

Name: Maximilian Braganza

Date: 12 Jan 18

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

This is your annual cadet survey for the 2017 program assessment, and it is extremely important for ABET accreditation. The survey is designed to do three things. First, it provides documentation that you have been made aware of the performance of our previous cadets on our student outcomes. Second, it serves to document your opinions of that performance. Third, it allows us to use your collective opinions to help identify areas where we might be in need of improvement. The surveys are based on the data presented to you. The completed surveys are due at the end of this period (B-hour, 12 January 2018).

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- Review the data pertaining to the achievement of our 2017 program graduates and complete Part 1 of the survey, which pertains to student outcomes. For Part 1, your replies should be based on the data presented.
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- The surveys are due by 0935 on Friday 12 January 2018.
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- We will consolidate the data and include it in our program assessment, to be reviewed by the faculty and advisory board in a separate meeting.

Name: Maximillian Bragman

Date: 13 JAN 18

**Mission:** 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:

- 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.
- Demonstrate effective leadership and chemical engineering expertise.

**Chemical Engineering Student Outcomes:** On completion of the chemical engineering program, our graduates will be able to:

- Apply knowledge of mathematics, science, and engineering.
- Design and conduct experiments, as well as analyze and interpret data.
- Design a system, component, or process to meet desired needs within economic, environmental, social, political, ethical, health and safety, manufacturing, and sustainability constraints.
- Function on multidisciplinary teams.
- Identify, formulate, and solve engineering problems.
- Understand professional and ethical responsibilities.
- Communicate effectively.
- Understand the impact of engineering solutions in a global economic, environmental, and societal context.
- Recognize the need and develop the skills required for life-long learning.
- Demonstrate knowledge of contemporary issues.
- Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
- The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:
  - Chemistry,
  - Material and energy balances on chemical processes,
  - 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: Maximillian BraganzaDate: 12 Jan 18**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	€	€	€ <input checked="" type="checkbox"/>
• Design and conduct experiments as well as analyze and interpret data.	€	€	€ <input checked="" type="checkbox"/>
• Design a system, component, or process to meet desired needs within specified constraints.	€	€	€ <input checked="" type="checkbox"/>
• Function on multidisciplinary teams	€	€	€ <input checked="" type="checkbox"/>
• Identify, formulate, and solve engineering problems.	€	€	€ <input checked="" type="checkbox"/>
• Understand their professional and ethical responsibilities.	€	€	€ <input checked="" type="checkbox"/>
• Communicate effectively	€	€	€ <input checked="" type="checkbox"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	€	€	€ <input checked="" type="checkbox"/> €
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	€ <input checked="" type="checkbox"/>
• Demonstrate knowledge of contemporary issues.	€	€	€ <input checked="" type="checkbox"/> €
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€ <input checked="" type="checkbox"/> €
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€ <input checked="" type="checkbox"/> €

Name: Maximillian RraguerDate: 12 Jan 18**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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program objectives are consistent with the needs of the Army.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The program curriculum supports the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program outcomes are consistent with the program mission and objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program has a robust process for periodically assessing the achievement of its objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program has a process for periodically assessing the achievement of its outcomes.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The survey methods used by the program are effective.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The cadets in the program are aware of the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The cadets have input into the development of the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The cadets are satisfied with the courses in the program.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The faculty are aware of the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The faculty contributed to the development of the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Name: Maximillian Braganza

Date: 12 Jan 18

**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 wish we could see what the CH367 class is like. I'm glad it is being added to the program. The right classes are being taught.

Are we asking the right questions? Do you have any suggestions to improve the survey for next year? YES. NO further suggestions.

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

Name: Gage Callahan

Date: 12 JAN 15

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Name: Gage CallahanDate: 12 JAN 18**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

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• Understand their professional and ethical responsibilities.	€	€	€ <input checked="" type="checkbox"/> €
• Communicate effectively	€	€ <input checked="" type="checkbox"/>	€ €
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• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€ <input checked="" type="checkbox"/> €
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€ <input checked="" type="checkbox"/> €

Name: Gage CallahanDate: 12 JAN 18**Part II. Program Objectives.** Check the box that most closely represents your opinion.

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The program objectives are consistent with the USMA mission.	€	€	€ <input checked="" type="checkbox"/>
The program objectives are consistent with the needs of the Army.	€	€ <input checked="" type="checkbox"/>	€
The program curriculum supports the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The program outcomes are consistent with the program mission and objectives.	€	€	€ <input checked="" type="checkbox"/>
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The cadets in the program are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The cadets have input into the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The cadets are satisfied with the courses in the program.	€	€	€ <input checked="" type="checkbox"/>
The faculty are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The faculty contributed to the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>

Name: Gage Callahan

Date: 12 JAN 18

**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 courses we take are essential in giving us both broad and focused engineering classes. Our science background is lacking and I would suggest additional chemistry classes.

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

Yes,

No.

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

Course instructors are invested in our success and broad understanding.

Name: Chagnaag Batkhondor

Date: 12 JAN

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Name: Chayna, Bokhongpt

Date: 12 JAN

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Name: Chagnaa, BrikhangorDate: 12 JAN**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

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• Demonstrate knowledge of contemporary issues.	€	€	€ <input checked="" type="checkbox"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€ <input checked="" type="checkbox"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€ <input checked="" type="checkbox"/>

Name: Chagna, BakhongorDate: 12JAN**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.	€	€	€ <input checked="" type="checkbox"/>
The program objectives are consistent with the needs of the Army.	€	€	€ <input checked="" type="checkbox"/>
The program curriculum supports the program objectives.	€	€	€ <input checked="" type="checkbox"/>
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The cadets in the program are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
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The cadets are satisfied with the courses in the program.	€	€	€ <input checked="" type="checkbox"/>
The faculty are aware of the program objectives.	€	€ <input checked="" type="checkbox"/>	€
The faculty contributed to the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>

Name: Chagnaa, Boklongor

Date: 12 JAN

**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?

Yes, some "biological"-related Chem E courses should be more available.

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

I am not sure

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Name: Taylor Chambers

Date: 12 JAN 18

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Name: Taylor ChambersDate: 12 JAN 18**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

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• Understand their professional and ethical responsibilities.	€	€	€ <input checked="" type="radio"/>
• Communicate effectively	€	€	€ <input checked="" type="radio"/>
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	Strongly Disagree	Neutral	Strongly Agree
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The faculty are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The faculty contributed to the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>

Name: Taylor Chambers

Date: 12 JAN19

**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?

The program should incorporate more capstone class options Firstie year. Other departments have more inter-department cooperation opportunities. How is the C+LS department supporting the innovations cadets want to do rather than having cadets support the research the faculty is doing?

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

Although it may not help accreditation, it would be beneficial to ask cadets how to optimize learning within a West Point schedule. What books were helpful and which were not?

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

I have greatly enjoyed the curriculum. As LTC Bull said, the critical thinking of this major has prepared me to be an officer more than any other major would have. However, some of the courses, in particular separations, chemical engineering reactors, and the lab class, should adjust the course texts, assignments, and class instruction to focus more on cadets rather than ABET accreditation. A good example of this is C+ME creating their own textbook for thermodynamics.

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Name: Lauren cooper

Date: 12 JAN 2018

**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	€	€	€
• Design and conduct experiments as well as analyze and interpret data.	€	€	€
• Design a system, component, or process to meet desired needs within specified constraints.	€	€	€
• Function on multidisciplinary teams	€	€	€
• Identify, formulate, and solve engineering problems.	€	€	€
• Understand their professional and ethical responsibilities.	€	€	€
• Communicate effectively	€	€	€
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	€	€	€
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	€
• Demonstrate knowledge of contemporary issues.	€	€	€
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€

Name: Lauren cooperDate: 12 JAN 2018**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.	€	€	€ <input checked="" type="checkbox"/>
The program objectives are consistent with the needs of the Army.	€	€ <input checked="" type="checkbox"/>	€
The program curriculum supports the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The program outcomes are consistent with the program mission and objectives.	€	€	€ <input checked="" type="checkbox"/>
The program has a robust process for periodically assessing the achievement of its objectives.	€	€	€ <input checked="" type="checkbox"/>
The program has a process for periodically assessing the achievement of its outcomes.	€	€	€ <input checked="" type="checkbox"/>
The survey methods used by the program are effective.	€	€	€ <input checked="" type="checkbox"/>
The cadets in the program are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The cadets have input into the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The cadets are satisfied with the courses in the program.	€	€	€ <input checked="" type="checkbox"/>
The faculty are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The faculty contributed to the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>

**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 program should add its own process and controls class.

-this isn't a course, but, spending a little more time on electrochemistry outside of the hydrogen fuel cell in CH459.

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

For the most part, yes, I think this is asking the right questions. Perhaps you could consider ~~not~~ listing all the course outcomes for each engineering course, and gauge how strong each student feels in those course specific objectives. I think that would better assess how comfortable we are with the actual topics covered in each course as opposed how comfortable they are with the ~~course~~ general course.

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

Separations was a very difficult class. While the AY 17-1 instructor was more than qualified to teach the course, I think the program should be more selective about who instructs that course. It doesn't really serve us to have incredibly bright instructors that cannot explain the concepts at a level we can comprehend given the knowledge we have.

I still believe CHASQ should be worth more than the credit hours it is now. We put several extra man hours into the final products for the course and I think the credit hours should reflect that.

Name: Taylor England

Date: 01/12

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

This is your annual cadet survey for the 2017 program assessment, and it is extremely important for ABET accreditation. The survey is designed to do three things. First, it provides documentation that you have been made aware of the performance of our previous cadets on our student outcomes. Second, it serves to document your opinions of that performance. Third, it allows us to use your collective opinions to help identify areas where we might be in need of improvement. The surveys are based on the data presented to you. The completed surveys are due at the end of this period (B-hour, 12 January 2018).

#### **Instructions**

- Write your name and date on the top of each page.
- The second page of this handout contains a listing of program objectives and student outcomes. Please read this page to become oriented to the process.
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- Complete Part 2 of the survey, which covers program objectives. For this part of the survey, we are interested in your opinions on the relevance of the objectives and their consistency with the Academy mission and needs of the Army.
- The surveys are due by 0935 on Friday 12 January 2018.
- There are some free-form questions on the last page for you to comment on the quality of the curriculum, the meeting itself or any other items you would like us to address.
- We will consolidate the data and include it in our program assessment, to be reviewed by the faculty and advisory board in a separate meeting.

Name: England, Taylor

Date: 01/12

**Mission:** 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:

- 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.
- Demonstrate effective leadership and chemical engineering expertise.

**Chemical Engineering Student Outcomes:** On completion of the chemical engineering program, our graduates will be able to:

- Apply knowledge of mathematics, science, and engineering.
- Design and conduct experiments, as well as analyze and interpret data.
- Design a system, component, or process to meet desired needs within economic, environmental, social, political, ethical, health and safety, manufacturing, and sustainability constraints.
- Function on multidisciplinary teams.
- Identify, formulate, and solve engineering problems.
- Understand professional and ethical responsibilities.
- Communicate effectively.
- Understand the impact of engineering solutions in a global economic, environmental, and societal context.
- Recognize the need and develop the skills required for life-long learning.
- Demonstrate knowledge of contemporary issues.
- Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
- The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:
  - Chemistry,
  - Material and energy balances on chemical processes,
  - 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: England, TaylorDate: 01/12**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	€	€	€ <input checked="" type="checkbox"/>
• Design and conduct experiments as well as analyze and interpret data.	€	€	€ <input checked="" type="checkbox"/> €
• Design a system, component, or process to meet desired needs within specified constraints.	€	€	€ <input checked="" type="checkbox"/> €
• Function on multidisciplinary teams	€	€	€ <input checked="" type="checkbox"/> €
• Identify, formulate, and solve engineering problems.	€	€	€ <input checked="" type="checkbox"/> €
• Understand their professional and ethical responsibilities.	€	€	€ <input checked="" type="checkbox"/> €
• Communicate effectively	€	€	€ <input checked="" type="checkbox"/> €
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	€	€	€ <input checked="" type="checkbox"/> € €
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	€ <input checked="" type="checkbox"/> €
• Demonstrate knowledge of contemporary issues.	€	€	€ <input checked="" type="checkbox"/> €
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€ <input checked="" type="checkbox"/> €
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€ <input checked="" type="checkbox"/> €

Name: England, TaylorDate: 01/12**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.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program objectives are consistent with the needs of the Army.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program curriculum supports the program objectives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program outcomes are consistent with the program mission and objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
The program has a robust process for periodically assessing the achievement of its objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
The program has a process for periodically assessing the achievement of its outcomes.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
The survey methods used by the program are effective.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
The cadets in the program are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets have input into the development of the program objectives.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
The cadets are satisfied with the courses in the program.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
The faculty are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
The faculty contributed to the development of the program objectives.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Name: England, Taylor

Date: 01/12

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?

Our program benefits from taking 3 engineering electives because it helps cadets be well-rounded. However, I think we should be required to take more chemistry classes. The more chemistry background, the more competent you can be. (PChem 1&II, Orgo 1&II)

Outside departments are helpful.

MC300 was not useful.

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

I think the program asks the right questions. Improvements to the survey could include making it about all 1-9 ABET criteria. This would give ABET more of a full picture.

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

After being in 5 mechanical engineering classes, in comparison, their classes/department is much more rigid + objective. I understand, it is a much larger program but it feels like every course has oversight. When schedules + problems change frequently, it feels like the program has no oversight/goals.

I also think it would benefit the program if there were more instructors in our department.

Name: Glinski, Denis

Date: 12 JAN

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

This is your annual cadet survey for the 2017 program assessment, and it is extremely important for ABET accreditation. The survey is designed to do three things. First, it provides documentation that you have been made aware of the performance of our previous cadets on our student outcomes. Second, it serves to document your opinions of that performance. Third, it allows us to use your collective opinions to help identify areas where we might be in need of improvement. The surveys are based on the data presented to you. The completed surveys are due at the end of this period (B-hour, 12 January 2018).

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- Complete Part 2 of the survey, which covers program objectives. For this part of the survey, we are interested in your opinions on the relevance of the objectives and their consistency with the Academy mission and needs of the Army.
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- There are some free-form questions on the last page for you to comment on the quality of the curriculum, the meeting itself or any other items you would like us to address.
- We will consolidate the data and include it in our program assessment, to be reviewed by the faculty and advisory board in a separate meeting.

Name: Glinski, Davis

Date: 12 Jan

**Mission:** 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:

- 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.
- Demonstrate effective leadership and chemical engineering expertise.

**Chemical Engineering Student Outcomes:** On completion of the chemical engineering program, our graduates will be able to:

- Apply knowledge of mathematics, science, and engineering.
- Design and conduct experiments, as well as analyze and interpret data.
- Design a system, component, or process to meet desired needs within economic, environmental, social, political, ethical, health and safety, manufacturing, and sustainability constraints.
- Function on multidisciplinary teams.
- Identify, formulate, and solve engineering problems.
- Understand professional and ethical responsibilities.
- Communicate effectively.
- Understand the impact of engineering solutions in a global economic, environmental, and societal context.
- Recognize the need and develop the skills required for life-long learning.
- Demonstrate knowledge of contemporary issues.
- Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
- The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:
  - Chemistry,
  - Material and energy balances on chemical processes,
  - 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: Glinski, DenisDate: 12 Jan**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	€	€	€
• Design and conduct experiments as well as analyze and interpret data.	€	€	€
• Design a system, component, or process to meet desired needs within specified constraints.	€	€	€
• Function on multidisciplinary teams	€	€	€
• Identify, formulate, and solve engineering problems.	€	€	€
• Understand their professional and ethical responsibilities.	€	€	€
• Communicate effectively	€	€	€
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	€	€	€
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	€
• Demonstrate knowledge of contemporary issues.	€	€	€
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€

Name: Glinski, DenisDate: 12 Jan**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 program outcomes are consistent with the program mission and objectives.	€	€	€
The program has a robust process for periodically assessing the achievement of its objectives.	€	€	€
The program has a process for periodically assessing the achievement of its 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 contributed to the development of the program objectives.	€	€	€

Name: Glinsky, Denis

Date: 12 Jan

**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?

Once the new curriculum begins I believe the right classes will be taught. One comment is to help cadets actively seek out multidisciplinary capstone teams in lieu of individual research.

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

There are questions about assessing the program that I said I agree with. But, there have been few times which we have been briefed the assessment protocol & have never been shown results.

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

Name: Danny Gray

Date: 12 Jan 18

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

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- We will consolidate the data and include it in our program assessment, to be reviewed by the faculty and advisory board in a separate meeting.

Name: Danny Gray

Date: 10/30/18

**Mission:** 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.

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- Demonstrate effective leadership and chemical engineering expertise.

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- The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:
  - Chemistry,
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  - 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: Danny GrayDate: 12 Jan 18**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	€	€	€ <input checked="" type="radio"/>
• Design and conduct experiments as well as analyze and interpret data.	€	€ <input checked="" type="radio"/>	€
• Design a system, component, or process to meet desired needs within specified constraints.	€	€	€ <input checked="" type="radio"/> €
• Function on multidisciplinary teams	€	€	€ <input checked="" type="radio"/> €
• Identify, formulate, and solve engineering problems.	€	€	€ <input checked="" type="radio"/> €
• Understand their professional and ethical responsibilities.	€	€	€ <input checked="" type="radio"/> €
• Communicate effectively	€	€	€ <input checked="" type="radio"/> €
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	€	€	€ <input checked="" type="radio"/> €
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	€ <input checked="" type="radio"/> €
• Demonstrate knowledge of contemporary issues.	€	€	€ <input checked="" type="radio"/> €
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€ <input checked="" type="radio"/> €
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€ <input checked="" type="radio"/> €

Name: Danny CoryDate: 12 Jan 18**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.	€	€	€	€ <input checked="" type="checkbox"/>
The program objectives are consistent with the needs of the Army.	€	€	€ <input checked="" type="checkbox"/>	€
The program curriculum supports the program objectives.	€	€	€	€ <input checked="" type="checkbox"/>
The program outcomes are consistent with the program mission and objectives.	€	€	€	€ <input checked="" type="checkbox"/>
The program has a robust process for periodically assessing the achievement of its objectives.	€	€	€ <input checked="" type="checkbox"/>	€
The program has a process for periodically assessing the achievement of its outcomes.	€	€	€ <input checked="" type="checkbox"/>	€
The survey methods used by the program are effective.	€	€	€ <input checked="" type="checkbox"/>	€ <input checked="" type="checkbox"/>
The cadets in the program are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>	€
The cadets have input into the development of the program objectives.	€ <input checked="" type="checkbox"/>	€	€	€
The cadets are satisfied with the courses in the program.	€	€	€	€ <input checked="" type="checkbox"/>
The faculty are aware of the program objectives.	€	€	€	€ <input checked="" type="checkbox"/>
The faculty contributed to the development of the program objectives.	€	€	€	€ <input checked="" type="checkbox"/>

Name: Danny Gray

Date: 12 Jan 18

**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 p-chem or a second semester of orgo should be mandatory. Also, the Mech/EE XE472 Controls course should still be required. I think both controls class should be required.

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

I have never been asked about what I think the program objectives should be. I don't know if y'all want cadet input there needs to be a better/more specific mechanism.

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

N/A

Name: Hecht, Danielle E.

Date: 12 JAN 18

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

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Name: Hecht, Danielle E.

Date: 12 JAN 18

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- Demonstrate effective leadership and chemical engineering expertise.

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- Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
- The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:
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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: Hecht, Danielle E.Date: 12 JAN 18**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	€	€	€
• Design and conduct experiments as well as analyze and interpret data.	€	€	●
• Design a system, component, or process to meet desired needs within specified constraints.	€	€	●
• Function on multidisciplinary teams	€	●	€
• Identify, formulate, and solve engineering problems.	€	€	€
• Understand their professional and ethical responsibilities.	€	€	€
• Communicate effectively	€	€	●
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	€	€	●
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	●
• Demonstrate knowledge of contemporary issues.	€	€	●
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	●
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	●

Name: Hecht, Danielle E.Date: 12 JAN 18**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 program outcomes are consistent with the program mission and objectives.	€	€	●
The program has a robust process for periodically assessing the achievement of its objectives.	€	€	●
The program has a process for periodically assessing the achievement of its 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 contributed to the development of the program objectives.	€	€	●

Name: Hecht, Danielle E.

Date: 12 JAN 18

**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?

Dynamic modeling & controls systems needs to be chemical engineering specific, which it will be in 2019.

There needs to be another course with more focus on Laplace transforms before this.

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

Ask if we feel prepared for a career as a chemical engineer in some way.

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

Instructors here are very open to helping students outside of class and talking with us about career opportunities as chem. engineers in the Army & beyond

Name: CJF Norton

Date: 1/12/18

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

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- The surveys are due by 0935 on Friday 12 January 2018.
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- We will consolidate the data and include it in our program assessment, to be reviewed by the faculty and advisory board in a separate meeting.

Name: Colt Horton

Date: 1/12/18

**Mission:** 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:

- 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.
- Demonstrate effective leadership and chemical engineering expertise.

**Chemical Engineering Student Outcomes:** On completion of the chemical engineering program, our graduates will be able to:

- Apply knowledge of mathematics, science, and engineering.
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- Design a system, component, or process to meet desired needs within economic, environmental, social, political, ethical, health and safety, manufacturing, and sustainability constraints.
- Function on multidisciplinary teams.
- Identify, formulate, and solve engineering problems.
- Understand professional and ethical responsibilities.
- Communicate effectively.
- Understand the impact of engineering solutions in a global economic, environmental, and societal context.
- Recognize the need and develop the skills required for life-long learning.
- Demonstrate knowledge of contemporary issues.
- Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
- The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:
  - Chemistry,
  - Material and energy balances on chemical processes,
  - 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: Colt HarbinDate: 1/12/18**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Design and conduct experiments as well as analyze and interpret data.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
• Design a system, component, or process to meet desired needs within specified constraints.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Function on multidisciplinary teams	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
• Identify, formulate, and solve engineering problems.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Understand their professional and ethical responsibilities.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Communicate effectively	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Demonstrate knowledge of contemporary issues.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

Name: Colt HortonDate: 1/12/17**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.	€	€	€ <input checked="" type="checkbox"/>
The program objectives are consistent with the needs of the Army.	€	€ <input checked="" type="checkbox"/>	€
The program curriculum supports the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The program outcomes are consistent with the program mission and objectives.	€	€	€ <input checked="" type="checkbox"/>
The program has a robust process for periodically assessing the achievement of its objectives.	€	€	€ <input checked="" type="checkbox"/>
The program has a process for periodically assessing the achievement of its outcomes.	€	€	€ <input checked="" type="checkbox"/>
The survey methods used by the program are effective.	€	€ <input checked="" type="checkbox"/>	€
The cadets in the program are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The cadets have input into the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The cadets are satisfied with the courses in the program.	€	€ <input checked="" type="checkbox"/>	€
The faculty are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The faculty contributed to the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>

Name: John Weston

Date: 1/12/19

**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?

Chem E specific controls instead of XE172 - a lot of  
MC300 is pointless information I wont use.

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

Yes • N/A.

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

Name: Bryce Magera

Date: 12 JAN 18

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

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Name: Bryce Magena

Date: 2 JAN 19

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

Name: Bryce MagenaDate: 12 JAN 18**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Design and conduct experiments as well as analyze and interpret data.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Design a system, component, or process to meet desired needs within specified constraints.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Function on multidisciplinary teams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Identify, formulate, and solve engineering problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Understand their professional and ethical responsibilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Communicate effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Demonstrate knowledge of contemporary issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Name: Bryce MagerDate: 12 JAN 18**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.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program objectives are consistent with the needs of the Army.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program curriculum supports the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program outcomes are consistent with the program mission and objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program has a robust process for periodically assessing the achievement of its objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
The program has a process for periodically assessing the achievement of its outcomes.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The survey methods used by the program are effective.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
The cadets in the program are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets have input into the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
The cadets are satisfied with the courses in the program.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
The faculty are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The faculty contributed to the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Name: Bryce Magrath

Date: 12 JAN 16

**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?

MY ONLY SUGGESTION WOULD BE CHEMICAL ENGINEERING  
PROCESS CONTROL, WHICH IS ALREADY BEING ADDED.

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

KEEP THIS SECTION

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

I DON'T KNOW IF I CAN TRULY CALL THIS PROCESS "ROBUST," BUT THAT'S  
LARGELY DUE TO THE FACT THAT I DON'T KNOW WHAT HAPPENS  
AFTER WE SUBMIT THIS SURVEY. MORE EXPLANATION TO US  
WOULD BE NICE

Name: Mahr, Hugh

Date: 12 JAN 18

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Name: Mahr, Hugh

Date: 12 TAN 18

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  - 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: Mahr, HughDate: 12/14/19**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Design and conduct experiments as well as analyze and interpret data.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
• Design a system, component, or process to meet desired needs within specified constraints.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Function on multidisciplinary teams	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Identify, formulate, and solve engineering problems.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Understand their professional and ethical responsibilities.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Communicate effectively	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Demonstrate knowledge of contemporary issues.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Name: Mahr, HughDate: 12/11/18**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.	€	€	€ <input checked="" type="checkbox"/>
The program objectives are consistent with the needs of the Army.	€	€	€ <input checked="" type="checkbox"/>
The program curriculum supports the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The program outcomes are consistent with the program mission and objectives.	€	€	€ <input checked="" type="checkbox"/>
The program has a robust process for periodically assessing the achievement of its objectives.	€	€	€ <input checked="" type="checkbox"/>
The program has a process for periodically assessing the achievement of its outcomes.	€	€	€ <input checked="" type="checkbox"/>
The survey methods used by the program are effective.	€	€	€ <input checked="" type="checkbox"/>
The cadets in the program are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/> €
The cadets have input into the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The cadets are satisfied with the courses in the program.	€	€	€ <input checked="" type="checkbox"/> €
The faculty are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The faculty contributed to the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>

Name: Mahr, Hugh

Date: 12/14/19

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?

Yes, I feel that I have a thorough understanding + ability to identify the concepts needed to be an effective Chemical Engineer. I do think that we should add a class specifically focusing on ethics for Chemical Engineers. I believe this because the issues faced by Engineers are much more robust than I believe many departments appreciate.

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

I think the questions do address the concerns of student and are effective in communicating our feelings toward the program.

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

I believe the Chemical Engineering program is the most effective program. The program forces students to diversify their Engineering knowledge to function more than just as a Chemical Engineer. I believe if I wanted, I could function in any department successfully but we are also some of the most heavily worked population of Engineers, which can be demoralizing at times.

Name: O'Brien, Sean

Date: \_\_\_\_\_

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  - Process design.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

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The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
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• Identify, formulate, and solve engineering problems.	€	€	€ <input checked="" type="radio"/>
• Understand their professional and ethical responsibilities.	€	€	€ <input checked="" type="radio"/>
• Communicate effectively	€	€	€ <input checked="" type="radio"/>
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• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	€ <input checked="" type="radio"/>
• Demonstrate knowledge of contemporary issues.	€	€	€ <input checked="" type="radio"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€ <input checked="" type="radio"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€ <input checked="" type="radio"/>

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.	€	€	€ <input checked="" type="checkbox"/>
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The cadets have input into the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The cadets are satisfied with the courses in the program.	€	€	€ <input checked="" type="checkbox"/> €
The faculty are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The faculty contributed to the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**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?

Once the new Controls class is implemented, I am sure that the right courses are taught.

I would have liked a CHME chemistry course that would include key parts of physical chemistry, Orgo II and polymers that I missed out on.

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

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

I understand that we are low on resources but it would have been nice to combine the material that we need from MC311/MC312 into one course and open the time for more chemistry or materials.

Name: Pontius, David

Date: 12 JAN 18

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- We will consolidate the data and include it in our program assessment, to be reviewed by the faculty and advisory board in a separate meeting.

Name: Pontius, David

Date: 12 JUN 18

**Mission:** 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:

- 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.
- Demonstrate effective leadership and chemical engineering expertise.

**Chemical Engineering Student Outcomes:** On completion of the chemical engineering program, our graduates will be able to:

- Apply knowledge of mathematics, science, and engineering.
- Design and conduct experiments, as well as analyze and interpret data.
- Design a system, component, or process to meet desired needs within economic, environmental, social, political, ethical, health and safety, manufacturing, and sustainability constraints.
- Function on multidisciplinary teams.
- Identify, formulate, and solve engineering problems.
- Understand professional and ethical responsibilities.
- Communicate effectively.
- Understand the impact of engineering solutions in a global economic, environmental, and societal context.
- Recognize the need and develop the skills required for life-long learning.
- Demonstrate knowledge of contemporary issues.
- Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
- The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:
  - Chemistry,
  - Material and energy balances on chemical processes,
  - 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: Portius, DavidDate: 12 JAN 18**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	€	€	€ <input checked="" type="radio"/>
• Design and conduct experiments as well as analyze and interpret data.	€	€	€ <input checked="" type="radio"/>
• Design a system, component, or process to meet desired needs within specified constraints.	€	€	€ <input checked="" type="radio"/>
• Function on multidisciplinary teams	€	€	€ <input checked="" type="radio"/> €
• Identify, formulate, and solve engineering problems.	€	€	€ <input checked="" type="radio"/>
• Understand their professional and ethical responsibilities.	€	€	€ <input checked="" type="radio"/>
• Communicate effectively	€	€	€ <input checked="" type="radio"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	€	€	€ <input checked="" type="radio"/>
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	€ <input checked="" type="radio"/>
• Demonstrate knowledge of contemporary issues.	€	€	€ <input checked="" type="radio"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€ <input checked="" type="radio"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€ <input checked="" type="radio"/>

Name: Pontius, DavidDate: 10 JAN 18**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.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program objectives are consistent with the needs of the Army.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program curriculum supports the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program outcomes are consistent with the program mission and objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program has a robust process for periodically assessing the achievement of its objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program has a process for periodically assessing the achievement of its outcomes.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The survey methods used by the program are effective.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets in the program are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets have input into the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets are satisfied with the courses in the program.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The faculty are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The faculty contributed to the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Name: Pontius, David

Date: 12 JAN 18

**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?

- A controls class specifically for chemical engineering operations  
↳ will be implemented for future classes.



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

- Perhaps base questions on individual level as opposed to general ChemE student population.

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



Name: DANIEL RABBIA

Date: 12 JAN 18

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

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Name: DANIEL RABBIT

Date: 12 JAN 18

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

Name: DANIEL RABBIA

Date: 12 JAN 18

**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	€	€	€ <input checked="" type="checkbox"/>
• Design and conduct experiments as well as analyze and interpret data.	€	€	€ <input checked="" type="checkbox"/>
• Design a system, component, or process to meet desired needs within specified constraints.	€	€	€ <input checked="" type="checkbox"/>
• Function on multidisciplinary teams	€	€	€ <input checked="" type="checkbox"/>
• Identify, formulate, and solve engineering problems.	€	€	€ <input checked="" type="checkbox"/>
• Understand their professional and ethical responsibilities.	€	€	€ <input checked="" type="checkbox"/>
• Communicate effectively	€	€	€ <input checked="" type="checkbox"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	€	€	€ <input checked="" type="checkbox"/>
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	€ <input checked="" type="checkbox"/>
• Demonstrate knowledge of contemporary issues.	€	€	€ <input checked="" type="checkbox"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€ <input checked="" type="checkbox"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€ <input checked="" type="checkbox"/>

Name: DANIEL RABBITDate: 12 JAN 18**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.	€	€	€ <input checked="" type="checkbox"/>
The program objectives are consistent with the needs of the Army.	€	€	€ <input checked="" type="checkbox"/>
The program curriculum supports the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The program outcomes are consistent with the program mission and objectives.	€	€	€ <input checked="" type="checkbox"/>
The program has a robust process for periodically assessing the achievement of its objectives.	€	€	€ <input checked="" type="checkbox"/>
The program has a process for periodically assessing the achievement of its outcomes.	€	€	€ <input checked="" type="checkbox"/>
The survey methods used by the program are effective.	€	€	€ <input checked="" type="checkbox"/>
The cadets in the program are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The cadets have input into the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The cadets are satisfied with the courses in the program.	€	€	€ <input checked="" type="checkbox"/>
The faculty are aware of the program objectives.	€	€	€ <input checked="" type="checkbox"/>
The faculty contributed to the development of the program objectives.	€	€	€ <input checked="" type="checkbox"/>

Name: DANIEL RABBIA

Date: 12 JAN 18

**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?

Yes, the right classes are taught, and it's great that CLS is creating its own process controls course.

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

I think this survey is an adequate measure of the program.

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

We have a great program, and I don't have any complaints. Any issues I have — mainly with courses — have already been addressed.

Name: Shaw, Turner

Date: 12 JAN 18

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

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- We will consolidate the data and include it in our program assessment, to be reviewed by the faculty and advisory board in a separate meeting.

Name: Shaw, Turner

Date: 12 JAN 17

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- Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
- The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:
  - Chemistry,
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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: Shaw, TurnerDate: 12 JAN 17**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	€	€	€ <input checked="" type="checkbox"/>
• Design and conduct experiments as well as analyze and interpret data.	€	€ <input checked="" type="checkbox"/>	€
• Design a system, component, or process to meet desired needs within specified constraints.	€	€	€ <input checked="" type="checkbox"/>
• Function on multidisciplinary teams	€	€	€ <input checked="" type="checkbox"/>
• Identify, formulate, and solve engineering problems.	€	€	€ <input checked="" type="checkbox"/>
• Understand their professional and ethical responsibilities.	€	€	€ <input checked="" type="checkbox"/>
• Communicate effectively	€	€	€ <input checked="" type="checkbox"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	€	€	€ <input checked="" type="checkbox"/>
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	€ <input checked="" type="checkbox"/>
• Demonstrate knowledge of contemporary issues.	€	€	€ <input checked="" type="checkbox"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€ <input checked="" type="checkbox"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€ <input checked="" type="checkbox"/>

Name: Shaw, TurnerDate: 12 Jan 17**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.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program objectives are consistent with the needs of the Army.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program curriculum supports the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program outcomes are consistent with the program mission and objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program has a robust process for periodically assessing the achievement of its objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program has a process for periodically assessing the achievement of its outcomes.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The survey methods used by the program are effective.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets in the program are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets have input into the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets are satisfied with the courses in the program.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The faculty are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The faculty contributed to the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Name: Shaw, Turner

Date: 12 JAN 17

**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?

Add a ChemE Controls class and  
get rid of the garbage that  
is XE472

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

All looks good

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

As this department gets better and bigger  
I hope that the classes that we take  
in other departments can be changed  
to ChemE specific classes.

Name: Mollie Shepard

Date: 12 JAN 18

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

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

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	€	€	€ <input checked="" type="checkbox"/>
• Design and conduct experiments as well as analyze and interpret data.	€	€	€ <input checked="" type="checkbox"/>
• Design a system, component, or process to meet desired needs within specified constraints.	€	€	€ <input checked="" type="checkbox"/>
• Function on multidisciplinary teams	€	€	€ <input checked="" type="checkbox"/>
• Identify, formulate, and solve engineering problems.	€	€	€ <input checked="" type="checkbox"/>
• Understand their professional and ethical responsibilities.	€	€	€ <input checked="" type="checkbox"/>
• Communicate effectively	€	€	€ <input checked="" type="checkbox"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	€	€	€ <input checked="" type="checkbox"/>
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	€ <input checked="" type="checkbox"/>
• Demonstrate knowledge of contemporary issues.	€	€	€ <input checked="" type="checkbox"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€ <input checked="" type="checkbox"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€ <input checked="" type="checkbox"/>

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.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program objectives are consistent with the needs of the Army.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
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The cadets in the program are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
The cadets have input into the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
The cadets are satisfied with the courses in the program.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
The faculty are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
The faculty contributed to the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**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 know the class is in the process of being added but I think a Chem E version of controls would be very helpful since that is one of the categories with lower scores

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

Perhaps ask more specific questions about what classes were the most applicable or helpful and improvements that could be made in the course.

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

Name: J. H. Brown

Date: 12 Jan 18

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Name: Stiffman

Date: 12 Jan 2018

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  - Material and energy balances on chemical processes,
  - 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: ShawnDate: 12/14/18**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	€	€	€ <input checked="" type="checkbox"/>
• Design and conduct experiments as well as analyze and interpret data.	€	€	€ <input checked="" type="checkbox"/>
• Design a system, component, or process to meet desired needs within specified constraints.	€	€	€ <input checked="" type="checkbox"/>
• Function on multidisciplinary teams	€	€	€ <input checked="" type="checkbox"/>
• Identify, formulate, and solve engineering problems.	€	€	€ <input checked="" type="checkbox"/>
• Understand their professional and ethical responsibilities.	€	€	€ <input checked="" type="checkbox"/>
• Communicate effectively	€	€	€ <input checked="" type="checkbox"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	€	€	€ <input checked="" type="checkbox"/> €
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	€	€	€ <input checked="" type="checkbox"/>
• Demonstrate knowledge of contemporary issues.	€	€	€ <input checked="" type="checkbox"/> €
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	€	€	€ <input checked="" type="checkbox"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	€	€	€ <input checked="" type="checkbox"/> €

Name: StiffmanDate: 12/20/18**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.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program objectives are consistent with the needs of the Army.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program curriculum supports the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program outcomes are consistent with the program mission and objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program has a robust process for periodically assessing the achievement of its objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program has a process for periodically assessing the achievement of its outcomes.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The survey methods used by the program are effective.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets in the program are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets have input into the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets are satisfied with the courses in the program.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The faculty are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The faculty contributed to the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Name: J. H. Farm

Date: 12/5/18

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 really don't think MC300 is very applicable to chemical engineering, other than providing techniques on thinking strategies. Additionally, I am completely supportive of a CBE specific controls class; it really would have helped.

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

I believe the surveys are very thorough and complete.

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

N/A

Name: Colin Stone

Date: 12 Jan 18

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

This is your annual cadet survey for the 2017 program assessment, and it is extremely important for ABET accreditation. The survey is designed to do three things. First, it provides documentation that you have been made aware of the performance of our previous cadets on our student outcomes. Second, it serves to document your opinions of that performance. Third, it allows us to use your collective opinions to help identify areas where we might be in need of improvement. The surveys are based on the data presented to you. The completed surveys are due at the end of this period (B-hour, 12 January 2018).

#### **Instructions**

- Write your name and date on the top of each page.
- The second page of this handout contains a listing of program objectives and student outcomes. Please read this page to become oriented to the process.
- Review the data pertaining to the achievement of our 2017 program graduates and complete Part 1 of the survey, which pertains to student outcomes. For Part 1, your replies should be based on the data presented.
- Complete Part 2 of the survey, which covers program objectives. For this part of the survey, we are interested in your opinions on the relevance of the objectives and their consistency with the Academy mission and needs of the Army.
- The surveys are due by 0935 on Friday 12 January 2018.
- There are some free-form questions on the last page for you to comment on the quality of the curriculum, the meeting itself or any other items you would like us to address.
- We will consolidate the data and include it in our program assessment, to be reviewed by the faculty and advisory board in a separate meeting.

Name: Colin Stone

Date: 12 Jan 18

**Mission:** 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:

- 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.
- Demonstrate effective leadership and chemical engineering expertise.

**Chemical Engineering Student Outcomes:** On completion of the chemical engineering program, our graduates will be able to:

- Apply knowledge of mathematics, science, and engineering.
- Design and conduct experiments, as well as analyze and interpret data.
- Design a system, component, or process to meet desired needs within economic, environmental, social, political, ethical, health and safety, manufacturing, and sustainability constraints.
- Function on multidisciplinary teams.
- Identify, formulate, and solve engineering problems.
- Understand professional and ethical responsibilities.
- Communicate effectively.
- Understand the impact of engineering solutions in a global economic, environmental, and societal context.
- Recognize the need and develop the skills required for life-long learning.
- Demonstrate knowledge of contemporary issues.
- Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
- The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:
  - Chemistry,
  - Material and energy balances on chemical processes,
  - 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: Colin StoneDate: 12 JAN 18**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Design and conduct experiments as well as analyze and interpret data.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Design a system, component, or process to meet desired needs within specified constraints.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Function on multidisciplinary teams	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Identify, formulate, and solve engineering problems.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Understand their professional and ethical responsibilities.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Communicate effectively	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Demonstrate knowledge of contemporary issues.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Name: Colin StoneDate: 12 JAN 18**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.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program objectives are consistent with the needs of the Army.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program curriculum supports the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program outcomes are consistent with the program mission and objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program has a robust process for periodically assessing the achievement of its objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program has a process for periodically assessing the achievement of its outcomes.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The survey methods used by the program are effective.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets in the program are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets have input into the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets are satisfied with the courses in the program.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The faculty are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The faculty contributed to the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Name: Colin Stone

Date: 12 JAN 18

**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?

Yes, it seems that the right classes are in place  
due to more recent FE results.

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

Yes the questioning is comprehensive but not too long

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

None

Name: Madison Turner

Date: 1/12/18

### **2017 Cadet Surveys (Completed by Firsties in AY18-2)**

This is your annual cadet survey for the 2017 program assessment, and it is extremely important for ABET accreditation. The survey is designed to do three things. First, it provides documentation that you have been made aware of the performance of our previous cadets on our student outcomes. Second, it serves to document your opinions of that performance. Third, it allows us to use your collective opinions to help identify areas where we might be in need of improvement. The surveys are based on the data presented to you. The completed surveys are due at the end of this period (B-hour, 12 January 2018).

#### **Instructions**

- Write your name and date on the top of each page.
- The second page of this handout contains a listing of program objectives and student outcomes. Please read this page to become oriented to the process.
- Review the data pertaining to the achievement of our 2017 program graduates and complete Part 1 of the survey, which pertains to student outcomes. For Part 1, your replies should be based on the data presented.
- Complete Part 2 of the survey, which covers program objectives. For this part of the survey, we are interested in your opinions on the relevance of the objectives and their consistency with the Academy mission and needs of the Army.
- The surveys are due by 0935 on Friday 12 January 2018.
- There are some free-form questions on the last page for you to comment on the quality of the curriculum, the meeting itself or any other items you would like us to address.
- We will consolidate the data and include it in our program assessment, to be reviewed by the faculty and advisory board in a separate meeting.

Name: Madison Turner

Date: 1/12/18

**Mission:** 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:

- 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.
- Demonstrate effective leadership and chemical engineering expertise.

**Chemical Engineering Student Outcomes:** On completion of the chemical engineering program, our graduates will be able to:

- Apply knowledge of mathematics, science, and engineering.
- Design and conduct experiments, as well as analyze and interpret data.
- Design a system, component, or process to meet desired needs within economic, environmental, social, political, ethical, health and safety, manufacturing, and sustainability constraints.
- Function on multidisciplinary teams.
- Identify, formulate, and solve engineering problems.
- Understand professional and ethical responsibilities.
- Communicate effectively.
- Understand the impact of engineering solutions in a global economic, environmental, and societal context.
- Recognize the need and develop the skills required for life-long learning.
- Demonstrate knowledge of contemporary issues.
- Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.
- The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:
  - Chemistry,
  - Material and energy balances on chemical processes,
  - 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: Madison TurnerDate: 7/12/18**Part I. Student Outcomes.** Check the box that most closely represents your opinion.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Design and conduct experiments as well as analyze and interpret data.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
• Design a system, component, or process to meet desired needs within specified constraints.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Function on multidisciplinary teams	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Identify, formulate, and solve engineering problems.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Understand their professional and ethical responsibilities.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Communicate effectively	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Demonstrate knowledge of contemporary issues.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Name: Madison TurnerDate: 1/12/18**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.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program objectives are consistent with the needs of the Army.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
The program curriculum supports the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program outcomes are consistent with the program mission and objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program has a robust process for periodically assessing the achievement of its objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The program has a process for periodically assessing the achievement of its outcomes.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The survey methods used by the program are effective.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets in the program are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The cadets have input into the development of the program objectives.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
The cadets are satisfied with the courses in the program.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The faculty are aware of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
The faculty contributed to the development of the program objectives.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

**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 believe that the department is teaching the right classes, however I think the years in which we take the classes could be changed. For example, taking Separations alongside CH459 would be more beneficial than taking it a year prior. I also believe a numerical methods course would be beneficial, potentially in lieu of MC300.

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

I think the department asks the right questions & is clearly passionate about the success of the department. I believe also that gathering data from graduates could potentially be more beneficial. It's difficult as Cadets/students to truly evaluate the success of the program as it pertains to realworld expectations/relevance.

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

Overall, I would say that the most critical aspect of our program is the faculty. Although we are small, I have enjoyed having the same professors year to year. The experience that each have is well reflected in their teachings and they each make a point to take time for military development as well. The ability to get AI is consistent and invaluable;

I don't know if other departments can claim the same.