

Name: Paul Dietrich

Date: 4 May 2018

2018 Advisory Board Surveys

Welcome to our annual advisory board meeting. As you know, we consider each of you to be valued shareholders in our program. The meeting is our annual shareholder's meeting, where we show you our performance report and discuss methods of improving the program. This document is your official advisory board survey, and it is *extremely important to our program*. It is design to do two things. First, the completed surveys provide documentation that you have been briefed on the performance of our cadets and the relevance of the program objectives. This is extremely important for maintaining our accreditation. Second, it allows us to use your collective knowledge and experience to identify areas where we might be in need of improvement. The surveys are based in part on the data that we present to you during this meeting, and your responses are your "thumbs up or down" to the various performance indicators we are tracking. This advisory board survey is part of the assessment for *Academic Year 2017* (students who graduated in May 2017).

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- *The surveys are due by the end of today, 4 May 2017.* If you complete the survey after you leave, please email a scanned copy or mail the physical copy to us as soon as possible.

Name: Paul DietrichDate: 4 May 2018**Part I. Student Outcomes.** Check the most appropriate box.

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.		✓	
• Be prepared to 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: Paul Dietrich

Date: 4 May 2018

Part II. Program Educational Objectives. Check the most appropriate box.

	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 contribute to the development of the program objectives.			✓

Name: Paul Dietrich

Date: 4 May 2018

Part III. Open Questions. Answer the questions below or provide other input as desired.

Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum? Please explain.

Feedback From Cadets MC 300 not relates to actual test course to simple in level stresses static objects which are learned in Physics - Suggested option to test out of course one less Feedback Forces study - Feeling online test prep did not help - Some found it was an hour to self-study structure of fees vs content - Felt heat transfer was good (lot of fee prep) Thermodynamics relates well to real life Design incorporate why it matters Some students wanted more chem E Earlier some like a more diverse opportunity

Do you have any suggestions to improve the advisory board meeting for next year?

Potential SPLIT of CADET CLASS to FACILITATE Feedback currently class size is almost too large - Suggest more one on one or small groups - Look for outside programs + former STU oads to detail opportunities for Cadets, guest speakers, Exposures VS TRADITIONAL internships Shadow Experiences intercollegiate competitions - Mentoring - 3 weeks + Electronic resources / coms

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

multiple cadets mentioned They felt chem programs were poor, why do Chem Eng professors teach Gen Chem - Some feedback to provide Chem E students + keep Gen Chem relevant to Chem Eng - Organic 2 + PE 2 yes or NO cover up - Students are SPLIT - Think of shadowing High Level managers options For a focus to research more faculty oversight would be needed AND in general most wanted practical vs research MORE FACULTY IN Chem Eng as Program EXPANDS

Name: Matthew Garvey

Date: 5/4/18

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Name: Matthew Garey

Date: 5/4/18

Part I. Student Outcomes. Check the most appropriate box.

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

Name: Matthew Garey

Date: 5/4/18

Part II. Program Educational Objectives. Check the most appropriate box.

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

Name: Matthew Gancy

Date: 5/4/18

Part III. Open Questions. Answer the questions below or provide other input as desired.

Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum? Please explain.

None at this time. Perhaps a further look could be taken at adding a ChE Process Safety Course down the road. Including safety in all ChE classes is a popular approach, but often it does not get enough time. A specific safety class ~~plus~~ plus continuing safety across the department would be very effective.

I think the current implementation is viable, just a suggestion for the future.

Do you have any suggestions to improve the advisory board meeting for next year?

N/A → very well put together. Getting the Data beforehand is very ~~helpful~~ helpful.

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

- Excited to see results of CH 367
- More Full time ChE staff for research opportunities
- Great to see the improvement on Thermo FEE Scores
- Preparation for ABET Record Year and the focus on continuing improvement is impressive.

Name: Dawnie Guban

Date: 5-4-18

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Name: Donald G. GobDate: 5/4/18**Part I. Student Outcomes.** Check the most appropriate box.

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<ul style="list-style-type: none"> • Apply knowledge of math, science, and engineering 			✓
<ul style="list-style-type: none"> • Design and conduct experiments as well as analyze and interpret data. 			✓
<ul style="list-style-type: none"> • Design a system, component, or process to meet desired needs within specified constraints. 			✓
<ul style="list-style-type: none"> • Be prepared to function on multidisciplinary teams 			✓
<ul style="list-style-type: none"> • Identify, formulate, and solve engineering problems. 			✓
<ul style="list-style-type: none"> • Understand their professional and ethical responsibilities. 			✓
<ul style="list-style-type: none"> • Communicate effectively 			✓
<ul style="list-style-type: none"> • Understand the impact of engineering solutions in a global economic, environmental, and societal context 			✓
<ul style="list-style-type: none"> • Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this. 			✓
<ul style="list-style-type: none"> • Demonstrate knowledge of contemporary issues. 			✓
<ul style="list-style-type: none"> • Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice. 			✓
<ul style="list-style-type: none"> • Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum. 			✓

Name: David GutekunstDate: 5/4/18**Part II. Program Educational Objectives.** Check the most appropriate box.

	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 contribute to the development of the program objectives.			✓

Name: Dwight Gordon

Date: 5/4/16

Part III. Open Questions. Answer the questions below or provide other input as desired.

Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum? Please explain.

An Elective in Process Safety

Do you have any suggestions to improve the advisory board meeting for next year?

*I minor suggestion -
split the CADT focus over
in half*

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

*every year is ONSTT!
Let's discuss Aldo's TUB Stadium
As an AIAD option*

Name: Lucy Hair

Date: May 4 2018

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Name: Lucy Hair

Date: May 4 2018

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<ul style="list-style-type: none">• Apply knowledge of math, science, and engineering			✓
<ul style="list-style-type: none">• Design and conduct experiments as well as analyze and interpret data.		Looks marginal	
<ul style="list-style-type: none">• Design a system, component, or process to meet desired needs within specified constraints.			✓
<ul style="list-style-type: none">• Be prepared to function on multidisciplinary teams			✓
<ul style="list-style-type: none">• Identify, formulate, and solve engineering problems.			✓
<ul style="list-style-type: none">• Understand their professional and ethical responsibilities.			✓
<ul style="list-style-type: none">• Communicate effectively			✓
<ul style="list-style-type: none">• Understand the impact of engineering solutions in a global economic, environmental, and societal context			✓
<ul style="list-style-type: none">• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.			✓
<ul style="list-style-type: none">• Demonstrate knowledge of contemporary issues.			✓
<ul style="list-style-type: none">• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.			✓
<ul style="list-style-type: none">• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.			✓

Name: Lucy Hair

Date: May 4, 2018

Part II. Program Educational Objectives. Check the most appropriate box.

	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.			✓
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The survey methods used by the program are effective.			✓
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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 contribute to the development of the program objectives.			✓

Name: Lucy M Hair

Date: 5/4/18

Part III. Open Questions. Answer the questions below or provide other input as desired.

Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum? Please explain.

No. But only because the courses are so tightly scheduled already. Otherwise, I'd recommend the 2nd org. chem.

Do you have any suggestions to improve the advisory board meeting for next year?

Maybe ~~not~~. I think this structure is a good balance of board & cadets. But it suddenly occurred to me that it would be useful to have the faculty talk more about their view of things. We hear from Dr. Biaglow, but could hear more from others.

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

I think the 'what & why' portion we discussed today could be handled within class structure & grading

If research is going to become a faculty ~~activity~~ activity, you need more faculty members

Name: Tony HATFIELD

Date: 04 MAY 2018

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Date: _____

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• 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.			✓
• Be prepared to 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: _____

Date: _____

Part II. Program Educational Objectives. Check the most appropriate box.

	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.			✓
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The cadets are satisfied with the courses in the program.			✓
The faculty are aware of the program objectives.			✓
The faculty contribute to the development of the program objectives.			✓

Name: _____

Date: _____

Part III. Open Questions. Answer the questions below or provide other input as desired.

Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum? Please explain.

There was a lot of discussion on adding Physical Chemistry into the program as a required course.

Do you have any suggestions to improve the advisory board meeting for next year?

Once again great integration with students. May consider splitting up the large group into 2 smaller groups so more people get to talk or feel they can talk.

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

Lots of discussion on CH 400 pros and cons on the usefulness of this course

Seems like a lot of connections being made to CSE from the theory in the class to fundamental and application in the field

Name: Andrew Bfluger

Date: 5/4/18

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Name: Pfluger, AndrewDate: 5/4/18**Part I. Student Outcomes.** Check the most appropriate box.

The cadets in the program appear to:	Strongly Disagree	Neutral	Strongly Agree
• Apply knowledge of math, science, and engineering			X 5
• Design and conduct experiments as well as analyze and interpret data.			X 5
• Design a system, component, or process to meet desired needs within specified constraints.			X 5
• Be prepared to function on multidisciplinary teams			X 4
• Identify, formulate, and solve engineering problems.			X 5
• Understand their professional and ethical responsibilities.			X 5
• Communicate effectively			X 4
• Understand the impact of engineering solutions in a global economic, environmental, and societal context			X 5
• Recognize the need for life-long learning, and appear to be developing the skills they will need to pursue this.			X 5
• Demonstrate knowledge of contemporary issues.			X 5
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.			X 5
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.			X 5

Name: Pfleger, Andrew

Date: 5/4/18

Part II. Program Educational Objectives. Check the most appropriate box.

	Strongly Disagree	Neutral	Strongly Agree
The program objectives are consistent with the USMA mission.			X
The program objectives are consistent with the needs of the Army.			X
The program curriculum supports the program objectives.			X
The program outcomes are consistent with the program mission and objectives.			X
The program has a robust process for periodically assessing the achievement of its objectives.			X
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The cadets in the program are aware of the program objectives.			X
The cadets have input into the development of the program objectives.			X
The cadets are satisfied with the courses in the program.			X
The faculty are aware of the program objectives.			X
The faculty contribute to the development of the program objectives.			X

Name: Pfluger

Date: 5/4/18

Part III. Open Questions. Answer the questions below or provide other input as desired.

Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum? Please explain.

- Not to the ChemE core curriculum. Enhanced independent study opportunities for an elective, maybe technical writing
- Not sure that a dedicated communication or safety/risk is needed. These are important, but probably are not best placed as individual courses, given faculty constraints & course loading constraints.

Do you have any suggestions to improve the advisory board meeting for next year?

- I spoke to Enoch about this in conversation, but I would recommend restructuring the BoA (at least consider it). A model I've observed is to have 3 categories of folks on the BoA: (1) academia, (2) military, (3) industry; each category has 3 people who can only serve for 3-4 years. Such a model introduces new ideas from different areas of practice. I am not really clear on how board members align w/ these aforementioned areas or how long they can serve.

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

- Agree bioengineering courses developed for life science majors should be accessible by ChemE. Could be a great elective if the bioengineering courses are done right.
- See notes from cadet sensing sessions. Lots of interesting items discussed.

Name: Kevin Shipe

Date: 4 May 18

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- Part II pertains to the relevance and consistency of the program educational objectives. Your opinions and our discussions will help shape any future revisions of these objectives.
- Part III contains some free-form questions where you can comment on the quality of the curriculum, the meeting itself or any other items you would like us to address.

- *The surveys are due by the end of today, 4 May 2017.* If you complete the survey after you leave, please email a scanned copy or mail the physical copy to us as soon as possible.

Name: Kevin ShipeDate: 4 May 18**Part I. Student Outcomes.** Check the most appropriate box.

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.		✓	
• Be prepared to 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: Kevin Shipe

Date: 4 May 18

Part II. Program Educational Objectives. Check the most appropriate box.

	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 contribute to the development of the program objectives.			✓

Name: Kerin Shipe

Date: 4 May 18

Part III. Open Questions. Answer the questions below or provide other input as desired.

Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum? Please explain.

It will be interesting to evaluate CH367 and whether that helps with the Controls portion of the curriculum. This may also help with the "Why" of practical application for the curriculum. CH400 seems to be split with some cadets finding it valuable, and others not. This course needs to ensure its purpose is understood.

Do you have any suggestions to improve the advisory board meeting for next year?

Perhaps a split group for the Cadet session. As the department grows, it may derail the conversation to have 30+ cadets at the same time.

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

Cadet discussions were much better this year. More engaged and seemed more open to discuss courses and such. They are still trying to figure out the "Why" for many courses and objectives. If research is going to be a push, then faculty needs increase in time and resources. Clear goals for ATADs may help secure more opportunities.

Name: Vivondra Waters

Date: 5/4/2018

2018 Advisory Board Surveys

Welcome to our annual advisory board meeting. As you know, we consider each of you to be valued shareholders in our program. The meeting is our annual shareholder's meeting, where we show you our performance report and discuss methods of improving the program. This document is your official advisory board survey, and it is *extremely important to our program*. It is design to do two things. First, the completed surveys provide *documentation* that you have been briefed on the performance of our cadets and the relevance of the program objectives. This is extremely important for maintaining our accreditation. Second, it allows us to use your collective knowledge and experience to *identify areas* where we might be in need of improvement. The surveys are based in part on the data that we present to you during this meeting, and your responses are your "thumbs up or down" to the various performance indicators we are tracking. This advisory board survey is part of the assessment for *Academic Year 2017* (students who graduated in May 2017).

Instructions

- The survey pertains to attainment of student outcomes (Part I), relevance of program educational objective (Part II), and program improvement (Part III). You will be given time during the day to answer the questions.
- For Part I, use the data to evaluate the attainment of our student outcomes. You will also meet with cadets, and the opinions you form of them might also influence your ratings. It is completely appropriate to use that information in the formation of your opinions.
- Part II pertains to the relevance and consistency of the program educational objectives. Your opinions and our discussions will help shape any future revisions of these objectives.
- Part III contains some free-form questions where you can comment on the quality of the curriculum, the meeting itself or any other items you would like us to address.

- *The surveys are due by the end of today, 4 May 2017.* If you complete the survey after you leave, please email a scanned copy or mail the physical copy to us as soon as possible.

Name: Kironum Waters

Date: 5/4/18

Part I. Student Outcomes. Check the most appropriate box.

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.	✓		
• Be prepared to 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: Vishal Waten

Date: 5/4/18

Part II. Program Educational Objectives. Check the most appropriate box.

	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 contribute to the development of the program objectives.			✓

Part III. Open Questions. Answer the questions below or provide other input as desired.

New Class idea : Something similar to an "Intro to CHE" class, perhaps more advanced than an Intro class, could be a great elective that could be opened to students in other departments. This could also be a great forum for bringing in outside speakers and helping students forge outside connections in industry.

Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum? Please explain.

Many strong opinions from Cadets were voiced regarding MU300 - even moving it to an earlier time in their academic career could help. An opinion on the FE prep class was also voiced - making the class optional for a student that has already taken/passed the exam could be an option to free up time for other electives.

Do you have any suggestions to improve the advisory board meeting for next year?

It would be helpful to aggregate student commentary on courses (can be anonymous) prior to the meeting, with commentary shared with or discussed among Board members prior to the panel discussion with students. I think this would help streamline and focus the discussion with students and help the Board better understand students' needs. Also helpful to include in commentary whether students have taken the

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

More research opportunities at West Point could be beneficial, however it should be prioritized lower than more resources in capstone projects, etc. Students generally felt that chemical engineering faculty are already stretched too thinly.

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