



Academic year 2024-2025

MES-Chemical Engineering - MES-MSCH Learning Outcomes



Application of Engineering, Science, and Mathematics Principles

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

MEASURES	RESULTS	ACTIONS
<p>Thesis</p> <p>Proficiency is 3 out of 4</p> <p>Direct - Other</p> <p>Target</p> <p>75% of students achieve the proficiency mentioned above</p>	<p>MET</p> <p>Thesis</p> <p>■ Met</p>  <p>0% 100%</p> <p><i>Values are not shown when too close to each other. Click or use arrow keys to see details.</i></p> <p>Met: 100%</p> <p>Met Total: 100%</p> <p>Not Met Total:</p> <p>Analysis</p> <p>The results met the target for the SLO.</p>	<p>Maintain Assessment Strategy</p> <p>With passing scores, there are likely to be few if any paradigm shifts in how to present the SLO #1 related materials. It is necessary that the program maintain continuous improvement To that end, the following improvement steps are proposed:</p> <ul style="list-style-type: none"> • Present findings to department faculty to ensure that all courses internally promote and evaluate students' abilities to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. • Evaluate where in the ME internal curriculum that more open-ended projects requiring the skills presented in SLO #1 can be incorporated. • Evaluate that classes taken externally to the department meet the demands of SLO #1 • Work with College of Engineering partners to ensure acceptable rigor related to SLO #1 across all disciplines associated with the shared degree.
<p>Student Survey</p> <p>Proficiency is a 3 out of 4</p> <p>Indirect - Survey</p> <p>Target</p> <p>75% of students achieve the proficiency mentioned above</p>	<p>MET</p> <p>Student Survey</p> <p>■ Met</p>  <p>0% 100%</p> <p><i>Values are not shown when too close to each other. Click or use arrow keys to see details.</i></p> <p>Met: 100%</p> <p>Met Total: 100%</p> <p>Not Met Total:</p> <p>Analysis</p> <p>The results met the target for the SLO.</p>	<p>Maintain Assessment Strategy</p> <p>With passing scores, there are likely to be few if any paradigm shifts in how to present the SLO #1 related materials. It is necessary that the program maintain continuous improvement To that end, the following improvement steps are proposed:</p> <ul style="list-style-type: none"> • Present findings to department faculty to ensure that all courses internally promote and evaluate students' abilities to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. • Evaluate where in the ME internal curriculum that more open-ended projects requiring the skills presented in SLO #1 can be incorporated. • Evaluate that classes taken externally to the department meet the demands of SLO #1 • Work with College of Engineering partners to ensure acceptable rigor related to SLO #1 across all disciplines associated with the shared degree.


Conduct experiments, analyze data, and draw engineering conclusions


Students will demonstrate an ability to develop and conduct appropriate experimentation or numerical simulation, analyze and interpret data, and use engineering judgment to draw conclusions and produce solutions appropriately.

MEASURES	RESULTS	ACTIONS
Thesis Proficiency is 3 out of 4 on rubric Direct - Other Target 75% of students achieve the proficiency mentioned above	MET Thesis ■ Met ■ Not Met  0% 100% Met: 75% Not Met: 25% Met Total: 75% Not Met Total: 25% Analysis The results met the target for the SLO.	Maintain Assessment Strategy It is necessary that the program maintain continuous improvement to increase the overall proficiency rates and overall PI scores for the SLO. To that end, the following improvement steps are proposed: <ul style="list-style-type: none"> • Present findings to department faculty to ensure that all courses internally (required or elective) rigorously promote the ability to apply engineering design to produce solutions appropriately. • Ensure efforts are made to clearly identify faculty and department expectations as to effective experimental design and critical analysis. • Recommend students take course work internally and externally that focus on experimental design and statistics. • Work with College of Engineering partners to ensure acceptable rigor related to SLO #2 across all disciplines associated with the shared degree.
Student Survey Proficiency is 3 out of 4 Indirect - Survey Target 75% of students achieve the proficiency mentioned above	MET Student Survey ■ Met  0% 100% Values are not shown when too close to each other. Click or use arrow keys to see details. Met: 100% Met Total: 100% Not Met Total: Analysis The results met the target for the SLO.	Maintain Assessment Strategy It is necessary that the program maintain continuous improvement to increase the overall proficiency rates and overall PI scores for the SLO. To that end, the following improvement steps are proposed: <ul style="list-style-type: none"> • Present findings to department faculty to ensure that all courses internally (required or elective) rigorously promote the ability to apply engineering design to produce solutions appropriately. • Ensure efforts are made to clearly identify faculty and department expectations as to effective experimental design and critical analysis. • Recommend students take course work internally and externally that focus on experimental design and statistics. • Work with College of Engineering partners to ensure acceptable rigor related to SLO #2 across all disciplines associated with the shared degree.

Ability to use modern engineering tools

Students will demonstrate an ability to use modern engineering tools to produce engineering analysis in a systematic manner.



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Thesis Proficiency is a 3 out of 4 Direct - Other Target	MET Thesis ■ Met  0% 100%	Maintain Assessment Strategy It is necessary that the program maintain continuous improvement to increase the overall proficiency rates and overall PI scores for the SLO. To that end, the following improvement steps are proposed: <ul style="list-style-type: none"> • Present findings to department faculty to ensure that all courses internally (required or

75% of students achieve the proficiency mentioned above	<p>0% 100%</p> <p><i>Values are not shown when too close to each other. Click or use arrow keys to see details.</i></p> <p>Met: 100%</p> <p>Met Total: 100%</p> <p>Not Met Total:</p> <p>Analysis</p> <p>The results met the target for the SLO.</p>	<p>elective) rigorously promote the ability to apply engineering design to produce solutions appropriately.</p> <ul style="list-style-type: none"> • Provide clear language in the syllabi of internal courses as to the student learning outcomes and expectations associated. • Provide access and utilization of modern tools/techniques in internally offered courses to ensure effective student coverage. • Evaluate that classes taken externally to the department to see what modern tools and techniques are being used. If a course appears to not meet the needs of SLO #3, then internal coverage becomes even more critical. • Work with College of Engineering partners to ensure acceptable rigor related to SLO #3 across all disciplines associated with the shared degree.
<p>Student Survey</p> <p>Proficiency is 3 out of 4</p> <p>Indirect - Survey</p> <p>Target</p> <p>75% of students achieve the proficiency mentioned above</p>	<p>MET</p> <p>Student Survey</p> <p>■ Met</p>  <p>0% 100%</p> <p><i>Values are not shown when too close to each other. Click or use arrow keys to see details.</i></p> <p>Met: 100%</p> <p>Met Total: 100%</p> <p>Not Met Total:</p> <p>Analysis</p> <p>The results met the target for the SLO.</p>	<p>Maintain Assessment Strategy</p> <p>It is necessary that the program maintain continuous improvement to increase the overall proficiency rates and overall PI scores for the SLO. To that end, the following improvement steps are proposed:</p> <ul style="list-style-type: none"> • Present findings to department faculty to ensure that all courses internally (required or elective) rigorously promote the ability to apply engineering design to produce solutions appropriately. • Provide clear language in the syllabi of internal courses as to the student learning outcomes and expectations associated. • Provide access and utilization of modern tools/techniques in internally offered courses to ensure effective student coverage. • Evaluate that classes taken externally to the department to see what modern tools and techniques are being used. If a course appears to not meet the needs of SLO #3, then internal coverage becomes even more critical. • Work with College of Engineering partners to ensure acceptable rigor related to SLO #3 across all disciplines associated with the shared degree.

Complete and Communicate Masters Thesis

Students will demonstrate an ability to complete a master thesis and effectively communicate the thesis work with a range of audiences

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<p>Thesis Report</p> <p>Proficiency is a 3 out of 4</p> <p>Direct - Other</p> <p>Target</p> <p>75% of students will achieve the proficiency</p>	<p>MET</p> <p>Thesis Report</p> <p>■ Met</p>  <p>0% 100%</p> <p><i>Values are not shown when too close to each other. Click or use arrow keys to see details.</i></p> <p>Met: 100%</p> <p>Met Total: 100%</p> <p>Not Met Total:</p> <p>Analysis</p> <p>The results met the target for the SLO.</p>	<p>Maintain Assessment Strategy</p> <p>It is necessary that the program maintain continuous improvement to increase the overall proficiency rates and overall PI scores for the SLO. To that end, the following improvement steps are proposed:</p> <ul style="list-style-type: none"> • Present findings to department faculty to ensure that all courses internally (required or elective) rigorously promote the ability to apply engineering design to produce solutions appropriately. • Provide clear language in the syllabi of internal courses as to the student learning outcomes and expectations associated. • Provide opportunities for students to present both internally and externally to improve communication and presentation skills • Evaluate the classes taken externally to the department to see where presentation skills are tested and improved. • Work with College of Engineering partners to ensure acceptable rigor related to SLO #4 across all disciplines associated with the shared degree.
<p>Final Thesis Defense</p> <p>Proficiency is a 3 out of 4</p> <p>Direct - Presentation</p> <p>Target</p> <p>75% of students achieve the proficiency mentioned above</p>	<p>MET</p> <p>Final Thesis Defense</p> <p>■ Met</p>  <p>0% 100%</p> <p><i>Values are not shown when too close to each other. Click or use arrow keys to see details.</i></p> <p>Met: 100%</p> <p>Met Total: 100%</p> <p>Not Met Total:</p> <p>Analysis</p> <p>The results met the target for the SLO.</p>	<p>Maintain Assessment Strategy</p> <p>It is necessary that the program maintain continuous improvement to increase the overall proficiency rates and overall PI scores for the SLO. To that end, the following improvement steps are proposed:</p> <ul style="list-style-type: none"> • Present findings to department faculty to ensure that all courses internally (required or elective) rigorously promote the ability to apply engineering design to produce solutions appropriately. • Provide clear language in the syllabi of internal courses as to the student learning outcomes and expectations associated. • Provide opportunities for students to present both internally and externally to improve communication and presentation skills • Evaluate the classes taken externally to the department to see where presentation skills are tested and improved. • Work with College of Engineering partners to ensure acceptable rigor related to SLO #4 across all disciplines associated with the shared degree.