to the ability to look up information. The exam is designed to both prepare student for interviews and aid them in FE study. Performance on the exam is not directly used in senior design, but a self-assessment based	NOT MET Program Exam based on Sample FE in IE Questions Met Approached  0% 100% Met: 25% Approached: 75% Met Total: 25% Not Met Total: 75% **Summary** Dr. Bradley administered the test in senior design. The raw data is in the Blackboard	**Revise Measurement / Assessment** IN PROGRESS The faculty will review the test and excluded questions that have unclear answers. The test will add computational questions. Recommended Due Date: 03/01/2026

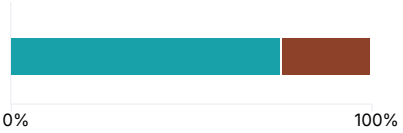
on the exam is graded as part of the class participation grade. Most of the question on the exam are multiple choice with a standard expectation that 80% of students should be able to answer the questions on any topic area. The exam was added in spring 2024 as an improvement to our assessment process that had become too focused on group projects where quality is graded based on a rubric as opposed to knowledge of fundamentals. Direct - Other *IE Design: INEN 4385* **Target** 70% on questions is passing. 50% of students should pass.	system. Email from Dr. Bradley to Chair on 5/19/2025 documents the result. Data from 2025 Senior Desing students taking practicum exam: Students who took the exam: 25 Students who made a 70 or above: 7 Percent of student who passed: 28% -Kelley **Analysis** The exam is a difficult test. The results of the exam indicate a problem with retention and memorization of key concepts. For all questions, several faculty members passionately voiced concerns that the questions were not specific and required significant interpretation. Faculty were also concerned that the questions were too focused on memorization not problem solving. The department intends to continue this assessment approach in future semesters. The wording of questions will be improved in future years. Several faculty members also expressed concern that the test did not count for a grade, so students might not take it seriously thus making the results invalid.	
Exit survey results Exit survey result given by COE. Indirect - Survey **Target** 80% of students should be positive about this outcome on the exit survey. Five-point Likert Scale used on survey. Converted to 4 point scale with the lowest two categories combined.	MET Exit survey results Exceeded Met Approached  0% 100% **Exceeded:** 67% **Met:** 22% **Approached:** 11% **Met Total:** 89% **Not Met Total:** 11% **Analysis** The survey meet our goals for this outcome.	*No actions have been added.*

Conclusion

The outcome was not meet. See improvement plans above.

Society MET

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.

MEASURES	RESULTS	ACTIONS
Senior design project A review of senior design projects from a 2 semester senior design course. The written document is review. Faculty also attend the oral presentation. Direct - Assignment *IE Design: INEN 4385* **Target** For example, 70% of the students will achieve a score of 3 or above. rubrics.docx	MET Senior design project Met Approached  0% 100% Met: 75% Approached: 25% Met Total: 75% Not Met Total: 25% ABET Rubric 2025 Aggregate_Calculations_v2.xlsx **Analysis** The result meet our target of 70% for this outcome. We will continue to monitor.	*No actions have been added.*
Exit Survey Results Exit survey result given by COE. Indirect - Survey **Target** 80% of students should be positive about this outcome on the exit survey. Five-point Likert Scale used on survey. The results are converted to 4 point scale with the lowest two categories combined.	Exit Survey Results Exceeded Met Approached  0% 100% Exceeded: 67% Met: 22% Approached: 11% Met Total: 89% Not Met Total: 11%	*No actions have been added.*

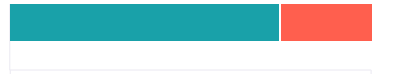
Conclusion

The senior design projects covered this item well.

Communication MET

3. an ability to communicate effectively with a range of audiences.

MEASURES	RESULTS	ACTIONS
Senior Design Project A review of senior design projects from a 2 semester senior design course. The written	MET Senior Design Project Met Not Met	*No actions have been added.*

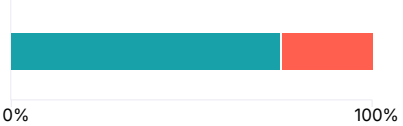
document is review. Faculty also attend the oral presentation. Direct - Assignment *IE Design: INEN 4385* **Target** For example, 70% of the students will achieve a score of 3 or above. rubrics.docx	 0% 100% Met: 75% Not Met: 25% Met Total: 75% Not Met Total: 25% ABET Rubric 2025 Aggregate_Calculations_v2.xlsx **Analysis** Overall the teams did well on presentation. The parts of the rubric with low scores were related to content. This is reflected in outcome 1.	
Exit Survey Exit survey result given by COE. Indirect - Survey **Target** 80% of students should be positive about this outcome on the exit survey. Five-point Likert Scale used on survey. The results are converted to 4 point scale with the lowest two categories combined.	MET Exit Survey Exceeded Met Approached  0% 100% Exceeded: 78% Met: 11% Approached: 11% Met Total: 89% Not Met Total: 11% **Analysis** Survey meet target.	*No actions have been added.*

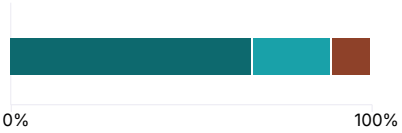
Conclusion

The students did an effective job in their senior design writeups on presentation and written communication.

Ethics MET

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.

MEASURES	RESULTS	ACTIONS
Senior Design Project A review of senior design projects from a 2 semester senior design course. The written document is review. Faculty also attend the oral presentation. Direct - Assignment	MET Senior Design Project Met Not Met  0% 100%	*No actions have been added.*

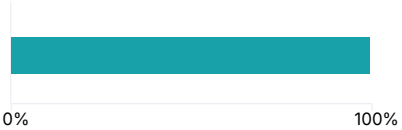
IE Design: INEN 4385 **Target** For example, 70% of the students will achieve a score of 3 or above.	Met: 75% Not Met: 25% Met Total: 75% Not Met Total: 25% ABET Rubric 2025 Aggregate_Calculations_v2.xlsx **Analysis** The projects meet our standard for this outcome.	
Exit Survey Exit survey result given by COE. Indirect - Survey **Target** 80% of students should be positive about this outcome on the exit survey. Five-point Likert Scale used on survey. The results are converted to 4 point scale with the lowest two categories combined.	MET Exit Survey Exceeded Met Approached  Exceeded: 67% Met: 22% Approached: 11% Met Total: 89% Not Met Total: 11% **Analysis** Survey meet target.	*No actions have been added.*

Conclusion

The student's projects effectively covered this topic.

Leadership MET

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.

MEASURES	RESULTS	ACTIONS
Senior Design Project A review of senior design projects from a 2 semester senior design course. The written document is review. Faculty also attend the oral presentation. *IE Design: INEN 4385* **Target** For example, 70% of the students will achieve a score of 3 or above.	MET Senior Design Project Met  *Values are not shown when too close to each other. Click or use arrow keys to see details.* Met: 100% Met Total: 100%	*No actions have been added.*

rubrics.docx	Not Met Total: **Analysis** The instructor reported no issues with teamwork in senior design to the chair.	
Exit Survey Exit survey result given by COE. Indirect - Survey **Target** 80% of students should be positive about this outcome on the exit survey. Five-point Likert Scale used on survey. The results are converted to 4 point scale with the lowest two categories combined.	MET Exit Survey Exceeded Met Approached  Exceeded: 78% Met: 11% Approached: 11% Met Total: 89% Not Met Total: 11% **Analysis** Survey met target.	*No actions have been added.*

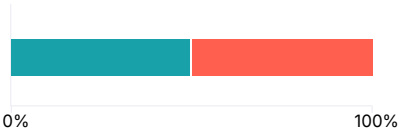
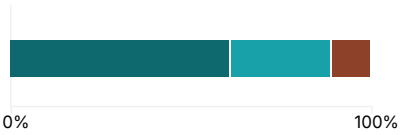
Conclusion

The students did not have reported problems with teamwork in senior design.

Experiment NOT MET

6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

MEASURES	RESULTS	ACTIONS

Senior Design Project A review of senior design projects from a 2 semester senior design course. The written document is review. Faculty also attend the oral presentation. Direct - Assignment *IE Design: INEN 4385* **Target** For example, 70% of the students will achieve a score of 3 or above. rubrics.docx	NOT MET Senior Design Project Met Not Met  0% 100% Met: 50% Not Met: 50% Met Total: 50% Not Met Total: 50% ABET Rubric 2025 Aggregate_Calculations_v2.xlsx **Analysis** The teams did not use good experimental procedures in their projects.	**Revise Curriculum** COMPLETE The importance of having an experiment with results will be stressed in senior design. Teams will have mentors to help them design experiments in a separate improvement. Project topics should also improve with 100% corporate sponsorship in a separate improvement. Teams without experiments will have computational results with sensitivity analysis in the format of an experiment. The curriculum has several statistic course (INEN 3320, 4320, and 4300), so the faculty do not think that this result was due to lack of ability, but instead due to project topic and lack of focus on the part of the senior design teams. Recommended Due Date: 05/13/2025
Exit Survey Exit survey result given by COE. Indirect - Survey **Target** 80% of students should be positive about this outcome on the exit survey. Five-point Likert Scale used on survey. The results are converted to 4 point scale with the lowest two categories combined.	MET Exit Survey Exceeded Met Approached  0% 100% Exceeded: 61% Met: 28% Approached: 11% Met Total: 89% Not Met Total: 11% **Analysis** Target met.	*No actions have been added.*

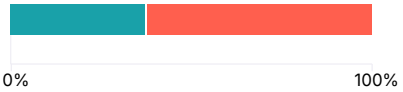
Conclusion

The students did not meet this outcome.

Lifelong Learning NOT MET

7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

MEASURES	RESULTS	ACTIONS
Senior Design Project A review of senior design projects from a 2 semester senior design course. The written	NOT MET Senior Design Project Met Not Met 	**Revise Curriculum** COMPLETE Make sure teams in senior design conduct an academic literature review to find analytical modeling techniques for their problems.

document is review. Faculty also attend the oral presentation. Direct - Assignment *IE Design: INEN 4385* **Target** For example, 70% of the students will achieve a score of 3 or above. rubrics.docx	 0% 100% Met: 38% Not Met: 62% Met Total: 38% Not Met Total: 63% ABET Rubric 2025 Aggregate_Calculations_v2.xlsx **Analysis** The teams lack of computational approaches resulted in a low score for lifelong learning.	Recommended Due Date: 05/13/2025
Exit Survey Exit survey result given by COE. Indirect - Survey **Target** 80% of students should be positive about this outcome on the exit survey. Five-point Likert Scale used on survey. The results are converted to 4 point scale with the lowest two categories combined.	MET Exit Survey Exceeded Met Approached  0% 100% Exceeded: 67% Met: 22% Approached: 11% Met Total: 89% Not Met Total: 11% **Analysis** Target met.	*No actions have been added.*

General Outcome Actions

ACTIONS
Revise Curriculum COMPLETE See outcomes 1 and 6 for corrective actions.

Conclusion

This outcome was not meet due to poor performance on outcome 1 and 6. The corrective actions are in outcome 1 and 6.

BS in Industrial Engineering - BS-INEN Success Outcomes

PEOs MET

1. Advance professionally with increasing leadership and responsibility beyond entry level in an industry relevant to industrial engineering.
2. Contribute to organizational objectives with significant societal benefits in an environmentally and ethically responsible manner.

3. Engage in life-long learning through professional activities and training, the pursuit of higher educational degrees, and individual professional development.

MEASURES	RESULTS	ACTIONS
Employment success Direct - Other **Target** Above 50% of schools in state based on data (crews)	MET BS IE salary 2024.pdf **Analysis** The department meet our goal based on having the 2nd highest median salary in the state for the most recent Texas Crews data. This result meet our goal of being in the top half of Texas schools for starting salary. We will continue to monitor this data.	*No actions have been added.*

Conclusion

The department is doing well on this outcome. We have meet the goal for starting salary for this evaluation cycle with an average salary of $84,384 based on Texas Crews Data. This is second in the state for all public schools.