Expected Outcomes: 1. Broad Chemical Engineering Knowledge

Our graduates will demonstrate a thorough understanding of the basic sciences broadly associated with the area of chemical engineering.

Assessment methods

Method: 1a. Chemical Engineering Knowledge-Faculty Survey

To fulfill degree requirements for the M.S. in Chemical Engineering an M.S. candidate must have a written Thesis of their research work approved by their graduate committee (typically made up of three faculty within Chemical Engineering) and must successfully defend this Thesis in an oral defense. During the oral defense of the students research work, a standardized form will be completed by all members of the committee dealing with various issues including; students demonstration of an understanding of the basic sciences associated with chemical engineering, ability of the student to apply the fundamentals of chemical engineering to their research work, etc. The students performance in each of these areas will be ranked on the standardized assessment form as Excellent (3pts), Acceptable (2pts), or Unacceptable (1pt).

Target level: We anticipate that the average score of our students in each category will be 2.0 or higher.

Findings:

1 student completed his M.S. degree in chemical engineering during this evaluation period. The student’s committee members (three faculty) responded to the following questions regarding this student’s performance. The committee members scored their answers as Excellent (3pts), Acceptable (2pts), or Unacceptable (1pt).

Please evaluate the student’s oral defense and thesis (or dissertation) in terms of the student’s demonstration of an understanding of the basic sciences associated with chemical engineering. (Average Score 2.7)

Please evaluate the student’s oral defense and thesis (or dissertation) in terms of the students’ ability to apply the fundamentals of chemical engineering to their research work. (Average Score 3.0)

The average scores on these two survey questions were equal or greater than the anticipated score of 2.

How did you use findings for improvement?

The Graduate Program Committee has communicated these results to the faculty as well as other stakeholders. We will continue to look for opportunities to improve the program and the learning experience for the students.

Additional comments:

None
Method: 1b. Chemical Engineering Knowledge-Student Survey

Upon completion of the degree requirements for the M.S. in Chemical Engineering, each student will be asked to fill out a graduation survey covering several items including the following question: To what degree did your M.S. engineering education enhance your understanding of the basic sciences broadly associated with the area of chemical engineering?

Target level: We expect that our student's responses should average a score of 4 out of 7 on this question

Findings:

The student responded to the following question using this response key. Response Key 1 – Very Poor, 2 – Poor, 3 – Fair, 4 – Good, 5 – Very Good, 6 – Excellent, 7 – Exceptional

To what degree did your M.S. engineering education enhance your understanding of the basic sciences broadly associated with the area of chemical engineering? (Average Score 6.0)

The average score on this survey question was greater than the anticipated score of 4.0

How did you use findings for improvement?

The Graduate Program Committee has communicated these results to the faculty as well as other stakeholders. We will continue to look for opportunities to improve the program and the learning experience for the students.

Additional comments:

None
Expected Outcomes: 2. Research Expertise

Our graduates will demonstrate a thorough understanding of the basic sciences broadly associated with the area of chemical engineering.

Assessment methods

Method: 2a. Research Expertise-Faculty Survey

To fulfill degree requirements for the M.S. in Chemical Engineering an M.S. candidate must have a Thesis of their research work approved by their graduate committee (typically made up of three faculty within Chemical Engineering) and must successfully defend this Thesis in an oral defense. During the oral defense of the students research work, a standardized form will be completed by all members of the committee dealing with various issues including; students demonstration of an expertise in their research area, technical quality of the students research in this area. The students performance in each of these areas will be ranked on the standardized assessment form as Excellent (3pts), Acceptable (2pts), or Unacceptable (1pt).

Target level: We anticipate that the average score of our students in each category will be 2.0 or higher.

Findings:

1 student completed their M.S. degree in chemical engineering during this evaluation period. This student’s committee members (three faculty) responded to the following questions regarding this students performance. The committee members scored their answers as Excellent (3pts), Acceptable (2pts), or Unacceptable (1pt).

Please evaluate the student’s oral defense and thesis in terms of the student’s demonstration of an expertise in their research area. (Average Score 2.7)

Please evaluate the student’s oral defense and thesis in terms of the technical quality of the student's research in this area. (Average Score 3.0)

The average scores on these two survey questions were met or exceeded the anticipated score of 2.0

How did you use findings for improvement?

The Graduate Program Committee has communicated these results to the faculty as well as other stakeholders. We will continue to look for opportunities to improve the program and the learning experience for the students.

Additional comments:

None

Method: 2b. Research Expertise-Student Survey

Upon completion of the degree requirements for the M.S. in Chemical Engineering, each student will be asked to fill out a graduation survey covering several items including the following question: To what degree did your M.S. engineering education (through your thesis work) develop your expertise in a specific area of chemical engineering?

Target level: We expect that our student’s responses should average a score of 4 out of 7 on this question.
Findings:

These students responded to the following question using this response key. Response Key: 1 – Very Poor, 2 – Poor, 3 – Fair, 4 – Good, 5 – Very Good, 6 – Excellent, 7 – Exceptional

To what degree did your M.S. engineering education (through your thesis work) develop your expertise in a specific area of chemical engineering? (Average Score 6.0)

The average score on this survey question met the anticipated score of 4.0

How did you use findings for improvement?

The Graduate Program Committee has communicated these results to the faculty as well as other stakeholders. We will continue to look for opportunities to improve the program and the learning experience for the students.

Additional comments:

None
Expected Outcomes: 3. Communications Skills

Our students will demonstrate proficiency in their communication skills through completion of a Master’s Thesis on their research topic and an Oral Defense of that Thesis work.

Assessment methods

**Method: 3a. Communications Skills-Faculty Survey**

To fulfill degree requirements for the M.S. in Chemical Engineering an M.S. candidate must have a Thesis of their research work approved by their graduate committee and must successfully defend this Thesis in an oral defense. During the oral defense of the students research work, a standardized form will be completed by all members of the committee dealing with various issues including: clarity of the written document, organization and logic of the written document, ability of the student to communicate technical ideas within the written document, clarity of the oral presentation, organization and logic of the oral presentation, and the ability of the student to communicate technical ideal in the oral presentation. The students performance in each of these areas will be ranked on the standardized assessment form as Excellent (3pts), Acceptable (2pts), or Unacceptable (1pt).

**Target level:** We anticipate that the average score of our students in each category will be 2.0 or higher.

**Findings:**

1 student completed their M.S. degree in chemical engineering during this evaluation period. This student’s committee members (three faculty) responded to the following questions regarding this student’s performance. The committee members scored their answers as Excellent (3pts), Acceptable (2pts), or Unacceptable (1pt). Average Score Question 2.6

Please evaluate the student’s written document in terms of its clarity, organization and logic, and the ability of the student to communicate technical ideas in this written form. *(Average Score 2.7)*

Please evaluate the student’s oral defense in terms of the clarity of the oral presentation, organization and logic of the presentation and the ability of the student to communicate technical ideas orally. *(Average Score 2.7)*

The average scores on these two survey questions were equal to or greater than the anticipated score of 2.0.

**How did you use findings for improvement?**

The Graduate Program Committee has communicated these results to the faculty as well as other stakeholders. We will continue to look for opportunities to improve the program and the learning experience for the students.

**Additional comments:**

None

**Method: 3b. Communications Skills-Student Survey**

Upon completion of the degree requirements for the M.S. in Chemical Engineering, each student will be asked to fill out a graduation survey covering several items including the following questions: - To what degree did your M.S. engineering education enhance your ability to communicate through written documents? To what degree did your M.S. engineering education enhance your ability to
communicate orally?

**Target level:** We expect that our student’s responses should average a score of 4 out of 7 on each question.

**Findings:**

The student responded to the following question using this response key. Response Key 1 – Very Poor, 2 – Poor, 3 – Fair, 4 – Good, 5 – Very Good, 6 – Excellent, 7 – Exceptional

To what degree did your M.S. engineering education enhance your ability to communicate through written documents? *(Average Score 6.0)*

To what degree did your M.S. engineering education enhance your ability to communicate orally? *(Average Score 6.0)*

The average scores on these survey questions met or exceeded the anticipated score of 4.0

**How did you use findings for improvement?**

The Graduate Program Committee has communicated these results to the faculty as well as other stakeholders. We will continue to look for opportunities to improve the program and the learning experience for the students.

**Additional comments:**

None