

Name: Paul Diefrich

Date: 14 April 2017

AY2016 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 survey 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 2016* (students who graduated in May 2016).

Instructions

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- 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 II 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 were sent by email in September 2016 and were originally due by 9 September 2016.* If you completed the survey, you may update your responses today.

Name: Paul Dietrich

Date: 14 April 2017

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	<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"/>
• Be prepared to 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: Paul Dietrich

Date: 14 April 2017

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

	Strongly Agree	Neutral	Strongly Disagree
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: Paul Dietrich

Date: 14 April 2017

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

(1)

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

I Believe That Risk Analysis + HAZOP principles
should be integrated into The SAFETY Analysis
Portions At least in Experiments + Process operating
This should be A Documented portion of the

SAFETY ANALYSIS:

RISK ANALYSIS IS LIKELY A SUBJECT OF MILITARY
EDUCATION SO THAT PROCESS SHOULD BE BROUGHT OVER
+ INTEGRATED - See reverse

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

Continue interview prep during lunch with
cadets - Positive

- SPRING time for mtgs is good

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

Textbook for Separations DIFFICULT - describes no
fire hose - recommend some link in course to a
separation lab - EARLY INTRO

- ① Cadets Feedback on 2 courses in Chem vs one was 5-2 For vs Against requirement - ALL Felt schedule was the issue but most felt was ADVANTAGEOUS
- ① Some cadets felt MC308 was Extraneous and gave MATERIAL Focus -
- ① $7\frac{1}{2}$ hour requirement for Research felt to Exclude cadets from doing research - Focus on Viable Deliverable vs Time

Name: Lucy Hair

Date: 14 April 2017

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Name: Lucy Hair

Date: 14 April 2017

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	<input type="checkbox"/>	<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"/>	<input type="checkbox"/>
• Design a system, component, or process to meet desired needs within specified constraints.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Be prepared to function on multidisciplinary teams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Identify, formulate, and solve engineering problems.	<input type="checkbox"/>	<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"/>	<input type="checkbox"/>
• Communicate effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	<input type="checkbox"/>	<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"/>	<input type="checkbox"/>
• Demonstrate knowledge of contemporary issues.	<input type="checkbox"/>	<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 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 type="checkbox"/>	<input checked="" type="checkbox"/>

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.

My discussion with cadets just strengthens my belief that 2nd Semester organic would be helpful

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

Exposure of board to cadets' papers or process designs

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

Thanks again!

Name: _____

Date: _____

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

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

I mostly agree, but self-assessments are tricky

CH367 Introduction to Automatic Process Control

Comments Sheet

- Consider Sabor or Merlin text
- Process focused vs. mechanical focused

Name: Tony Heffelfin

Date: 14 APR 2017

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- *The surveys were sent by email in September 2016 and were originally due by 9 September 2016.* If you completed the survey, you may update your responses today.

Name: Tony Haffield

Date: 14APR2017

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	<input type="checkbox"/>	<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"/>	<input 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"/>	<input type="checkbox"/>
• Be prepared to function on multidisciplinary teams	<input type="checkbox"/>	<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"/>	<input type="checkbox"/>
• Understand their professional and ethical responsibilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Communicate effectively	<input type="checkbox"/>	<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 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 type="checkbox"/>	<input checked="" type="checkbox"/>
• Demonstrate knowledge of contemporary issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	<input type="checkbox"/>	<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 type="checkbox"/>	<input checked="" type="checkbox"/>

Name: Tony Haffield

Date: 14APR2017

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

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

Name: Tony Hettfield

Date: 14APR2017

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.

In discussion with the cadets, there seemed to be a desire to do some limited but interactive work with the seniors in the Unit Ops labs. It hopes that the Separation class could be a little more meaningful early on.

There was also some discussion about having a longer term Cap stone project.

- Cadets wanted to see additional courses offered in the CHE department within the electives.

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

For my first board meeting, I thought it was conducted and ran very well.

It sounds like the interview/resume section was new. I thought that worked well and was time well spent.

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

I thought the cadets were very professional and handled themselves very well during the interactive sessions.

Tony Haffield
14 APR 2017

CH367 Introduction to Automatic Process Control

Comments Sheet

Being new, I wasn't very well versed on the past issues with this course. I will say that seeing new engineers come into Lilly this class sounds very interesting and has great potential. My process controls course years ago was all theory with very little practical problems or applications.

There was some discussion during the morning having discussions about adding Emergency Pressure Relief into the design. Considerations might include Pressure Relief Valve on the vessel or Pressure Safety Valve on the coolant system.

Name: Pawar

Date: 14 Apr 17

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Name: M. A. PavoneDate: 14 Apr 17**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	<input type="checkbox"/>	<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 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"/>	<input type="checkbox"/>
• Be prepared to function on multidisciplinary teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Identify, formulate, and solve engineering problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Understand their professional and ethical responsibilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Communicate effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	<input type="checkbox"/>	<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 type="checkbox"/>	<input checked="" type="checkbox"/>
• Demonstrate knowledge of contemporary issues.	<input type="checkbox"/>	<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"/>	<input 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"/>	<input type="checkbox"/>

Name: Pavone

Date: 14 Apr 17

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

	Strongly Agree	Neutral	Strongly Disagree
The program objectives are consistent with the USMA mission.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The program objectives are consistent with the needs of the Army.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program curriculum supports the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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The program has a robust process for periodically assessing the achievement of its objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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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 type="checkbox"/>	<input checked="" type="checkbox"/>
The faculty are aware of the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The faculty contribute to the development of the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Name: Magnus

Date: 2017

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.

*Consider a 1st or 2nd year course entitled
'Introduction to Chemical Engineering'*

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

*Consider benchmarking what other schools do
wrt ABET, & having advisory board evaluate
the results.*

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

2016 Advisory Board Surveys*updated version*

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-
- *The surveys are due by the end of the day, 9 September 2016.*

Name: Andrew R. Pfluger, Major

Date: 9 Sept 2016

no change

19 April 17

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	<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"/>
• Be prepared to 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: Pfluger, Andrew R., Major

Date: 9 Sept 2016

no change
10 Apr 17

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

	Strongly Disagree	Neutral	Strongly Agree	
The program objectives are consistent with the USMA mission.	<input type="checkbox"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program curriculum supports the program objectives.	<input type="checkbox"/>	<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 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 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 type="checkbox"/>	<input checked="" type="checkbox"/>
The survey methods used by the program are effective.	<input type="checkbox"/>	<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 type="checkbox"/>	<input checked="" type="checkbox"/>
The cadets have input into the development of the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The cadets are satisfied with the courses in the program.	<input type="checkbox"/>	<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 type="checkbox"/>	<input checked="" type="checkbox"/>
The faculty contribute to the development of the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Pfluger, Andrew R.
Name: _____

9 Sept 2016
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.

I did a cross-walk of the courses provided by the ChemEng program at USMA and the one at the Colorado School of Mines. It appears that they marry up very well and there are no significant gaps where I would recommend the addition of a specific course. As CLS adds the bioengineering sequence, I would suggest that those courses are available for ChemEng cadets who are interested in learning more about that subject area.

It is evident that the program is addressing the ~~expanses~~ shortfalls in the curriculum (process controls, technical writing).

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

No, everything seems to run very smoothly.

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

Thank you for the invitation - this meeting was very informative and helped me understand the ChemEng program in much greater depth.

Recommend that we continue to model of involving incoming faculty in the BoA.

Revised 14 Apr 17

2016 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 survey 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 meeting is part of the assessment for Academic Year 2016 (students who graduated in May 2016).

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 II 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 the day, 9 September 2016.*

Name:Kevin Shipe

Date: 4 September 2016

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	<input type="checkbox"/>	<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"/>	<input type="checkbox"/>
• Design a system, component, or process to meet desired needs within specified constraints.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Be prepared to function on multidisciplinary teams	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Identify, formulate, and solve engineering problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Understand their professional and ethical responsibilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Communicate effectively	<input type="checkbox"/>	<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"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>
• Demonstrate knowledge of contemporary issues.	<input type="checkbox"/>	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Name:Kevin Shipe

Date: 4 September 2016

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

	Strongly Disagree	Neutral	Strongly Agree	
The program objectives are consistent with the USMA mission.	<input type="checkbox"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
The program curriculum supports the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The program outcomes are consistent with the program mission and objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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"/>	<input 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"/>	<input type="checkbox"/>
The survey methods used by the program are effective.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The cadets in the program are aware of the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The cadets have input into the development of the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
The cadets are satisfied with the courses in the program.	<input type="checkbox"/>	<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 type="checkbox"/>	<input checked="" type="checkbox"/>
The faculty contribute to the development of the program objectives.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

Sue
CH367
Sheet

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

As discussed earlier this year, a course for controls more aligned with practical application and practice may help with a better understanding as to the importance of controls and control design in the chemical engineering field. Theory is great as a base of understanding, but I know many that are attracted to the military leadership style and West Point in particular, are usually people of action that learn better through hands-on participation and practice. Perhaps even as a part of a culmination exercise dealing with the use of controls as a requirement. I know there are some culmination exercises taking place, however having a strong controls base will help not only in these, but upon graduation in the Army and in the world.

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

These surveys are a little harder to do without interaction with the faculty and cadets. A lot can be inferred from the surveys, however there really is no substitute for face to face interaction with the cadets and instructors that are taking part in the curriculum or have completed or taught the curriculum. I understand this was a change due to reporting requirements on the staff, but I really believe these interactions are an important part of the Advisory Board's participation. A lot of my answers are based on some assumptions from our time in April.

Resume Interview
part was a
great addition.

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

Having more
time with the
cadets made a
big difference.

United States Military Academy
Department of Chemistry and Life Science
Chemical Engineering Program

As an Alumni, I would not mind participating in Program Graduate Surveys to assist with the overall analysis and strategy to help continuously improve the ChemE department and curriculum and ensure it is meeting all the needs of the Army and West Point. This could be useful for both graduates that have stayed in the Army and those who have moved into the civilian career fields to ensure success far beyond their time at West Point.

Also, if any cadet has questions about after West Point and even the Army, please feel free to give them my contact information.

Shipc, Kevin

CH367 Introduction to Automatic Process Control

Comments Sheet

This course seems like amode in the right direction for controls application.

It would be interesting to see if this could be expandet to include or culminate in a real world reactor model implemented by the cadets. Also, will they physically get to tune a controller at the end or just simulate?

For added practical application, maybe include failsafe creation and implementation.

Name: Kisondra Waters

Date: April 14, 2017

AY2016 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 survey 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 2016* (students who graduated in May 2016).

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 II 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 were sent by email in September 2016 and were originally due by 9 September 2016.* If you completed the survey, you may update your responses today.

Name: Kiesondra Waters

Date: April 14 2017

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Design and conduct experiments as well as analyze and interpret data.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Design a system, component, or process to meet desired needs within specified constraints.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Be prepared to function on multidisciplinary teams	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Identify, formulate, and solve engineering problems.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Understand their professional and ethical responsibilities.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Communicate effectively	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Understand the impact of engineering solutions in a global economic, environmental, and societal context	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Demonstrate knowledge of contemporary issues.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Have attained a thorough grounding in and working knowledge of the chemical engineering curriculum.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Name: Kisondra Waters

Date: April 14, 2017

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

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

Name: Kisondra Waters

Date: April 14, 2017

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 surprises me that students didn't seem to rate CHE400 Professional Practice higher for several outcomes including #3, 8, 10; Also seems that, especially in the Separations class, it would be helpful for students to have a simple and qualitative overview of what processes are used for specifically (i.e., distillation), and visually go over equipment (i.e., check out a distillation column).

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

Seeing / hearing about input from prior students that are working in industry now would be helpful to be combined with the discussion with students to get a retrospective context.

Technical communication is a great idea for an extra course - reports, email, powerpoint, charts..

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

I really like that resume building has been integrated in with coursework development. It not only prepares them for "real life" or life post-army, but it also gives them a tangible way to start thinking about real world and professional applications