

# Program Plan and Findings: Four Column Layout



## Program (CEAT) - CHE - Chemical Engineering (MS) - 042

**Program Mission Statement:** An MS degree in Chemical Engineering from Oklahoma State University signifies that the recipient has demonstrated advanced knowledge of fundamental chemical engineering topics. In addition, an MS graduate has exhibited the ability to integrate this knowledge, successfully and independently, to solve complex quantitative problems in a logical manner.

### Program Information

*2019 - 2020*

#### Program Information

**Assessment Coordinator's Name:** Heather Fahlenkamp

**Assessment Coordinator's E-mail Address:** heather.fahlenkamp@okstate.edu

**Total Number of Students Graduated:** 2

**Number of Students Enrolled in the Program:** 6

**Number of Student Graduates from Stillwater Campus:** 2

**Were university assessment funds used by the department/program for assessment activities?:** No

**If yes, describe how funds were used and the contribution the funds had on the assessment process:**

**Number of Student Graduates from Tulsa Campus:** 0

### Annual Executive Summaries

*2019 - 2020*

**Program Assessment Coordinator:** Heather Fahlenkamp

#### Plan Review and Approval

**Date Current Plan Was Reviewed and Approved:** 04/01/2017

**Date of Future Plan Review and Approval:** 04/01/2022

#### Summary of Assessment Findings

**Describe overall assessment findings and faculty members' interpretation of the assessment results:** OSU office of University Assessment and Testing (UAT) conducted i) a survey of Alumni in March 2020 through April 2020 and ii) Graduate Student Satisfaction Survey in February 2012 through May 2012. Further, we also administered exit interviews for the graduating students, summary of which is attached in our document repository. Most of the comments were positive with their experiences and the previous changes made to the program, as summarized in the 2017-2018 Annual Assessment Report.

#### Dissemination of Findings

**Describe the individual(s) or committee responsible for reviewing and interpreting assessment data:** Currently all faculty in the department are involved in the review and interpretation of the assessment data. The graduate program coordinator is responsible for compiling the final report.

**Describe the process for sharing and discussing assessment findings with program faculty:** At faculty meetings, the graduate program coordinator shares the information from various assessments.

### **Program Improvements Based on Assessment**

**Based on data collected this year, what changes are being considered or planned for the program?:** Increase the number of graduate-level elective courses available for students. A survey of the OSU Course Catalog will be performed by the curriculum committee to list all approved courses that are related to students' research areas and/or career objectives. New graduate-level elective courses will be added to the chemical engineering curriculum. A schedule of all elective courses will be compiled to aid in advising and preparing plans of study.

**Based on this year's findings, what (if any) changes are planned for the assessment process?:** No changes

**Describe the process for implementing these changes/planned program improvements:**

**Program Improvements Made in the Last Year:** Curriculum Improvements

**"Other" Improvements:**

**Goals for the Coming Year:** List all graduate-level approved courses from the OSU Course Catalog that are related to students' research areas and/or career objectives.

Add more chemical engineering graduate-level electives to the curriculum.

Prepare a schedule of all approved graduate-level electives to aid in advising and preparing plans of study.

**Is this Summary Report Complete?:** Yes

**List all individuals associated with this report preparation:** Heather Fahlenkamp, Beth Kelly

**Related Documents:**

[Chemical Engineering Exit Interviews 2019-20.pdf](#)

<i>Outcomes</i>	<i>Assessment Methods</i>	<i>Findings</i>	<i>Use of Findings (Actions)</i>
<p><b>Depth in Education</b> - Build upon and expand the student's undergraduate education by emphasizing depth in thermodynamics, transport phenomena, kinetics, and mathematical modeling.</p> <p><b>Outcome Status:</b> Active</p> <p><b>Planned Assessment Year:</b> 2016 - 2017, 2017 - 2018, 2018 - 2019, 2019 - 2020</p> <p><b>Start Date:</b></p> <p><b>Archived Date:</b></p> <p><b>Outcome Type:</b> Knowledge</p> <p><b>Reason for Archival:</b></p>	<p><b>Performance or Jury</b> - Student performance in core courses on comprehensive exams, oral presentations, and course projects was evaluated by course instructors.</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Students must make a grade of "B" or better. Any CHE course with a grade of "C" must be repeated at the next offering of the course. A grade of "C" in a second course will again result in a review of the student's progress. In all but the rarest cases, a second "C" in a CHE course (or a "D" or "F" in any course) will result in dismissal from the graduate program.</p> <p>The core courses include: CHE 5123 - Advanced Chemical Reaction Engineering</p>	<p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient)</p> <p>All students who completed the core courses received "B" or higher. Students who receive a grade of "B" or higher have demonstrated depth in thermodynamics, transport phenomena, kinetics, and mathematical modeling beyond the undergraduate level. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 4</p> <p><b>Number of Successful Students:</b> 4</p> <p><b>How were students selected to participate in the assessment of this outcome?:</b> All students are required to take the core courses during their first two semesters.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>

Outcomes	Assessment Methods	Findings	Use of Findings (Actions)
	<p>CHE 5213 - Selected Diffusional Unit Operations            CHE 5743 - Chemical Engineering Process Modeling            CHE 5843 - Principles of Chemical Engineering Thermodynamics</p> <p><b>Timeline for Assessment:</b> Each Semester  <b>Other Assessment Type:</b>  <b>Survey</b> - Student survey of instruction  <b>* Learning Outcome</b>  <b>Goal/Benchmark:</b> Student feedback regarding learning experiences in the core courses.            The core courses include:            CHE 5123 - Advanced Chemical Reaction Engineering            CHE 5213 - Selected Diffusional Unit Operations            CHE 5743 - Chemical Engineering Process Modeling            CHE 5843 - Principles of Chemical Engineering Thermodynamics</p> <p><b>Timeline for Assessment:</b> Each Semester  <b>Other Assessment Type:</b></p>	<p><b>Reporting Period:</b> 2019 - 2020  <b>Conclusion:</b> 3 - Meets Program Expectations (Proficient)            Positive feedback from students' experiences. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 4  <b>Number of Successful Students:</b> 4  <b>How were students selected to participate in the assessment of this outcome?:</b> All students in the core courses complete a student survey of instruction.  <b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>
	<p><b>Interviews</b> - Exit interviews of graduates were conducted by Graduate Program Coordinator.  <b>* Learning Outcome</b>  <b>Goal/Benchmark:</b> Student feedback regarding learning experiences in core courses.            The core courses include:            CHE 5123 - Advance Chemical Reaction Engineering            CHE 5213 - Selected Diffusional Unit Operations            CHE 5743 - Chemical Engineering</p>	<p><b>Reporting Period:</b> 2019 - 2020  <b>Conclusion:</b> 3 - Meets Program Expectations (Proficient)            Positive feedback from students' experiences. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 2  <b>Number of Successful Students:</b> 2  <b>How were students selected to participate in the assessment of this outcome?:</b> Exit interviews conducted with all graduating students.  <b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>

Outcomes	Assessment Methods	Findings	Use of Findings (Actions)
	<p>Process Modeling CHE 5843 - Principles of Chemical Engineering Thermodynamics</p> <p><b>Timeline for Assessment:</b> During the final semester for graduating students</p> <p><b>Other Assessment Type:</b></p>		
<p><b>Applications of Chemical Engineering</b> - Expand personal knowledge of the broad range of applications of chemical engineering.</p> <p><b>Outcome Status:</b> Active</p> <p><b>Planned Assessment Year:</b> 2016 - 2017, 2017 - 2018, 2018 - 2019, 2019 - 2020</p> <p><b>Start Date:</b></p> <p><b>Archived Date:</b></p> <p><b>Outcome Type:</b> Knowledge</p> <p><b>Reason for Archival:</b></p>	<p><b>Performance or Jury - Student</b> performance in CHE 6010 - Chemical Engineering Seminar was evaluated by course instructor.</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> All students must have a minimum of 3 credits prior to graduation.</p> <p><b>Timeline for Assessment:</b> Each Semester</p> <p><b>Other Assessment Type:</b></p>	<p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient) Students achieved a broader understanding about applications in chemical engineering and professional development skills. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 5</p> <p><b>Number of Successful Students:</b> 5</p> <p><b>How were students selected to participate in the assessment of this outcome?:</b> All students are required to take the seminar class each semester, unless there is a scheduling conflict or it is the student's last semester.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>
	<p><b>Survey - Student</b> survey of instruction for CHE 6010 - Chemical Engineering Seminar</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Student feedback regarding learning experiences in CHE 6010 - Chemical Engineering Seminar. All students must have a minimum of 3 credits prior to graduation.</p> <p><b>Timeline for Assessment:</b> Each Semester</p> <p><b>Other Assessment Type:</b></p>	<p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient) Positive feedback from students' experiences. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 5</p> <p><b>Number of Successful Students:</b> 5</p> <p><b>How were students selected to participate in the assessment of this outcome?:</b> All students in seminar class complete a student survey of instruction.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>
	<p><b>Interviews - Student</b> exit interviews of graduates were conducted by Graduate Program Coordinator.</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Student feedback</p>	<p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient) Positive feedback from students' experiences. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 2</p> <p><b>Number of Successful Students:</b> 2</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>

Outcomes	Assessment Methods	Findings	Use of Findings (Actions)
	<p>regarding learning experiences in CHE 6010 - Chemical Engineering Seminar. All students must have a minimum of 3 credits prior to graduation</p> <p><b>Timeline for Assessment:</b> During the final semester for graduating students</p> <p><b>Other Assessment Type:</b></p>	<p><b>How were students selected to participate in the assessment of this outcome?:</b> Exit interviews were conducted with all graduating students.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	
<p><b>Solve Unique Problems in Chemical Engineering</b> - Develop the skills required to work independently to solve unique problems in chemical engineering.</p> <p><b>Outcome Status:</b> Active</p> <p><b>Planned Assessment Year:</b> 2016 - 2017, 2017 - 2018, 2018 - 2019, 2019 - 2020</p> <p><b>Start Date:</b></p> <p><b>Archived Date:</b></p> <p><b>Outcome Type:</b> Skills</p> <p><b>Reason for Archival:</b></p>	<p><b>Oral Presentation</b> - Student performance on an oral defense of the research project was evaluated by the advisory committee.</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Students must successfully complete a written thesis and defend it before an advisory committee.</p> <p><b>Timeline for Assessment:</b> After the student has completed the research project.</p> <p><b>Other Assessment Type:</b></p>	<p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient)</p> <p>All students worked independently to solve unique problems in chemical engineering and completed and defended their MS thesis. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 2</p> <p><b>Number of Successful Students:</b> 2</p> <p><b>How were students selected to participate in the assessment of this outcome?:</b> As degree requirements, students must complete 6 credit hours of CHE 5000 MS Thesis, with a "Satisfactory Research" grade and a MS thesis research project.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>
	<p><b>Review of Thesis/Dissertation/Creative Component</b> - Student performance on a written thesis of the research project was evaluated by the advisory committee.</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Students must successfully complete a written thesis and defend it before an advisory committee.</p> <p><b>Timeline for Assessment:</b> After the student has completed the research project.</p> <p><b>Other Assessment Type:</b></p>	<p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient)</p> <p>All students worked independently to solve unique problems in chemical engineering and completed and defended their MS thesis. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 2</p> <p><b>Number of Successful Students:</b> 2</p> <p><b>How were students selected to participate in the assessment of this outcome?:</b> As degree requirements, students must complete 6 credit hours of CHE 5000 MS Thesis, with a "Satisfactory Research" grade and a MS thesis research project.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>
	<p><b>Interviews</b> - Student exit interviews</p>	<p><b>Reporting Period:</b> 2019 - 2020</p>	<p><b>Use of Findings (Actions):</b> Meets</p>

Outcomes	Assessment Methods	Findings	Use of Findings (Actions)
	<p>of graduates were conducted by Graduate Program Coordinator.</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Student feedback regarding learning experience during research project. Students are assigned to research projects and are supervised by a research advisor. Students work independently to complete an MS thesis.</p> <p><b>Timeline for Assessment:</b> During the final semester for graduating students</p> <p><b>Other Assessment Type:</b></p>	<p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient) Positive feedback from students' experiences. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 2</p> <p><b>Number of Successful Students:</b> 2</p> <p><b>How were students selected to participate in the assessment of this outcome?:</b> Exit interviews were conducted with all graduating students.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p>program expectations; no changes for assessment type. (09/10/2020)</p>
<p><b>Additional Knowledge Related to Chemical Engineering</b> - Attain additional knowledge (breadth and/or depth) in topics related to chemical engineering</p> <p><b>Outcome Status:</b> Active</p> <p><b>Planned Assessment Year:</b> 2016 - 2017, 2017 - 2018, 2018 - 2019, 2019 - 2020</p> <p><b>Start Date:</b></p> <p><b>Archived Date:</b></p> <p><b>Outcome Type:</b> Knowledge</p> <p><b>Reason for Archival:</b></p>	<p><b>Performance or Jury</b> - Student performance in elective courses on comprehensive exams and course projects was evaluated by course instructors.</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> All students must have a minimum of 6 credits prior to graduation. Students complete 6 credits of graduate-approved elective courses related to the student's research project and/or career objectives.</p> <p><b>Timeline for Assessment:</b> Each Semester</p> <p><b>Other Assessment Type:</b></p>	<p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient) Students attained additional knowledge (breadth and/or depth) in topics related to chemical engineering. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 3</p> <p><b>Number of Successful Students:</b> 3</p> <p><b>How were students selected to participate in the assessment of this outcome?:</b> As degree requirements, students must complete 6 credit hours of graduate-approved elective courses related to the student's research project and/or career objectives.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>
	<p><b>Survey</b> - Student survey of instruction</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Student feedback regarding learning experiences in graduate-approved elective courses. Students complete 6 credits of graduate-approved elective courses related to the student's research project and/or career objectives.</p>	<p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient) Positive feedback from students' experiences in the following elective courses:</p> <p>CHE 5753 - Applied Numerical Computing for Scientists and Engineers</p> <p>CHE 5603 - Membrane Separation</p> <p>CHE 5990 - Special Problems (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 3</p> <p><b>Number of Successful Students:</b> 3</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>



Outcomes	Assessment Methods	Findings	Use of Findings (Actions)
	<p><b>Timeline for Assessment:</b> Each Semester</p> <p><b>Other Assessment Type:</b></p> <p><b>Interviews</b> - Exit interviews of graduates were conducted by Graduate Program Coordinator.</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Student feedback regarding learning experiences in graduate-approved elective courses. Students complete 6 credits of graduate-approved elective courses related to the student's research project and/or career objectives.</p> <p><b>Timeline for Assessment:</b> During the final semester for graduating students</p> <p><b>Other Assessment Type:</b></p>	<p><b>How were students selected to participate in the assessment of this outcome?:</b> All students in elective courses complete a student survey of instruction.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p> <p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient)</p> <p>Positive feedback from students' experiences in elective courses. Students request more elective courses related to their research areas and for the courses to be offered on a regular basis. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 2</p> <p><b>Number of Successful Students:</b> 2</p> <p><b>How were students selected to participate in the assessment of this outcome?:</b> Exit interviews were conducted with all graduating students.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Use of assessment information to facilitate curriculum discussions at faculty meetings and curriculum committee meetings focused on developing more elective courses. (09/10/2020)</p>
<p><b>Develop Communication Skills -</b> Develop effective written and oral communications skills.</p> <p><b>Outcome Status:</b> Active</p> <p><b>Planned Assessment Year:</b> 2016 - 2017, 2017 - 2018, 2018 - 2019, 2019 - 2020</p> <p><b>Start Date:</b></p> <p><b>Archived Date:</b></p> <p><b>Outcome Type:</b> Skills</p> <p><b>Reason for Archival:</b></p>	<p><b>Oral Presentation</b> - Student performance on an oral defense of the research project was evaluated by the advisory committee.</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Students must successfully complete a written thesis and defend it before an examining committee. The research advisor and graduate committee provides feedback to the student.</p> <p><b>Timeline for Assessment:</b> After the student has completed the research project.</p> <p><b>Other Assessment Type:</b></p>	<p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient)</p> <p>All students developed effective written and oral communication skills in completion of their written thesis and oral defense of the thesis. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 2</p> <p><b>Number of Successful Students:</b> 2</p> <p><b>How were students selected to participate in the assessment of this outcome?:</b> As degree requirements, students must complete a written thesis and give an oral defense of the thesis work before an examining committee.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>
	<p><b>Review of Thesis/Dissertation/Creative Component</b> - Student performance on a written thesis of the research</p>	<p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient)</p> <p>All students developed effective written and oral communication skills in completion of their written thesis</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>

Outcomes	Assessment Methods	Findings	Use of Findings (Actions)
	<p>project was evaluated by the advisory committee.</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Students must successfully complete a written thesis and defend it before an examining committee. The research advisor and graduate committee provides feedback to the student.</p> <p><b>Timeline for Assessment:</b> After the student has completed the research project</p> <p><b>Other Assessment Type:</b></p> <p><b>Interviews -</b> Exit interviews of graduates were conducted by Graduate Program Coordinator.</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Student feedback regarding learning experiences in the development of written and oral communications skills. Students must complete a written thesis and give an oral defense of the thesis work before an examining committee. The research advisor and graduate committee provides feedback to the student.</p> <p><b>Timeline for Assessment:</b> During the final semester for graduating students</p> <p><b>Other Assessment Type:</b></p>	<p>and oral defense of the thesis. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 2</p> <p><b>Number of Successful Students:</b> 2</p> <p><b>How were students selected to participate in the assessment of this outcome?:</b> As degree requirements, students must complete a written thesis and give an oral defense of the thesis work before an examining committee.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p> <p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient)</p> <p>Positive feedback from students' experiences. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 2</p> <p><b>Number of Successful Students:</b> 2</p> <p><b>How were students selected to participate in the assessment of this outcome?:</b> Exit interviews conducted with all graduating students.</p> <p><b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>
<p><b>Define Research Problem and Develop Plan -</b> Refine the ability to define a research problem and develop a plan for its solution</p> <p><b>Outcome Status:</b> Active</p> <p><b>Planned Assessment Year:</b> 2019 - 2020</p> <p><b>Start Date:</b></p> <p><b>Archived Date:</b></p>	<p><b>Performance or Jury -</b> Student performance in CHE 5302 - Introduction to Science and Engineering Research was evaluated by course instructor</p> <p><b>* Learning Outcome</b></p> <p><b>Goal/Benchmark:</b> Students must make a grade of "B" or better. Any CHE course with a grade of "C" must</p>	<p><b>Reporting Period:</b> 2019 - 2020</p> <p><b>Conclusion:</b> 3 - Meets Program Expectations (Proficient)</p> <p>All students who completed CHE 5302 - Introduction to Science and Engineering Research received "B" or higher. Students who receive a grade of "B" or higher have demonstrated the ability to define a research problem and develop a plan for its solution. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 4</p> <p><b>Number of Successful Students:</b> 4</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>



Outcomes	Assessment Methods	Findings	Use of Findings (Actions)
<p><b>Outcome Type:</b> Knowledge <b>Reason for Archival:</b></p>	<p>be repeated at the next offering of the course. A grade of “C” in a second course will again result in a review of the student’s progress. In all but the rarest cases, a second “C” in a CHE course (or a “D” or “F” in any course) will result in dismissal from the graduate program. <b>Timeline for Assessment:</b> Each Semester <b>Other Assessment Type:</b> <b>Survey</b> - Student survey of instruction <b>* Learning Outcome</b> <b>Goal/Benchmark:</b> Student feedback regarding learning experiences in CHE 5302 - Introduction to Science and Engineering Research. <b>Timeline for Assessment:</b> Each Semester <b>Other Assessment Type:</b></p>	<p><b>How were students selected to participate in the assessment of this outcome?:</b> All students are required to take CHE 5302 - Introduction to Science and Engineering Research during their first two semesters. <b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p> <p><b>Reporting Period:</b> 2019 - 2020 <b>Conclusion:</b> 3 - Meets Program Expectations (Proficient) Positive feedback from students' experiences. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 4 <b>Number of Successful Students:</b> 4 <b>How were students selected to participate in the assessment of this outcome?:</b> All students in CHE 5302 - Introduction to Science and Engineering Research complete a student survey of instruction. <b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>
	<p><b>Interviews</b> - Student exit interviews of graduates were conducted by Graduate Program Coordinator. <b>* Learning Outcome</b> <b>Goal/Benchmark:</b> Student feedback regarding learning experiences in CHE 5302 - Introduction to Science and Engineering Research. <b>Timeline for Assessment:</b> During the final semester for graduating students <b>Other Assessment Type:</b></p>	<p><b>Reporting Period:</b> 2019 - 2020 <b>Conclusion:</b> 3 - Meets Program Expectations (Proficient) Positive feedback from students' experiences. (08/31/2020)</p> <p><b>Number of Students Assessed:</b> 2 <b>Number of Successful Students:</b> 2 <b>How were students selected to participate in the assessment of this outcome?:</b> Exit interviews conducted with all graduating students. <b>What do the findings suggest about student achievement of this learning outcome?:</b> Student achievement of this learning outcome was met.</p>	<p><b>Use of Findings (Actions):</b> Meets program expectations; no changes for assessment type. (09/10/2020)</p>