Name: LTC Armstrong Date: 18 JUL 19

2019 Faculty Surveys

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- Your responses will be consolidated, discussed at our program assessment meeting, and archived in our annual report.

Name: LTC Armstrong Date: 18JUL19

The mission of the chemical engineering program is to prepare commissioned leaders of character who are proficient in applying chemical and engineering principles to solve problems in a complex operational environment.

Chemical Engineering Program Objectives: During a career as commissioned officers in the United States Army and beyond, program graduates:

- Demonstrate effective leadership and chemical engineering expertise.
- Contribute to the solution of infrastructure or operational problems in a complex operational environment.
- Succeed in graduate school or other advanced study programs.
- Advance their careers through clear and precise technical communication.

Chemical Engineering General Program Outcomes (Outcomes 1-7): On completion of the chemical engineering program, our graduates demonstrate an ability to:

- [Student Outcome 1] Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- Communicate effectively with a range of audiences.
- Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- Acquire and apply new knowledge as needed, using appropriate learning strategies.

Chemical Engineering Curriculum Outcomes (Outcome 8): The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:

- Chemistry.
- Material and energy balances,
- Safety and environmental factors,
- Thermodynamics of physical and chemical equilibria,
- Heat, mass, and momentum transfer.
- Chemical reaction engineering.
- Continuous and staged separation operations.
- Process dynamics and control.
- Modern experimental and computing techniques.
- Process design.

Name: LTC Armstrong Date: 18JUL19

Part I. Student Outcomes. Review the data and then check the box in the column that most closely represents your opinion.

The cadets in the program are able to:	Strongly Disagree		Neutral		Strongly Agree
· Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	☐	☐	☐	☐	☒
· Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	☐	☐	☐	☐	☒
· Communicate effectively with a range of audiences.	☐	☐	☐	☐	☒
· Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	☐	☐	☐	☐	☒
· Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	☐	☐	☐	☐	☒
· Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	☐	☐	☐	☐	☒
· Acquire and apply new knowledge as needed, using appropriate learning strategies.	☐	☐	☐	☐	☒
· Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	☐	☐	☐	☐	☒

Name: LTC Armstrong Date: 18JUL19

Part II. Program Objectives. Check the box that most closely represents your opinion.

	Strongly Disagree		Neutral		Strongly Agree
The program objectives are consistent with the USMA mission.	☐	☐	☐	☐	☒
The program objectives are consistent with the needs of the Army.	☐	☐	☐	☐	☒
The program curriculum supports the program objectives.	☐	☐	☐	☐	☒
The student outcomes are consistent with the program mission and objectives.	☐	☐	☐	☐	☒
The program has a process for periodically assessing the achievement of its student outcomes.	☐	☐	☐	☐	☒
The survey methods used by the program are effective.	☐	☐	☐	☐	☒
The cadets in the program are aware of the program objectives.	☐	☐	☐	☐	☒
The cadets have input into the development of the program objectives.	☐	☐	☐	☐	☒
The cadets are satisfied with the courses in the program.	☐	☐	☐	☐	☒
The faculty are aware of the program objectives.	☐	☐	☐	☐	☒
The faculty (past and present) have contributed to the development of the program objectives.	☐	☐	☐	☐	☒

LTC
Name: Armstrong

Date: 18JUL19

Part III. Open questions.

Are we teaching the right classes? Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum?

We are teaching the right classes... can we suggest future classes yes... Based on AY19 FEE I recommend ChemE. transport and Numerical Methods for ChemE.

Are we asking the right questions? Do you have any suggestions to improve the faculty survey for next year?

Hard to assess if cadets are satisfied w/ courses.

Please add any additional comments that you would like to make below.

How will we handle expanding enrollment?

① OML w/ section cap / 2x 20 sections (easy)

② More faculty ?? (difficult)

Name: Biaglow Date: 7-19-19

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Name: Braglia Date: 7-19-19

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- Continuous and staged separation operations.
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- Modern experimental and computing techniques.
- Process design.

Name: Brigham Date: 7-19-19

Part I. Student Outcomes. Review the data and then check the box in the column that most closely represents your opinion.

The cadets in the program are able to:	Strongly Disagree		Neutral		Strongly Agree
· Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	☐	☐	☐	☐	☒
· Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	☐	☐	☐	☐	☒
· Communicate effectively with a range of audiences.	☐	☐	☐	☐	☒
· Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	☐	☐	☐	☐	☒
· Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	☐	☐	☐	☐	☒
· Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	☐	☐	☐	☐	☒
· Acquire and apply new knowledge as needed, using appropriate learning strategies.	☐	☐	☐	☐	☒
· Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	☐	☐	☐	☐	☒

Name: Braylon Date: 2-19-19

Part II. Program Objectives. Check the box that most closely represents your opinion.

	Strongly Disagree		Neutral		Strongly Agree
The program objectives are consistent with the USMA mission.	☐	☐	☐	☐	☑
The program objectives are consistent with the needs of the Army.	☐	☐	☐	☐	☑
The program curriculum supports the program objectives.	☐	☐	☐	☐	☑
The student outcomes are consistent with the program mission and objectives.	☐	☐	☐	☐	☑
The program has a process for periodically assessing the achievement of its student outcomes.	☐	☐	☐	☐	☑
The survey methods used by the program are effective.	☐	☐	☐	☐	☑
The cadets in the program are aware of the program objectives.	☐	☐	☐	☐	☑
The cadets have input into the development of the program objectives.	☐	☐	☐	☐	☑
The cadets are satisfied with the courses in the program.	☐	☐	☐	☐	☑
The faculty are aware of the program objectives.	☐	☐	☐	☐	☑
The faculty (past and present) have contributed to the development of the program objectives.	☐	☐	☐	☐	☑

Name: Bugler Date: 7-18-19

Part III. Open questions.

Are we teaching the right classes? Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum?
—

Are we asking the right questions? Do you have any suggestions to improve the faculty survey for next year?
—

Please add any additional comments that you would like to make below.
—

Name: BULL Date: 7/19/2019

2019 Faculty Surveys

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- Process dynamics and control.
- Modern experimental and computing techniques.
- Process design.

Name:_____ Date:_____

Part I. Student Outcomes. Review the data and then check the box in the column that most closely represents your opinion.

The cadets in the program are able to:	Strongly Disagree		Neutral		Strongly Agree
· Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	☒	☐	☐	☐	☒
· Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	☐	☒	☐	☒	☐
· Communicate effectively with a range of audiences.	☐	☒	☐	☒	☐
· Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	☐	☐	☐	☐	☒
· Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	☐	☐	☐	☒	☐
· Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	☐	☐	☐	☒	☐
· Acquire and apply new knowledge as needed, using appropriate learning strategies.	☐	☐	☐	☒	☐
· Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	☐	☐	☐	☐	☒

Name:_____ Date:_____

Part II. Program Objectives. Check the box that most closely represents your opinion.

	Strongly Disagree		Neutral		Strongly Agree
The program objectives are consistent with the USMA mission.	☐	☐	☐	☐	☒
The program objectives are consistent with the needs of the Army.	☐	☐	☐	☒	☐
The program curriculum supports the program objectives.	☐	☐	☐	☐	☒
The student outcomes are consistent with the program mission and objectives.	☐	☐	☐	☐	☒
The program has a process for periodically assessing the achievement of its student outcomes.	☐	☐	☐	☐	☒
The survey methods used by the program are effective.	☐	☐	☐	☒	☐
The cadets in the program are aware of the program objectives.	☐	☐	☐	☒	☐
The cadets have input into the development of the program objectives.	☐	☐	☐	☒	☐
The cadets are satisfied with the courses in the program.	☐	☐	☐	☒	☐
The faculty are aware of the program objectives.	☐	☐	☐	☒	☐
The faculty (past and present) have contributed to the development of the program objectives.	☐	☐	☐	☐	☒

Name:_____ Date:_____

Part III. Open questions.

Are we teaching the right classes? Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum?

I think the ChemE classes seem very clear and useful. With the new ABET rules, the program should take a serious look at elective requirements and probably at the efficacy of MC 340

Are we asking the right questions? Do you have any suggestions to improve the faculty survey for next year?

I think faculty should take a look @ the self-study Criterion 2 as part of the survey to refresh understanding of the PEOs & SOs to our constituencies, especially the Army.

Please add any additional comments that you would like to make below.

Name: MAJ CORRIGAN Date: 19JUL19

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Name: MAJ CORRIGAN Date: 19 JUL 19

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- Chemical reaction engineering.
- Continuous and staged separation operations.
- Process dynamics and control.
- Modern experimental and computing techniques.
- Process design.

Name: MAJ CORRIGAN Date: 19JUL19

Part I. Student Outcomes. Review the data and then check the box in the column that most closely represents your opinion.

The cadets in the program are able to:	Strongly Disagree		Neutral		Strongly Agree	
· Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	☐	☐	☐	☐	☒	100% FEE pass rate.
· Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	☐	☐	☐	☐	☒	FEE topical outcomes data.
· Communicate effectively with a range of audiences.	☐	☐	☐	☒	☐	Program Assessment (PA) Figure 3-1
· Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	☐	☐	☐	☐	☒	Program Assessment Figure 4-1 & Table 4-2
· Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	☐	☐	☐	☐	☒	PA Figure 5-1
· Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	☐	☐	☐	☒	☐	Figure 6-1 (PA)
· Acquire and apply new knowledge as needed, using appropriate learning strategies.	☐	☐	☐	☒	☐	PA Figure 7-1 especially CH400 & 402
· Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	☐	☐	☐	☒	☐	Below expected level of attainment on 4 out of 11.

Name: MAJ CORRIGAN Date: 19JUL19

Part II. Program Objectives. Check the box that most closely represents your opinion.

	Strongly Disagree		Neutral		Strongly Agree
The program objectives are consistent with the USMA mission.	☐	☐	☐	☐	☒
The program objectives are consistent with the needs of the Army.	☐	☐	☐	☐	☒
The program curriculum supports the program objectives.	☐	☐	☐	☐	☒
The student outcomes are consistent with the program mission and objectives.	☐	☐	☐	☐	☒
The program has a process for periodically assessing the achievement of its student outcomes.	☐	☐	☐	☐	☒
The survey methods used by the program are effective.	☐	☐	☐	☐	☒
The cadets in the program are aware of the program objectives.	☐	☐	☐	☐	☒
The cadets have input into the development of the program objectives.	☐	☐	☐	☒	☐
The cadets are satisfied with the courses in the program.	☐	☐	☐	☒	☐
The faculty are aware of the program objectives.	☐	☐	☐	☐	☒
The faculty (past and present) have contributed to the development of the program objectives.	☐	☐	☐	☐	☒

they took the survey even if they missed it in class

Name: MAJ CORRIGAN Date: 19JUL19

Part III. Open questions.

In writing this I analyzed ChemE curriculum from Stanford, UW (Seattle), & UT-Austin.

Are we teaching the right classes? Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum?

I haven't looked closely at the course layouts for ~~Heat~~ (maybe seps as well) Heat and Mass transfer, Thermal-Fluid Systems I & II, but Grouping these in to a cohesive Trasport progression would align with the normal progression of other Cheme programs. I suspect one of the main reasons we haven't is instructor load, but as our program grows we could use it as justification for more instructors.

- Numerical methods ~~we~~ might help us get after the small deficit in Computational Tools (CPA Table #-14.)

Are we asking the right questions? Do you have any suggestions to improve the faculty survey for next year?

No the survey is effective.

As I compare our program with other larger chem e programs I think the performance of our graduates on exams like the FEE is excellent ~~more~~ One weakness is depth of electives (due to our size). Not sure how to get after it but if the Bio eng program stands up any overlap in ET credits will help.

Please add any additional comments that you would like to make below.

~~Heat~~ What if we secured funding and brought in 1-2 Cheme PI's to give talks and added a seminar course?

Name: LTC Corey James Date: 26 JUL 19

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Name: LTC Corey James Date: 26 JUL 19

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- Succeed in graduate school or other advanced study programs.
- Advance their careers through clear and precise technical communication.

Chemical Engineering General Program Outcomes (Outcomes 1-7): On completion of the chemical engineering program, our graduates demonstrate an ability to:

- [Student Outcome 1] Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- Communicate effectively with a range of audiences.
- Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- Acquire and apply new knowledge as needed, using appropriate learning strategies.

Chemical Engineering Curriculum Outcomes (Outcome 8): The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:

- Chemistry.
- Material and energy balances,
- Safety and environmental factors,
- Thermodynamics of physical and chemical equilibria,
- Heat, mass, and momentum transfer.
- Chemical reaction engineering.
- Continuous and staged separation operations.
- Process dynamics and control.
- Modern experimental and computing techniques.
- Process design.

Name: LTC Corey James Date: 26 JUL 19

Part I. Student Outcomes. Review the data and then check the box in the column that most closely represents your opinion.

The cadets in the program are able to:	Strongly Disagree		Neutral		Strongly Agree
· Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	☐	☐	☐	☐	■
· Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	☐	☐	☐	■	☐
· Communicate effectively with a range of audiences.	☐	☐	☐	■	☐
· Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	☐	☐	☐	■	☐
· Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	☐	☐	☐	☐	■
· Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	☐	☐	☐	☐	■
· Acquire and apply new knowledge as needed, using appropriate learning strategies.	☐	☐	☐	■	☐
· Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	☐	☐	☐	☐	■

Name: LTC Corey James Date: 26JUL19

Part II. Program Objectives. Check the box that most closely represents your opinion.

	Strongly Disagree		Neutral		Strongly Agree
The program objectives are consistent with the USMA mission.	☐	☐	☐	☐	■
The program objectives are consistent with the needs of the Army.	☐	☐	☐	☐	■
The program curriculum supports the program objectives.	☐	☐	☐	☐	■
The student outcomes are consistent with the program mission and objectives.	☐	☐	☐	☐	■
The program has a process for periodically assessing the achievement of its student outcomes.	☐	☐	☐	☐	■
The survey methods used by the program are effective.	☐	☐	☐	☐	■
The cadets in the program are aware of the program objectives.	☐	☐	☐	☐	■
The cadets have input into the development of the program objectives.	☐	☐	☐	☐	■
The cadets are satisfied with the courses in the program.	☐	☐	☐	■	☐
The faculty are aware of the program objectives.	☐	☐	☐	☐	■
The faculty (past and present) have contributed to the development of the program objectives.	☐	☐	☐	☐	■

Name: LTC Corey James Date: 26 JUL 19

Part III. Open questions.

Are we teaching the right classes? Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum?

There is a need to increase the amount/rigor of mass transport. That could be done by combining MC 311/312 and CH 485 into a 1 or 2 semester "transport" course, changing CH485's treatment of mass transport, or adding it ~~back~~ into CH363 using Chapter 3 of Seader, et al.

Are we asking the right questions? Do you have any suggestions to improve the faculty survey for next year?

Yes.

Please add any additional comments that you would like to make below.

Name: April Miller Date: 25JUL

MILLER.APRIL.DAWN.1239832276 Digitally signed by MILLER.APRIL.DAWN.1239832276 Date: 2019.07.25 11:43:29 -04'00'

2019 Faculty Surveys

This is our annual faculty program assessment survey for academic year 2019 (2018-2019). Print the survey, put your name and date on the top of each page, and submit the completed document to Dr. Biaglow by COB **Friday 26 July 2019**. The survey is **very important** for our program assessment and re-accreditation effort. Please be prompt. Direct any questions about the data or survey to Dr. Biaglow.

The survey is designed to do three things. First, it documents that you have been made aware of the performance of our cadets on our program's student outcomes. Second, it serves to document your opinions of that performance. Third, it allows us to use your collective knowledge and experience to identify areas where we might be in need of improvement. Your responses to the survey questions should be based on the data in the document entitled "Program Assessment Data - 18 July 2019." The completed surveys are your collective "thumbs up or down" to the various performance indicators we are tracking.

Instructions

- Please review the data in the document "Program Assessment Data - 18 July 2019." The data pertain to the level of achievement of our cadets for AY2019. Answer the survey questions in "Part I" of this document based on your opinions of the data.
- The survey also asks additional questions pertaining to the program objectives. These questions are found in "Part II." For this part of the survey, we are interested in your opinion of the relevance of the objectives and their consistency with the Academy mission and needs of the Army.
- Finally, there are some open questions in Part III where you can comment on the quality of the curriculum, the process itself or any other items you would like us to address.
- The surveys are required for all chemical engineering faculty members and are due by **Friday 26 July 2019**.
- Guidance for completing the survey will be discussed at an upcoming faculty meeting.
- Your responses will be consolidated, discussed at our program assessment meeting, and archived in our annual report.

Name: April Miller Date: 25JUL2019

MILLER.APRIL.DAWN.12398 32276 Digitally signed by MILLER.APRIL.DAWN.1239832276 Date: 2019.07.25 11:43:15 -04'00'

The mission of the chemical engineering program is to prepare commissioned leaders of character who are proficient in applying chemical and engineering principles to solve problems in a complex operational environment.

Chemical Engineering Program Objectives: During a career as commissioned officers in the United States Army and beyond, program graduates:

- Demonstrate effective leadership and chemical engineering expertise.
- Contribute to the solution of infrastructure or operational problems in a complex operational environment.
- Succeed in graduate school or other advanced study programs.
- Advance their careers through clear and precise technical communication.

Chemical Engineering General Program Outcomes (Outcomes 1-7): On completion of the chemical engineering program, our graduates demonstrate an ability to:

- [Student Outcome 1] Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- Communicate effectively with a range of audiences.
- Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- Acquire and apply new knowledge as needed, using appropriate learning strategies.

Chemical Engineering Curriculum Outcomes (Outcome 8): The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:

- Chemistry.
- Material and energy balances,
- Safety and environmental factors,
- Thermodynamics of physical and chemical equilibria,
- Heat, mass, and momentum transfer.
- Chemical reaction engineering.
- Continuous and staged separation operations.
- Process dynamics and control.
- Modern experimental and computing techniques.
- Process design.

Name: April Miller Date: 25JUL2019

MILLER.APRIL.DAWN.1239832276 Digitally signed by MILLER.APRIL.DAWN.1239832276 Date: 2019.07.25 11:43:58 -04'00'

Part I. Student Outcomes. Review the data and then check the box in the column that most closely represents your opinion.

The cadets in the program are able to:	Strongly Disagree		Neutral		Strongly Agree
· Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	☐	☐	☐	☒	☐
· Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	☐	☐	☐	☐	☒
· Communicate effectively with a range of audiences.	☐	☐	☐	☐	☒
· Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	☐	☐	☐	☐	☒
· Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	☐	☐	☐	☐	☒
· Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	☐	☐	☐	☐	☒
· Acquire and apply new knowledge as needed, using appropriate learning strategies.	☐	☐	☐	☐	☒
· Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	☐	☐	☐	☐	☒

Name: April Miller Date: 25JUL2019

MILLER.APRIL.DAWN.12398322 Digitally signed by MILLER.APRIL.DAWN.1239832276 Date: 2019.07.25 11:44:25 -04'00'
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Part II. Program Objectives. Check the box that most closely represents your opinion.

	Strongly Disagree		Neutral		Strongly Agree
The program objectives are consistent with the USMA mission.	☐	☐	☐	☐	⊘
The program objectives are consistent with the needs of the Army.	☐	☐	☐	☐	⊘
The program curriculum supports the program objectives.	☐	☐	☐	☐	⊘
The student outcomes are consistent with the program mission and objectives.	☐	☐	☐	☐	⊘
The program has a process for periodically assessing the achievement of its student outcomes.	☐	☐	☐	☐	⊘
The survey methods used by the program are effective.	☐	☐	☐	☐	⊘
The cadets in the program are aware of the program objectives.	☐	☐	☐	⊘	☐
The cadets have input into the development of the program objectives.	☐	☐	☐	⊘	☐
The cadets are satisfied with the courses in the program.	☐	☐	☐	☐	⊘
The faculty are aware of the program objectives.	☐	☐	☐	☐	⊘
The faculty (past and present) have contributed to the development of the program objectives.	☐	☐	☐	☐	⊘

Name: April Miller

Date: 25JUL2019

MILLER.APRIL.DAWN.12398 32276 Digitally signed by MILLER.APRIL.DAWN.1239832276 Date: 2019.07.25 11:44:51 -04'00'

Part III. Open questions.

Are we teaching the right classes? Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum? Numerical Analysis - this will help increase Cadets skills in math and use of computational tools

Are we asking the right questions? Do you have any suggestions to improve the faculty survey for next year? Yes, no recommendations

Please add any additional comments that you would like to make below.

Name: Dr. Enoch Nagelli Date: 18 July 2019

2019 Faculty Surveys

This is our annual faculty program assessment survey for academic year 2019 (2018-2019). Print the survey, put your name and date on the top of each page, and submit the completed document to Dr. Biaglow by COB **Friday 26 July 2019**. The survey is **very important** for our program assessment and re-accreditation effort. Please be prompt. Direct any questions about the data or survey to Dr. Biaglow.

The survey is designed to do three things. First, it documents that you have been made aware of the performance of our cadets on our program's student outcomes. Second, it serves to document your opinions of that performance. Third, it allows us to use your collective knowledge and experience to identify areas where we might be in need of improvement. Your responses to the survey questions should be based on the data in the document entitled "Program Assessment Data - 18 July 2019." The completed surveys are your collective "thumbs up or down" to the various performance indicators we are tracking.

Instructions

- Please review the data in the document "Program Assessment Data - 18 July 2019." The data pertain to the level of achievement of our cadets for AY2019. Answer the survey questions in "Part I" of this document based on your opinions of the data.
- The survey also asks additional questions pertaining to the program objectives. These questions are found in "Part II." For this part of the survey, we are interested in your opinion of the relevance of the objectives and their consistency with the Academy mission and needs of the Army.
- Finally, there are some open questions in Part III where you can comment on the quality of the curriculum, the process itself or any other items you would like us to address.
- The surveys are required for all chemical engineering faculty members and are due by **Friday 26 July 2019**.
- Guidance for completing the survey will be discussed at an upcoming faculty meeting.
- Your responses will be consolidated, discussed at our program assessment meeting, and archived in our annual report.

Name:_____ Date:_____

The mission of the chemical engineering program is to prepare commissioned leaders of character who are proficient in applying chemical and engineering principles to solve problems in a complex operational environment.

Chemical Engineering Program Objectives: During a career as commissioned officers in the United States Army and beyond, program graduates:

- Demonstrate effective leadership and chemical engineering expertise.
- Contribute to the solution of infrastructure or operational problems in a complex operational environment.
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- Advance their careers through clear and precise technical communication.

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- [Student Outcome 1] Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- Communicate effectively with a range of audiences.
- Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- Acquire and apply new knowledge as needed, using appropriate learning strategies.

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- Safety and environmental factors,
- Thermodynamics of physical and chemical equilibria,
- Heat, mass, and momentum transfer.
- Chemical reaction engineering.
- Continuous and staged separation operations.
- Process dynamics and control.
- Modern experimental and computing techniques.
- Process design.

Name:_____ Date:_____

Part I. Student Outcomes. Review the data and then check the box in the column that most closely represents your opinion.

The cadets in the program are able to:	Strongly Disagree		Neutral		Strongly Agree
· Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	☐	☐	☐	☐	☒
· Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	☐	☐	☐	☒	☐
· Communicate effectively with a range of audiences.	☐	☐	☐	☒	☐
· Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	☐	☐	☐	☒	☐
· Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	☐	☐	☐	☐	☒
· Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	☐	☐	☐	☒	☐
· Acquire and apply new knowledge as needed, using appropriate learning strategies.	☐	☐	☐	☒	☐
· Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	☐	☐	☐	☐	☒

Name:_____ Date:_____

Part II. Program Objectives. Check the box that most closely represents your opinion.

	Strongly Disagree		Neutral		Strongly Agree
The program objectives are consistent with the USMA mission.	☐	☐	☐	☐	☒
The program objectives are consistent with the needs of the Army.	☐	☐	☐	☐	☒
The program curriculum supports the program objectives.	☐	☐	☐	☐	☒
The student outcomes are consistent with the program mission and objectives.	☐	☐	☐	☐	☒
The program has a process for periodically assessing the achievement of its student outcomes.	☐	☐	☐	☐	☒
The survey methods used by the program are effective.	☐	☐	☐	☐	☐
The cadets in the program are aware of the program objectives.	☐	☐	☐	☐	☒
The cadets have input into the development of the program objectives.	☐	☐	☒	☐	☐
The cadets are satisfied with the courses in the program.	☐	☐	☐	☒	☐
The faculty are aware of the program objectives.	☐	☐	☐	☐	☒
The faculty (past and present) have contributed to the development of the program objectives.	☐	☐	☐	☐	☒

Name:_____ Date:_____

Part III. Open questions.

Are we teaching the right classes? Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum?

(1) Based on assessment data and first hand experience teaching yearling and cow chemical engineers, it may be beneficial for the program to incorporate an "applied mathematics course for chemical engineers" to improve cadets ability to solve complex mathematics problems using computational tools (Matlab, MathA, Chemcad) to develop cadets acumen thus improve performance on the FEE topics of "Mathematics" and "computational tools".

(2) My personal preference is for the program to offer internal chemical engineering elective courses for our majors (depending on demand also offer to outside majors) such as, electrochemical engineering, energy storage / conversion, ~~bioengineering~~ biochemical engineering.

Are we asking the right questions? Do you have any suggestions to improve the faculty survey for next year?

N/A

Please add any additional comments that you would like to make below.