

### Mission

The Ph.D. degree is designed to prepare chemical engineers to advance research, development, and education for addressing national and global challenges towards a highly sustainable industrial-based focus on petroleum, petrochemical and allied industries.

Academic year 2024-2025



### PHD in Chemical Engineering - PHD-DPCM Learning Outcomes


#### Student Learning Outcome #1

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><b>Dissertation: Performance Indicator (B) for Learning Outcome #1</b></p> <p>(B) Formulate the complex engineering problem by applying proper engineering, science, and mathematical principles.</p> <ul style="list-style-type: none"> <li>Excellent (4): Formulate the complex problem mathematically by application of engineering and science theories and principles without mistakes.</li> <li>Good (3): Formulate the problems mathematically by application of engineering and science theories and principles with minor mistakes.</li> <li>Satisfactory (2): Model the problems mathematically by application of engineering and science theories and principles with mistakes and errors.</li> <li>Unsatisfactory (1): Cannot formulate the problem mathematically by application of engineering and science theories and principles.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>
<p><b>Dissertation: Performance Indicator (A) for Learning Outcome #1</b></p> <p>(A) Identify complex engineering problems by applying proper engineering, science, and mathematical principles.</p> <ul style="list-style-type: none"> <li>Excellent (4): Identify and fully describe complex engineering problems using correct specifications, design variables, and proper constraints.</li> <li>Good (3): Identify and describe complex engineering problems but may have missing specifications, design variables, and proper constraints</li> <li>Satisfactory (2): Partially identify and describe complex engineering problems</li> </ul>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>

<p>missing some specifications/design variables/proper constraints</p> <ul style="list-style-type: none"> <li>Unsatisfactory (1): Cannot identify and describe complex engineering problems using specifications, design variables, and proper constraints</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>		
<p><b>Dissertation: Performance Indicator (C) for Learning Outcome #1</b></p> <p>(C) Solve the problem by applying proper engineering, science, and mathematical principles.</p> <ul style="list-style-type: none"> <li>Excellent (4): Effectively apply the engineering problem solving procedure: mathematical modeling, solution method, interpretation of results</li> <li>Good (3): Essentially apply the engineering problem solving procedure: mathematical modeling, solution method, interpretation of results</li> <li>Satisfactory (2): Reasonably apply the engineering problem solving procedure: mathematical modeling, solution method, interpretation of results</li> <li>Unsatisfactory (1): Cannot follow correctly the engineering problem solving procedures at all</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>


<p><b>Qualifying Exam: Performance Indicator (C) for Learning Outcome #1</b></p> <p>(C) Solve the problem by applying proper engineering, science, and mathematical principles.</p> <ul style="list-style-type: none"> <li>Excellent (4): Effectively apply the engineering problem solving procedure: mathematical modeling, solution method, interpretation of results</li> <li>Good (3): Essentially apply the engineering problem solving procedure: mathematical modeling, solution method, interpretation of results</li> <li>Satisfactory (2): Reasonably apply the engineering problem solving procedure: mathematical modeling, solution method, interpretation of results</li> <li>Unsatisfactory (1): Cannot follow correctly the engineering problem solving procedures at all</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>MET</b></p> <p>Qualifying Exam: Performance Indicator (C) for Learning Outcome #1</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><b>Analysis</b></p> <p>The results met the target for the SLO.</p>	<p><b>Maintain Assessment Strategy</b></p> <p>We have been and will continuously analyze the program to identify areas for improvement. Improvements for 2025-2026 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.</p>
<p><b>Qualifying Exam: Performance Indicator (A) for Learning Outcome #1</b></p> <p>(A) Identify complex engineering problems by applying proper engineering, science, and mathematical principles.</p> <ul style="list-style-type: none"> <li>Excellent (4): Identify and fully describe complex engineering problems using correct specifications, design variables, and proper constraints.</li> <li>Good (3): Identify and describe complex engineering problems but may have missing specifications, design variables, and proper constraints</li> <li>Satisfactory (2): Partially identify and describe complex engineering problems missing some specifications/design variables/proper constraints</li> <li>Unsatisfactory (1): Cannot Identify and describe complex engineering problems using specifications, design variables, and proper constraints</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>MET</b></p> <p>Qualifying Exam: Performance Indicator (A) for Learning Outcome #1</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><b>Analysis</b></p> <p>The results met the target for the SLO.</p>	<p><b>Maintain Assessment Strategy</b></p> <p>We have been and will continuously analyze the program to identify areas for improvement. Improvements for 2025-2026 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.</p>


<p><b>Qualifying Exam: Performance Indicator (B) for Learning Outcome #1</b></p> <p>(B) Formulate the complex engineering problem by applying proper engineering, science, and mathematical principles.</p> <ul style="list-style-type: none"> <li>Excellent (4): Formulate the complex problem mathematically by application of engineering and science theories and principles without mistakes.</li> <li>Good (3): Formulate the problems mathematically by application of engineering and science theories and principles with minor mistakes.</li> <li>Satisfactory (2): Model the problems mathematically by application of engineering and science theories and principles with mistakes and errors.</li> <li>Unsatisfactory (1): Cannot formulate the problem mathematically by application of engineering and science theories and principles.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>MET</b></p> <p>Qualifying Exam: Performance Indicator (B) for Learning Outcome #1</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><b>Analysis</b></p> <p>The results met the target for the SLO.</p>	<p><b>Maintain Assessment Strategy</b></p> <p>We have been and will continuously analyze the program to identify areas for improvement. Improvements for 2025-2026 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.</p>
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## Student Learning Outcome #2

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
<p><b>Dissertation: Performance Indicator (A) for Learning Outcome #2</b></p> <p>(A) Identify the needs, approaches and steps for experimental study or numerical simulation</p> <ul style="list-style-type: none"> <li>Excellent (4): 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.</li> <li>Good (3): 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.</li> <li>Satisfactory (2): 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.</li> </ul>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>

<ul style="list-style-type: none"> <li>Unsatisfactory (1): The objectives of the experiment or numerical simulation are not clearly identified. Key components are missing in the approaches and/or the procedures.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>		
<p><b>Qualifying Exam: Performance Indicator (A) for Learning Outcome #2</b></p> <p>(A) Identify the needs, approaches and steps for experimental study or numerical simulation</p> <ul style="list-style-type: none"> <li>Excellent (4): 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.</li> <li>Good (3): 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.</li> <li>Satisfactory (2): 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.</li> <li>Unsatisfactory (1): The objectives of the experiment or numerical simulation are not clearly identified. Key components are missing in the approaches and/or the procedures.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>MET</b></p> <p>Qualifying Exam: Performance Indicator (A) for Learning Outcome #2</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><b>Analysis</b></p> <p>The results met the target SLO</p>	<p><b>Maintain Assessment Strategy</b></p> <p>We have been and will continuously analyze the program to identify areas for improvement. Improvements for 2025-2026 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.</p>
<p><b>Dissertation: Performance Indicator (B) for Learning Outcome #2</b></p> <p>(B) Obtain data from experimental test or numerical simulation following the steps or numerical simulation</p> <ul style="list-style-type: none"> <li>Excellent (4): Follow the procedure step by step when the experiment or simulation are carried out, and the data are clean and reproducible.</li> <li>Good (3): The step-by-step procedure is followed, and the data are good enough to be reproduced</li> <li>Satisfactory (2): Carry out the experiment or simulation without</li> </ul>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>



<p>missing the critical steps and the data are useful and somewhat reproducible.</p> <ul style="list-style-type: none"> <li>Unsatisfactory (1): Have one or more major deficiencies in the experimental procedure or numerical simulation method and the data are not obtained or questionable.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>		
<p><b>Qualifying Exam: Performance Indicator (B) for Learning Outcome #2</b></p> <p>(B) Obtain data from experimental test or numerical simulation following the steps or numerical simulation</p> <ul style="list-style-type: none"> <li>Excellent (4): Follow the procedure step by step when the experiment or simulation are carried out, and the data are clean and reproducible.</li> <li>Good (3): The step-by-step procedure is followed, and the data are good enough to be reproduced</li> <li>Satisfactory (2): Carry out the experiment or simulation without missing the critical steps and the data are useful and somewhat reproducible.</li> <li>Unsatisfactory (1): Have one or more major deficiencies in the experimental procedure or numerical simulation method and the data are not obtained or questionable.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>MET</b></p> <p>Qualifying Exam: Performance Indicator (B) for Learning Outcome #2</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><b>Met:</b> 100%</p> <p><b>Met Total:</b> 100%</p> <p><b>Not Met Total:</b></p> <p><b>Analysis</b></p> <p>The results met the target SLO</p>	<p><b>Maintain Assessment Strategy</b></p> <p>We have been and will continuously analyze the program to identify areas for improvement. Improvements for 2025-2026 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.</p>
<p><b>Dissertation: Performance Indicator (C) for Learning Outcome #2</b></p> <p>(C) Organize and analyze the data with tables, figures, regression, and modeling</p> <ul style="list-style-type: none"> <li>Excellent (4): Data are labeled and presented clearly in graphs, charts, and tables. The calculations in data processing are correct.</li> <li>Good (3): Data are labeled and presented in graphs, charts, and tables. The calculations in data processing are done correctly or with minor mistakes.</li> <li>Satisfactory (2): Data are labeled and presented in graphs, charts, and tables with minor flaws. There is no major mistake in data processing.</li> <li>Unsatisfactory (1): Some data are missing, and the graphs, charts, or</li> </ul>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>

<p>tables are missing or presented in a wrong way.</p> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>		
<p><b>Qualifying Exam: Performance Indicator (C) for Learning Outcome #2</b></p> <p>(C) Organize and analyze the data with tables, figures, regression, and modeling</p> <ul style="list-style-type: none"> <li>Excellent (4): Data are labeled and presented clearly in graphs, charts, and tables. The calculations in data processing are correct.</li> <li>Good (3): Data are labeled and presented in graphs, charts, and tables. The calculations in data processing are done correctly or with minor mistakes.</li> <li>Satisfactory (2): Data are labeled and presented in graphs, charts, and tables with minor flaws. There is no major mistake in data processing.</li> <li>Unsatisfactory (1): Some data are missing, and the graphs, charts, or tables are missing or presented in a wrong way.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>MET</b></p> <p>Qualifying Exam: Performance Indicator (C) for Learning Outcome #2</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><b>Met:</b> 100%</p> <p><b>Met Total:</b> 100%</p> <p><b>Not Met Total:</b></p> <p><b>Analysis</b></p> <p>The results met the target SLO</p>	<p><b>Maintain Assessment Strategy</b></p> <p>We have been and will continuously analyze the program to identify areas for improvement. Improvements for 2025-2026 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.</p>

### Student Learning Outcome #3

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

MEASURES	RESULTS	ACTIONS
<p><b>Dissertation: Performance Indicator (A) for Learning Outcome #3</b></p> <p>(A) Ability to use modern engineering tools</p> <ul style="list-style-type: none"> <li>Excellent (4): Clearly demonstrated ability to use modern engineering tools</li> <li>Good (3): Demonstrated acceptable ability to use modern engineering tools</li> <li>Satisfactory (2): Demonstrated minimal ability to use modern engineering tools</li> <li>Unsatisfactory (1): Does not demonstrate ability to use modern engineering tools</li> </ul> <p>Direct - Other</p>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>

<p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>		
<p><b>Qualifying Exam: Performance Indicator (A) for Learning Outcome #3</b></p> <p>(A) Ability to use modern engineering tools</p> <ul style="list-style-type: none"> <li>Excellent (4): Clearly demonstrated ability to use modern engineering tools</li> <li>Good (3): Demonstrated acceptable ability to use modern engineering tools</li> <li>Satisfactory (2): Demonstrated minimal ability to use modern engineering tools</li> <li>Unsatisfactory (1): Does not demonstrate ability to use modern engineering tools</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>MET</b></p> <p>Qualifying Exam: Performance Indicator (A) for Learning Outcome #3</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><b>Analysis</b></p> <p>The results met the target for the SLO</p>	<p><b>Maintain Assessment Strategy</b></p> <p>We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2025-2026 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.</p>
<p><b>Dissertation: Performance Indicator (B) for Learning Outcome #3</b></p> <p>(B) Quality of analysis</p> <ul style="list-style-type: none"> <li>Excellent (4): Clearly demonstrates ability to show results of engineering analysis in a high-quality fashion</li> <li>Good (3): Demonstrates acceptable ability to show results of engineering analysis in generally good quality</li> <li>Satisfactory (2): Demonstrates minimal ability to show results of engineering analysis, quality compromised</li> <li>Unsatisfactory (1): Does not demonstrate ability to show results of engineering analysis in an acceptable quality</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>
<p><b>Qualifying Exam: Performance Indicator (B) for Learning Outcome #3</b></p> <p>(B) Quality of analysis</p> <ul style="list-style-type: none"> <li>Excellent (4): Clearly demonstrates ability to show results of engineering analysis in a high-quality fashion</li> </ul>	<p><b>MET</b></p> <p>Qualifying Exam: Performance Indicator (B) for Learning Outcome #3</p> <p>■ Met</p>  <p>0% 100%</p>	<p><b>Maintain Assessment Strategy</b></p> <p>We have been and will continuously analyze the program to identify areas for improvement. As there are no student assessments, improvements for 2025-2026 will focus on increasing course offerings and modernization of current courses and challenging research projects that utilize advanced technologies and modern tools to</p>



<ul style="list-style-type: none"> <li>• Good (3): Demonstrates acceptable ability to show results of engineering analysis in generally good quality</li> <li>• Satisfactory (2): Demonstrates minimal ability to show results of engineering analysis, quality compromised</li> <li>• Unsatisfactory (1): Does not demonstrate ability to show results of engineering analysis in an acceptable quality</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</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><b>Met:</b> 100%</p> <p><b>Met Total:</b> 100%</p> <p><b>Not Met Total:</b></p> <p><b>Analysis</b></p> <p>The results met the target for the SLO</p>	<p>expose students to cutting-edge methods to improve their ability to produce engineering analysis in a systematic manner.</p>
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#### Student Learning Outcome #4

Students will demonstrate an ability to complete a doctoral dissertation and effectively communicate the dissertation work with a range of audiences.

MEASURES	RESULTS	ACTIONS
<p><b>Dissertation Report: Performance Indicator (A) for Learning Outcome #4</b></p> <p>(A) Dissertation significance</p> <ul style="list-style-type: none"> <li>• Excellent (4): Clear definition of thesis topic and the dissertation results can be published in peer-reviewed platforms</li> <li>• Good (3): Clear definition of thesis topic and the dissertation results can be organized in a presentable form to the committee but not a peer-review level</li> <li>• Satisfactory (2): Somewhat unclear definition of dissertation topic but with justified contributions</li> <li>• Unsatisfactory (1): No definition of dissertation topic</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>
<p><b>Dissertation Defense: Performance Indicator (A) for Learning Outcome #4</b></p> <p>(A) Dissertation significance</p> <ul style="list-style-type: none"> <li>• Excellent (4): Clear definition of thesis topic and the dissertation results can be published in peer-reviewed platforms</li> <li>• Good (3): Clear definition of thesis topic and the dissertation results can be organized in a presentable form to the committee but not a peer-review level</li> </ul>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>

<ul style="list-style-type: none"> <li>• Satisfactory (2): Somewhat unclear definition of dissertation topic but with justified contributions</li> <li>• Unsatisfactory (1): No definition of dissertation topic</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>		
<p><b>Dissertation Report: Performance Indicator (B) for Learning Outcome #4</b></p> <p>(B) Organization of dissertation</p> <ul style="list-style-type: none"> <li>• Excellent (4): The organizational scheme is logical and complete and makes the report especially pleasurable to read.</li> <li>• Good (3): Organizational scheme shows planning and logical order with small deficiencies.</li> <li>• Satisfactory (2): Organizational scheme is not apparent and detracts from readability.</li> <li>• Unsatisfactory (1): Dissertation is not organized and difficult to read.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>
<p><b>Dissertation Defense: Performance Indicator (B) for Learning Outcome #4</b></p> <p>(B) Organization of dissertation</p> <ul style="list-style-type: none"> <li>• Excellent (4): The organizational scheme is logical and complete and makes the report especially pleasurable to read.</li> <li>• Good (3): Organizational scheme shows planning and logical order with small deficiencies.</li> <li>• Satisfactory (2): Organizational scheme is not apparent and detracts from readability.</li> <li>• Unsatisfactory (1): Dissertation is not organized and difficult to read.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>

<p><b>Dissertation Report: Performance Indicator (C) for Learning Outcome #4</b></p> <p>(C) Dissertation presentation &amp; delivery</p> <ul style="list-style-type: none"> <li>• Excellent (4): The presentation is clear, organized, professional and uses visual displays well.</li> <li>• Good (3): Presentation is somewhat lacking in one of the following: clarity, organization, professionalism, or use of visual displays.</li> <li>• Satisfactory (2): Presentation is weak in two or three of the critical areas: clarity, organization, professionalism, and visual displays.</li> <li>• Unsatisfactory (1): Presentation is weak in all the following areas: clarity, organization, professionalism, and visual displays.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>
<p><b>Dissertation Defense: Performance Indicator (C) for Learning Outcome #4</b></p> <p>(C) Dissertation presentation &amp; delivery</p> <ul style="list-style-type: none"> <li>• Excellent (4): The presentation is clear, organized, professional and uses visual displays well.</li> <li>• Good (3): Presentation is somewhat lacking in one of the following: clarity, organization, professionalism, or use of visual displays.</li> <li>• Satisfactory (2): Presentation is weak in two or three of the critical areas: clarity, organization, professionalism, and visual displays.</li> <li>• Unsatisfactory (1): Presentation is weak in all the following areas: clarity, organization, professionalism, and visual displays.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>Analysis</b></p> <p>No measurements.</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>
<p><b>Dissertation Report: Performance Indicator (D) for Learning Outcome #4</b></p> <p>(D) Question &amp; answer - impromptu skills</p> <ul style="list-style-type: none"> <li>• Excellent (4): Answers reflect understanding of thesis context.</li> </ul>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>

<p>Responses are fluent, spontaneous, sincere, and confident.</p> <ul style="list-style-type: none"> <li>• Good (3): Answers demonstrate knowledge and understanding of the thesis but appear to be rehearsed and formulaic.</li> <li>• Satisfactory (2): Answers do not convey necessary information. Responses are strained.</li> <li>• Unsatisfactory (1): Answers to questions show lack of understanding of the thesis. Responses are strained and awkward.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>		
<p><b>Dissertation Defense: Performance Indicator (D) for Learning Outcome #4</b></p> <p>(D) Question &amp; answer - impromptu skills</p> <ul style="list-style-type: none"> <li>• Excellent (4): Answers reflect understanding of thesis context. Responses are fluent, spontaneous, sincere, and confident.</li> <li>• Good (3): Answers demonstrate knowledge and understanding of the thesis but appear to be rehearsed and formulaic.</li> <li>• Satisfactory (2): Answers do not convey necessary information. Responses are strained.</li> <li>• Unsatisfactory (1): Answers to questions show lack of understanding of the thesis. Responses are strained and awkward.</li> </ul> <p>Direct - Other</p> <p><b>Target</b></p> <p>75% of students achieve the proficiency (A score of 3 or 4 out of 4)</p>	<p><b>Analysis</b></p> <p>No measurements</p>	<p><b>Maintain Assessment Strategy</b></p> <p>Need to collect more data</p>