Name: Matthew Armstrong Date: 16MAR16

2015 Faculty Surveys

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- The surveys are required for all chemical engineering faculty members and are due by **Friday 25 March 2016**.
- I will consolidate the data and include it in our program assessment, to be provided to you in a separate meeting and included in our annual report.

Name: M. Armstrong Date: 16 MAR16

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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 General Program 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.

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

- General, organic, and physical chemistry.
- Material and energy balances on chemical processes, including 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: M. Armstrong Date: 16MAR16

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

The cadets in the program are able 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: Matthew Armstrong Date: 18MAR16

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

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

Name: Matthew Armstrong Date: 18MAR16

Part III. Open questions.

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

- I believe we are continuing to evolve in right direction. There are open discussions involving teaching our own controls class, as well as a series of appropriate special Topics courses covering Chemical Engineering Numerical Computing Methods and Chemical Nuclear engineering. We should also continue to set up our own fluids and heat transfer in this department.

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

- Ask faculty to write out how they see themselves contributing across the 5 pillars.
- Ask faculty what they may be interested in teaching, or participating in.

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

- At some point I would like ChemE. to add its own 3course engineering sequence CH362 CH 363, CH364, etc. to non majors. I would also like to see us get more ChemE. faculty as the program grows. And push more numerical methods in Mathematica, etc. moving forward.

Sustain and keep working the ChemCad!

- Can we set up some kind of "teacher development" program... kind of like to "Co-teaching" for CH459

Name: MAJ John Belanger Date: 25 March 2016

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Name:_____ Date:_____

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- Advance their careers through clear and precise technical communication.
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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.
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- 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.
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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: BELANGER Date: 25 MAR 2016

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

The cadets in the program are able 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:_____ Date:_____

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

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

Name: BELANGER Date: 25 MAR 2016

Part III. Open questions.

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

I'm glad that LTC Armstrong is incorporating MATLAB as a tool for the yearlings. I don't necessarily think we need any new courses, but we could enhance courses by incorporating additional topics and skills, like using MATLAB.

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

A data point that's missing is how much mentorship in chemE the junior faculty receive. That information might support creating a chemE-centric NITC program.

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

For the chem-E-car, we've incorporated an EECS major, but most chemE cadets don't have the experience of working with cadets from other majors on chemE projects.

In CH459, a final presentation would improve cadet technical communication skills.

Name: Bull

Date: 3/25/2016

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

The cadets in the program are able 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: Bull

Date: 3/25/2016

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

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

Name: Bull Date: 3/25/2016

Part III. Open questions.

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

I think the engineering courses are covering the basics (and more) for engineering. I think we are logging in basic chemistry for chemical engineers. I think for example we should be using actual reactions, where possible, instead of the bland A + B → C + D. Possible other courses: a chem eng version of controls to replace XE472; a second semester of CH402.

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

Ask explicitly if faculty have gotten feedback from cadets that may not be reflected in course assessments;

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

Name: Bigelow Date: 25 March 2016

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- Process design.

Name: Biaglow Date: 25 March 2016

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Name: Bugler Date: 25 March 2015

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

The cadets in the program are able 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: Braylon Date: 25 March 2016

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

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

Name: Brayton

Date: 25 March 2016

Part III. Open questions.

Are we teaching the right classes? Based on the assessment data or on your personal opinion, is there a course that the program should add to the curriculum?
None

Are we asking the right questions? Do you have any suggestions to improve the faculty survey for next year?
None

Please add any additional comments that you would like to make below.
None

Name: Stephen Winter Date: 25 March

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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:_____ Date:_____

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

The cadets in the program are able 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:_____ Date:_____

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

	Strongly Disagree		Neutral		Strongly Agree
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The program objectives are consistent with the needs of the Army.	☐	☐	☐	☐	☒
The program curriculum supports the program objectives.	☐	☐	☐	☐	☒
The student outcomes are consistent with the program mission and objectives.	☐	☐	☐	☐	☒
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The cadets in the program are aware of the program objectives.	☐	☐	☐	☒	☐
The cadets have input into the development of the program objectives.	☐	☐	☐	☒	☐
The cadets are satisfied with the courses in the program.	☐	☐	☐	☒	☐
The faculty are aware of the program objectives.	☐	☐	☐	☐	☒
The faculty (past and present) have contributed to the development of the program objectives.	☐	☐	☐	☐	☒

Name:_____ Date:_____

Part III. Open questions.

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

— Computer MATLAB survey lecture
Mathematica
Chinese

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

— I think it should be separated into two parts

A) Faculty opinion
B) Data interpretation } explain how to use data

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