

# SACS Assessment Report for Doctor of Engineering (DE) Program

Degree: Doctor of Engineering (DE) 2023-2024 Assessment Report		
	<b>Student Learning Outcome #1</b>	Students will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation. (2) Qualifying Exam Assessment Rubrics are provided below.
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	<p>During the reporting period, one student graduated from the DE program in the College of Engineering. The dissertation committees, consisting of at least four faculty members, assessed both the Dissertation and Qualifying Exam for each student using standardized rubrics based on specific outcomes. The results are:</p> <ul style="list-style-type: none"> <li>Dissertation results: 100% proficiency, with an average score of 4 for SLO1</li> <li>Qualifying Exam: 100% proficiency with an average of score of 3.67.</li> </ul>
<b>S T U D Y</b>	<b>Analysis of Results</b>	100% of the students achieved the proficiency mentioned above. All the students scored well above the minimum acceptable proficiency level.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	<p>With passing scores in all performance indicators, we do not anticipate major changes. However, to advance the program and meet the demand for improved learning, continuous improvement is essential to increase overall scores for PIs of the SLO. For the next academic year, the following improvement steps are proposed:</p> <ul style="list-style-type: none"> <li>Focus on developing challenging research projects that utilize advanced technologies, enhancing students'</li> </ul>

		<p>abilities to identify, formulate, and solve complex engineering problems using principles of engineering, science, and mathematics.</p> <ul style="list-style-type: none"> <li>• Present the findings to the department faculty and ensure the rigor of all courses.</li> <li>• Develop and offer more courses aligned with current industrial needs and advancements.</li> <li>• Improve the curriculum using more interdisciplinary project-based modules (based on student surveys).</li> <li>• The College of Engineering planed a \$1M remodel of Cherry building classrooms to unify technology for improved teaching methods in Spring 2024.</li> </ul> <p>Refer to the individual department reports in the Appendix for the results and improvement plans of each department.</p>
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### Performance Indicators and Rubrics for Outcome #1:

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

Performance Indicator	Excellent 4	Good 3	Satisfactory 2	Unsatisfactory 1
<b>(a) Identify complex engineering problems by applying proper engineering, science, and mathematical principles.</b>	Identify and fully describe complex engineering problems using correct specifications, design variables, and proper constraints.	Identify and describe complex engineering problems but may have missing specifications, design variables, and proper constraints	Partially identify and describe complex engineering problems missing some specifications/design variables/proper constraints	Cannot Identify and describe complex engineering problems using specifications, design variables, and proper constraints
<b>(b) Formulate the complex engineering problem by applying proper engineering, science, and mathematical principles.</b>	Formulate the complex problem <i>mathematically by application of</i> engineering and science theories and principles without mistakes.	Formulate the problems <i>mathematically by application of</i> engineering and science theories and principles with minor mistakes.	Model the problems <i>mathematically by application of</i> engineering and science theories and principles with mistakes and errors.	Cannot formulate the problem <i>mathematically by application of</i> engineering and science theories and principles
<b>(c) Solve the problem by applying proper engineering, science, and mathematical principles.</b>	Effectively apply the engineering problem solving procedure: mathematical modeling, solution method, interpretation of results	Essentially apply the engineering problem solving procedure: mathematical modeling, solution method, interpretation of results	Reasonably apply the engineering problem solving procedure: mathematical modeling, solution method, interpretation of results	Cannot follow correctly the engineering problem solving procedures at all.

Degree: Doctor of Engineering (DE) 2023-2024 Assessment Report		
	<b>Student Learning Outcome #2</b>	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.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation (2) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	<p>During the reporting period, one student graduated from the DE program in the College of Engineering. The dissertation committees, consisting of at least four faculty members, assessed both the Dissertation and Qualifying Exam for each student using standardized rubrics based on specific outcomes. The results are</p> <ul style="list-style-type: none"> <li>• Dissertation results: 100% proficiency, with the average of 4 for SLO2.</li> <li>• Qualifying Exam: 100% proficiency with the average of 4 for SLO2.</li> <li>•</li> </ul>
<b>S T U D Y</b>	<b>Analysis of Results</b>	100% of the students achieved the proficiency mentioned above. All the students scored well above the minimum acceptable proficiency level.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	<p>With passing scores in all performance indicators, we do not anticipate major changes. However, to advance the program and meet the demand for improved learning, continuous improvement is essential to increase overall scores for PIs of the SLO. For the next academic year, the following improvement steps are proposed:</p> <ul style="list-style-type: none"> <li>• Focus on developing challenging research projects that involve appropriate experimentation and numerical simulations to produce justified solutions.</li> <li>• Present the findings to the department faculty and ensure the rigor of all courses.</li> <li>• Develop and offer more courses aligned with current industrial needs and advancements.</li> <li>• Improve the curriculum using more interdisciplinary project-based modules (based on student surveys).</li> </ul>

		<ul style="list-style-type: none"><li>• The College of Engineering planed a \$1M remodel of Cherry building classrooms to unify technology for improved teaching methods in Spring 2024.</li></ul> <p>Refer to the individual department reports in the Appendix for the results and improvement plans of each department.</p>
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### Performance Indicators and Rubrics for Outcome #2:

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.

<b>Performance Indicator</b>	<b>Excellent 4</b>	<b>Good 3</b>	<b>Satisfactory 2</b>	<b>Unsatisfactory 1</b>
<b>(a) Identify the needs, approaches and steps for experimental study or numerical simulation</b>	The objectives of the experiment or numerical simulation are clearly specified. The approaches to conduct the experiment or simulation are the best choices and the procedures are concise.	The objectives of the experiment or numerical simulation are specified. The approaches to conduct the experiment or simulation are of the good choices with good procedures.	The objectives of the experiment or numerical simulation are outlined. The approaches to conduct the experiment or simulation are feasible and the procedures are reasonably described.	The objectives of the experiment or numerical simulation are not clearly identified. Key components are missing in the approaches and/or the procedures.
<b>(b) Obtain data from experimental test or numerical simulation following the steps or numerical simulation</b>	Follow the procedure step by step when the experiment or simulation are carried out, and the data are clean and reproducible.	The step-by-step procedure is followed, and the data are good enough to be reproduced	Carry out the experiment or simulation without missing the critical steps and the data are useful and somewhat reproducible.	Have one or more major deficiencies in the experimental procedure or numerical simulation method and the data are not obtained or questionable.
<b>(c) Organize and analyze the data with tables, figures, regression, and modeling</b>	Data are labeled and presented clearly in graphs, charts, and tables. The calculations in data processing are correct.	Data are labeled and presented in graphs, charts, and tables. The calculations in data processing are done correctly or with minor mistakes.	Data is labeled and presented in graphs, charts, and tables with minor flaws. There is no major mistake in data processing.	Some data are missing, and the graphs, charts, or tables are missing or presented in a wrong way.

Degree: Doctor of Engineering (DE) 2023-2024 Assessment Report		
	<b>Student Learning Outcome #3</b>	Students will demonstrate an ability to use modern engineering tools to produce engineering analysis in a systematic manner.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation (2) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	<p>During the reporting period, one students graduated from the DE program in the College of Engineering. The dissertation committees, consisting of at least four faculty members, assessed both the Dissertation and Qualifying Exam for each student using standardized rubrics based on specific outcomes. The results are,</p> <ul style="list-style-type: none"> <li>• Dissertation results: 100% proficiency, with the average of 4 for SLO3.</li> <li>• Qualifying Exam: 100% proficiency with the average of 4 for SLO3.</li> </ul>
<b>S T U D Y</b>	<b>Analysis of Results</b>	100% of the students achieved the proficiency mentioned above. All the students scored well above the minimum acceptable proficiency level.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	<p>With passing scores in all performance indicators, we do not anticipate major changes. However, to advance the program and meet the demand for improved learning, continuous improvement is essential to increase overall scores for PIs of the SLO. For the next academic year, the following improvement steps are proposed:</p> <ul style="list-style-type: none"> <li>• Focus on developing challenging research projects that require to use modern engineering tools to produce engineering analysis in a systematic manner.</li> <li>• Present the findings to the department faculty and ensure the rigor of all courses.</li> <li>• Develop and offer more courses aligned with current industrial needs and advancements.</li> <li>• Improve the curriculum using more interdisciplinary project-based modules (based on student surveys).</li> </ul>

		<ul style="list-style-type: none"><li>• The College of Engineering planed a \$1M remodel of Cherry building classrooms to unify technology for improved teaching methods in Spring 2024.</li></ul> <p>Refer to the individual department reports in the Appendix for the results and improvement plans of each department.</p>
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**Performance Indicators and Rubrics for Outcome #3:**

An ability to use modern engineering tools to produce engineering analysis in a systematic manner.

<b>Performance Indicator</b>	<b>Excellent 4</b>	<b>Good 3</b>	<b>Satisfactory 2</b>	<b>Unsatisfactory 1</b>
<b>(a) Ability of using modern engineering tools</b>	Clearly demonstrated ability to use modern engineering tools	Demonstrated some ability to use modern engineering tools	Demonstrated minimal ability to use modern engineering tools	Does not demonstrate ability to use modern engineering tools
<b>(b) Quality of analysis</b>	Clearly demonstrates ability to show results of engineering analysis in a high-quality fashion	Demonstrates ability to show results of engineering analysis in generally good quality	Demonstrates minimal ability to show results of engineering analysis, quality compromised	Does not demonstrate ability to show results of engineering analysis in an acceptable quality

Degree: Doctor of Engineering (DE) 2023-2024 Assessment Report		
	<b>Student Learning Outcome #4</b>	Students will demonstrate an ability to complete a doctoral dissertation and effectively communicate the dissertation work with a range of audiences
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation (2) Final dissertation defense
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	During the reporting period, one student graduated from the DE program in the College of Engineering. The dissertation committees, consisting of at least four faculty members, assessed both the Dissertation and Final Defense for each student using standardized rubrics based on specific outcomes. The results are 100% proficiency with the average of 3.50 for SLO4.
<b>S T U D Y</b>	<b>Analysis of Results</b>	100% of the students achieved the proficiency mentioned above. All the students scored well above the minimum acceptable proficiency level.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	<p>With passing scores in all performance indicators, we do not anticipate major changes. However, to advance the program and meet the demand for improved learning, continuous improvement is essential to increase overall scores for PIs of the SLO. For the next academic year, the following improvement steps are proposed:</p> <ul style="list-style-type: none"> <li>• Provide students with opportunities to improve both effective oral and written communication skills.</li> <li>• Develop opportunities for students to present their work both internally and externally.</li> </ul>

**Performance Indicators and Rubrics for Outcome #4:**

An ability to complete a doctoral dissertation and effectively communicate the dissertation work with a range of audiences.

<b>Performance Indicator</b>	<b>Excellent 4</b>	<b>Good 3</b>	<b>Satisfactory 2</b>	<b>Unsatisfactory 1</b>
<b>(a) Dissertation significance</b>	Clear definition of thesis topic and the dissertation results can be published in peer-reviewed platforms	Clear definition of thesis topic and the dissertation results can be organized in a presentable form to the committee	Somewhat unclear definition of dissertation topic but with justified contributions	No definition of dissertation topic
<b>(b) Organization of dissertation</b>	The organizational scheme is logical and complete and makes the report especially pleasurable to read.	Organizational scheme shows planning and logical order.	Organizational scheme is not apparent and detracts from readability.	Dissertation is not organized and difficult to read.
<b>(c) Dissertation presentation &amp; delivery</b>	The presentation is clear, organized, professional and uses visual displays well.	Presentation is somewhat lacking in one of the following: clarity, organization, professionalism, or use of visual displays.	Presentation is weak in two or three of the critical areas: clarity, organization, professionalism, and visual displays.	Presentation is weak in all of the following areas: clarity, organization, professionalism, and visual displays.
<b>(d) Question &amp; answer - impromptu skills</b>	Answers reflect understanding of thesis context. Responses are fluent, spontaneous, sincere, and confident.	Answers demonstrate knowledge and understanding of the thesis.	Answers do not convey necessary information. Responses are strained.	Answers to questions show lack of understanding of the thesis. Responses are strained and awkward.

# **Appendix**

## **Individual Department Reports**

# Department of Chemical and Biomolecular Engineering: SACS Assessment Plan for Doctor of Engineering (DE) Program – Chemical Engineering

Degree: Doctor of Engineering (DE) – Chemical Engineering 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #1</b>	Students will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(3) Dissertation (4) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Chemical Engineering during Spring 2024. Therefore, there were no assessment performed. This is an artifact of the chemical engineering department offering and PhD path.
<b>S T U D Y</b>	<b>Analysis of Results</b>	There were no students that graduated with an DE in Chemical Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward. This is an artifact of the chemical engineering department offering and PhD path.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on increasing course offerings and modernization of current courses and challenging research projects that utilize advanced technologies and improve students' abilities to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

Degree: Doctor of Engineering (DE) – Chemical Engineering 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #2</b>	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.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation (2) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Chemical Engineering during Spring 2024. Therefore, there were no assessment performed. This is an artifact of the chemical engineering department offering and PhD path.
<b>S T U D Y</b>	<b>Analysis of Results</b>	There were no students that graduated with an DE in Chemical Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward. This is an artifact of the chemical engineering department offering and PhD path.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on increasing course offerings and providing unique and challenges research projects to effectively evaluate and improve students' abilities to develop and conduct appropriate experimentation or numerical simulation, analyze and interpret data, and use engineering judgment to draw conclusions and produce solutions appropriately.
Degree: Doctor of Engineering (DE) – Chemical Engineering 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #3</b>	Students will demonstrate an ability to use modern engineering tools to produce engineering analysis in a systematic manner.

<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation Report (2) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Chemical Engineering during Spring 2024. Therefore, there were no assessment performed. This is an artifact of the chemical engineering department offering and PhD path.
<b>S T U D Y</b>	<b>Analysis of Results</b>	There were no students that graduated with an DE in Chemical Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward. This is an artifact of the chemical engineering department offering and PhD path.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on increasing course offerings and modernization of current courses and challenging research projects that utilize advanced technologies and modern tools to expose students to cutting-edge methods to improve their ability to produce engineering analysis in a systematic manner.

Degree: Doctor of Engineering (DE) – Chemical Engineering 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #4</b>	Students will demonstrate an ability to complete a doctoral dissertation and effectively communicate the dissertation work with a range of audiences.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation Report (2) Final Dissertation Defense
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Chemical Engineering during Spring 2024. Therefore, there were no assessment performed. This is an artifact of the chemical engineering department offering and PhD path.
<b>S T U D Y</b>	<b>Analysis of Results</b>	There were no students that graduated with an DE in Chemical Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward. This is an artifact of the chemical engineering department offering and PhD path.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on increasing student opportunities to present internally and externally. Additionally, we will continue to ensure that effect communication (both oral and written) are a critical pillar to successful completion of a doctoral dissertation.



Department of Civil and Environmental Engineering:

## SACS Assessment Plan for Doctor of Engineering (DE) Program – Civil Engineering

Degree: Doctor of Engineering (DE) – Civil Engineering 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #1</b>	Students will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
PLAN	<b>Assessment Method(s)</b>	(5) Dissertation (6) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
DO	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Civil Engineering during Spring 2024. Therefore, there were no assessment performed.
S T U D Y	<b>Analysis of Results</b>	There were no students that graduated with an DE in Civil Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward.
ACT	<b>Improvement Plan for 2024-2025</b>	We will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on increasing course offerings and modernization of current courses and challenging research projects that utilize advanced technologies and improve students' abilities to identify, formulate, and solve complex engineering problems by

		applying principles of engineering, science, and mathematics.
<b>Degree: Doctor of Engineering (DE) – Civil Engineering</b> 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #2</b>	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.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(3) Dissertation (4) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Civil Engineering during Spring 2024. Therefore, there were no assessment performed.
<b>S T U D Y</b>	<b>Analysis of Results</b>	There were no students that graduated with an DE in Civil Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on increasing course offerings and develop research projects to improve the student's 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.

Degree: Doctor of Engineering (DE) – Civil Engineering 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #3</b>	Students will demonstrate an ability to use modern engineering tools to produce engineering analysis in a systematic manner.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(3) Dissertation Report (4) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Civil Engineering during Spring 2024. Therefore, there were no assessment performed.
<b>S T U D Y</b>	<b>Analysis of Results</b>	There were no students that graduated with an DE in Civil Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on increasing course offerings and develop research projects to improve the student's ability to use modern engineering tools to produce engineering analysis in a systematic manner.

Degree: Doctor of Engineering (DE) – Civil Engineering 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #4</b>	Students will demonstrate an ability to complete a doctoral dissertation and effectively communicate the dissertation work with a range of audiences.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(3) Dissertation Report (4) Final Dissertation Defense
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Civil Engineering during Spring 2024. Therefore, there were no assessment performed.
<b>S T U D Y</b>	<b>Analysis of Results</b>	There were no students that graduated with an DE in Civil Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on increasing opportunities to students to present their work internally and externally.

## Appendix

Department of Electrical and Computer Engineering:

# SACS Assessment Plan for Doctor of Engineering (DE) Program - Electrical Engineering

Degree: Doctor of Engineering (DE) 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #1</b>	Students will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
PLAN	<b>Assessment Method(s)</b>	(1) Dissertation (2) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
DO	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	Dissertation results: 100% Qualifying Exam/Dissertation Defense: 100%
S T U D Y	<b>Analysis of Results</b>	The results met the target for this SO.
ACT	<b>Improvement Plan for 2024-2025</b>	No actions are required.  General actions were implemented/proposed to further improve the program as described at the end.

Degree: Doctor of Engineering (DE) 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #1</b>	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.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation (2) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	Dissertation results: 100% Qualifying Exam/Dissertation Defense: 100%
<b>S T U D Y</b>	<b>Analysis of Results</b>	The results met the target for this SO.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	No actions are required.  General actions were implemented/proposed to further improve the program as described at the end.

Degree: Doctor of Engineering (DE) 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #3</b>	Students will demonstrate an ability to use modern engineering tools to produce engineering analysis in a systematic manner.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation (2) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above

	<b>Results of Assessment</b>	Dissertation results: 100% Qualifying Exam/Dissertation Defense: 100%
<b>S T U D Y</b>	<b>Analysis of Results</b>	The results met the target for this SO.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	No actions are required.  General actions were implemented/proposed to further improve the program as described at the end.

<b>Degree: Doctor of Engineering (DE)</b> 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #4</b>	Students will demonstrate an ability to complete a doctoral dissertation and effectively communicate the dissertation work with a range of audiences
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation (2) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	Dissertation results: 100% Qualifying Exam/Dissertation Defense: 100%
<b>S T U D Y</b>	<b>Analysis of Results</b>	The results met the target for this SO.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	No actions are required.  General actions were implemented/proposed to further improve the program as described at the end.

**General Actions for Improvement for the Overall Program:**

- In October 2023, a proposal was submitted to the Texas Higher Education Coordinating Board to establish a new Bachelor of Science Degree in Computer Engineering program in the Department of Electrical Engineering, and consequently change the name of the Department to “Department of Electrical and Computer Engineering.” These requests were approved on December 20, 2023, to be effective January 1, 2024. We have ME/MES and DE in Engineering with an emphasis in Computer Engineering. We expect that having undergraduate program will also benefit the graduate program by increasing the enrollment, and also having new faculty with degrees and research expertise Computer Engineering. Therefore, we propose to have more MES thesis and DE dissertation projects started for 2024-2025.
- Multiple graduate students requested that more courses related to the subjects of computer engineering, the emerging AI and Machine Learning. With one or two new faculty in Computer Engineering program are being hired in the ECE department, we expect to offer some new graduate-level courses in the computer engineering for 2024-2025, especially related to AI and machine learning available. By this, more choices in graduate courses are available for the students to make them more prepared for the job market.
- In Spring 2024, the college of engineering planned significant remodeling of all classrooms in Cherry building with an approximate budget close about \$1M. The purpose is to unify the technology used in the classrooms to allow for the best teaching method for on-campus and online students and make it easy for the faculty to move from one classroom to another. Taking this opportunity, we plan to further enhance the ECE classrooms by purchasing more advanced equipment such as larger touch screens, wireless microphones, presentation remote clickers.



## Department of Industrial and Systems Engineering:

### SACS Assessment Report for Doctor of Engineering (DE) Program

# SACS Assessment Plan for Doctor of Engineering (DE) Program – Industrial Engineering

Degree: Doctor of Engineering (DE) – Industrial Engineering 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #1</b>	Students will demonstrate an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation (2) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Industrial Engineering during Spring 2024. Therefore, there were no assessment performed. This is an artifact of the Industrial engineering department offering and PhD path.
<b>S T U D Y</b>	<b>Analysis of Results</b>	There were no students that graduated with an MES in Industrial Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward. This is an artifact of the Industrial engineering department offering and PhD path.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on

		increasing course offerings and modernization of current courses and challenging research projects that utilize advanced technologies and improve students' abilities to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
<b>Degree: Doctor of Engineering (DE) – Industrial Engineering</b> 2023-2024 Assessment Plan		
	<b>Student Learning Outcome #2</b>	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.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation (2) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Industrial Engineering during Spring 2024. Therefore, there were no assessment performed. This is an artifact of the Industrial engineering department offering and PhD path.
<b>S T U D Y</b>	<b>Analysis of Results</b>	There were no students that graduated with an MES in Industrial Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward. This is an artifact of the Industrial engineering department offering and PhD path.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on increasing course offerings and providing unique and challenges research projects to effectively evaluate and improve students' abilities to develop and conduct appropriate experimentation or numerical simulation, analyze and interpret data, and use engineering judgment to draw conclusions and produce solutions appropriately.

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	<b>Student Learning Outcome #3</b>	Students will demonstrate an ability to use modern engineering tools to produce engineering analysis in a systematic manner.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation Report (2) Qualifying Exam
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Industrial Engineering during Spring 2024. Therefore, there were no assessment performed. This is an artifact of the Industrial engineering department offering and PhD path.
<b>S T U D Y</b>	<b>Analysis of Results</b>	There were no students that graduated with an MES in Industrial Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward. This is an artifact of the Industrial engineering department offering and PhD path.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on increasing course offerings and modernization of current courses and challenging research projects that utilize advanced technologies and modern tools to expose students to cutting-edge methods to improve their ability to produce engineering analysis in a systematic manner.

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	<b>Student Learning Outcome #4</b>	Students will demonstrate an ability to complete a doctoral dissertation and effectively communicate the dissertation work with a range of audiences.
<b>PLAN</b>	<b>Assessment Method(s)</b>	(1) Dissertation Report (2) Final Dissertation Defense
	<b>Proficiency</b>	Minimum acceptable is 3 out of 4
<b>DO</b>	<b>Benchmark</b>	75% of students achieve the proficiency mentioned above
	<b>Results of Assessment</b>	There were no students that graduated with an DE in Industrial Engineering during Spring 2024. Therefore, there were no assessment performed. This is an artifact of the Industrial engineering department offering and PhD path.
<b>S T U D Y</b>	<b>Analysis of Results</b>	There were no students that graduated with an MES in Industrial Engineering during Spring 2024. Therefore, there were no assessment performed. The developed method will be used moving forward. This is an artifact of the Industrial engineering department offering and PhD path.
<b>ACT</b>	<b>Improvement Plan for 2024-2025</b>	We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2024-2025 will focus on increasing student opportunities to present internally and externally. Additionally, we will continue to ensure that effect communication (both oral and written) are a critical pillar to successful completion of a doctoral dissertation.

## Department of Mechanical Engineering:

### SACS Assessment Report for Doctor of Engineering (DE) Program

No students graduated with a DE in Mechanical Engineering during the reporting period.  
Therefore, no assessments were performed.