A Thesis Presented to

The Faculty of Alfred University

Data Analysis and Recommendations for Meeting ABET Criteria: A Report

by

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In Partial Fulfillment of

the Requirements for

The Alfred University Honors Program

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Under the Supervision of:

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Introductory Statement

ABET, previously known as the Accreditation Board for Engineering and Technology,[1] but now simply as ABET, observes, evaluates, and accredits colleges and universities through four different Accreditation Commissions: Applied and Natural Science Accreditation Commission, Computing Accreditation Commission, Engineering Accreditation Commission, and Engineering Technology Accreditation Commission.[2] Alfred University is currently accredited by ABET under their Engineering Accreditation Commission.[3] To be accredited through ABET, the following are analyzed: Program Educational Objectives, Student Outcomes, Assessments, Evaluations, as well as Criterion 1 through 8 depending on the program. Program Educational Objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the program's constituencies.[4] Student outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire as they progress through the program.[4] Assessments are one or more processes that identify, collect, and prepare data to evaluate the attainment of student outcomes. Effective assessment uses relevant direct, indirect, quantitative and qualitative measures as appropriate to the outcome being measured. Appropriate sampling methods may be used as part of an assessment process.[4] Evaluations are one or more processes for interpreting the data and evidence accumulated through assessment processes. Evaluations determine the extent to which student outcomes are being attained. These evaluations result in decisions and actions regarding program improvement.[4] When it comes to program criteria (1-8), these criteria are intended to assure quality and to foster the systematic pursuit of improvement in the quality of engineering education that satisfies the needs of constituencies in a dynamic and competitive environment. It is the responsibility of the institution seeking accreditation of an engineering program to demonstrate clearly that the program meets the following criteria.[4] The criteria are listed as below: Criterion 1: Students, Criterion 2: Program Educational Objectives, Criterion 3: Student Outcomes, Criterion 4: Continuous Improvement, Criterion 5: Curriculum, Criterion 6: Faculty, Criterion 7: Facilities, Criterion 8: Institutional Support.

For this analysis and report, only Criterion 3: Student Outcomes – B, F, G, I and K will be analyzed. These criteria are listed below:

(b) an ability to design and conduct experiments, as well as to analyze and interpret data

(f) an understanding of professional and ethical responsibility

(g) an ability to communicate effectively

(i) a recognition of the need for, and an ability to engage in life-long learning

(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

These five criteria are analyzed for three courses taught in the Spring 2018 semester. These courses and associated outcomes are shown in Table A1 below.

Table A1: Courses and ABET Criteria

Course – Spring 2018				ABET Criteria to be Analyzed	Instructor
Department	**Code**	**Name**	**CH**		
ENGR	220	Circuit Theory I	4	B, F, G, I, K	Dr. Xingwu Wang
MECH	212	Dynamics	3	B, F, G, I, K	Dr. Xingwu Wang
RNEW	468	Electric Machinery	3	B, F, G, I, K	Dr. Xingwu Wang

To assess Student Outcome B, an ability to design and conduct experiments, as well as to analyze and interpret data, Table A2 below will be used to analyze and assess final projects from ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery as well as term papers from RNEW 468: Electric Machinery.

Table A2: ABET Criterion 3 - Student Outcomes B

B.	**An ability to design and conduct experiments, as well as to analyze and interpret data**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
Experimental Design					
B-1	**Hypothesis**	No statement of the problem; too broad (non-specific).	Hypothesis statement present but unclear or vague.	Clearly stated hypothesis.	Clear hypothesis and hypothesis evolved based on experimental observations.
B-2	**Experimental Design**	Experiments poorly designed or do not appear to address the hypothesis.	Rudimentary experimental design or experiments may not directly address hypothesis.	Concise experimental design with apparent connection to hypothesis.	Nested or tiered experimental designs that have evolved based on preliminary data.
Data Presentation					
B-3	**Presentation**	Data is presented	Data tables but	Data plotted in	Presentation of data

	of data (as appropriate)	in text, but not with graphics, tables, or plots.	without plots, or plots without error indication.	logical manner with error bars (where appropriate)	is concise, well plotted, and indicates comprehensive view (i.e., secondary plots, etc.).
B-4	**Presentation of images (as appropriate)**	No images, but images warranted.	Images, but without size indication or with magnification values listed. Images are remotely (in text).	Images with size bars, direct references, appropriate size for viewing.	Images are annotated, properly presented, and tied to the hypothesis in a reasonable manner.
Data Analysis and Interpretation, including Error Analysis					
B-5	**Data Analysis**	Limited data analysis, does not address or consider hypothesis.	Rudimentary data analysis. Addresses the hypothesis but does data analysis is unfocused.	Data is evaluated, trends are discussed, and the hypothesis is evaluated. Simple equations for data trends.	Data analysis is detailed and strongly connected to the hypothesis resulting in a conclusion or recommendation.
B-6	**Treatment of Error**	No error bars on plots or no discussion of data reliability.	Error bars present but limited discussion of data reliability.	Error analysis is thorough, indicates data quality, and trend discussions are justified.	Error analysis is thorough and comprehensive, statistical analysis is incorporated to evaluate significant differences.
Conclusions, Future Work, and Presentation					
B-7	**Conclusions**	No conclusions or new information presented in the conclusions section.	Conclusions are rudimentary or make oblique references to the hypothesis.	Conclusions are supported by the data and the hypothesis is addressed succinctly.	Hypothesis is evaluated correctly, and the next steps outlined concisely within a broader context.
B-8	**Future Work**	No future work section or justification for omission not provided.	Future work section draw doubt on the validity of the experimental (repeat experiments, etc.).	Future work indicates the reasonable next steps, in the context of the hypothesis.	The next experiments are described, and the results predicted indicating in-depth understanding of the problem.
B-9	**Presentation**	Student is unable to state hypothesis, minimal	Student can state hypothesis, has a rudimentary understanding of	Students can concise state the hypothesis, understand the	Students understand the overall picture, understand their data and its implications,

		understanding of experiments conducted, etc.	the experiments, but does not grasp data significance.	data, and are comfortable with their conclusions.	and see the broader impact of their work.

To assess Student Outcome F, an understanding of professional and ethical responsibility, the following table will be used to analyze and assess an ethics quiz, as well as a globalization quiz, given to the students from ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery. For these quizzes, only Student Outcome F-2 will be assessed.

Table A3: ABET Criterion 3 - Student Outcomes F

F.	**an understanding of professional and ethical responsibility**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
F-2	**Ability to evaluate ethical dilemmas related to professional practice**	Does not identify problem. Uses misinformation or ignores facts. Does not analyze situation. Does not identify stakeholders.	Identifies problem and may infer ethical dilemma. Lists facts but may miss key information. Minimal analysis of situation. Identifies some stake holders but may favor one point of view.	Recognizes ethical dilemma. Identifies facts and recognizes some missing information. Applies rules or standards with justifications. Understands cost-schedule-risk relationship. Acknowledges multiple stakeholders and basic understanding of their views.	Identifies and frames ethical dilemma. Recognizes known and unknown facts. Correctly applies rules or standards. Identifies cost-schedule-risk. Acknowledges multiple stakeholders and considers consequences. Knows of real world examples.

To assess Student Outcome G, an ability to communicate effectively, the following table will be used to analyze and assess student laboratory reports from ENGR 220: Circuit Theory I, final projects from ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery, as well as term papers from RNEW 468: Electric Machinery.

Table A4: ABET Criterion 3 - Student Outcomes G

G.	**An ability to communicate effectively**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
			Content		
G-1	**Scope and**	Purpose, scope	Purpose stated.	Well-defined	Similar to

	Purpose	and context absent or ill defined.	Context and scope either too vague or supported by irrelevant details.	purpose. Context and scope supported by relevant details.	"meets", but discussion enhances deeper level of understanding or provides critical analysis of previous work.
G-2	**Idea Development: primarily main body discussion and conclusion**	Claims & ideas not supported by relevant evidence and/or examples.	Claims and ideas supported by relevant evidence but lacking sufficient detail or connections between related parts.	Claims and ideas supported by relevant evidence. Strong arguments enhanced by clear connections between related parts.	Similar to strong but high level of insight leading to fresh and illuminating ideas.
			Writing		
G-3	**General Organization & Coherence: placement of content in sections in a formatted document as well as organization of content within sections.**	Content in wrong section. Order of presentation prevents reader from understanding content.	Content in correct section. Order of presentation within sections hinders understanding of content.	Content in correct sections. Order of presentation within sections leads reader to develop understanding of subject, but minor rearrangement could improve readability.	Little room for improvement.
G-4	**Paragraphs**	Totally disorganized, pointless paragraphs. No transitions from one paragraph to the next.	Paragraphs with topic sentences, but noticeable discontinuities. Weak transitions from one paragraph to the next.	Strong topic sentences with good transition from the previous paragraph. Thought in paragraph flows from one idea to the next.	
G-5	**Sentences**	Poorly organized sentences; very poorly expressed thoughts; excessive use of passive and ineffective subordinate clauses.	Adequately expressed ideas without excessive use of passive voice. Sentences not too turgid, although lacking in elegance. Acceptable use of	Clear expression with elegant phrasing; appropriate tense used.	

		Inappropriate use of tense.	tense.		
G-6	**Words/Tone**	Excessive use of colloquialisms and slang; use of 1st and 2nd person; excessive use of inflated language.	Little use of colloquialism and inflated language; excessive use of passive voice.	Appropriate use of formal language with truly sterling word choice.	
G-7	**Mechanics: mechanics, spelling, usage, punctuation, etc.**	Frequent errors that distract reader and/or prevent understanding of content.	Notable errors that are bothersome but do not prevent understanding of content.	Occasional minor errors.	Nearly flawless.
Appearance					
G-8	**Format: type of document, font, headings, page numbers, TOC, etc.**	Unprofessional appearance. Inappropriate format. Inconsistencies in formatting styles.	Professional appearance. Appropriate format but missing some expected elements. Some inconsistencies in formatting styles.	Professional appearance. Appropriate format with all major elements expected. Few inconsistencies in formatting styles.	Nearly flawless.
G-9	**Graphics: figures & tables, etc.**	Items that do not support the text or that lack proper labels, units or scales. Captions or titles not descriptive.	Items generally support ideas in text. Figures and tables are accurately labeled, but presentation does not promote understanding of main features of data. Captions or titles descriptive, but not detailed enough to enable interpretation without reference to text.	Items support and enhance ideas in text. Figures and tables labeled to enable reader to understand and interpret main features. Captions and titles enable basic interpretation without reference to text.	Similar to #4, but design enables reader to understand and interpret subtle features in data.
G-10	**Citations: in text and in bibliography**	Incorrect format: in text and in bibliography	Generally correct format with noticeable errors.		Correct format: only minor, picky errors.

To assess Student Outcome I, a recognition of the need for, and an ability to engage in life-long learning, the following table will be used to analyze and assess a School of Engineering Awareness

assessment given to the students in ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery. For this assessment, only Student Outcome I-7 will be assessed.

Table A5: ABET Criterion 3 - Student Outcomes I

I.	**a recognition of the need for, and an ability to engage in life-long learning**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
I-7	**Actions/ Activities**	Student is not engaged in current events, extracurricular activities, networking, career development.	Is considering joining student chapter	Is currently a member of student chapter of professional organization	Has been elected to a leadership role in their student branch; has attended conferences

To assess Student Outcome K, an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice, the following table will be used to analyze and assess laboratory reports from ENGR 220: Circuit Theory I and final projects for the following classes: ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery.

Table A6: ABET Criterion 3 - Student Outcomes K

K.	**an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
K-1	**Knowledge of technique/tool**	Is not familiar with state-of-the-art techniques/tools used in engineering profession	Familiar with and using techniques/tools as they are presented in class assignments.	Familiar with and using state-of-the-art techniques/tools that are common to the profession	Same as 2 but also familiar with and using specialized techniques/tools. Knowledge of emerging techniques.
K-2	**Selection of technique/tool**	Unable to identify technique/tool to solve the problem, or selects tool that is not suitable for problem	Able to identify some, but not all, techniques/tools typically used to solve a particular problem	Able to identify most technique/tools that are typically used to solve a particular problem	Identifies technique/tools and evaluates which are best to solve a particular problem
K-3	**Ability to find needed information or resources**	Cannot or will not independently seek information or resources	Attempts to seek information related to task at hand.	Seeks out and is able to find information appropriate to the	Can comprehensively seek out and evaluate

			Developing ability to judge appropriateness of information to the task at hand.	task at hand.	appropriate information for the task at hand.
K-4	**Ability to develop new skills and expertise**	Unable to learn new techniques and skills independently	Developing ability to learn new techniques and skills independently. Lacks confidence or is uncomfortable with independent learning.	Is able to learn new techniques and skills independently. Seeks appropriate assistance and eventually learns technique or tool.	Is able to efficiently and effective learn new technique or skill. Comfortable with process of independent learning.
K-5	**Skill**	Unable to use technique/tool. Shows little or no aptitude for developing the technique or using the tool independently.	Can use technique or tool with supervision. Shows aptitude for developing the technique and using the tool independently.	Can independently use the basic features of technique or tool to produce meaningful results	Proficiently uses technique/tool, e.g. uses special features, optimizes data collection, etc.

From the analysis of these five student outcomes from ABET Criterion 3 it was determined that out of a selection of students, an average of 13.08% of students were not applicable, 8.77% of students failed to meet the criteria, 51.23% of students were developing the skills to meet the criteria, 26.15% of students met the criteria, and 0.77% of students exceeded the requirements of the criteria. Recommendations to improve ABET Criterion 3: Student Outcomes results include: the whole Inamori School of Engineering using: a School of Engineering Awareness Assessment and an Ethics & Globalization Quiz, a Laboratory Format/Template for the whole School of Engineering based from industry standards, and encouraging interdisciplinary senior theses and senior design projects.

Inamori School of Engineering

at

Alfred University

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A Report

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RNEW 496-02

Dr. Xingu Wang

May 06, 2018

Table of Contents

List of Tables in Report in Order of Appearance

List of Appendices

Abstract

ABET, previously known as the Accreditation Board for Engineering and Technology,[1] but now simply as ABET, observes, evaluates, and accredits colleges and universities through the Engineering Accreditation Commission.[2] Alfred University is currently accredited by ABET under their Engineering Accreditation Commision.[3] To be accredited through ABET, the following are analyzed: Program Educational Objectives, Student Outcomes, Assessments, Evaluations, as well as Criterion 1 through 8 depending on the program. Evaluations determine the extent to which student outcomes are being attained. These evaluations result in decisions and actions regarding program improvement.[4] This report focuses on ABET Criterion 3: Student Outcomes, in which the program must have documented student outcomes that prepare graduates to attain the program educational objectives. Student outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program.[4] For this report, ABET Criterion 3: Student Outcomes – B, F, G, I, and K are assessed and analyzed. From this analysis, it was determined that out of a selection of students, an average of 13.08% of students were not applicable, 8.77% of students failed to meet the criteria, 51.23% of students were developing the skills to meet the criteria, 26.15% of students met the criteria, and 0.77% of students exceeded the requirements of the criteria. Recommendations to improve ABET Criterion 3: Student Outcomes results include: the whole Inamori School of Engineering using: a School of Engineering Awareness Assessment and an Ethics & Globalization Quiz, a Laboratory Format/Template for the whole School of Engineering based from industry standards, and encouraging interdisciplinary senior theses and senior design projects.

Introduction

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Criterion 1: Students

Student performance must be evaluated. Student progress must be monitored to foster success in attaining student outcomes, thereby enabling graduates to attain program educational objectives. Students must be advised regarding curriculum and career matters. The program must have and enforce policies for accepting both new and transfer students, awarding appropriate academic credit for courses taken at other institutions, and awarding appropriate academic credit for work in lieu of courses taken at the

institution. The program must have and enforce procedures to ensure and document that students who graduate meet all graduation requirements.[4]

Criterion 2: Program Educational Objectives

The program must have published program educational objectives that are consistent with the mission of the institution, the needs of the program's various constituencies, and these criteria. There must be a documented, systematically utilized, and effective process, involving program constituencies, for the periodic review of these program educational objectives that ensures they remain consistent with the institutional mission, the program's constituents' needs, and these criteria.[4]

Criterion 3: Student Outcomes

The program must have documented student outcomes that prepare graduates to attain the program educational objectives. Student outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program.[4]

(l) an ability to apply knowledge of mathematics, science, and engineering
(m) an ability to design and conduct experiments, as well as to analyze and interpret data
(n) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
(o) an ability to function on multidisciplinary teams
(p) an ability to identify, formulate, and solve engineering problems
(q) an understanding of professional and ethical responsibility
(r) an ability to communicate effectively
(s) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(t) a recognition of the need for, and an ability to engage in life-long learning
(u) a knowledge of contemporary issues
(v) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Criterion 4: Continuous Improvement

The program must regularly use appropriate, documented processes for assessing and evaluating the extent to which the student outcomes are being attained. The results of these evaluations must be systematically utilized as input for the continuous improvement of the program. Other available information may also be used to assist in the continuous improvement of the program.[4]

Criterion 5: Curriculum

The curriculum requirements specify subject areas appropriate to engineering but do not prescribe specific courses. The faculty must ensure that the program curriculum devotes adequate attention and time to each component, consistent with the outcomes and objectives of the program and institution. The professional component must include:

a. one year of a combination of college level mathematics and basic sciences (some with experimental experience) appropriate to the discipline. Basic sciences are defined as biological, chemical, and physical sciences.
b. one and one-half years of engineering topics, consisting of engineering sciences and engineering design appropriate to the student's field of study. The engineering sciences have their roots in mathematics and basic sciences but carry knowledge further toward creative application. These studies provide a bridge between mathematics and basic sciences on the one hand and engineering practice on the other. Engineering design is the process of devising a system, component, or process to meet desired needs. It is a decision-making process (often iterative), in which the basic sciences, mathematics, and the engineering sciences are applied to convert resources optimally to meet these stated needs.
c. a general education component that complements the technical content of the curriculum and is consistent with the program and institution objectives. Students must be prepared for engineering practice through a curriculum culminating in a major design experience based on the knowledge and skills acquired in earlier course work and incorporating appropriate engineering standards and multiple realistic constraints. One year is the lesser of 32 semester hours (or equivalent) or one-fourth of the total credits required for graduation.[4]

Criterion 6: Faculty

The program must demonstrate that the faculty members are of sufficient number and they have the competencies to cover all of the curricular areas of the program. There must be sufficient faculty to accommodate adequate levels of student-faculty interaction, student advising and counseling, university service activities, professional development, and interactions with industrial and professional practitioners, as well as employers of students. The program faculty must have appropriate qualifications and must have and demonstrate sufficient authority to ensure the proper guidance of the program and to develop and implement processes for the evaluation, assessment, and continuing improvement of the program. The overall competence of the faculty may be judged by such factors as education, diversity of backgrounds, engineering experience, teaching effectiveness and experience, ability to communicate, enthusiasm for developing more effective programs, level of scholarship, participation in professional societies, and licensure as Professional Engineers.[4]

Criterion 7: Facilities

Classrooms, offices, laboratories, and associated equipment must be adequate to support attainment of the student outcomes and to provide an atmosphere conducive to learning. Modern tools, equipment, computing resources, and laboratories appropriate to the program must be available, accessible, and systematically maintained and upgraded to enable students to attain the student outcomes and to support program needs. Students must be provided appropriate guidance regarding the use of the tools, equipment, computing resources, and laboratories available to the program. The library services and the computing and information infrastructure must be adequate to support the scholarly and professional activities of the students and faculty.[4]

Criterion 8: Institutional Support

Institutional support and leadership must be adequate to ensure the quality and continuity of the program. Resources including institutional services, financial support, and staff (both administrative and technical) provided to the program must be adequate to meet program needs. The resources available to the program must be sufficient to attract, retain, and provide for the continued professional development of a qualified faculty. The resources available to the program must be sufficient to acquire, maintain, and operate infrastructures, facilities, and equipment appropriate for the program, and to provide an environment in which student outcomes can be attained.[4]

For this analysis and report, only Criterion 3: Student Outcomes – B, F, G, I, and K will be analyzed for three courses taught in the Spring 2018 semester. These courses and associated outcomes are shown in Table A1 below.

Table A3: Courses and ABET Criteria

Course – Spring 2018				ABET Criteria to be Analyzed	Instructor
Department	**Code**	**Name**	**CH**		
ENGR	220	Circuit Theory I	4	B, F, G, I, K	Dr. Xingwu Wang
MECH	212	Dynamics	3	B, F, G, I, K	Dr. Xingwu Wang
RNEW	468	Electric Machinery	3	B, F, G, I, K	Dr. Xingwu Wang

To assess Student Outcome B, an ability to design and conduct experiments, as well as to analyze and interpret data, Table A2 below will be used to analyze and assess final projects from ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery as well as term papers from RNEW 468: Electric Machinery.

Table A4: ABET Criterion 3 - Student Outcomes B

B.	**An ability to design and conduct experiments, as well as to analyze and interpret data**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
Experimental Design					
B-1	**Hypothesis**	No statement of the problem; too broad (non-specific).	Hypothesis statement present but unclear or vague.	Clearly stated hypothesis.	Clear hypothesis and hypothesis evolved based on experimental observations.
B-2	**Experimental Design**	Experiments poorly designed or do not appear to address the hypothesis.	Rudimentary experimental design or experiments may not directly address hypothesis.	Concise experimental design with apparent connection to hypothesis.	Nested or tiered experimental designs that have evolved based on preliminary data.
Data Presentation					
B-3	**Presentation of data (as appropriate)**	Data is presented in text, but not with graphics, tables, or plots.	Data tables but without plots, or plots without error indication.	Data plotted in logical manner with error bars (where appropriate)	Presentation of data is concise, well plotted, and indicates comprehensive view (i.e., secondary plots, etc.).
B-4	**Presentation**	No images, but	Images, but	Images with	Images are

	of images (as appropriate)	images warranted.	without size indication or with magnification values listed. Images are remotely (in text).	size bars, direct references, appropriate size for viewing.	annotated, properly presented, and tied to the hypothesis in a reasonable manner.
Data Analysis and Interpretation, including Error Analysis					
B-5	**Data Analysis**	Limited data analysis, does not address or consider hypothesis.	Rudimentary data analysis. Addresses the hypothesis but does data analysis is unfocused.	Data is evaluated, trends are discussed, and the hypothesis is evaluated. Simple equations for data trends.	Data analysis is detailed and strongly connected to the hypothesis resulting in a conclusion or recommendation.
B-6	**Treatment of Error**	No error bars on plots or no discussion of data reliability.	Error bars present but limited discussion of data reliability.	Error analysis is thorough, indicates data quality, and trend discussions are justified.	Error analysis is thorough and comprehensive, statistical analysis is incorporated to evaluate significant differences.
Conclusions, Future Work, and Presentation					
B-7	**Conclusions**	No conclusions or new information presented in the conclusions section.	Conclusions are rudimentary or make oblique references to the hypothesis.	Conclusions are supported by the data and the hypothesis is addressed succinctly.	Hypothesis is evaluated correctly, and the next steps outlined concisely within a broader context.
B-8	**Future Work**	No future work section or justification for omission not provided.	Future work section draw doubt on the validity of the experimental (repeat experiments, etc.).	Future work indicates the reasonable next steps, in the context of the hypothesis.	The next experiments are described, and the results predicted indicating in-depth understanding of the problem.
B-9	**Presentation**	Student is unable to state hypothesis, minimal understanding of experiments conducted, etc.	Student can state hypothesis, has a rudimentary understanding of the experiments, but does not grasp data significance.	Students can concise state the hypothesis, understand the data, and are comfortable with their conclusions.	Students understand the overall picture, understand their data and its implications, and see the broader impact of their work.

To assess Student Outcome F, an understanding of professional and ethical responsibility, the following table will be used to analyze and assess an ethics quiz, as well as a globalization quiz, given to the students from ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery.

Table A3: ABET Criterion 3 - Student Outcomes F

F.	**an understanding of professional and ethical responsibility**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
F-1	**Knowledge of professional codes**	Unaware that professional codes of ethics exist.	Knows that professional codes exist. Able to describe some elements of the code.	Knows the Code of Ethics endorsed by the Society of Professional Engineers exists and can locate it. Able to describe major elements of code.	Meets requirements plus knows of relevant discipline-specific codes for field of study. Able to describe detailed elements of code(s). Able to interpret all of them for real world situations.
F-2	**Ability to evaluate ethical dilemmas related to professional practice**	Does not identify problem. Uses misinformation or ignores facts. Does not analyze situation. Does not identify stakeholders.	Identifies problem and may infer ethical dilemma. Lists facts but may miss key information. Minimal analysis of situation. Identifies some stake holders but may favor one point of view.	Recognizes ethical dilemma. Identifies facts and recognizes some missing information. Applies rules or standards with justifications. Understands cost-schedule-risk relationship. Acknowledges multiple stakeholders and basic understanding of their views.	Identifies and frames ethical dilemma. Recognizes known and unknown facts. Correctly applies rules or standards. Identifies cost-schedule-risk. Acknowledges multiple stakeholders and considers consequences. Knows of real world examples.
F-3	**Ability to make informed ethical choices**	Does not contribute to class discussion and exercises related to ethics. Does not recognize need	Does not take class discussion and exercises seriously but recognizes that professional/ethical situations do exist. Proposes resolutions	Participates constructively in class discussions and exercises on ethics and professionalism. Proposes	Participates constructively in class discussions and exercises on ethics and professionalism. Proposes

		for ethical behavior. Make decisions based on personal bias and without objectivity. Proposes resolutions that lack integrity.	but does not fully describe consequences.	alternative solutions and identifies consequences to stakeholders.	alternative solutions and identifies consequences to stakeholders. Identifies risks. Proposes creative win-win solutions.
F-4	**Demonstrated ethical behavior**	Does not demonstrate ethical behavior among faculty and peers. Knowingly disregards SPE Code of Ethics and AU code of ethics.	Generally, demonstrates ethical behavior among faculty and peers, but unknowing demonstrated unethical behavior because of misunderstandings about relevant code of ethics.	Demonstrates ethical behavior among faculty and peers consistent with SPE Code of Ethics and AU's code of ethics.	Demonstrates ethical behavior among faculty and peers consistent with SPE Code of Ethics and AU's code of ethics and helps peers make ethical decisions.
F-5	**Demonstrated professional behavior**	Frequently tardy or absent for appointments. Routinely exhibits behavior that is disruptive or inappropriate for situation. Routinely does not take responsibility for actions.	Occasional tardy or absent for class or appointments. Sometimes exhibits behavior inappropriate for situation. Sometime does not take responsibility for actions.	Generally punctual, attends classes regularly, and makes all appointments. Exhibits behavior that is appropriate for the situation. Generally, Take responsibility for actions.	Meets basic performance indicators and demonstrates notable leadership in evaluated situation. Identifies with real world professionals in engineering.

To assess Student Outcome G, an ability to communicate effectively, the following table will be used to analyze and assess student laboratory reports from ENGR 220: Circuit Theory I, final projects from ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery, as well as term papers from RNEW 468: Electric Machinery.

Table A4: ABET Criterion 3 - Student Outcomes G

G.	**An ability to communicate effectively**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
Content					
G-1	**Scope and Purpose**	Purpose, scope and context	Purpose stated. Context and scope	Well-defined purpose. Context	Similar to "meets", but

		absent or ill defined.	either too vague or supported by irrelevant details.	and scope supported by relevant details.	discussion enhances deeper level of understanding or provides critical analysis of previous work.
G-2	**Idea Development: primarily main body discussion and conclusion**	Claims & ideas not supported by relevant evidence and/or examples.	Claims and ideas supported by relevant evidence but lacking sufficient detail or connections between related parts.	Claims and ideas supported by relevant evidence. Strong arguments enhanced by clear connections between related parts.	Similar to strong but high level of insight leading to fresh and illuminating ideas.
Writing					
G-3	**General Organization & Coherence: placement of content in sections in a formatted document as well as organization of content within sections.**	Content in wrong section. Order of presentation prevents reader from understanding content.	Content in correct section. Order of presentation within sections hinders understanding of content.	Content in correct sections. Order of presentation within sections leads reader to develop understanding of subject, but minor rearrangement could improve readability.	Little room for improvement.
G-4	**Paragraphs**	Totally disorganized, pointless paragraphs. No transitions from one paragraph to the next.	Paragraphs with topic sentences, but noticeable discontinuities. Weak transitions from one paragraph to the next.	Strong topic sentences with good transition from the previous paragraph. Thought in paragraph flows from one idea to the next.	
G-5	**Sentences**	Poorly organized sentences; very poorly expressed thoughts; excessive use of passive and ineffective subordinate clauses. Inappropriate use	Adequately expressed ideas without excessive use of passive voice. Sentences not too turgid, although lacking in elegance. Acceptable use of tense.	Clear expression with elegant phrasing; appropriate tense used.	

		of tense.			
G-6	**Words/Tone**	Excessive use of colloquialisms and slang; use of 1st and 2nd person; excessive use of inflated language.	Little use of colloquialism and inflated language; excessive use of passive voice.	Appropriate use of formal language with truly sterling word choice.	
G-7	**Mechanics: mechanics, spelling, usage, punctuation, etc.**	Frequent errors that distract reader and/or prevent understanding of content.	Notable errors that are bothersome but do not prevent understanding of content.	Occasional minor errors.	Nearly flawless.
Appearance					
G-8	**Format: type of document, font, headings, page numbers, TOC, etc.**	Unprofessional appearance. Inappropriate format. Inconsistencies in formatting styles.	Professional appearance. Appropriate format but missing some expected elements. Some inconsistencies in formatting styles.	Professional appearance. Appropriate format with all major elements expected. Few inconsistencies in formatting styles.	Nearly flawless.
G-9	**Graphics: figures & tables, etc.**	Items that do not support the text or that lack proper labels, units or scales. Captions or titles not descriptive.	Items generally support ideas in text. Figures and tables are accurately labeled, but presentation does not promote understanding of main features of data. Captions or titles descriptive, but not detailed enough to enable interpretation without reference to text.	Items support and enhance ideas in text. Figures and tables labeled to enable reader to understand and interpret main features. Captions and titles enable basic interpretation without reference to text.	Similar to #4, but design enables reader to understand and interpret subtle features in data.
G-10	**Citations: in text and in bibliography**	Incorrect format: in text and in bibliography	Generally correct format with noticeable errors.		Correct format: only minor, picky errors.

To assess Student Outcome I, a recognition of the need for, and an ability to engage in life-long learning, the following table will be used to analyze and assess a School of Engineering Awareness

assessment given to the students in ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery.

Table A5: ABET Criterion 3 - Student Outcomes I

I.	**a recognition of the need for, and an ability to engage in life-long learning**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
I-1	**Attitudes**	Student has no voluntary, self-motivated learning	Is enrolled at the university only to "get a good job"	Identifies "career" versus "job"; Has defined career goals and clear career aspirations.	Has a detailed plan for achieving career goals.
I-2			Has considered learning experiences outside the university but is not sufficiently self-motivated to engage in them	Expresses life skill desires (cooking, foreign language, travel, etc.)	Has studied abroad, has engaged in learning experiences outside the university
I-3			Has mixed feelings about core curriculum requirements or sees them as a necessary hurdle for obtaining a university degree	Supports core curriculum requirements at the university	Has taken elective courses outside of major field and unrelated to expected career path, beyond core requirements
I-4	**Plans**	Student has not considered life after graduation.	Wants to "get degree & get out"; expects only to apply knowledge/skills learned at the university after graduation	Has considered or is considering graduate education, incl. outside of field (MBA, law school, medical school, etc.)	Has been accepted to a graduate program
I-5			Recognizes skill set as something to be continually expanded; sees varied skill sets as being beneficial to multidisciplinary teams	Can identify at least one skill that they would like to learn post-graduation; is interested in further career development through training (such as Six Sigma)	Maintains a list of skills that they plan to learn and experiences they wish to have in the future.
I-6			Sees professional organizations as clubs associated only with schooling	Plans to become/remain a dues-paying member of professional organization after	Plans to assume an organizational or leadership role their professional organization

				graduation	
I-7	**Actions/ Activities**	Student is not engaged in current events, extracurricular activities, networking, career development.	Is considering joining student chapter	Is currently a member of student chapter of professional organization	Has been elected to a leadership role in their student branch; has attended conferences
I-8			Is interested in current events, but obtains information only passively by watching TV	Reads newspaper or news feeds (rather than TV news programs); reads books (non-fiction or fiction); goes to regional museums and local art exhibits; consumer of educational TV programming and documentaries	Detailed knowledge of current events; Avid consumer of books, documentaries, etc.; has traveled and made plans to see museums and art exhibits
I-9			Plans to take FE exam	Has passed the FE (is an EIT)	Is an EIT, plans to become a PE, has identified a PE mentor or sought out employers where PE mentorship is possible
I-10			Participates in some extracurricular activities and hobbies, but only rarely when school is in session	Makes time for extracurricular activities and hobbies unrelated to an engineering career	Participates in activities and hobbies that require regular practice and training.

To assess Student Outcome K, an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice, the following table will be used to analyze and assess laboratory reports from ENGR 220: Circuit Theory I and final projects for the following classes: ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery.

Table A6: ABET Criterion 3 - Student Outcomes K

K.	**an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**

K-1	**Knowledge of technique/tool**	Is not familiar with state-of-the-art techniques/tools used in engineering profession	Familiar with and using techniques/tools as they are presented in class assignments.	Familiar with and using state-of-the-art techniques/tools that are common to the profession	Same as 2 but also familiar with and using specialized techniques/tools. Knowledge of emerging techniques.
K-2	**Selection of technique/tool**	Unable to identify technique/tool to solve the problem, or selects tool that is not suitable for problem	Able to identify some, but not all, techniques/tools typically used to solve a particular problem	Able to identify most technique/tools that are typically used to solve a particular problem	Identifies technique/tools and evaluates which are best to solve a particular problem
K-3	**Ability to find needed information or resources**	Cannot or will not independently seek information or resources	Attempts to seek information related to task at hand. Developing ability to judge appropriateness of information to the task at hand.	Seeks out and is able to find information appropriate to the task at hand.	Can comprehensively seek out and evaluate appropriate information for the task at hand.
K-4	**Ability to develop new skills and expertise**	Unable to learn new techniques and skills independently	Developing ability to learn new techniques and skills independently. Lacks confidence or is uncomfortable with independent learning.	Is able to learn new techniques and skills independently. Seeks appropriate assistance and eventually learns technique or tool.	Is able to efficiently and effective learn new technique or skill. Comfortable with process of independent learning.
K-5	**Skill**	Unable to use technique/tool. Shows little or no aptitude for developing the technique or using the tool independently.	Can use technique or tool with supervision. Shows aptitude for developing the technique and using the tool independently.	Can independently use the basic features of technique or tool to produce meaningful results	Proficiently uses technique/tool, e.g. uses special features, optimizes data collection, etc.

The analysis of these five student outcomes from ABET Criterion 3 will give better insight on whether the students in ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric

Machinery are failing to meet, developing, meeting, or exceeding the ABET Criterion 3: Student Outcomes of B, F, G, I, and K.

Procedure

To assess and analyze the ABET Criterion 3: Student Outcomes of B, F, G, I, and K effectively, three courses taught in the Spring 2018 semester in the Inamori School of Engineering at Alfred University will be given three quizzes/assessments. These quizzes/assessments will be uploaded to Alfred University's section of Canvas by Instructure[5], a cloud-based Learning Management System (LMS) that makes teaching and learning easier[6].

For ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery, a School of Engineering Awareness Assessment, Ethics Quiz, and Globalization Quiz are available on Canvas for the Spring 2018 semester. The deadline for students to finish all quizzes/assessments is April 20th, 2018 at 11:59 p.m.. The School of Engineering Awareness Assessment questions and possible answers students can give are shown in Table B1 below. This assessment is used to analyze ABET Criterion 3: Student Outcomes – I which analyzes a recognition of the need for, and an ability to engage in life-long learning using Table A5 shown above in the Introduction.

Table B1: School of Engineering Awareness Assessment Questions and Possible Answers for ENGR 220, MECH 212, and RNEW 468

Questions	Possible Answers
Question 1: What year in college are you?	Freshman, Sophomore, Junior, Senior, Super Senior (Can only pick one – multiple choice)
Question 2: What school(s) are you enrolled in at Alfred University?	College of Ceramics, College of Liberal Arts & Sciences, College of Professional Studies, Inamori School of Engineering, School of Art & Design, School of Business (Can pick more than one – multiple answer)
Question 3: Which of the following is/are your engineering major(s)?	Biomaterials Engineering, Ceramic Engineering, Glass Engineering Science, I am not an engineer, Materials Science & Engineering, Mechanical Engineering, Renewable Energy Engineering, Undecided Engineering (Can pick more than one – multiple answer)
Question 4: What is/are your minor(s)?	Biomaterials, Chemistry, Glass Science, I do not have a minor, Materials Science, Mathematics, Mechanical Engineering, Other, Physics, Renewable Energy Engineering (Can pick more than one – multiple answer)
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting	Active Member, In a leadership position, No (Can only pick one – multiple choice)

regularly)	
Question 6: How many engineering clubs are there on campus?	1, 2, 5, 10+, None (Can only pick one – multiple choice)
Question 7: How many engineering honor societies are there on campus?	1, 2, 5, 10+, None (Can only pick one – multiple choice)
Question 8: What is Tau Beta Pi?	A Fraternity, A Sorority, Engineering Club, National Engineering Honor Society, None of the above (Can only pick one – multiple choice)
Question 9: What is Keramos?	A Fraternity, A Sorority, Engineering Club, Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors, None of the above (Can only pick one – multiple choice)
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Both, Neither, Private, Public (Can only pick one – multiple choice)

For the Ethics Quiz, the questions given to ENGR 220: Circuit Theory I and RNEW 468: Electric Machinery involve an electrical circuit manufacturing company. Whereas for MECH 212: Dynamics, the Ethics Quiz questions involve a car shock manufacturing company. This is for the sole purpose of giving the students a way to relate the question to the course they are taking. The Ethics Quiz Questions and possible answers students can give for ENGR 220: Circuit Theory I and RNEW 468: Electric Machinery are shown in Table B2 below. The Ethics Quiz is used to analyze ABET Criterion 3: Student Outcomes – F, which analyzes an understanding of professional and ethical responsibility using Table A3 shown above in the Introduction.

Table B2: Ethics Quiz Questions and Possible Answers for ENGR 220 and RNEW 468

Background:

Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks:

a. To design a line of new circuits for cell phones
b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits
c. To report to her management regarding the manufacturing status

The problems Ms. Williams is facing are:

a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA.

b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Possible Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Tell her management that she cannot certify the products, She will work alone overnight to redo the circuits, Send the ten circuits to the customer, Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Fire the electrician, Take a vacation, Keep her mouth shut, Redo the circuits (Can pick more than one – multiple answer)
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	Results Vary by Student

The Ethics Quiz Questions and possible answers students can give for MECH 212: Dynamics are shown in Table B3 below. The Ethics Quiz is used to analyze ABET Criterion 3: Student Outcomes – F, which analyzes an understanding of professional and ethical responsibility using Table A3 shown above in the Introduction.

Table B3: Ethics Quiz Questions and Possible Answers for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks c. To report to her management regarding the manufacturing status The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Possible Answers**
Question 1: What should Ms. Williams	Tell her management that she cannot certify the products, She will work alone overnight to redo the shocks, Send the ten shocks to the customer,

do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Fire the mechanic, Take a vacation, Keep her mouth shut, Redo the shocks (Can pick more than one – multiple answer)
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	Results Vary by Student

The Globalization Quiz questions and possible answers students can give for ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery are shown in Table B4 below. The Globalization Quiz is used to analyze ABET Criterion 3: Student Outcomes – F, which analyzes an understanding of professional and ethical responsibility using Table A3 shown above in the Introduction.

Table B4: Globalization Quiz Questions and Possible Answers for ENGR 220, MECH 212, and RNEW 468

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Possible Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Results Vary by Student
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	Results Vary by Student
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Results Vary by Student
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	Results Vary by Student

Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	Results Vary by Student
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Results Vary by Student
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Results Vary by Student

Once these quizzes/assessments are submitted, the data is sorted by the students in each course separately. Participation rates are calculated for each quiz and assessment; these rates are recorded in Table C1, Table C2, and Table C3. Students who have completed all three quizzes/assessments for each course are chosen to be assessed further for ABET Criterion 3: Student Outcomes – B, G, and K.

For ABET Criterion 3: Student Outcomes – B, which analyzes an ability to design and conduct experiments, as well as to analyze and interpret data, final projects from the students that completed all three quizzes/assessments in ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery are analyzed using Table A2 shown above in the Introduction.

To analyze ABET Criterion 3: Student Outcomes – G, which analyzes an ability to communicate effectively, final projects from the students that completed all three quizzes/assessments in ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery, as well as laboratory reports submitted throughout the semester from the students that completed all three quizzes/assessments in ENGR 220: Circuit Theory I, are analyzed using Table A4 shown above in the Introduction.

For ABET Criterion 3: Student Outcomes – K, which analyzes an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice, final projects from the students that completed all three quizzes/assessments in ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery, as well as laboratory reports submitted throughout the semester from the students that completed all three quizzes/assessments in ENGR 220: Circuit Theory I, are analyzed using Table A6 shown above in the Introduction.

The selected students that completed all three quizzes/assessments in ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery are also asked to fill out an ABET Criterion 3: Student Outcomes spreadsheet in groups to grade the group on the criterion. These results are shown in Table C17 through Table C19.

After all the quizzes/assessments, laboratory reports, final projects, and ABET Group Assessments are analyzed and assessed for ABET Criterion 3: Student Outcomes – B, F, G, I, and K based on whether the students in ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery are failing to meet, developing, meeting, or exceeding these criterion, recommendations for further advancement in ABET Criterion 3: Student Outcomes – B, F, G, I, and K are given.

Task Organization

Task #1: Quizzes/Assessments

A. Upload the School of Engineering Awareness Assessment, Ethics Quiz, and Globalization Quiz to the quizzes section in Canvas[5] for ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery.
B. After April 20, 2018, download assessment results and calculate participation rates.
C. Select students from ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery who have completed all three quizzes/assessments.
D. Analyze selected students for ABET Criterion 3: Student Outcomes – F using the Ethics Quiz and Globalization Quiz.
E. Analyze selected students for ABET Criterion 3: Student Outcomes – I using the School of Engineering Awareness Assessment.

Task #2: ABET Criterion 3: Student Outcomes – B, G, and K

1. Collect laboratory reports from the select students who have completed all three quizzes/assessments in ENGR 220: Circuit Theory I.
2. Analyze selected students' laboratory reports from ENGR 220: Circuit Theory I for ABET Criterion 3: Student Outcomes – G and K.
3. Collect final project presentations from the select students who have completed all three quizzes/assessments in ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery.
4. Analyze selected students' final presentations from ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery for ABET Criterion 3: Student Outcomes – B, G, and K.
5. Collect term papers from students in RNEW 468: Electric Machinery.
6. Analyze selected students' term papers from RNEW 468: Electric Machinery for ABET Criterion 3: Student Outcomes – B, G, and K.
7. Collect ABET Self-Assessments from the select students who have completed all three quizzes/assessments in ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery.

8. Analyze selected students' ABET Self-Assessments from ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery for ABET Criterion 3: Student Outcomes – B, G, and K.

Task #3: Recommendations

A. After analyzing and assessing the selected students' quizzes/assessments, laboratory reports, final projects, and ABET Self-Assessments for ABET Criterion 3: Student Outcomes – B, F, G, I, and K based on whether the students in ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery are failing to meet, developing, meeting, or exceeding these criterion, recommendations for further advancement in ABET Criterion 3: Student Outcomes – B, F, G, I, and K are given.

Table B5: Gantt Chart

Tasks	Jan	Feb	Mar	Apr	May
Literature Studies					
Task 1A					
Task 1B					
Task 1C					
Task 1D					
Task 1E					
Task 2A					
Task 2B					
Task 2C					
Task 2D					
Task 2E					
Task 2F					
Task 3A					
Writing proposal					
Analyzing Data					
Writing report					

Results

After April 20, 2018, the results from the School of Engineering Awareness Assessment, quizzes/assessments for ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery were downloaded. From these, the participation rates were calculated based on who took the quiz and the total number of students enrolled in the course on Canvas[5]. These participation rates are shown below in Table C1 for ENGR 220: Circuit Theory I, Table C2 for MECH 212: Dynamics, and Table C3 for RNEW 468: Electric Machinery.

Table C1: Quiz/Assessment Participation Rates for ENGR 220

Total Number of Students in ENGR 220						**94**
	SoE Awareness Assessment		**Ethics Quiz**		**Globalization Quiz**	
	Number of Students	**%**	**Number of Students**	**%**	**Number of Students**	**%**
Completed	73/94	77.66%	60/94	63.83%	54/94	57.45%
Not Completed	21/94	22.34%	34/94	36.17%	40/94	42.55%

Table C2: Quiz/Assessment Participation Rates for MECH 212

Total Number of Students in MECH 212						**52**
	SoE Awareness Assessment		**Ethics Quiz**		**Globalization Quiz**	
	Number of Students	**%**	**Number of Students**	**%**	**Number of Students**	**%**
Completed	18/52	34.62%	30/52	57.69%	25/52	48.08%
Not Completed	34/52	65.38%	22/52	42.31%	27/52	51.92%

Table C3: Quiz/Assessment Participation Rates for RNEW 468

Total Number of Students in RNEW 468						**16**
	SoE Awareness Assessment		**Ethics Quiz**		**Globalization Quiz**	
	Number of Students	**%**	**Number of Students**	**%**	**Number of Students**	**%**
Completed	2/16	12.50%	7/16	43.75%	8/16	50.00%
Not Completed	14/16	87.50%	9/16	56.25%	8/16	50.00%

Out of the approximately 160 students above, although some are duplicates between ENGR 220: Circuit Theory I and MECH 212: Dynamics, 24 completed all three assessments/quizzes. They are listed below in Table C4, which shows the number of students in each course who completed all three

quizzes/assessments and their assigned student number for future reference. Students numbered higher than 24 are assessed on their other work.

Table C4: Selected Students and Associated Number

	Course		
	ENGR 220	**MECH 212**	**RNEW 468**
Student Number	1	1	11
	3	2	21
	4	3	25
	5	4	-
	6	5	-
	8	6	-
	9	7	-
	10	8	-
	13	9	-
	14	10	-
	15	12	-
	16	13	-
	17	14	-
	18	15	-
	19	16	-
	20	17	-
	22	18	-
	23	20	-
	24	22	-
	-	23	-
	-	24	-
Total Students	**19**	**21**	**3**
Same Between Courses	**18**	**18**	**0**
Different Between Courses	**1**	**3**	**3**

Out of these 25 students, 20 are sophomores, three are juniors, and two are seniors. Participation rates based on the students' year in college is found below in Table C5. The year in college the students are in is found from the School of Engineering Awareness Assessment Results for each student in Appendix D.

Table C5: Student Participation by Year in College

Student #	**Year in College**
1	Sophomore
2	Sophomore
3	Sophomore
4	Sophomore
5	Sophomore
6	Sophomore

7	Sophomore
8	Sophomore
9	Sophomore
10	Sophomore
11	Senior
12	Junior
13	Junior
14	Sophomore
15	Sophomore
16	Sophomore
17	Sophomore
18	Sophomore
19	Sophomore
20	Sophomore
21	Junior
22	Sophomore
23	Sophomore
24	Sophomore
25	Senior
Total Number of Students	25
Total Number of Sophomores	20
Total Number of Juniors	3
Total Number of Seniors	2
Percent of Students Participating that are Sophomores	80.00%
Percent of Students Participating that are Juniors	12.00%
Percent of Students Participating that are Seniors	8.00%

Using Table A5, the indictors for ABET Criterion 3: Student Outcomes – I, which analyzes a recognition of the need for, and an ability to engage in life-long learning, the selected students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

These students' individual answers to the questions are in Appendix D. Due to the questions on the School of Engineering Awareness Assessment lacking in certain items and indicators, only item I-7 can be assessed. These results are shown below in Table C6. When there are two results, the selected student completed the assessment twice: once for ENGR 220: Circuit Theory I and another time for MECH 212: Dynamics.

Table C6: School of Engineering Awareness Assessment - ABET Criterion 3: Student Outcomes – I Results by Student Number

Student Number	Item	Result
1	I-7	0.00
2	I-7	0.00
3	I-7	2.00
4	I-7	2.00
5	I-7	2.00
6	I-7	3.00
7	I-7	0.00
8	I-7	0.00
9	I-7	2.00
10	I-7	2.00
11	I-7	3.00
12	I-7	2.00
13	I-7	0.00
14	I-7	2.00
15	I-7	3.00
16	I-7	0.00
17	I-7	2.00
18	I-7	2.00
19	I-7	2.00
20	I-7	2.00
21	I-7	2.00
22	I-7	0.00
23	I-7	2.50
24	I-7	2.00
25	I-7	N/A

Using Table A3, the indictors for ABET Criterion 3: Student Outcomes – F, which analyzes an understanding of professional and ethical responsibility, the selected students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

These students' individual answers to the questions are in Appendix E for the Ethics Quiz and Appendix F for the Globalization Quiz. Due to the questions on the Ethics and Globalization quizzes lacking in certain items and indicators, only item F-2 can be assessed. The results for ABET Criterion 3: Student Outcomes – F for the Ethics Quiz are shown below in Table C7. For the Globalization Quiz, the results

are shown in Table C8 below. When a student has two results, they completed the quiz twice: once for ENGR 220: Circuit Theory I and once for MECH 212: Dynamics.

Table C7: Ethics Quiz - ABET Criterion 3: Student Outcomes – F Results by Student Number

Student Number	Item	Result
1	F-2	1.50
2	F-2	1.50
3	F-2	1.50
4	F-2	2.00
5	F-2	1.50
6	F-2	2.00
7	F-2	1.00
8	F-2	1.00
9	F-2	2.00
10	F-2	2.00
11	F-2	1.00
12	F-2	1.00
13	F-2	2.50
14	F-2	2.00
15	F-2	2.00
16	F-2	1.50
17	F-2	1.00
18	F-2	1.00
19	F-2	1.00
20	F-2	2.00
21	F-2	2.00
22	F-2	1.50
23	F-2	1.50
24	F-2	1.50
25	F-2	N/A

Table C8: Globalization Quiz - ABET Criterion 3: Student Outcomes – F Results by Student Number

Student Number	Item	Result
1	F-2	2.00
2	F-2	1.50
3	F-2	2.00
4	F-2	3.00
5	F-2	2.00
6	F-2	2.00
7	F-2	2.00
8	F-2	2.00
9	F-2	2.00
10	F-2	2.00
11	F-2	2.00
12	F-2	1.00

13	F-2	3.00
14	F-2	2.00
15	F-2	2.00
16	F-2	2.00
17	F-2	2.00
18	F-2	2.00
19	F-2	2.00
20	F-2	2.00
21	F-2	3.00
22	F-2	2.00
23	F-2	1.50
24	F-2	2.00
25	F-2	N/A

After collecting laboratory reports from ENGR 220: Circuit Theory I students, 14 students' laboratory reports were part of the original 24 selected students, the ones who completed all three quizzes/assessments. Using Table A4, the indictors for ABET Criterion 3: Student Outcomes – G, which analyzes an ability to communicate effectively, the selected students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

An example laboratory report is shown for students 5 and 20 in Appendix G, Document G1. The ABET Criterion 3: Student Outcomes – G results for all students are shown below in Table C9.

Table C9: Laboratory Reports - ABET Criterion 3: Student Outcomes – G Results by Student Number

Student Number	Item	Results
1	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
2	G-1	N/A
	G-2	N/A

	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
3	G-1	1
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
4	G-1	1.00
	G-2	1.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
5	G-1	1.00
	G-2	1.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	2
	G-10	1.00
6	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A

	G-9	N/A
	G-10	N/A
7	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
8	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	2.00
	G-10	1.00
9	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	2.00
	G-10	1.00
10	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
11	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A

	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
12	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
13	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
14	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
15	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A

16	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
17	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	2.00
	G-10	1.00
18	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
19	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
20	G-1	1.00
	G-2	1.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00

	G-7	2.00
	G-8	1.00
	G-9	2
	G-10	1.00
21	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
22	G-1	1.00
	G-2	1.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
23	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
24	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
25	G-1	N/A
	G-2	N/A

	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A

Using Table A6, the indictors for ABET Criterion 3: Student Outcomes – K, which analyzes an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice, the selected students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

These results are shown below in Table C10.

Table C10: Laboratory Reports - ABET Criterion 3: Student Outcomes – K Results by Student Number

Student Number	Item	Results
1	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
2	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
3	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	2.00
4	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
5	K-1	1.00
	K-2	1.00
	K-3	1.00

	K-4	2.00
	K-5	2.00
6	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
7	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
8	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
9	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
10	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
11	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
12	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
13	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
14	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00

	K-5	2.00
15	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
16	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
17	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
18	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
19	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
20	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	2.00
21	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
22	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
23	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A

24	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	2.00
25	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A

After collecting final projects from ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery students, 21 students' final projects were part of the selected students from the 24 who completed all three quizzes/assessments. Table C11 shows the selected students and their associated number, as well as what course they are in.

Table C11: Final Projects – Selected Students and Associated Number

	Course		
	ENGR 220	**MECH 212**	**RNEW 468**
Student Number	1	1	25
	3	3	-
	4	4	-
	5	5	-
	6	6	-
	8	8	-
	9	9	-
	10	10	-
	13	**12**	-
	14	13	-
	15	14	-
	16	15	-
	17	16	-
	18	17	-
	19	18	-
	20	19	-
	22	20	-
	23	22	-
	24	23	-
	-	24	-
Total Students	**19**	**20**	**1**
Same Between Courses	**19**	**19**	**0**
Different Between Courses	**0**	**1**	**1**

Using Table A2, the indictors for ABET Criterion 3: Student Outcomes – B, which analyzes an ability to design and conduct experiments, as well as to analyze and interpret data, the selected students from Table C11 above are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

An example final project presentation for Student 9 is shown in Appendix G, Document G2. The ABET Criterion 3: Student Outcomes – B results for the final projects are shown below in Table C12.

Table C12: Final Projects - ABET Criterion 3: Student Outcomes – B Results by Student Number

Student Number	Item	Results
1	B-1	0.00
	B-2	0.00
	B-3	1.00
	B-4	0.00
	B-5	0.00
	B-6	0.00
	B-7	0.00
	B-8	0.00
	B-9	0.00
2	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
3	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	1.00
	B-5	1.00
	B-6	N/A
	B-7	1.00
	B-8	0.00
	B-9	1.00
4	B-1	2.00
	B-2	2.00
	B-3	2.00

	B-4	2.00
	B-5	2.00
	B-6	0.00
	B-7	2.00
	B-8	2.00
	B-9	2.00
5	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	2.00
	B-5	1.00
	B-6	0.00
	B-7	1.00
	B-8	0.00
	B-9	1.00
6	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	1.00
	B-5	1.00
	B-6	N/A
	B-7	1.00
	B-8	0.00
	B-9	1.00
7	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
8	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	1.00
	B-5	0.00
	B-6	0.00
	B-7	1.00
	B-8	0.00
	B-9	2.00
9	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	1.00

	B-5	1.00
	B-6	0.00
	B-7	1.00
	B-8	0.00
	B-9	1.00
10	B-1	2.00
	B-2	2.00
	B-3	2.00
	B-4	2.00
	B-5	2.00
	B-6	0.00
	B-7	2.00
	B-8	2.00
	B-9	2.00
11	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
12	B-1	2.00
	B-2	2.00
	B-3	1.00
	B-4	1.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	0.00
	B-9	2.00
13	B-1	1.00
	B-2	1.00
	B-3	0.00
	B-4	1.00
	B-5	1.00
	B-6	N/A
	B-7	1.00
	B-8	0.00
	B-9	1.00
14	B-1	1.00
	B-2	1.00
	B-3	0.00
	B-4	1.00
	B-5	1.00

	B-6	0.00
	B-7	2.00
	B-8	0.00
	B-9	1.00
15	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	1.00
	B-5	1.00
	B-6	N/A
	B-7	1.00
	B-8	0.00
	B-9	1.00
16	B-1	2.00
	B-2	2.00
	B-3	1.00
	B-4	1.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	0.00
	B-9	2.00
17	B-1	2.00
	B-2	2.00
	B-3	2.00
	B-4	2.00
	B-5	2.00
	B-6	0.00
	B-7	2.00
	B-8	2.00
	B-9	2.00
18	B-1	2.00
	B-2	2.00
	B-3	2.00
	B-4	2.00
	B-5	2.00
	B-6	0.00
	B-7	2.00
	B-8	2.00
	B-9	2.00
19	B-1	2.00
	B-2	2.00
	B-3	2.00
	B-4	2.00
	B-5	2.00
	B-6	0.00

	B-7	2.00
	B-8	2.00
	B-9	2.00
20	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	2.00
	B-5	1.00
	B-6	0.00
	B-7	1.00
	B-8	0.00
	B-9	1.00
21	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
22	B-1	2.00
	B-2	2.00
	B-3	2.00
	B-4	2.00
	B-5	2.00
	B-6	0.00
	B-7	2.00
	B-8	2.00
	B-9	2.00
23	B-1	1.00
	B-2	1.00
	B-3	0.00
	B-4	1.00
	B-5	1.00
	B-6	0.00
	B-7	1.00
	B-8	1.00
	B-9	1.00
24	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	2.00
	B-5	1.00
	B-6	0.00
	B-7	1.00

	B-8	0.00
	B-9	1.00
25	B-1	3.00
	B-2	2.00
	B-3	3.00
	B-4	3.00
	B-5	3.00
	B-6	2.00
	B-7	2.00
	B-8	2.00
	B-9	3.00

Using Table A4, the indictors for ABET Criterion 3: Student Outcomes – G, which analyzes an ability to communicate effectively, the selected students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

These results are shown below in Table C13.

Table C13: Final Projects - ABET Criterion 3: Student Outcomes – G Results by Student Number

Student Number	Item	Results
1	G-1	0.00
	G-2	0.00
	G-3	0.00
	G-4	0.00
	G-5	0.00
	G-6	0.00
	G-7	1.00
	G-8	1.00
	G-9	0.00
	G-10	N/A
2	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
3	G-1	1.00

	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	0.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
4	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
5	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	0.00
	G-9	1.00
	G-10	N/A
6	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
7	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A

	G-8	N/A
	G-9	N/A
	G-10	N/A
8	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
9	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
10	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
11	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
12	G-1	2.00
	G-2	2.00
	G-3	2.00

	G-4	1.00
	G-5	2.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	2.00
13	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
14	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
15	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
16	G-1	2.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	2.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00

	G-10	2.00
17	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
18	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
19	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
20	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	0.00
	G-9	1.00
	G-10	N/A
21	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A

	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
22	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
23	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
24	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	0.00
	G-9	1.00
	G-10	N/A
25	G-1	2.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	2.00
	G-6	2.00
	G-7	2.00
	G-8	2.00
	G-9	2.00
	G-10	3.00

Using Table A6, the indictors for ABET Criterion 3: Student Outcomes – K, which analyzes an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice, the selected students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

These results are shown below in Table C14.

Table C14: Final Projects - ABET Criterion 3: Student Outcomes – K Results by Student Number

Student Number	Item	Results
1	K-1	0.00
	K-2	0.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
2	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
3	K-1	1.00
	K-2	1.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
4	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
5	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
6	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
7	K-1	N/A
	K-2	N/A
	K-3	N/A

	K-4	N/A
	K-5	N/A
8	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
9	K-1	1.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	1.00
10	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
11	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
12	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	3.00
13	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
14	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
15	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
16	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00

	K-5	3.00
17	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
18	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
19	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
20	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
21	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
22	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
23	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
24	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
25	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	3.00

After collecting term papers from RNEW 468: Electric Machinery students, 2 students' term papers are used. Table C15 below shows each students' number and ABET Criterion 3: Student Outcomes – B results using Table A2, the indictors for which analyze an ability to design and conduct experiments, as well as to analyze and interpret data. The selected students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

These results are shown below in Table C15.

Table C15: Term Papers - ABET Criterion 3: Student Outcomes – B Results by Student Number

Student Number	Item	Results
11	B-1	1.00
	B-2	1.00
	B-3	N/A
	B-4	0.00
	B-5	0.00
	B-6	N/A
	B-7	1.00
	B-8	0.00
	B-9	1.00
	B-1	2.00
	B-2	2.00
	B-3	N/A
	B-4	1.00
	B-5	2.00
	B-6	N/A
	B-7	2.00
	B-8	2.00
	B-9	2.00

Using Table A4, the indictors for ABET Criterion 3: Student Outcomes – G, which analyzes an ability to communicate effectively, the selected groups and associated students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

These results are shown below in Table C16.

Table C16: Term Papers - ABET Criterion 3: Student Outcomes – G Results by Student Number

Student Number	Item	Results
11	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	2.00
25	G-1	2.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	2.00
	G-6	2.00
	G-7	3.00
	G-8	2.00
	G-9	2.00
	G-10	2.00

Using Table A6, the indictors for ABET Criterion 3: Student Outcomes – K, which analyzes an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice, the selected groups and associated students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

These results are shown below in Table C17.

Table C17: Term Papers - ABET Criterion 3: Student Outcomes – K Results by Student Number

Student Number	Item	Results
11	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	2.00
25	K-1	2.00

	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	3.00

After collecting ABET Self-Assessments from ENGR 220: Circuit Theory I, MECH 212: Dynamics, and RNEW 468: Electric Machinery students, the indictors for ABET Criterion 3: Student Outcomes – B, which analyzes an ability to design and conduct experiments, as well as to analyze and interpret data, were assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

These results are shown below in Table C18.

Table C18: ABET Self-Assessment - ABET Criterion 3: Student Outcomes – B Results by Student Number

Student Number	Item	Results
1	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
2	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
3	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A

	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
4	B-1	2.00
	B-2	1.00
	B-3	0.00
	B-4	2.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	2.00
	B-9	3.00
5	B-1	3.00
	B-2	3.00
	B-3	3.00
	B-4	3.00
	B-5	3.00
	B-6	1.00
	B-7	3.00
	B-8	1.00
	B-9	3.00
6	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
7	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
8	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A

	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
9	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
10	B-1	2.00
	B-2	1.00
	B-3	0.00
	B-4	2.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	2.00
	B-9	3.00
11	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
12	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
13	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A

	B-7	N/A
	B-8	N/A
	B-9	N/A
14	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
15	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
16	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
17	B-1	2.00
	B-2	1.00
	B-3	0.00
	B-4	2.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	2.00
	B-9	3.00
18	B-1	2.00
	B-2	1.00
	B-3	0.00
	B-4	2.00
	B-5	2.00
	B-6	1.00
	B-7	2.00

	B-8	2.00
	B-9	3.00
19	B-1	2.00
	B-2	1.00
	B-3	0.00
	B-4	2.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	2.00
	B-9	3.00
20	B-1	3.00
	B-2	3.00
	B-3	3.00
	B-4	3.00
	B-5	3.00
	B-6	1.00
	B-7	3.00
	B-8	1.00
	B-9	3.00
21	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
22	B-1	2.00
	B-2	1.00
	B-3	0.00
	B-4	2.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	2.00
	B-9	3.00
23	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A

	B-9	N/A
24	B-1	3.00
	B-2	3.00
	B-3	3.00
	B-4	3.00
	B-5	3.00
	B-6	1.00
	B-7	3.00
	B-8	1.00
	B-9	3.00
25	B-1	2.00
	B-2	2.00
	B-3	2.00
	B-4	3.00
	B-5	2.00
	B-6	2.00
	B-7	2.00
	B-8	2.00
	B-9	2.00

Using Table A4, the indictors for ABET Criterion 3: Student Outcomes – G, which analyzes an ability to communicate effectively, the selected groups and associated students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

These results are shown below in Table C19.

Table C19: ABET Self-Assessment - ABET Criterion 3: Student Outcomes – G Results by Student Number

Student Number	Item	Results
1	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A

2	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
3	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
4	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
5	G-1	3.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	2.00
	G-6	2.00
	G-7	2.00
	G-8	3.00
	G-9	3.00
	G-10	3.00
6	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A

	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
7	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
8	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
9	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
10	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
11	G-1	N/A
	G-2	N/A

	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
12	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
13	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
14	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
15	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A

	G-9	N/A
	G-10	N/A
16	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
17	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
18	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
19	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
20	G-1	3.00
	G-2	2.00
	G-3	2.00
	G-4	2.00

	G-5	2.00
	G-6	2.00
	G-7	2.00
	G-8	3.00
	G-9	3.00
	G-10	3.00
21	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
22	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
23	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
24	G-1	3.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	2.00
	G-6	2.00
	G-7	2.00
	G-8	3.00
	G-9	3.00
	G-10	3.00

25	G-1	2.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	2.00
	G-6	2.00
	G-7	2.00
	G-8	2.00
	G-9	2.00
	G-10	3.00

Using Table A6, the indictors for ABET Criterion 3: Student Outcomes – K, which analyzes an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice, the students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

These results are shown below in Table C20.

Table C20: ABET Self-Assessment - ABET Criterion 3: Student Outcomes – K Results by Student Number

Student Number	Item	Results
1	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
2	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
3	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
4	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00

	K-5	2.00
5	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
6	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
7	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
8	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
9	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
10	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	2.00
11	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
12	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
13	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A

14	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
15	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
16	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
17	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	2.00
18	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	2.00
19	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	2.00
20	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
21	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
22	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	2.00
23	K-1	N/A

	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
24	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
25	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	2.00
	K-5	2.00

Discussion

Based on Table C1 shown above in the Results section and in Appendix C, out of the 94 students enrolled in ENGR 220: Circuit Theory I for the Spring semester of 2018, 73 students completed the School of Engineering Awareness Assessment, 60 students completed the Ethics Quiz, and only 54 completed the Globalization Quiz. This equates out to an average participation rate for the whole course of: 66.31%. From Table C2 shown above in the Results section and in Appendix C, out of the 52 students enrolled in MECH 212: Dynamics for the Spring semester of 2018, only 18 students completed the School of Engineering Awareness Assessment, 30 students completed the Ethics Quiz, and 25 completed the Globalization Quiz. This equates out to an average participation rate for the whole course of: 46.80%. Table C3, shown above in the Results section and in Appendix C, shows that out of the 52 students enrolled in RNEW 468: Electric Machinery for the Spring semester of 2018, only 2 students completed the School of Engineering Awareness Assessment, 7 students completed the Ethics Quiz, and 8 completed the Globalization Quiz. This equates out to an average participation rate for the whole course of: 35.42%.

Out of these three courses, the one with the highest average participation rate is ENGR 220: Circuit Theory I, which is a combination of Sophomores, Juniors, and Seniors. MECH 212: Dynamics is mainly composed of Sophomores, and RNEW 468: Electric Machinery is mainly composed of Juniors and Seniors. One reason the average participation rate for RNEW 468: Electric Machinery could be that most of the students have had Dr. Xingwu Wang as a professor before and know that he usually does not use Canvas, and therefore did not check it to notice there were three quizzes/assessments. From Table C5 above in the Results section and in Appendix C, out of the 25 selected students, 80.00% are sophomores, 12.00% are juniors, and 8.00% are seniors. This is because there are 94 students in ENGR 220: Circuit Theory I, which is a sophomore level course, and only 16 in RNEW 468: Electric Machinery, which is a senior level course.

When it comes to ABET Criterion 3: Student Outcomes, the 25 selected students were analyzed for Criteria B, F, G, I, and K. Their results are an average of their results from laboratory reports (if applicable), final projects, term papers (if applicable), and ABET Self-Assessment results in Appendix C and are shown in Tables H1 through Table H52 below. For reference, the selected students are assessed by the following standards:

0 – Fails to meet

1 – Developing

2 – Meets

3 – Exceeds

The results will be scored as follows, where n is the Average ABET Results score:

$0 \leq n < 1$ – Fails to meet

$1 \leq n < 2$ – Developing

$2 \leq n < 3$ – Meets

$n = 3$ – Exceeds

All tables were created using data from Appendix C: Table C1 through Table C20.

Table H1 shows the results from ABET Criterion 3 – Student Outcomes: B-1.

Table H1: ABET Criterion 3 – Student Outcomes: B-1 – Average Result ABET Result by Student Number

B-1		
Student Number	**Average Result**	**ABET Result**
1	0.0	Fails to Meet
2	N/A	N/A
3	1.0	Developing
4	2.0	Meets
5	2.0	Meets
6	1.0	Developing
7	N/A	N/A
8	1.0	Developing
9	1.0	Developing
10	2.0	Meets
11	1.0	Developing
12	2.0	Meets
13	1.0	Developing
14	1.0	Developing
15	1.0	Developing
16	2.0	Meets
17	2.0	Meets
18	2.0	Meets
19	2.0	Meets
20	2.0	Meets
21	N/A	N/A
22	2.0	Meets
23	1.0	Developing
24	2.0	Meets
25	2.3	Meets

Table H2 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – B-1.

Table H2: ABET Criterion 3 – Student Outcomes: B-1 – Number of Students and Percentage of Students for ABET Result

B-1: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	9	36.00%
Meets	12	48.00%

Table H3 shows the results from ABET Criterion 3 – Student Outcomes: B-2.

Table H3: ABET Criterion 3 – Student Outcomes: B-2 – Average Result ABET Result by Student Number

B-2		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	1.50	Developing
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.50	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	2.00	Meets
17	1.50	Developing
18	1.50	Developing
19	1.50	Developing
20	2.00	Meets
21	N/A	N/A
22	1.50	Developing
23	1.00	Developing
24	2.00	Meets
25	2.00	Meets

Table H4 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – B-2.

Table H4: ABET Criterion 3 – Student Outcomes: B-2 – Number of Students and Percentage of Students for ABET Result

B-2: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	15	60.00%
Meets	6	24.00%
Exceeds	0	0.00%

Table H5 shows the results from ABET Criterion 3 – Student Outcomes: B-3.

Table H5: ABET Criterion 3 – Student Outcomes: B-3 – Average Result ABET Result by Student Number

B-3		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	1.00	Developing
4	1.00	Developing
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.00	Developing
11	N/A	N/A
12	1.00	Developing
13	0.00	Fails to Meet
14	0.00	Fails to Meet
15	1.00	Developing
16	1.00	Developing
17	1.00	Developing
18	1.00	Developing
19	1.00	Developing
20	2.00	Meets
21	N/A	N/A
22	1.00	Developing
23	0.00	Fails to Meet
24	2.00	Meets
25	2.50	Meets

Table H6 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – B-3.

Table H6: ABET Criterion 3 – Student Outcomes: B-3 – Number of Students and Percentage of Students for ABET Result

B-3: ABET Result	Number of Students	Percentage of Students
N/A	4	16.00%
Fails to Meet	3	12.00%
Developing	14	56.00%
Meets	4	16.00%
Exceeds	0	0.00%

Table H7 shows the results from ABET Criterion 3 – Student Outcomes: B-4.

Table H7: ABET Criterion 3 – Student Outcomes: B-4 – Average Result ABET Result by Student Number

B-4		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	2.00	Meets
5	2.50	Meets
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	2.00	Meets
11	0.00	Fails to Meet
12	1.00	Developing
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.00	Developing
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	2.50	Meets
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	2.50	Meets
25	2.33	Meets

Table H8 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – B-4.

Table H8: ABET Criterion 3 – Student Outcomes: B-4 – Number of Students and Percentage of Students for ABET Result

B-4: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	2	8.00%
Developing	10	40.00%
Meets	10	40.00%
Exceeds	0	0.00%

Table H9 shows the results from ABET Criterion 3 – Student Outcomes: B-5.

Table H9: ABET Criterion 3 – Student Outcomes: B-5 – Average Result ABET Result by Student Number

B-5		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	2.00	Meets
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	0.00	Fails to Meet
9	1.00	Developing
10	2.00	Meets
11	0.00	Fails to Meet
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	2.00	Meets
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	2.00	Meets
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	2.00	Meets
25	2.33	Meets

Table H10 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – B-5.

Table H10: ABET Criterion 3 – Student Outcomes: B-5 – Number of Students and Percentage of Students for ABET Result

B-5: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	3	12.00%
Developing	7	28.00%
Meets	12	48.00%
Exceeds	0	0.00%

Table H11 shows the results from ABET Criterion 3 – Student Outcomes: B-6.

Table H11: ABET Criterion 3 – Student Outcomes: B-6 – Average Result ABET Result by Student Number

B-6		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	N/A	N/A
4	0.50	Fails to Meet
5	0.50	Fails to Meet
6	N/A	N/A
7	N/A	N/A
8	0.00	Fails to Meet
9	0.00	Fails to Meet
10	0.50	Fails to Meet
11	N/A	N/A
12	1.00	Developing
13	N/A	N/A
14	0.00	Fails to Meet
15	N/A	N/A
16	1.00	Developing
17	0.50	Fails to Meet
18	0.50	Fails to Meet
19	0.50	Fails to Meet
20	0.50	Fails to Meet
21	N/A	N/A
22	0.50	Fails to Meet
23	0.00	Fails to Meet
24	0.50	Fails to Meet
25	2.00	Meets

Table H12 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – B-6.

Table H12: ABET Criterion 3 – Student Outcomes: B-6 – Number of Students and Percentage of Students for ABET Result

B-6: ABET Result	Number of Students	Percentage of Students
N/A	8	32.00%
Fails to Meet	14	56.00%
Developing	2	8.00%
Meets	1	4.00%
Exceeds	0	0.00%

Table H13 shows the results from ABET Criterion 3 – Student Outcomes: B-7.

Table H13: ABET Criterion 3 – Student Outcomes: B-7 – Average Result ABET Result by Student Number

B-7		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	2.00	Meets
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	2.00	Meets
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	2.00	Meets
15	1.00	Developing
16	2.00	Meets
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	2.00	Meets
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	2.00	Meets
25	2.00	Meets

Table H14 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – B-7.

Table H14: ABET Criterion 3 – Student Outcomes: B-7 – Number of Students and Percentage of Students for ABET Result

B-7: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	8	32.00%
Meets	13	52.00%
Exceeds	0	0.00%

Table H15 shows the results from ABET Criterion 3 – Student Outcomes: B-8.

Table H15: ABET Criterion 3 – Student Outcomes: B-8 – Average Result ABET Result by Student Number

B-8		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	0.00	Fails to Meet
4	2.00	Meets
5	0.50	Fails to Meet
6	0.00	Fails to Meet
7	N/A	N/A
8	0.00	Fails to Meet
9	0.00	Fails to Meet
10	2.00	Meets
11	0.00	Fails to Meet
12	0.00	Fails to Meet
13	0.00	Fails to Meet
14	0.00	Fails to Meet
15	0.00	Fails to Meet
16	0.00	Fails to Meet
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	0.50	Fails to Meet
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	0.50	Fails to Meet
25	2.00	Meets

Table H16 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – B-8.

Table H16: ABET Criterion 3 – Student Outcomes: B-8 – Number of Students and Percentage of Students for ABET Result

B-8: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	14	56.00%
Developing	1	4.00%
Meets	7	28.00%
Exceeds	0	0.00%

Table H17 shows the results from ABET Criterion 3 – Student Outcomes: B-9.

Table H17: ABET Criterion 3 – Student Outcomes: B-9 – Average Result ABET Result by Student Number

B-9		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	2.50	Meets
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	2.00	Meets
9	1.00	Developing
10	2.50	Meets
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	2.00	Meets
17	2.50	Meets
18	2.50	Meets
19	2.50	Meets
20	2.00	Meets
21	N/A	N/A
22	2.50	Meets
23	1.00	Developing
24	2.00	Meets
25	2.33	Meets

Table H18 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – B-9.

Table H18: ABET Criterion 3 – Student Outcomes: B-9 – Number of Students and Percentage of Students for ABET Result

B-9: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	8	32.00%
Meets	13	52.00%
Exceeds	0	0.00%

Table H19 shows the results from ABET Criterion 3 – Student Outcomes: F-2.

Table H19: ABET Criterion 3 – Student Outcomes: F-2 – Average Result ABET Result by Student Number

F-2		
Student Number	**Average Result**	**ABET Result**
1	1.75	Developing
2	1.50	Developing
3	1.75	Developing
4	1.75	Developing
5	1.50	Developing
6	1.75	Developing
7	2.50	Meets
8	1.75	Developing
9	2.00	Meets
10	1.50	Developing
11	1.50	Developing
12	2.00	Meets
13	2.00	Meets
14	1.50	Developing
15	1.00	Developing
16	2.75	Meets
17	2.00	Meets
18	2.00	Meets
19	1.75	Developing
20	1.50	Developing
21	1.50	Developing
22	1.50	Developing
23	2.00	Meets
24	2.50	Meets
25	N/A	N/A

Table H20 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – F-2.

Table H20: ABET Criterion 3 – Student Outcomes: F-2 – Number of Students and Percentage of Students for ABET Result

F-2: ABET Result	Number of Students	Percentage of Students
N/A	1	4.00%
Fails to Meet	0	0.00%
Developing	15	60.00%
Meets	9	36.00%
Exceeds	0	0.00%

Table H21 shows the results from ABET Criterion 3 – Student Outcomes: G-1.

Table H21: ABET Criterion 3 – Student Outcomes: G-1 – Average Result ABET Result by Student Number

G-1		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	1.67	Developing
5	1.67	Developing
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.67	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.50	Developing
17	1.67	Developing
18	1.67	Developing
19	1.67	Developing
20	1.67	Developing
21	N/A	N/A
22	1.67	Developing
23	1.00	Developing
24	1.67	Developing
25	2.00	Meets

Table H22 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – G-1.

Table H22: ABET Criterion 3 – Student Outcomes: G-1 – Number of Students and Percentage of Students for ABET Result

G-1: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	19	76.00%
Meets	2	8.00%
Exceeds	0	0.00%

Table H23 shows the results from ABET Criterion 3 – Student Outcomes: G-2.

Table H23: ABET Criterion 3 – Student Outcomes: G-2 – Average Result ABET Result by Student Number

G-2		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.50	Developing
4	1.67	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.50	Developing
10	1.67	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.50	Developing
17	1.67	Developing
18	1.67	Developing
19	1.67	Developing
20	1.33	Developing
21	N/A	N/A
22	1.67	Developing
23	1.00	Developing
24	1.67	Developing
25	2.00	Meets

Table H24 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – G-2.

Table H24: ABET Criterion 3 – Student Outcomes: G-2 – Number of Students and Percentage of Students for ABET Result

G-2: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	19	76.00%
Meets	2	8.00%
Exceeds	0	0.00%

Table H25 shows the results from ABET Criterion 3 – Student Outcomes: G-3.

Table H25: ABET Criterion 3 – Student Outcomes: G-3 – Average Result ABET Result by Student Number

G-3		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.50	Developing
4	2.00	Meets
5	1.67	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.50	Developing
10	1.50	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.50	Developing
17	1.50	Developing
18	1.50	Developing
19	1.50	Developing
20	1.67	Developing
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	1.67	Developing
25	2.00	Meets

Table H26 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – G-3.

Table H26: ABET Criterion 3 – Student Outcomes: G-3 – Number of Students and Percentage of Students for ABET Result

G-3: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	17	68.00%
Meets	4	16.00%
Exceeds	0	0.00%

Table H27 shows the results from ABET Criterion 3 – Student Outcomes: G-3.

Table H27: ABET Criterion 3 – Student Outcomes: G-4 – Average Result ABET Result by Student Number

G-4		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.50	Developing
4	1.00	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.00	Developing
11	1.00	Developing
12	1.00	Developing
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.00	Developing
17	1.00	Developing
18	1.00	Developing
19	1.00	Developing
20	1.33	Developing
21	N/A	N/A
22	1.00	Developing
23	1.00	Developing
24	1.67	Developing
25	2.00	Meets

Table H28 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – G-4.

Table H28: ABET Criterion 3 – Student Outcomes: G-4 – Number of Students and Percentage of Students for ABET Result

G-4: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	20	80.00%
Meets	1	4.00%
Exceeds	0	0.00%

Table H29 shows the results from ABET Criterion 3 – Student Outcomes: G-5.

Table H29: ABET Criterion 3 – Student Outcomes: G-5 – Average Result ABET Result by Student Number

G-5		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	0.50	Fails to Meet
4	1.00	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.00	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.50	Developing
17	1.00	Developing
18	1.00	Developing
19	1.00	Developing
20	1.33	Developing
21	N/A	N/A
22	1.00	Developing
23	1.00	Developing
24	1.33	Developing
25	2.00	Meets

Table H30 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – G-5.

Table H30: ABET Criterion 3 – Student Outcomes: G-5 – Number of Students and Percentage of Students for ABET Result

G-5: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	2	8.00%
Developing	18	72.00%
Meets	2	8.00%
Exceeds	0	0.00%

Table H31 shows the results from ABET Criterion 3 – Student Outcomes: G-6.

Table H31: ABET Criterion 3 – Student Outcomes: G-6 – Average Result ABET Result by Student Number

G-6		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	1.00	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.00	Developing
11	1.00	Developing
12	1.00	Developing
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.00	Developing
17	1.00	Developing
18	1.00	Developing
19	1.00	Developing
20	1.33	Developing
21	N/A	N/A
22	1.00	Developing
23	1.00	Developing
24	1.33	Developing
25	2.00	Meets

Table H32 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – G-6.

Table H32: ABET Criterion 3 – Student Outcomes: G-6 – Number of Students and Percentage of Students for ABET Result

G-6: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	20	80.00%
Meets	1	4.00%
Exceeds	0	0.00%

Table H33 shows the results from ABET Criterion 3 – Student Outcomes: G-7.

Table H33: ABET Criterion 3 – Student Outcomes: G-7 – Average Result ABET Result by Student Number

G-7		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	2.00	Meets
4	1.50	Developing
5	1.67	Developing
6	2.00	Meets
7	N/A	N/A
8	2.00	Meets
9	2.00	Meets
10	2.00	Meets
11	2.00	Meets
12	2.00	Meets
13	2.00	Meets
14	1.00	Developing
15	2.00	Meets
16	1.50	Developing
17	2.00	Meets
18	2.00	Meets
19	1.50	Developing
20	1.67	Developing
21	N/A	N/A
22	1.50	Developing
23	2.00	Meets
24	1.67	Developing
25	2.33	Meets

Table H34 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – G-7.

Table H34: ABET Criterion 3 – Student Outcomes: G-7 – Number of Students and Percentage of Students for ABET Result

G-7: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	0	0.00%
Developing	9	36.00%
Meets	13	52.00%
Exceeds	0	0.00%

Table H35 shows the results from ABET Criterion 3 – Student Outcomes: G-8.

Table H35: ABET Criterion 3 – Student Outcomes: G-8 – Average Result ABET Result by Student Number

G-8		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	1.00	Developing
4	1.50	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	2.00	Meets
10	1.50	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.50	Developing
17	2.00	Meets
18	1.50	Developing
19	1.50	Developing
20	1.33	Developing
21	N/A	N/A
22	1.50	Developing
23	1.00	Developing
24	1.33	Developing
25	2.00	Meets

Table H36 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – G-8.

Table H36: ABET Criterion 3 – Student Outcomes: G-8 – Number of Students and Percentage of Students for ABET Result

G-8: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	0	0.00%
Developing	18	72.00%
Meets	4	16.00%
Exceeds	0	0.00%

Table H37 shows the results from ABET Criterion 3 – Student Outcomes: G-9.

Table H37: ABET Criterion 3 – Student Outcomes: G-9 – Average Result ABET Result by Student Number

G-9		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	1.00	Developing
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.50	Developing
10	1.00	Developing
11	1.00	Developing
12	1.00	Developing
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.00	Developing
17	1.50	Developing
18	1.00	Developing
19	1.00	Developing
20	2.00	Meets
21	N/A	N/A
22	1.00	Developing
23	1.00	Developing
24	1.67	Developing
25	2.00	Meets

Table H38 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – G-9.

Table H38: ABET Criterion 3 – Student Outcomes: G-9 – Number of Students and Percentage of Students for ABET Result

G-9: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	18	72.00%
Meets	3	12.00%
Exceeds	0	0.00%

Table H39 shows the results from ABET Criterion 3 – Student Outcomes: G-10.

Table H39: ABET Criterion 3 – Student Outcomes: G-10 – Average Result ABET Result by Student Number

G-10		
Student Number	**Average Result**	**ABET Result**
1	N/A	N/A
2	N/A	N/A
3	1.00	Developing
4	1.00	Developing
5	2.00	Meets
6	N/A	N/A
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.00	Developing
11	2.00	Meets
12	2.00	Meets
13	N/A	N/A
14	1.00	Developing
15	N/A	N/A
16	1.50	Developing
17	1.00	Developing
18	1.00	Developing
19	1.00	Developing
20	2.00	Meets
21	N/A	N/A
22	1.00	Developing
23	N/A	N/A
24	2.00	Meets
25	2.67	Meets

Table H40 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – G-10.

Table H40: ABET Criterion 3 – Student Outcomes: G-10 – Number of Students and Percentage of Students for ABET Result

G-10: ABET Result	Number of Students	Percentage of Students
N/A	8	32.00%
Fails to Meet	0	0.00%
Developing	11	44.00%
Meets	6	24.00%
Exceeds	0	0.00%

Table H41 shows the results from ABET Criterion 3 – Student Outcomes: I-7.

Table H41: ABET Criterion 3 – Student Outcomes: I-7 – Average Result ABET Result by Student Number

I-7		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	0.00	Fails to Meet
3	2.00	Meets
4	2.00	Meets
5	2.00	Meets
6	3.00	Exceeds
7	0.00	Fails to Meet
8	0.00	Fails to Meet
9	2.00	Meets
10	2.00	Meets
11	3.00	Exceeds
12	2.00	Meets
13	0.00	Fails to Meet
14	2.00	Meets
15	3.00	Exceeds
16	0.00	Fails to Meet
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	2.00	Meets
21	2.00	Meets
22	0.00	Fails to Meet
23	2.50	Meets
24	2.00	Meets
25	N/A	N/A

Table H42 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – I-7.

Table H42: ABET Criterion 3 – Student Outcomes: I-7 – Number of Students and Percentage of Students for ABET Result

I-7: ABET Result	Number of Students	Percentage of Students
N/A	1	4.00%
Fails to Meet	7	28.00%
Developing	0	0.00%
Meets	14	56.00%
Exceeds	3	12.00%

Table H43 shows the results from ABET Criterion 3 – Student Outcomes: K-1.

Table H43: ABET Criterion 3 – Student Outcomes: K-1 – Average Result ABET Result by Student Number

K-1		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	1.67	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.00	Developing
10	1.67	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.50	Developing
15	1.00	Developing
16	1.50	Developing
17	1.67	Developing
18	1.67	Developing
19	1.67	Developing
20	1.33	Developing
21	N/A	N/A
22	1.67	Developing
23	1.00	Developing
24	1.33	Developing
25	2.00	Meets

Table H44 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – K-1.

Table H44: ABET Criterion 3 – Student Outcomes: K-1 – Number of Students and Percentage of Students for ABET Result

K-1: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	19	76.00%
Meets	2	8.00%
Exceeds	0	0.00%

Table H45 shows the results from ABET Criterion 3 – Student Outcomes: K-2.

Table H45: ABET Criterion 3 – Student Outcomes: K-2 – Average Result ABET Result by Student Number

K-2		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	1.67	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.50	Developing
10	1.67	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.50	Developing
15	1.00	Developing
16	1.50	Developing
17	1.67	Developing
18	1.67	Developing
19	1.67	Developing
20	1.33	Developing
21	N/A	N/A
22	1.67	Developing
23	1.00	Developing
24	1.33	Developing
25	2.00	Meets

Table H46 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – K-2.

Table H46: ABET Criterion 3 – Student Outcomes: K-2 – Number of Students and Percentage of Students for ABET Result

K-2: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	19	76.00%
Meets	2	8.00%
Exceeds	0	0.00%

Table H47 shows the results from ABET Criterion 3 – Student Outcomes: K-3.

Table H47: ABET Criterion 3 – Student Outcomes: K-3 – Average Result ABET Result by Student Number

K-3		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	1.50	Developing
4	2.00	Meets
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.50	Developing
10	2.00	Meets
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.50	Developing
15	1.00	Developing
16	1.50	Developing
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	1.33	Developing
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	1.33	Developing
25	3.00	Exceeds

Table H48 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – K-3.

Table H48: ABET Criterion 3 – Student Outcomes: K-3 – Number of Students and Percentage of Students for ABET Result

K-3: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	0	0.00%
Developing	14	56.00%
Meets	7	28.00%
Exceeds	1	4.00%

Table H49 shows the results from ABET Criterion 3 – Student Outcomes: K-4.

Table H49: ABET Criterion 3 – Student Outcomes: K-4 – Average Result ABET Result by Student Number

K-4		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	2.00	Meets
4	2.33	Meets
5	1.67	Developing
6	1.00	Developing
7	N/A	N/A
8	2.00	Meets
9	2.00	Meets
10	2.33	Meets
11	2.00	Meets
12	2.00	Meets
13	2.00	Meets
14	2.00	Meets
15	1.00	Developing
16	1.50	Developing
17	2.33	Meets
18	2.33	Meets
19	2.33	Meets
20	1.67	Developing
21	N/A	N/A
22	2.33	Meets
23	2.00	Meets
24	1.67	Developing
25	2.67	Meets

Table H50 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – K-4.

Table H50: ABET Criterion 3 – Student Outcomes: K-4 – Number of Students and Percentage of Students for ABET Result

K-4: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	0	0.00%
Developing	7	28.00%
Meets	15	60.00%
Exceeds	0	0.00%

Table H51 shows the results from ABET Criterion 3 – Student Outcomes: K-5.

Table H51: ABET Criterion 3 – Student Outcomes: K-5 – Average Result ABET Result by Student Number

K-5		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	2.00	Meets
4	1.67	Developing
5	1.67	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.00	Developing
10	1.67	Developing
11	2.00	Meets
12	3.00	Exceeds
13	1.00	Developing
14	2.00	Meets
15	1.00	Developing
16	2.00	Meets
17	1.67	Developing
18	1.67	Developing
19	1.67	Developing
20	1.67	Developing
21	N/A	N/A
22	1.67	Developing
23	1.00	Developing
24	1.67	Developing
25	2.67	Meets

Table H52 shows the number and percentages of students' ABET result for ABET Criterion 3: Student Outcomes – K-5.

Table H52: ABET Criterion 3 – Student Outcomes: K-5 – Number of Students and Percentage of Students for ABET Result

K-5: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	0	0.00%
Developing	16	64.00%
Meets	5	20.00%
Exceeds	1	4.00%

Conclusions

From Table H2, Table H4, Table H6, Table H8, Table H10, Table H12, Table H14, Table H16 and Table H18, ABET Criterion 3 – Student Outcomes: B, B-1 through B-9 conclusions are as follows: Criterion B-1 had 12.00% not applicable, 4.00% fail to meet, 36.00% developing, and 48.00% meeting the criteria. Criterion B-2 had 12.00% not applicable, 4.00% fail to meet, 60.00% developing, and 24.00% meeting the criteria. For Criterion B-3, 16.00% were not applicable, 12.00% failed to meet, 56.00% are developing, and 16.00% meet the criteria. Criterion B-4 had 12.00% not applicable, 8.00% fail to meet the criteria, 40% developing, and 40% meeting the criteria. For Criterion B-5, 12.00% were not applicable, 12.00% failed to meet the criteria, 28.00% are developing, and 48.00% met the given criteria. Criterion B-6 showed 32.00% as not applicable, 56.00% failing to meet the criteria, 8% developing, and only 4.00% meeting the criteria. For Criterion B-7, 12.00% were not applicable, only 4.00% failed to meet the criteria, 32.00% are developing, and 52.00% are meeting the criteria. Criterion B-8 showed that 12.00% of students were not applicable, 56.00% failed to meet the requirements, only 4.00% are developing in that area, and 28% meet the criteria. For the last section of ABET Criterion 3 – Student Outcomes: B, B-9, 12.00% of students were not applicable, only 4.00% failed to meet the criteria, 32.00% are developing, and 52% met the criteria. From Table H20, ABET Criterion 3 – Student Outcomes: F-2 results show that only 4.00% were not applicable, no students failed to meet the criteria, 60.00% are developing the criteria and 36.00% met the requirements.

From Tables: H22, H24, H26, H28, H30, H32, H34, H36, H38, and H40, ABET Criterion 3 – Student Outcomes: G: G-1 through G-10 conclusions are as follows: For Criterion G-1, 12.00% of students were not applicable, only 4.00% failed to meet the criteria, 76.00% are developing, and 8.00% meet the requirements. Criterion G-2 shows that 12.00% are not applicable, only 4.00% failed to meet the criteria, 76.00% are developing the criteria, and only 8.00% met the criteria. For Criterion G-3, once again, 12.00% are not applicable, only 4.00% failed to meet the criteria, 68.00% are developing the criteria, and 16.00% meet the criteria fully. For Criterion G-4, 12.00% were not applicable, only 4.00% failed to meet the requirements, 80.00% are developing their skills, and only 4.00% fully met the requirements. Criterion G-5 shows that 12.00% of students are not applicable, 8.00% failed to meet the requirements, 72.00% are developing those skills, and only 8.00% met the criteria. For Criterion G-6, 12.00% of students were not applicable, only 4.00% failed to meet the requirements, whereas 80.00% are developing their skills, and only 4.00% met the criteria fully. Criterion G-7 shows that 12.00% of students are not applicable, no students failed to meet the criteria, 36.00% are developing, and 52.00%

meet this criterion. For Criterion G-8, 12.00% are not applicable, no one failed to meet the criterion, 72.00% are developing their skills and 16.00% met the criterion fully. Criterion G-9 shows that 12.00% of students were not applicable, only 4.00% failed to meet the requirements, 72.00% are developing their skills, and 12.00% of students met the criterion. Lastly, for Criterion G-10, 32.00% were not applicable, no one failed to meet the requirements, 44.00% are developing this criterion, and 24.00% met the criterion.

Table H42 showed the percentages for ABET Criterion 3 – Student Outcomes: I: I-7. From this table, it shows that 4.00% of students were not applicable 28.00% failed to meet the criterion, no students are developing this criterion, 56.00% met the criterion fully, and 12.00% exceeded the criterion requirements. The last ABET Criterion 3 – Student Outcome that was analyzed was Student Outcome K: K-1 through K-5. The conclusions are as follows: Criterion K-1 had 12.00% of students not applicable, only 4.00% fail to meet the criterion, 76.00% are developing their skills, and 8.00% met the criterion. Criterion K-2 had the exact same conclusions as K-1. For Criterion K-3, 12.00% of students were not applicable, no one failed to meet the requirements, 56.00% are developing their skills, 28.00% met the criterion fully, and 4.00% exceeded the expectations. For Criterion K-4, 12.00% of students were not applicable, no one failed to meet the criteria, 28.00% are developing, and 60.00% of students met the criteria. Lastly, for Criterion K-5, 12.00% of students were not applicable, no one failed to meet the requirements, 64.00% of students are developing, 20.00% meet the criteria fully, and 4.00% of students exceed the criterion's requirements.

To increase the number of students who meet the criteria, and even exceed it, recommendations for ways to improve passing rates for ABET Criterion 3 – Student Outcomes: B, F, G, I, and K are talked about in the next section, Recommendations.

Recommendations

Alfred University's Inamori School of Engineering will be up for re-evaluation from ABET again in the year 2024. From the 2019-2020 year and on, the ABET Criterion 3 will have various changes. ABET Criterion 3: Student Outcomes – a through k will be transformed into ABET Criterion 3: Student Outcomes –1 through 7[7]. ABET Criterion 3: Student Outcomes – 1 through 7 are below:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

These changes and how they relate to ABET Criterion 3: Student Outcomes – a through k are shown in Table I1 below.

Table I1: Changes in Criterion 3: Student Outcomes[7]

Current Language **EAC Criteria Effective 2017-18 and 2018-19 Cycles**	**New Language** **Approved by the EAD October 20, 2017** **Applicable beginning in the 2019-20 Cycle**
Criterion 3: Student Outcomes The program must have documented student outcomes that prepare graduates to attain the program educational objectives. Student outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program.[4]	**Criterion 3: Student Outcomes** The program must have documented student outcomes that support the program educational objectives. Attainment of these outcomes prepares graduates to enter the professional practice of engineering. Student outcomes are outcomes (1) through (7), plus any additional outcomes that may be articulated by the program.

(a) an ability to apply knowledge of mathematics, science, and engineering (e) an ability to identify, formulate, and solve engineering problems	1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
(b) an ability to design and conduct experiments, as well as to analyze and interpret data	6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
(d) an ability to function on multidisciplinary teams	5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
(f) an understanding of professional and ethical responsibility (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context (j) a knowledge of contemporary issues	4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
(g) an ability to communicate effectively	3. an ability to communicate effectively with a range of audiences
(i) a recognition of the need for, and an ability to engage in life-long learning	7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	Implied in 1, 2, and 6

Based on the passing rates from ABET Criterion 3: Student Outcomes – B, F, G, I, and K shown in Table H2, Table H4, Table H6, Table H8, and Table H10, changes in the way the Inamori School of Engineering at Alfred University teaches its students must happen to ensure an increase in passing rates for ABET Criterion 3: Student Outcomes – 1, 2, 3, 4, 6, and 7 which correlate to ABET Criterion 3: Student Outcomes – B, F, G, I, and K. Recommendations for ways to improve passing rates for ABET Criterion 3 – Student Outcomes: 1, 2, 3, 4, 6, and 7 are listed below:

1. Whole Inamori School of Engineering to use the following quizzes/assessments:
    A. New School of Engineering Awareness Assessment based on Criteria 7
    B. New Ethics & Globalization Quiz based on Criteria 4
2. Whole Inamori School of Engineering to use laboratory report format/template based on feedback from industry and Criteria 1, 2, 3, and 6

3. Whole Inamori School of Engineering to encourage interdisciplinary senior theses and senior design projects based on Criteria 1 through 7

For Recommendation 1A, new School of Engineering Awareness Assessment questions and possible answers for the whole engineering school to use are shown below in Table I2:

Table I2: School of Engineering Awareness Assessment Questions and Possible Answers

Number	Question	Possible Answers
1	What year in college are you?	Freshman, Sophomore, Junior, Senior, Super Senior (Can only pick one – multiple choice)
2	What school(s)/college(s) are you enrolled in at Alfred University?	College of Ceramics, College of Liberal Arts & Sciences, College of Professional Studies, Inamori School of Engineering, School of Art & Design, School of Business (Can pick more than one – multiple answer)
3	Which of the following is/are your engineering major(s)?	Biomaterials Engineering, Ceramic Engineering, Glass Engineering Science, Materials Science & Engineering, Mechanical Engineering, Renewable Energy Engineering, Undecided Engineering, I am not an engineer (Can pick more than one – multiple answer)
4	What is/are your minor(s)?	Biomaterials Engineering, Ceramic Engineering, Glass Engineering Science, Materials Science & Engineering, Mechanical Engineering, Renewable Energy Engineering, Business, Chemistry, Mathematics, Physics, Other, I do not have a minor (Can pick more than one – multiple answer)
5	Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	In a leadership position, Active member, No (Can pick more than one – multiple answer)
6	Are you a student athlete?	Yes, No (Can only pick one – multiple choice)
7	Are you a transfer student?	Yes, No (Can only pick one – multiple choice)
8	What are your plans for after graduation?	Graduate School, Job pertaining to your degree, Job that does NOT pertain to your degree, I do not know (Can only pick one – multiple choice)
9	Do you plan to take the Fundamentals of Engineering exam in your discipline?	Yes, No, I do not know (Can only pick one – multiple choice)
10	Do you plan to take the Principles and Practice of Engineering exam (after at least 4 years of experience in your discipline)?	Yes, No, I do not know (Can only pick one – multiple choice)

For Recommendation 1 B, new Ethics & Globalization Quiz questions and possible answers for the whole engineering school to use are shown below in Table I3:

Table I3: Ethics & Globalization Quiz Questions and Possible Answers

<table>
<tr><td colspan="2">Background:
Ms. Williams is an engineer in an international manufacturing company. Her responsibilities include the following tasks:
a. To design a line of new products to be distributed globally
b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new products
c. To ensure the products meet international standards
d. To report to her management regarding the manufacturing status
The problems Ms. Williams is facing are:
a. One of the electricians took a wrong batch of components and put them in the first ten products. This wrong batch of components does not meet the international standards and may cause a fire if the product is used.
b. The management told Ms. Williams that an international customer has ordered ten products and wants the immediate delivery.</td></tr>
<tr><th>Questions</th><th>Possible Answers</th></tr>
<tr><td>Question 1:
What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)</td><td>Tell her management that she cannot certify the products, She will work alone overnight to redo the products, Send the ten products to the customer, Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Fire the electrician, Take a vacation, Do not say anything and send out the products, Redo the products
(Can pick more than one – multiple answer)</td></tr>
<tr><td>Question 2:
Discuss your reasons why Ms. Williams should AND should not do each action (1-8).
1. Yes/No and Why?
2. Yes/No and Why?
3. Yes/No and Why?
4. Yes/No and Why?
5. Yes/No and Why?
6. Yes/No and Why?
7. Yes/No and Why?
8. Yes/No and Why?</td><td>Results Vary by Student</td></tr>
</table>

For Recommendation 2, using a School of Engineering Laboratory Template/Format across all engineering courses based off industry standards and input from alumni will ensure students meet and conceivably exceed ABET Criterion 3: Student Outcomes – 1, 2, 3, and 6.

For Recommendation 3, to ensure students meet and possibly exceed Criteria 1 through 7 on their senior design theses and senior design projects, interdisciplinary projects and work should be encouraged throughout the School of Engineering and possibly Alfred University as a whole.

These three recommendations, if implemented before the 2024 school year, will expectantly ensure the students of the Inamori School of Engineering at Alfred University meet and conceivably exceed the ABET Criterion 3: Student Outcomes – 1 through 7.

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7. "Table 2. Changes in Criterion 3 – Student Outcomes" ABET. Accessed on: April 2018. Available at <http://www.abet.org/wp-content/uploads/2018/03/C3_C5_mapping_SEC_1-13-2018.pdf>

Appendix

Appendix A: ABET Tables for Criteria 3 – B, F, G, I, K & Planning

Table A1: Courses and ABET Criteria

Course				ABET Criteria to be Analyzed	Instructor
Department	**Code**	**Name**	**CH**		
ENGR	220	Circuit Theory I	4	B, F, G, I, K	Dr. Xingwu Wang
MECH	212	Dynamics	3	B, F, G, I, K	Dr. Xingwu Wang
RNEW	468	Electric Machinery	3	B, F, G, I, K	Dr. Xingwu Wang

Table A2: ABET Criterion 3 – Student Outcomes B

B.	**An ability to design and conduct experiments, as well as to analyze and interpret data**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
Experimental Design					
B-1	**Hypothesis**	No statement of the problem; too broad (non-specific).	Hypothesis statement present but unclear or vague.	Clearly stated hypothesis.	Clear hypothesis and hypothesis evolved based on experimental observations.
B-2	**Experimental Design**	Experiments poorly designed or do not appear to address the hypothesis.	Rudimentary experimental design or experiments may not directly address hypothesis.	Concise experimental design with apparent connection to hypothesis.	Nested or tiered experimental designs that have evolved based on preliminary data.
Data Presentation					
B-3	**Presentation of data (as appropriate)**	Data is presented in text, but not with graphics, tables, or plots.	Data tables but without plots, or plots without error indication.	Data plotted in logical manner with error bars (where appropriate)	Presentation of data is concise, well plotted, and indicates comprehensive view (i.e., secondary plots, etc.).
B-4	**Presentation of images (as appropriate)**	No images, but images warranted.	Images, but without size indication or with magnification values listed. Images are remotely (in text).	Images with size bars, direct references, appropriate size for viewing.	Images are annotated, properly presented, and tied to the hypothesis in a reasonable manner.
Data Analysis and Interpretation, including Error Analysis					
B-5	**Data Analysis**	Limited data analysis, does not address or	Rudimentary data analysis. Addresses the	Data is evaluated, trends are	Data analysis is detailed and strongly connected to the

		consider hypothesis.	hypothesis but does data analysis is unfocused.	discussed, and the hypothesis is evaluated. Simple equations for data trends.	hypothesis resulting in a conclusion or recommendation.
B-6	**Treatment of Error**	No error bars on plots or no discussion of data reliability.	Error bars present but limited discussion of data reliability.	Error analysis is thorough, indicates data quality, and trend discussions are justified.	Error analysis is thorough and comprehensive, statistical analysis is incorporated to evaluate significant differences.
Conclusions, Future Work, and Presentation					
B-7	**Conclusions**	No conclusions or new information presented in the conclusions section.	Conclusions are rudimentary or make oblique references to the hypothesis.	Conclusions are supported by the data and the hypothesis is addressed succinctly.	Hypothesis is evaluated correctly, and the next steps outlined concisely within a broader context.
B-8	**Future Work**	No future work section or justification for omission not provided.	Future work section draw doubt on the validity of the experimental (repeat experiments, etc.).	Future work indicates the reasonable next steps, in the context of the hypothesis.	The next experiments are described, and the results predicted indicating in-depth understanding of the problem.
B-9	**Presentation**	Student is unable to state hypothesis, minimal understanding of experiments conducted, etc.	Student can state hypothesis, has a rudimentary understanding of the experiments, but does not grasp data significance.	Students can concise state the hypothesis, understand the data, and are comfortable with their conclusions.	Students understand the overall picture, understand their data and its implications, and see the broader impact of their work.

Table A3: ABET Criterion 3 – Student Outcomes F

F.	**an understanding of professional and ethical responsibility**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
F-1	**Knowledge of professional codes**	Unaware that professional codes of ethics exist.	Knows that professional codes exist. Able to describe some elements of the code.	Knows the Code of Ethics endorsed by the Society of Professional Engineers exists and can locate it.	Meets requirements plus knows of relevant discipline-specific codes for field of study. Able to describe

				Able to describe major elements of code.	detailed elements of code(s). Able to interpret all of them for real world situations.
F-2	**Ability to evaluate ethical dilemmas related to professional practice**	Does not identify problem. Uses misinformation or ignores facts. Does not analyze situation. Does not identify stakeholders.	Identifies problem and may infer ethical dilemma. Lists facts but may miss key information. Minimal analysis of situation. Identifies some stake holders but may favor one point of view.	Recognizes ethical dilemma. Identifies facts and recognizes some missing information. Applies rules or standards with justifications. Understands cost-schedule-risk relationship. Acknowledges multiple stakeholders and basic understanding of their views.	Identifies and frames ethical dilemma. Recognizes known and unknown facts. Correctly applies rules or standards. Identifies cost-schedule-risk. Acknowledges multiple stakeholders and considers consequences. Knows of real world examples.
F-3	**Ability to make informed ethical choices**	Does not contribute to class discussion and exercises related to ethics. Does not recognize need for ethical behavior. Make decisions based on personal bias and without objectivity. Proposes resolutions that lack integrity.	Does not take class discussion and exercises seriously but recognizes that professional/ethical situations do exist. Proposes resolutions but does not fully describe consequences.	Participates constructively in class discussions and exercises on ethics and professionalism. Proposes alternative solutions and identifies consequences to stakeholders.	Participates constructively in class discussions and exercises on ethics and professionalism. Proposes alternative solutions and identifies consequences to stakeholders. Identifies risks. Proposes creative win-win solutions.
F-4	**Demonstrated ethical behavior**	Does not demonstrate ethical behavior among faculty and peers. Knowingly disregards SPE Code of Ethics and AU code of	Generally, demonstrates ethical behavior among faculty and peers, but unknowing demonstrated unethical behavior because of misunderstandings	Demonstrates ethical behavior among faculty and peers consistent with SPE Code of Ethics and AU's code of ethics.	Demonstrates ethical behavior among faculty and peers consistent with SPE Code of Ethics and AU's code of ethics and helps peers

		ethics.	about relevant code of ethics.		make ethical decisions.
F-5	**Demonstrated professional behavior**	Frequently tardy or absent for appointments. Routinely exhibits behavior that is disruptive or inappropriate for situation. Routinely does not take responsibility for actions.	Occasional tardy or absent for class or appointments. Sometimes exhibits behavior inappropriate for situation. Sometime does not take responsibility for actions.	Generally punctual, attends classes regularly, and makes all appointments. Exhibits behavior that is appropriate for the situation. Generally, Take responsibility for actions.	Meets basic performance indicators and demonstrates notable leadership in evaluated situation. Identifies with real world professionals in engineering.

Table A4: ABET Criterion 3 – Student Outcomes G

G.	**An ability to communicate effectively**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
Content					
G-1	**Scope and Purpose**	Purpose, scope and context absent or ill defined.	Purpose stated. Context and scope either too vague or supported by irrelevant details.	Well-defined purpose. Context and scope supported by relevant details.	Similar to "meets", but discussion enhances deeper level of understanding or provides critical analysis of previous work.
G-2	**Idea Development: primarily main body discussion and conclusion**	Claims & ideas not supported by relevant evidence and/or examples.	Claims and ideas supported by relevant evidence but lacking sufficient detail or connections between related parts.	Claims and ideas supported by relevant evidence. Strong arguments enhanced by clear connections between related parts.	Similar to strong but high level of insight leading to fresh and illuminating ideas.
Writing					
G-3	**General Organization & Coherence: placement of content in sections in a formatted document as**	Content in wrong section. Order of presentation prevents reader from understanding content.	Content in correct section. Order of presentation within sections hinders understanding of content.	Content in correct sections. Order of presentation within sections leads reader to develop understanding of subject, but minor	Little room for improvement.

	well as organization of content within sections.			rearrangement could improve readability.	
G-4	**Paragraphs**	Totally disorganized, pointless paragraphs. No transitions from one paragraph to the next.	Paragraphs with topic sentences, but noticeable discontinuities. Weak transitions from one paragraph to the next.	Strong topic sentences with good transition from the previous paragraph. Thought in paragraph flows from one idea to the next.	
G-5	**Sentences**	Poorly organized sentences; very poorly expressed thoughts; excessive use of passive and ineffective subordinate clauses. Inappropriate use of tense.	Adequately expressed ideas without excessive use of passive voice. Sentences not too turgid, although lacking in elegance. Acceptable use of tense.	Clear expression with elegant phrasing; appropriate tense used.	
G-6	**Words/Tone**	Excessive use of colloquialisms and slang; use of 1st and 2nd person; excessive use of inflated language.	Little use of colloquialism and inflated language; excessive use of passive voice.	Appropriate use of formal language with truly sterling word choice.	
G-7	**Mechanics: mechanics, spelling, usage, punctuation, etc.**	Frequent errors that distract reader and/or prevent understanding of content.	Notable errors that are bothersome but do not prevent understanding of content.	Occasional minor errors.	Nearly flawless.
Appearance					
G-8	**Format: type of document, font, headings, page numbers, TOC, etc.**	Unprofessional appearance. Inappropriate format. Inconsistencies in formatting styles.	Professional appearance. Appropriate format but missing some expected elements. Some inconsistencies in formatting styles.	Professional appearance. Appropriate format with all major elements expected. Few inconsistencies in formatting styles.	Nearly flawless.
G-9	**Graphics: figures &**	Items that do not support the text	Items generally support ideas in	Items support and enhance ideas in	Similar to #4, but design

	tables, etc.	or that lack proper labels, units or scales. Captions or titles not descriptive.	text. Figures and tables are accurately labeled, but presentation does not promote understanding of main features of data. Captions or titles descriptive, but not detailed enough to enable interpretation without reference to text.	text. Figures and tables labeled to enable reader to understand and interpret main features. Captions and titles enable basic interpretation without reference to text.	enables reader to understand and interpret subtle features in data.
G-10	**Citations: in text and in bibliography**	Incorrect format: in text and in bibliography	Generally correct format with noticeable errors.		Correct format: only minor, picky errors.

Table A5: ABET Criterion 3 – Student Outcomes I

I.	**a recognition of the need for, and an ability to engage in life-long learning**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
I-1	**Attitudes**	Student has no voluntary, self-motivated learning	Is enrolled at the university only to "get a good job"	Identifies "career" versus "job"; Has defined career goals and clear career aspirations.	Has a detailed plan for achieving career goals.
I-2			Has considered learning experiences outside the university but is not sufficiently self-motivated to engage in them	Expresses life skill desires (cooking, foreign language, travel, etc.)	Has studied abroad, has engaged in learning experiences outside the university
I-3			Has mixed feelings about core curriculum requirements or sees them as a necessary hurdle for obtaining a university degree	Supports core curriculum requirements at the university	Has taken elective courses outside of major field and unrelated to expected career path, beyond core requirements
I-4	**Plans**	Student has not considered life after graduation.	Wants to "get degree & get out"; expects only to apply knowledge/skills learned at the university after graduation	Has considered or is considering graduate education, incl. outside of field (MBA, law school, medical school, etc.)	Has been accepted to a graduate program

I-5			Recognizes skill set as something to be continually expanded; sees varied skill sets as being beneficial to multidisciplinary teams	Can identify at least one skill that they would like to learn post-graduation; is interested in further career development through training (such as Six Sigma)	Maintains a list of skills that they plan to learn and experiences they wish to have in the future.
I-6			Sees professional organizations as clubs associated only with schooling	Plans to become/remain a dues-paying member of professional organization after graduation	Plans to assume an organizational or leadership role their professional organization
I-7	**Actions/ Activities**	Student is not engaged in current events, extracurricular activities, networking, career development.	Is considering joining student chapter	Is currently a member of student chapter of professional organization	Has been elected to a leadership role in their student branch; has attended conferences
I-8			Is interested in current events, but obtains information only passively by watching TV	Reads newspaper or news feeds (rather than TV news programs); reads books (non-fiction or fiction); goes to regional museums and local art exhibits; consumer of educational TV programming and documentaries	Detailed knowledge of current events; Avid consumer of books, documentaries, etc.; has traveled and made plans to see museums and art exhibits
I-9			Plans to take FE exam	Has passed the FE (is an EIT)	Is an EIT, plans to become a PE, has identified a PE mentor or sought out employers where PE mentorship is possible
I-10			Participates in some extracurricular activities and hobbies, but only rarely when school is in session	Makes time for extracurricular activities and hobbies unrelated to an engineering career	Participates in activities and hobbies that require regular practice and training.

Table A6: ABET Criterion 3 – Student Outcomes K

K.	**an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.**				
Item	**Indicator**	**Fails to meet-0**	**Developing-1**	**Meets-2**	**Exceeds-3**
K-1	**Knowledge of technique/tool**	Is not familiar with state-of-the-art techniques/tools used in engineering profession	Familiar with and using techniques/tools as they are presented in class assignments.	Familiar with and using state-of-the-art techniques/tools that are common to the profession	Same as 2 but also familiar with and using specialized techniques/tools. Knowledge of emerging techniques.
K-2	**Selection of technique/tool**	Unable to identify technique/tool to solve the problem, or selects tool that is not suitable for problem	Able to identify some, but not all, techniques/tools typically used to solve a particular problem	Able to identify most technique/tools that are typically used to solve a particular problem	Identifies technique/tools and evaluates which are best to solve a particular problem
K-3	**Ability to find needed information or resources**	Cannot or will not independently seek information or resources	Attempts to seek information related to task at hand. Developing ability to judge appropriateness of information to the task at hand.	Seeks out and is able to find information appropriate to the task at hand.	Can comprehensively seek out and evaluate appropriate information for the task at hand.
K-4	**Ability to develop new skills and expertise**	Unable to learn new techniques and skills independently	Developing ability to learn new techniques and skills independently. Lacks confidence or is uncomfortable with independent learning.	Is able to learn new techniques and skills independently. Seeks appropriate assistance and eventually learns technique or tool.	Is able to efficiently and effective learn new technique or skill. Comfortable with process of independent learning.
K-5	**Skill**	Unable to use technique/tool. Shows little or no aptitude for developing the technique or using the tool independently.	Can use technique or tool with supervision. Shows aptitude for developing the technique and using the tool independently.	Can independently use the basic features of technique or tool to produce meaningful results	Proficiently uses technique/tool, e.g. uses special features, optimizes data collection, etc.

Appendix B: Quiz/Assessment Questions

Table B1: School of Engineering Awareness Assessment Questions and Possible Answers for ENGR 220, MECH 212, and RNEW 468

Questions	Possible Answers
Question 1: What year in college are you?	Freshman, Sophomore, Junior, Senior, Super Senior (Can only pick one – multiple choice)
Question 2: What school(s) are you enrolled in at Alfred University?	College of Ceramics, College of Liberal Arts & Sciences, College of Professional Studies, Inamori School of Engineering, School of Art & Design, School of Business (Can pick more than one – multiple answer)
Question 3: Which of the following is/are your engineering major(s)?	Biomaterials Engineering, Ceramic Engineering, Glass Engineering Science, I am not an engineer, Materials Science & Engineering, Mechanical Engineering, Renewable Energy Engineering, Undecided Engineering (Can pick more than one – multiple answer)
Question 4: What is/are your minor(s)?	Biomaterials, Chemistry, Glass Science, I do not have a minor, Materials Science, Mathematics, Mechanical Engineering, Other, Physics, Renewable Energy Engineering (Can pick more than one – multiple answer)
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member, In a leadership position, No (Can only pick one – multiple choice)
Question 6: How many engineering clubs are there on campus?	1, 2, 5, 10+, None (Can only pick one – multiple choice)
Question 7: How many engineering honor societies are there on campus?	1, 2, 5, 10+, None (Can only pick one – multiple choice)
Question 8: What is Tau Beta Pi?	A Fraternity, A Sorority, Engineering Club, National Engineering Honor Society, None of the above (Can only pick one – multiple choice)
Question 9: What is Keramos?	A Fraternity, A Sorority, Engineering Club, Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors, None of the above (Can only pick one – multiple choice)
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Both, Neither, Private, Public (Can only pick one – multiple choice)

Table B2: Ethics Quiz Questions and Possible Answers for ENGR 220 and RNEW 468

Background:	
Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: d. To design a line of new circuits for cell phones e. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits f. To report to her management regarding the manufacturing status The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. c. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Possible Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Tell her management that she cannot certify the products, She will work alone overnight to redo the circuits, Send the ten circuits to the customer, Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Fire the electrician, Take a vacation, Keep her mouth shut, Redo the circuits (Can pick more than one – multiple answer)
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	Results Vary by Student

Table B3: Ethics Quiz Questions and Possible Answers for MECH 212

Background:
Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: d. To design a line of new shocks for race cars e. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks f. To report to her management regarding the manufacturing status The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs.

c. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Possible Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Tell her management that she cannot certify the products, She will work alone overnight to redo the shocks, Send the ten shocks to the customer, Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Fire the mechanic, Take a vacation, Keep her mouth shut, Redo the shocks (Can pick more than one – multiple answer)
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	Results Vary by Student

Table B4: Globalization Quiz Questions and Possible Answers for ENGR 220, MECH 212, and RNEW 468

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Possible Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Results Vary by Student
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	Results Vary by Student
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Results Vary by Student
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	Results Vary by Student
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages.	Results Vary by Student

(This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Results Vary by Student
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Results Vary by Student

Table B5: Gantt Chart

Tasks	**Jan**	**Feb**	**Mar**	**Apr**	**May**
Literature Studies					
Task 1A					
Task 1B					
Task 1C					
Task 1D					
Task 1E					
Task 2A					
Task 2B					
Task 2C					
Task 2D					
Task 2E					
Task 2F					
Task 3A					
Writing proposal					
Analyzing Data					
Writing report					

Appendix C: Raw Data Results & Organization Tables for ENGR 220, MECH 212, and RNEW 468

Table C1: Quiz/Assessment Participation Rates for ENGR 220

Total Number of Students in ENGR 220						**94**
	SoE Awareness Assessment		**Ethics Quiz**		**Globalization Quiz**	
	Number of Students	**%**	**Number of Students**	**%**	**Number of Students**	**%**
Completed	73/94	77.66%	60/94	63.83%	54/94	57.45%
Not Completed	21/94	22.34%	34/94	36.17%	40/94	42.55%

Table C2: Quiz/Assessment Participation Rates for MECH 212

Total Number of Students in MECH 212						**52**
	SoE Awareness Assessment		**Ethics Quiz**		**Globalization Quiz**	
	Number of Students	**%**	**Number of Students**	**%**	**Number of Students**	**%**
Completed	18/52	34.62%	30/52	57.69%	25/52	48.08%
Not Completed	34/52	65.38%	22/52	42.31%	27/52	51.92%

Table C3: Quiz/Assessment Participation Rates for RNEW 468

Total Number of Students in RNEW 468						**16**
	SoE Awareness Assessment		**Ethics Quiz**		**Globalization Quiz**	
	Number of Students	**%**	**Number of Students**	**%**	**Number of Students**	**%**
Completed	2/16	12.50%	7/16	43.75%	8/16	50.00%
Not Completed	14/16	87.50%	9/16	56.25%	8/16	50.00%

Table C4: Selected Students and Associated Number

	Course		
	ENGR 220	**MECH 212**	**RNEW 468**
Student Number	1	1	11
	3	2	21
	4	3	25
	5	4	-
	6	5	-
	8	6	-
	9	7	-
	10	8	-
	13	9	-
	14	10	-
	15	12	-

	16	13	-
	17	14	-
	18	15	-
	19	16	-
	20	17	-
	22	18	-
	23	20	-
	24	22	-
	-	23	-
	-	24	-
Total Students	**19**	**21**	**3**
Same Between Courses	**18**	**18**	**0**
Different Between Courses	**1**	**3**	**3**

Table C5: Student Participation by Year in College

Student #	**Year in College**
1	Sophomore
2	Sophomore
3	Sophomore
4	Sophomore
5	Sophomore
6	Sophomore
7	Sophomore
8	Sophomore
9	Sophomore
10	Sophomore
11	Senior
12	Junior
13	Junior
14	Sophomore
15	Sophomore
16	Sophomore
17	Sophomore
18	Sophomore
19	Sophomore
20	Sophomore
21	Junior
22	Sophomore
23	Sophomore
24	Sophomore
25	Senior
Total Number of Students	25
Total Number of Sophomores	20
Total Number of Juniors	3
Total Number of Seniors	2
Percent of Students Participating that are Sophomores	80.00%

Percent of Students Participating that are Juniors	12.00%
Percent of Students Participating that are Seniors	8.00%

Table C6: School of Engineering Awareness Assessment - ABET Criterion 3: Student Outcomes – I Results by Student Number

Student Number	Item	Result
1	I-7	0.00
2	I-7	0.00
3	I-7	2.00
4	I-7	2.00
5	I-7	2.00
6	I-7	3.00
7	I-7	0.00
8	I-7	0.00
9	I-7	2.00
10	I-7	2.00
11	I-7	3.00
12	I-7	2.00
13	I-7	0.00
14	I-7	2.00
15	I-7	3.00
16	I-7	0.00
17	I-7	2.00
18	I-7	2.00
19	I-7	2.00
20	I-7	2.00
21	I-7	2.00
22	I-7	0.00
23	I-7	2.50
24	I-7	2.00
25	I-7	N/A

Table C7: Ethics Quiz - ABET Criterion 3: Student Outcomes – F Results by Student Number

Student Number	Item	Result
1	F-2	1.50
2	F-2	1.50
3	F-2	1.50
4	F-2	2.00
5	F-2	1.50
6	F-2	2.00
7	F-2	1.00
8	F-2	1.00
9	F-2	2.00
10	F-2	2.00
11	F-2	1.00
12	F-2	1.00

13	F-2	2.50
14	F-2	2.00
15	F-2	2.00
16	F-2	1.50
17	F-2	1.00
18	F-2	1.00
19	F-2	1.00
20	F-2	2.00
21	F-2	2.00
22	F-2	1.50
23	F-2	1.50
24	F-2	1.50
25	F-2	N/A

Table C8: Globalization Quiz - ABET Criterion 3: Student Outcomes – F Results by Student Number

Student Number	Item	Result
1	F-2	2.00
2	F-2	1.50
3	F-2	2.00
4	F-2	3.00
5	F-2	2.00
6	F-2	2.00
7	F-2	2.00
8	F-2	2.00
9	F-2	2.00
10	F-2	2.00
11	F-2	2.00
12	F-2	1.00
13	F-2	3.00
14	F-2	2.00
15	F-2	2.00
16	F-2	2.00
17	F-2	2.00
18	F-2	2.00
19	F-2	2.00
20	F-2	2.00
21	F-2	3.00
22	F-2	2.00
23	F-2	1.50
24	F-2	2.00
25	F-2	N/A

Table C9: Laboratory Reports - ABET Criterion 3: Student Outcomes – G Results by Student Number

Student Number	Item	Results
1	G-1	N/A
	G-2	N/A

	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
2	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
3	G-1	1
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
4	G-1	1.00
	G-2	1.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
5	G-1	1.00
	G-2	1.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00

	G-9	2
	G-10	1.00
6	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
7	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
8	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	2.00
	G-10	1.00
9	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	2.00
	G-10	1.00
10	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00

	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
11	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
12	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
13	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
14	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	1.00

15	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
16	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
17	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	2.00
	G-10	1.00
18	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
19	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00

	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
20	G-1	1.00
	G-2	1.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	2
	G-10	1.00
21	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
22	G-1	1.00
	G-2	1.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
23	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
24	G-1	1.00
	G-2	2.00

	G-3	2.00
	G-4	2.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	1.00
25	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A

Table C10: Laboratory Reports - ABET Criterion 3: Student Outcomes – K Results by Student Number

Student Number	Item	Results
1	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
2	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
3	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	2.00
4	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
5	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	2.00

6	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
7	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
8	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
9	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
10	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
11	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
12	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
13	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
14	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	2.00
15	K-1	N/A

	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
16	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
17	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
18	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
19	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
20	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	2.00
21	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
22	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
23	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
24	K-1	1.00
	K-2	1.00

	K-3	1.00
	K-4	2.00
	K-5	2.00
25	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A

Table C11: Final Projects – Selected Students and Associated Number

	Course		
	ENGR 220	**MECH 212**	**RNEW 468**
Student Number	1	1	25
	3	3	-
	4	4	-
	5	5	-
	6	6	-
	8	8	-
	9	9	-
	10	10	-
	13	**12**	-
	14	13	-
	15	14	-
	16	15	-
	17	16	-
	18	17	-
	19	18	-
	20	19	-
	22	20	-
	23	22	-
	24	23	-
	-	24	-
Total Students	**19**	**20**	**1**
Same Between Courses	**19**	**19**	**0**
Different Between Courses	**0**	**1**	**1**

Table C12: Final Projects - ABET Criterion 3: Student Outcomes – B Results by Student Number

Student Number	Item	Results
1	B-1	0.00
	B-2	0.00
	B-3	1.00
	B-4	0.00
	B-5	0.00
	B-6	0.00
	B-7	0.00
	B-8	0.00

	B-9	0.00
2	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
3	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	1.00
	B-5	1.00
	B-6	N/A
	B-7	1.00
	B-8	0.00
	B-9	1.00
4	B-1	2.00
	B-2	2.00
	B-3	2.00
	B-4	2.00
	B-5	2.00
	B-6	0.00
	B-7	2.00
	B-8	2.00
	B-9	2.00
5	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	2.00
	B-5	1.00
	B-6	0.00
	B-7	1.00
	B-8	0.00
	B-9	1.00
6	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	1.00
	B-5	1.00
	B-6	N/A
	B-7	1.00
	B-8	0.00
	B-9	1.00

7	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
8	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	1.00
	B-5	0.00
	B-6	0.00
	B-7	1.00
	B-8	0.00
	B-9	2.00
9	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	1.00
	B-5	1.00
	B-6	0.00
	B-7	1.00
	B-8	0.00
	B-9	1.00
10	B-1	2.00
	B-2	2.00
	B-3	2.00
	B-4	2.00
	B-5	2.00
	B-6	0.00
	B-7	2.00
	B-8	2.00
	B-9	2.00
11	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
12	B-1	2.00

	B-2	2.00
	B-3	1.00
	B-4	1.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	0.00
	B-9	2.00
13	B-1	1.00
	B-2	1.00
	B-3	0.00
	B-4	1.00
	B-5	1.00
	B-6	N/A
	B-7	1.00
	B-8	0.00
	B-9	1.00
14	B-1	1.00
	B-2	1.00
	B-3	0.00
	B-4	1.00
	B-5	1.00
	B-6	0.00
	B-7	2.00
	B-8	0.00
	B-9	1.00
15	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	1.00
	B-5	1.00
	B-6	N/A
	B-7	1.00
	B-8	0.00
	B-9	1.00
16	B-1	2.00
	B-2	2.00
	B-3	1.00
	B-4	1.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	0.00
	B-9	2.00
17	B-1	2.00
	B-2	2.00

	B-3	2.00
	B-4	2.00
	B-5	2.00
	B-6	0.00
	B-7	2.00
	B-8	2.00
	B-9	2.00
18	B-1	2.00
	B-2	2.00
	B-3	2.00
	B-4	2.00
	B-5	2.00
	B-6	0.00
	B-7	2.00
	B-8	2.00
	B-9	2.00
19	B-1	2.00
	B-2	2.00
	B-3	2.00
	B-4	2.00
	B-5	2.00
	B-6	0.00
	B-7	2.00
	B-8	2.00
	B-9	2.00
20	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	2.00
	B-5	1.00
	B-6	0.00
	B-7	1.00
	B-8	0.00
	B-9	1.00
21	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
22	B-1	2.00
	B-2	2.00
	B-3	2.00

	B-4	2.00
	B-5	2.00
	B-6	0.00
	B-7	2.00
	B-8	2.00
	B-9	2.00
23	B-1	1.00
	B-2	1.00
	B-3	0.00
	B-4	1.00
	B-5	1.00
	B-6	0.00
	B-7	1.00
	B-8	1.00
	B-9	1.00
24	B-1	1.00
	B-2	1.00
	B-3	1.00
	B-4	2.00
	B-5	1.00
	B-6	0.00
	B-7	1.00
	B-8	0.00
	B-9	1.00
25	B-1	3.00
	B-2	2.00
	B-3	3.00
	B-4	3.00
	B-5	3.00
	B-6	2.00
	B-7	2.00
	B-8	2.00
	B-9	3.00

Table C13: Final Projects - ABET Criterion 3: Student Outcomes – G Results by Student Number

Student Number	Item	Results
1	G-1	0.00
	G-2	0.00
	G-3	0.00
	G-4	0.00
	G-5	0.00
	G-6	0.00
	G-7	1.00
	G-8	1.00
	G-9	0.00
	G-10	N/A

2	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
3	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	0.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
4	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
5	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	0.00
	G-9	1.00
	G-10	N/A
6	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00

	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
7	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
8	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
9	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
10	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
11	G-1	N/A
	G-2	N/A

	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
12	G-1	2.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	2.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	2.00
13	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
14	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
15	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00

	G-9	1.00
	G-10	N/A
16	G-1	2.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	2.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	2.00
17	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
18	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
19	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
20	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00

	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	0.00
	G-9	1.00
	G-10	N/A
21	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
22	G-1	1.00
	G-2	2.00
	G-3	2.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	2.00
	G-9	1.00
	G-10	N/A
23	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	N/A
24	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	1.00
	G-8	0.00
	G-9	1.00
	G-10	N/A

25	G-1	2.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	2.00
	G-6	2.00
	G-7	2.00
	G-8	2.00
	G-9	2.00
	G-10	3.00

Table C14: Final Projects - ABET Criterion 3: Student Outcomes – K Results by Student Number

Student Number	Item	Results
1	K-1	0.00
	K-2	0.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
2	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
3	K-1	1.00
	K-2	1.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
4	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
5	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
6	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
7	K-1	N/A
	K-2	N/A
	K-3	N/A

	K-4	N/A
	K-5	N/A
8	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
9	K-1	1.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	1.00
10	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
11	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
12	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	3.00
13	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
14	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
15	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
16	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00

	K-5	3.00
17	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
18	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
19	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
20	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
21	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
22	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
23	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	1.00
24	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	1.00
	K-5	1.00
25	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	3.00

Table C15: Term Papers - ABET Criterion 3: Student Outcomes – B Results by Student Number

Student Number	Item	Results
11	B-1	1.00
	B-2	1.00
	B-3	N/A
	B-4	0.00
	B-5	0.00
	B-6	N/A
	B-7	1.00
	B-8	0.00
	B-9	1.00
25	B-1	2.00
	B-2	2.00
	B-3	N/A
	B-4	1.00
	B-5	2.00
	B-6	N/A
	B-7	2.00
	B-8	2.00
	B-9	2.00

Table C16: Term Papers - ABET Criterion 3: Student Outcomes – G Results by Student Number

Student Number	Item	Results
11	G-1	1.00
	G-2	1.00
	G-3	1.00
	G-4	1.00
	G-5	1.00
	G-6	1.00
	G-7	2.00
	G-8	1.00
	G-9	1.00
	G-10	2.00
25	G-1	2.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	2.00
	G-6	2.00
	G-7	3.00
	G-8	2.00
	G-9	2.00
	G-10	2.00

Table C17: Term Papers - ABET Criterion 3: Student Outcomes – K Results by Student Number

Student Number	Item	Results
11	K-1	1.00
	K-2	1.00
	K-3	1.00
	K-4	2.00
	K-5	2.00
25	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	3.00

Table C18: ABET Self-Assessment - ABET Criterion 3: Student Outcomes – B Results by Student Number

Student Number	Item	Results
1	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
2	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
3	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
4	B-1	2.00
	B-2	1.00

	B-3	0.00
	B-4	2.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	2.00
	B-9	3.00
5	B-1	3.00
	B-2	3.00
	B-3	3.00
	B-4	3.00
	B-5	3.00
	B-6	1.00
	B-7	3.00
	B-8	1.00
	B-9	3.00
6	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
7	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
8	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
9	B-1	N/A
	B-2	N/A
	B-3	N/A

	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
10	B-1	2.00
	B-2	1.00
	B-3	0.00
	B-4	2.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	2.00
	B-9	3.00
11	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
12	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
13	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
14	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A

	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
15	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
16	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
17	B-1	2.00
	B-2	1.00
	B-3	0.00
	B-4	2.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	2.00
	B-9	3.00
18	B-1	2.00
	B-2	1.00
	B-3	0.00
	B-4	2.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	2.00
	B-9	3.00
19	B-1	2.00
	B-2	1.00
	B-3	0.00
	B-4	2.00
	B-5	2.00

	B-6	1.00
	B-7	2.00
	B-8	2.00
	B-9	3.00
20	B-1	3.00
	B-2	3.00
	B-3	3.00
	B-4	3.00
	B-5	3.00
	B-6	1.00
	B-7	3.00
	B-8	1.00
	B-9	3.00
21	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
22	B-1	2.00
	B-2	1.00
	B-3	0.00
	B-4	2.00
	B-5	2.00
	B-6	1.00
	B-7	2.00
	B-8	2.00
	B-9	3.00
23	B-1	N/A
	B-2	N/A
	B-3	N/A
	B-4	N/A
	B-5	N/A
	B-6	N/A
	B-7	N/A
	B-8	N/A
	B-9	N/A
24	B-1	3.00
	B-2	3.00
	B-3	3.00
	B-4	3.00
	B-5	3.00
	B-6	1.00

	B-7	3.00
	B-8	1.00
	B-9	3.00
25	B-1	2.00
	B-2	2.00
	B-3	2.00
	B-4	3.00
	B-5	2.00
	B-6	2.00
	B-7	2.00
	B-8	2.00
	B-9	2.00

Table C19: ABET Self-Assessment - ABET Criterion 3: Student Outcomes – G Results by Student Number

Student Number	Item	Results
1	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
2	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
3	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A

4	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
5	G-1	3.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	2.00
	G-6	2.00
	G-7	2.00
	G-8	3.00
	G-9	3.00
	G-10	3.00
6	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
7	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
8	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A

	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
9	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
10	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
11	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
12	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
13	G-1	N/A
	G-2	N/A

	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
14	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
15	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
16	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
17	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A

	G-9	N/A
	G-10	N/A
18	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
19	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
20	G-1	3.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	2.00
	G-6	2.00
	G-7	2.00
	G-8	3.00
	G-9	3.00
	G-10	3.00
21	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
22	G-1	3.00
	G-2	2.00
	G-3	N/A
	G-4	N/A

	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
23	G-1	N/A
	G-2	N/A
	G-3	N/A
	G-4	N/A
	G-5	N/A
	G-6	N/A
	G-7	N/A
	G-8	N/A
	G-9	N/A
	G-10	N/A
24	G-1	3.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	2.00
	G-6	2.00
	G-7	2.00
	G-8	3.00
	G-9	3.00
	G-10	3.00
25	G-1	2.00
	G-2	2.00
	G-3	2.00
	G-4	2.00
	G-5	2.00
	G-6	2.00
	G-7	2.00
	G-8	2.00
	G-9	2.00
	G-10	3.00

Table C20: ABET Self-Assessment - ABET Criterion 3: Student Outcomes – K Results by Student Number

Student Number	Item	Results
1	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
2	K-1	N/A

	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
3	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
4	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	2.00
5	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
6	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
7	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
8	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
9	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
10	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	2.00
11	K-1	N/A
	K-2	N/A

	K-3	N/A
	K-4	N/A
	K-5	N/A
12	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
13	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
14	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
15	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
16	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
17	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	2.00
18	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	2.00
19	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	2.00
20	K-1	2.00
	K-2	2.00
	K-3	2.00

	K-4	2.00
	K-5	2.00
21	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
22	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	3.00
	K-5	2.00
23	K-1	N/A
	K-2	N/A
	K-3	N/A
	K-4	N/A
	K-5	N/A
24	K-1	2.00
	K-2	2.00
	K-3	2.00
	K-4	2.00
	K-5	2.00
25	K-1	2.00
	K-2	2.00
	K-3	3.00
	K-4	2.00
	K-5	2.00

Appendix D: School of Engineering Awareness Assessment Results Sorted by Student Number

Student #1:

Table D1: School of Engineering Awareness Assessment Results for Student #1 for ENGR 220

Questions	**Answers**
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	No
Question 6: How many engineering clubs are there on campus?	10+
Question 7:	2

How many engineering honor societies are there on campus?	
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Table D2: School of Engineering Awareness Assessment Results for Student #1 for MECH 212

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	No
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	2
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for C/GS/MS/B engineering
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #2:

Table D3: School of Engineering Awareness Assessment Results for Student #2 for MECH 212

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering

Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	No
Question 6: How many engineering clubs are there on campus?	None
Question 7: How many engineering honor societies are there on campus?	None
Question 8: What is Tau Beta Pi?	A Fraternity
Question 9: What is Keramos?	Honor society for C/GS/MS/B engineering
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #3:

Table D4: School of Engineering Awareness Assessment Results for Student #3 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	5
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Table D5: School of Engineering Awareness Assessment Results for Student #3 for MECH 212

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	5
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for C/GS/MS/B engineering
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #4:

Table D6: School of Engineering Awareness Assessment Results for Student #4 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	5

Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #5:

Table D7: School of Engineering Awareness Assessment Results for Student #5 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	5
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Table D8: School of Engineering Awareness Assessment Results for Student #5 for MECH 212

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3:	Mechanical Engineering

Which of the following is/are your engineering major(s)?	
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	5
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for C/GS/MS/B engineering
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #6:

Table D9: School of Engineering Awareness Assessment Results for Student #6 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	In a leadership position
Question 6: How many engineering clubs are there on campus?	1
Question 7: How many engineering honor societies are there on campus?	5
Question 8: What is Tau Beta Pi?	None of the above
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither?	Public

Public: sponsored by NYS, Private: sponsored by AU.	

Table D10: School of Engineering Awareness Assessment Results for Student #6 for MECH 212

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	In a leadership position
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	5
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for C/GS/MS/B engineering
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Public

Student #7:

Table D11: School of Engineering Awareness Assessment Results for Student #7 for MECH 212

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	Materials Science
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	No
Question 6: How many engineering clubs are there on campus?	5
Question 7: How many engineering honor societies are there on campus?	None
Question 8:	A Fraternity

What is Tau Beta Pi?	
Question 9: What is Keramos?	Engineering Club
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Both

Student #8:

Table D12: School of Engineering Awareness Assessment Results for Student #8 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	Mathematics
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	No
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	2
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Engineering Club
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #9:

Table D13: School of Engineering Awareness Assessment Results for Student #9 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	Renewable Energy Engineering
Question 5:	Active Member

Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	2
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Engineering Club
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #10:

Table D14: School of Engineering Awareness Assessment Results for Student #10 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	1
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #11:

Table D15: School of Engineering Awareness Assessment Results for Student #11 for RNEW 468

Questions	Answers
Question 1: What year in college are you?	Senior
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Renewable Energy Engineering
Question 4: What is/are your minor(s)?	Chemistry
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	In a leadership position
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	2
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for C/GS/MS/B engineering
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Both

Student #12:

Table D16: School of Engineering Awareness Assessment Results for Student #12 for MECH 212

Questions	Answers
Question 1: What year in college are you?	Junior
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Renewable Energy Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	1
Question 7: How many engineering honor societies are there on campus?	1
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for C/GS/MS/B engineering

Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #13:

Table D17: School of Engineering Awareness Assessment Results for Student #13 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Junior
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	Other
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	No
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	10+
Question 8: What is Tau Beta Pi?	A Sorority
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #14:

Table D18: School of Engineering Awareness Assessment Results for Student #14 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5:	Active Member

Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	
Question 6: How many engineering clubs are there on campus?	5
Question 7: How many engineering honor societies are there on campus?	1
Question 8: What is Tau Beta Pi?	A Fraternity
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #15:

Table D19: School of Engineering Awareness Assessment Results for Student #15 for ENGR 220

Questions	**Answers**
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	Other, Mathematics
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	In a leadership position
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	5
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Table D20: School of Engineering Awareness Assessment Results for Student #15 for MECH 212

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	Other
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	In a leadership position
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	5
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for C/GS/MS/B engineering
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #16:

Table D21: School of Engineering Awareness Assessment Results for Student #16 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Renewable Energy Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	No
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	2

Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #17:

Table D22: School of Engineering Awareness Assessment Results for Student #17 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	1
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Engineering Club
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Table D23: School of Engineering Awareness Assessment Results for Student #17 for MECH 212

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.

Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	5
Question 7: How many engineering honor societies are there on campus?	2
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Engineering Club
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #18:

Table D24: School of Engineering Awareness Assessment Results for Student #18 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	2
Question 7: How many engineering honor societies are there on campus?	None
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Both

Student #19:

Table D25: School of Engineering Awareness Assessment Results for Student #19 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	2
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #20:

Table D26: School of Engineering Awareness Assessment Results for Student #20 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	Mathematics
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+

Question 7: How many engineering honor societies are there on campus?	10+
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #21:

Table D27: School of Engineering Awareness Assessment Results for Student #21 for RNEW 468

Questions	Answers
Question 1: What year in college are you?	Junior
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	2
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for C/GS/MS/B engineering
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #22:

Table D28: School of Engineering Awareness Assessment Results for Student #22 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering

Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	I do not have a minor.
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	No
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	10+
Question 8: What is Tau Beta Pi?	None of the above
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #23:

Table D29: School of Engineering Awareness Assessment Results for Student #23 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering, School of Business
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	Other
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	5
Question 8: What is Tau Beta Pi?	A Fraternity
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and

	biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Table D30: School of Engineering Awareness Assessment Results for Student #23 for MECH 212

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	Other
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	In a leadership position
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	5
Question 8: What is Tau Beta Pi?	Engineering Club
Question 9: What is Keramos?	Engineering Club
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Student #24:

Table D31: School of Engineering Awareness Assessment Results for Student #24 for ENGR 220

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	Renewable Energy Engineering, Mathematics
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member

Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	1
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for ceramic engineering, glass science, materials science and biomaterials engineering science majors
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Table D32: School of Engineering Awareness Assessment Results for Student #24 for MECH 212

Questions	Answers
Question 1: What year in college are you?	Sophomore
Question 2: What school(s) are you enrolled in at Alfred University?	Inamori School of Engineering
Question 3: Which of the following is/are your engineering major(s)?	Mechanical Engineering
Question 4: What is/are your minor(s)?	Mathematics, Renewable Energy Engineering
Question 5: Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	Active Member
Question 6: How many engineering clubs are there on campus?	10+
Question 7: How many engineering honor societies are there on campus?	2
Question 8: What is Tau Beta Pi?	National Engineering Honor Society
Question 9: What is Keramos?	Honor society for C/GS/MS/B engineering
Question 10: Do you think the Inamori School of Engineering at Alfred University is a public and/or private school, or neither? Public: sponsored by NYS, Private: sponsored by AU.	Private

Appendix E: Ethics Quiz Results Sorted by Student Number

Student #1:

Table E1: Ethics Quiz Results for Student #1 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together

for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	Ms. Williams should tell management that she cannot certify the products so that way the buyer does not get a faulty product and the company does not get sued. She should redo the circuits so that way they are done the way they should be. She should acknowledge the mistake so everyone on her team knows what happened and how to fix the problem

Table E2: Ethics Quiz Results for Student #1 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem, She will work alone overnight to redo the shocks, Tell her management that she cannot certify the products, Redo the shocks.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why?	1. No because there could be serious issues causing serious injuries 2. Yes because she is the overseeing engineer and it happened while under her supervision 3. No because he did not know 4. No because the problem needs to be fixed so no one gets hurt 5. Yes because the work needs to be done 6. Yes because management should be aware of all issues 7. No because there could be serious issues causing injuries 8. Yes because you cannot sell a faulty product

7. Yes/No and Why? 8. Yes/No and Why?	

Student #2:

Table E3: Ethics Quiz Results for Student #2 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the shocks, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch\, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1) Obviously the shocks will need to be redone so the customer gets what they pay for. 2) No because if the shocks break the company could face a lawsuit. 3) running from your problems will not take care of them. 4) working overnight is a possible option but the next day would be awful, I personally would not do that. Sleep is essential. 5) this is the same answer as 2 6) I'd probably express my disappointment with the mechanic but I'm a really nice guy I wouldn't fire the mechanic unless this was a repeat offense then we would have to take a deeper look at if this guy was worth keeping around. 7) I'd tell my boss that there was a screw up and I would not be able to send out a potentially dangerous product to a customer. 8) absolutely when I found out there was an issue with the shocks I would immediately focus my attention on how this can be fixed.

Student #3:

Table E4: Ethics Quiz Results for Student #3 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1:	Redo the circuits, Tell her management that she cannot certify the

What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem, She will work alone overnight to redo the circuits.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1) She can redo the circuits, adding the right resistors. This will take some time out of her schedule 2) She is the supervisor of the team that was doing the circuits. It is her responsibility to make sure they are all correct. It is also a team project so, the team will be willing to fix the mistakes to make the order correct and shipped out on time 3) Its better to fix the circuits than send them out and have a safety hazard that can cause injuries or deaths 4) She should not keep her mouth shut because this mistake can kill someone 5) Taking a vacation and knowing that someone in your team messed and can kill someone is wrong 6) If she can not fix the circuits than telling her management will keep the dangerous circuits from causing any damage or injuries 7) Sending the circuits while knowing they can cause fires, can get her fired or sent to jail 8) Firing the electrician for a mistake that can be fixable is wrong. Unless her management tells her to fire him

Table E5: Ethics Quiz Results for Student #3 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Tell her management that she cannot certify the products, Redo the shocks, She will work alone overnight to redo the shocks.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why?	1.) Yes, she should acknowledge the mistake that way they are not released and possibly cause an accident. 2.) No, sending the shocks can cause an accident and hurt someone. 3.) No, keeping her mouth shut will cause an accident and can hurt someone. 4.) No, taking a vacation will not fix the problem and can possibly hurt someone. 5.) Yes, telling management that the shocks are wrong and cant be certified takes any possibility for accidents. 6.) No, the mechanic did not mean to make that mistake, have them

7. Yes/No and Why? 8. Yes/No and Why?	remake the shocks instead of firing them. 7.) Yes, redoing the shocks will take a little time but is better than sending 10 less shocks or sending 10 shocks that can fail. 8.) Yes, as the manager of the project, she can work overnight and fix the shocks and keep the team on schedule.

Student #4:

Table E6: Ethics Quiz Results for Student #4 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1: Its a simple mistake and if the engineer is willing to help fix the problem, he shouldn't be punished for his actions. 2: Its a bad idea to risk it with the improper circuits. There is a high chance it could backfire on the company if something goes wrong. 3: This is a good idea, but there has to be more to it. You now have to fix the problem. 4: As a good leader this is the proper thing to do, work with your team to fix the problem at hand. 5: This isn't ideal because she isn't the engineer that a assembled them, but it is up to her to start the process of fixing the problem and possibly helping out the engineer to meet the approval. 6: Have the engineer that made the mistakes correct all the devices with proper parts. 7: Its a bad idea to leave and ignore it because when you get back its not gonna be a good time if something did go wrong with the product. it will only make you look bad for running from a problem. 8: Also a bad idea, it will only backfire on both the company and its employees when one of the devices malfunctions.

Table E7: Ethics Quiz Results for Student #4 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has

ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the shocks, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1, No, She probably doesn't have the training to work the machinery by herself to fix the problem. 2. No, this would only get her fired if something went wrong. 3. No, this would only get her fired eventually if the shocks did fail. 4. Yes, this would be good if she had time to do them. 5. Yes, the first thing she should do is notify the superior of the status. 6. No, everyone makes mistakes sometimes. 7. Yes, this would be the best if she was a true leader of this group. 8. No, this will only get her fired when the product malfunctions.

Student #5:

Table E8: Ethics Quiz Results for Student #5 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch\, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	She should record all issues in order to make the desired product. If she doesn't the buyer will me much more unhappy if the product doesn't work, than if the product comes in late. She also should not work alone because without others she may miss an issue. There may also be a safety concern if she's there alone and no one is there to get help. Leaving for a vacation is not an option because it will make her look guilty, which she is, but that is how you get fired, and you loose a buyer for the company. She has to report and fix the problems asap with her teams help because quality, and safety are 2/3 of the important things that need to be taken into accout. The other third is efficiency, but the way I see it the company will be happier with a 66 percent rather than a 33 percent.

Table E9: Ethics Quiz Results for Student #5 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Redo the shocks, Tell her management that she cannot certify the products.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1: Faulty parts should not be sent to a customer this could reflect badly on the company. 2: An individual should be open and honest about there mistakes and the mistakes of others. 3. A vacation is a bad move because you she will most definitely get fired. 4. acknowledging the mistake may get you in trouble, but you will be in more trouble if you dont acknowledge and they find out. Also someone could die. 5.The shocks should be redone, this will reflect well on the company and the supplier may buy from them again. 6. The mechanic should be punished but should not be fired unless it is a reacuring issue. 7. Never work alone always have someone to check you. 8. Dont certify if you know they are bad.

Student #6:

Table E10: Ethics Quiz Results for Student #6 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why	She should redo the circuits so there is no chance of a fire in the customers product. She should tell management so they know why the product wasn't

Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	certified. And she should acknowledge that a mistake was made under her watch and she is willing to work to fix the problem because that is what she should do, it is her job to acknowledge and fix mistakes so customers are not harmed.

Table E11: Ethics Quiz Results for Student #6 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch\, and she is willing to work with her team members to fix the problem, Redo the shocks.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1) The shocks should not be sent to the customer because they were not done correctly and could potential fail and injury the customer. 2) She should not work alone overnight because you should never work in a shop alone and working overnight can lead to other issues with the product. 3) She should not take a vacation because the customer wants the shocks immediately. 4) She should not keep her mouth shut because it is her job to report to management about the manufacturing status. 5) She should tell her management because it is her job to report to management about the manufacturing status. 6) She should acknowledge a mistake was made because it is her job to supervise the team on the production of the shocks. 7) She should redo the shocks because the customer wants them immediately. 8) She should not fire the worker because it was a small mistakes and mistakes are bound to happen.

Student #7:

Table E12: Ethics Quiz Results for Student #7 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To

supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Redo the shocks.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. Yes: The strength of the product is inconclusive due to the altered material, so therefore the quality can not be guaranteed. 2. No: While she is the supervisor of the team, she should not try to solve the problem alone. Especially working alone and overnight, additional mistakes are a high probability. 3. No: At this moment, a problem has arisen, and "running away" by taking a vacation will only delay the problem being solved, if not creating more. 4. No: Assuming the quality and performance of the shocks is critical to the customer's safety, the producer should not compromise safety just to fulfill a rush order. 5. No: While the mistake has costed both time and money, it is a fixable problem. Assuming this is an uncommon event, the mechanic who made the initial mistake still has the procedures to learn and can not do so when no longer employed by the company. 6. Yes: As the supervisor, she is entitled to some of the credit of her team, but also must burden some if not all of the responsibility when mistakes are made. While solving the problem, the team should work together under close supervision and guidance from the supervisor. 7. Yes: Although this will delay the sale to the customer, the manufacturer should only provide their products when their quality is guaranteed. 8. No: This is the worst thing to do, aside from run away. Identifying and then not making the problem known will not make the problem go away. When/if the shocks fail below their rated stress, an investigation will work its way back until they find the supervisor neglected her duty of notifying management about an irregular production status.

Student #8:

Table E13: Ethics Quiz Results for Student #8 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.

Questions	Answers
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	Never let a defective product reach the consumer as well as acknowledging a mistake and taking all the proper steps to fix it.

Table E14: Ethics Quiz Results for Student #8 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Tell her management that she cannot certify the products, Redo the shocks.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	No, because 1 small mistake should not be met with termination No, the problem must be acknowledged No, defective products must not reach the customer Yes, she is responsible to watch over the mechanics and make sure no mistakes were made No, it is not her responsibility alone so she should not be the only one penalized Yes, defective products must not reach the customer No, never ignore a problem Yes, the customer ordered a product so they must be done right and then delivered

Student #9:

Table E15: Ethics Quiz Results for Student #9 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Tell her management that she cannot certify the products, Redo the shocks.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	* She should acknowledge her mistake as the supervisor and she should fix the problem with her workers, because the customer still needs the parts. * She shouldn't have to take time out of her schedule to redo the parts. She might not be able to do overtime or the factory may close and not allow her to redo the parts. * She definitely shouldn't keep quiet. because a part passed to hold 300 lbs for example might not hold that and someone may get injured. If that were to happen, the company may get sued and it would bite her in the butt later on when management found out she signed off on the defective part that she knew was the wrong material and therefore couldn't hold up to the correct weight. * Taking a vacation would be random which would just put the responsibility on someone else to check the part and find out it was wrong. She would just be running away from her problems and would probably feel guilty if something bad happened with the customer. * She should tell her management that a mistake was made on several of the parts and let management tell her what to do next and they can handle the employee or the supervisor effectively. They are there to manage and help out their employees. * Although this choice would initially help the customer out, it might then break or not hold up to the certified weight. This could also cause a lawsuit and cost the company lots of money to settle. * You have to redo the shocks at some point to just take the blame at using the wrong material and make the correct ones with your whole team again. Hopefully you won't go overtime and can still send them out to the customer a little later than needed. It would hurt the company some good status, but it wouldn't cause a lawsuit incase the shocks broke. * Depending on how much the material costs and how much money it takes to manufacture these shocks, then firing the mechanic may be necessary. I would report it to management and let them deal with it, because the supervisor would probably need management approval before firing an employee anyways. Also depending on if it's the first time this employee made a mistake or if it's his/her first time, then they wouldn't deserve to be fired. It all depends on the importance of the part and the costs and safety

	which most companies take seriously.

Student #10:

Table E16: Ethics Quiz Results for Student #10 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. she can't certify them because they are faulty circuits that may put the customer at risk 2. because it is the right thing to do 3. she may make a mistake since she may get tired, wrong for her team members not to help 4. definitely shouldn't do this, could lead to law suit and injury of customer 5. same as 4 6. they need to be fixed 7. he made a simple mistake, mistakes are made, no need to fire, just inform electrician of the problem 8. shouldn't take a vacation, that is just avoiding the problem

Table E17: Ethics Quiz Results for Student #10 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Redo the shocks, Tell her management that she cannot certify the products.
Question 2: Discuss your reasons why Ms. Williams should AND should not	1. no, she knows that there is a problem and it is not right to not speak up to fix the problem 2. no, made a simple mistake

do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	3. yes, because it is the right thing to do, therefore the customer won't get a bad product 4. yes, needs to fix the shocks 5. no, could put customer at risk 6. yes, therefore shocks can't be sent out 7. no, she's being irresponsible 8. not her fault, shouldn't have to work alone

Student #11:

Table E18: Ethics Quiz Results for Student #11 for RNEW 468

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Tell her management that she cannot certify the products, Fire the electrician, Redo the circuits.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. She should not go on vacation because then the customer is at risk. 2. She should acknowledge her mistake because she is the supervisor and should take the blame and should also then go back and work with her team to fix the mistake. 3. She should not work alone overnight to get them done. She should work with her team. 4.She should not send the products to the costumer because then they are at risk. 5.She can not certify the products because she knows they are bad. 6. She should not keep her mouth shut because then the costumer and the company are at risk 7. The electrician should be fired because of their mistake. 8.The circuits must be redone to fit the order.

Student #12:

Table E19: Ethics Quiz Results for Student #12 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause

a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Redo the shocks.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. Yes because to certify a bad product is dangerous and bad for her reputation 2. No mistakes happen and the team can fix and learn from mistakes 3.Yes she was ultimately in charge and can fix the current situation 4. No tying to the work alone when it took a team to begin with is irresponsible and dangerous 5.No that is deceitful and back handed and can ruin the company and her reputation 6. No the shocks are bad, shocks would have immediate failure 7. Yes you need to fix the mistake and prove you can make a good product 8. No taking a vacation during a major issue is lazy, and shows signs of a horrible leader that cant lead her team to fix this issue.

Student #13:

Table E20: Ethics Quiz Results for Student #13 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why?	Ms. William should, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem in order to prevent an accident in the future. Ms. William no keep her mouth shut, because this will create a fire that might endanger live. Ms. William not Fire the electrician, because it was a mistake that anyone could make, so instead supervise him so he understands that he need to be careful in the future.

8. Yes/No and Why?	Ms. William should Redo the circuits, in order to fix the problem. Ms. William should not Take a vacation, because it just ignore the problem that instead she should be working to fix. Ms. William should not work alone overnight to redo the circuits, because it was a team failure, so the entire team should work on it together. Ms. William should Tell her management that she cannot certify the products, how the is a problem that need to be taking care first. Ms. William should not Send the ten circuits to the customer, because they are defective.

Table E21: Ethics Quiz Results for Student #13 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem, Redo the shocks.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. No, because it you no help the current situation, and she will be running away from the problem itself, instead of fixing it. 2. Yes, explain to the manager that the product is defective therefore can not be certify, because of a rick of peoples lives, if not taking care of. 3. Yes, to explain that one of the worker under her supervision made a mistake under her watch , and will work with her team to fix the problem, and make sure it does not happen again. 4. yes, redo the shock so it is safe to be use and nobody get hurt. 5. No, because by doing that, the other workers will not learn from their mistake, and it most likely will keep repeating. Therefore working with the team to fix the problem, and make sure it does not happen again. 6. No, by not telling will lead to an accident and get some someone

	hurt or kill. 7. No, everybody make mistake therefore teaching them to prevent in the future will help but if it occur more often and they are not learning, then it can not be helped. 8. no, by sending it without fixing the problem will lead to an accident and get some someone hurt or kill.

Student #14:

Table E22: Ethics Quiz Results for Student #14 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem, Redo the shocks.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. alerts management to the problem so the customer can be informed 2. take responsibility as a manager that something on her team did not go according to plan 3. avoiding the problem is not the answer 4. parts still need to be made 5.yes the mechanic messed up but everyone makes mistakes. firing the mechanic doesn't help 6. see 3 7. the shock are not to speck and could cause injury 8. working alone over night will likely cause fatigue and for the new shocks to be out of spec as well

Student #15:

Table E23: Ethics Quiz Results for Student #15 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To

supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem. She will work alone overnight to redo the circuits.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. No, she should not send 10 bad circuits to a customer 2. Yes, she should work with her team but since she is the manager she is making sure the circuits are fixed to keep the customer happy. 3. No, taking a vacation will not fix the problem 4. Firing the electrician over a small mistake seems extreme 5. Yes, she needs to redo the circuits. 6. No, she can certify them after they are fixed. 7. Yes she needs to work with her team to fix the problem. 8. No she needs to speak with her team to fix the problem

Table E24: Ethics Quiz Results for Student #15 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the shocks, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why?	1. Redo the shocks because that's her job 2.No, they should redo the shocks as a team 3.No, taking a vacation will not fix the problem

3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	4.No, if she doesn't say anything they could be giving a bad product to the customer 5.Yes, because the product was made wrong 6. Yes, this is the action I think she should take 7. No, she should not send bad products to a customer 8. No, mistakes are made and he told her about them

Student #16:

Table E25: Ethics Quiz Results for Student #16 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. Yes, If she were to certify the products, she would become responsible for any defects and incidents that could occur while the products were in the possession of the customer. If a product doesn't meet product regulations, then the product can not be approved. 2. No, she should be working with her team in order to analyze any defects, and determine if they need to redesign their product. The electricians under her should be present when analyzing the circuits to determine if a redesign would be necessary. 3. No, This is a definite no. She should never send a sub par product to a customer, especially if it poses a fire hazard. 4. No, This doesn't really seem like the proper time to take time off. 5. Yes, after analyzing the defects within the circuit, if her team determines that the source of defaults was strictly regarding using the wrong resistors, then they shouldn't need to redo the entire circuit, but simply continue production using the correct resistors. However if there are other issues with the circuits even with the correct resistors, then there needs to be a redesign.

	6. No, Her job is to report the status of production, and this is a matter that needs to be brought to the attention of management. 7. No, I don't necessarily find it appropriate to fire the electrician for this particular situation. I wouldn't suggest that firing the electrician be her first course of action. Although that's not to say that their mistake shouldn't have consequences, whether that includes their employment being set up for a review with the employers. 8. Yes, it is her responsibility as supervisor to ensure that every product that is produced by her team has her name attached to it, and that her name is at the top of the list. That means that she needs to solve any problems with her team in order to meet regulations for their products.

Table E26: Ethics Quiz Results for Student #16 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. No, this is no time for a vacation. Her company has a problem that needs to be addressed, and she needs to be there to fix it. 2. No, You need to be more clear about redo. Redo as in redesign? if the only issue was improper material, then unless there is reason to believe that the entire design is flawed, she shouldn't need to "redo" the shocks, just use the proper material. 3. No, She shouldn't work alone all night to fix the issue. She should instead have her team analyze the source of the issue, and if their data collection and analysis shows that the only flaw in the design is that the wrong material was used, then there would be no need to "redo" the shocks, just make shocks with the proper material. 4. No, although this could prove to be a costly mistake. I don't believe that firing the mechanic should be Ms. Williams' first impulse. However, if the mistake proved to be that harmful to the company, then I would suggest that the mechanics employment be held for review. If deemed that their employment is detrimental to the company, then yes firing the mechanic

	should be considered. 5. No, Definitely Not! If she were to send these shocks to the customer knowing that they were faulty, that would leave her liable to any issues should they arise. Especially considering that these shocks are being used for racecars, they must meet company standards before they can be sent to the customer. 6. Yes, she must tell her management that their products cannot be certified until it can be proved that the only problem was the use of faulty material. Once the shocks can be shown to meet company standards, then she can certify that they meet design requirements. 7. No, if she keeps her mouth shut to the situation and those shocks make their way to the customer, she would be liable to any incident that occurred, because the faulty shocks were produced by her team, making anything they produce her responsibility to check. 8. Yes, Ms. Williams should understand that fixing the issue is her responsibility and that she needs to work with her team to effectively and efficiently solve the issue so that a certified product that meets design requirements can be sent to the customer as soon as possible.

Student #17:

Table E27: Ethics Quiz Results for Student #17 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem, She will work alone overnight to redo the circuits.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why?	action 1: One of her duties is to supervise the electricians and clearly she didn't do a good job with her supervision since the electrician messed up by putting the wrong resistors in a circuit. Therefore she should acknowledge that the mistake was made under her watch, and show that she is willing to work with her team members to fix the problem. action 2: Of course the circuits should be redone. If not they can cause a fire.

5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	action 3: She should tell her management that she can't certify the products because they weren't made to meet the design requirements. action 4: She should in no way "keep her mouth shut". There is a problem that she knows about and management would rather be notified than send out faulty circuits to a customer. action 5: She should not take a vacation until the problem is solved. action 6: She shouldn't send the ten circuits to the customer if they can cause a fire because of faulty circuits which don't meet the design requirements. action 7: I don't think I would fire the electrician. I would notify him/her what they did wrong and tell them to fix it under my supervision. I would strictly give him/her a warning. action 8: If that is what it takes to get the circuits out on time to the customer, then yes... she should work alone overnight to redo the circuits.

Table E28: Ethics Quiz Results for Student #17 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem, Tell her management that she cannot certify the products, Redo the shocks, She will work alone overnight to redo the shocks.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. No because they could fail, and sending out known faulty products to a customer is not morally and ethically right. 2. Yes, she should work with her team members to fix the problem and make it right because sending out a faulty product isn't okay. 3. Yes she should tell management that she cannot certify the products because a wrong batch of material was used in them. 4. Yes the shocks should be redone before they are delivered to the customer. 5. No I don't believe you should fire the mechanic, but you should let him know what he did wrong so he doesn't repeat it in the future. I say

	give him another chance, but with a stern warning. 6. If she must work after business hours to complete the order on time, then I think it is necessary that she do so. 7. No she should not take a vacation. She must take partial responsibility for the bad shocks and fix them. 8. No, keeping her mouth shut will just damage her companies reputation, and potential and current customers may be lost in the process once the shocks are discovered to be faulty.

Student #18:

Table E29: Ethics Quiz Results for Student #18 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. Ms. Williams should take responsibility for the fact the mistake happened under her watch, but reassure that the issue will be resolved with the her working with her team. This will lead to the issue being resolved as fast as it can be. 2. The circuits need to be redone so may as well get a jump on it with her team and get it done. 3. A member of her team made the mistake so they should repair it as a team because it will get done faster and cause her less stress. 4. The circuits are not properly built and do not meet standard so the should not be sent out. 5. Keeping her mouth shut will help no one and lead to more issues for her and the company down the road. 6. Taking vacation will again help no one and look very bad on her part.

	7. Ms. Williams needs to tell her management staff what is going on so they understand why it might take longer for these products to be complete and ready to ship. 8. There is no need to fire the electrician over this one mistake, if these kind of mistakes continue maybe actions should be taken then but not at this moment.

Table E30: Ethics Quiz Results for Student #18 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the shocks, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. The shocks need to be redone before they can be sent out so that is the first task that needs to be done. 2. No, she should not send the shocks to the costumer because they do not meet the standards that they should because of the wrong material. 3. No, taking a vacation would look very unprofessional on her part and she probably would lose her job. 4. No, it was not her mistake so she shouldn't have to redo them all herself and it would go a lot faster if they worked as a team. 5. No, this is the mechanics first mistake and it was caught so there is no need to fire them unless more mistakes continue. 6. No, keeping her mouth shut will make her look bad and unprofessional again. 7. Yes, she needs to tell the management that she can not certify these products because they do not meet the specs that they need to due to the companies standards. 8. Yes, this will make her look professional and that she can take responsibility for what goes on under her watch and that she will work to fix said mistake.

Student #19:

Table E31: Ethics Quiz Results for Student #19 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem, She will work alone overnight to redo the circuits.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1: The circuits need to be fixed, and redoing them is better than throwing them out 2: That is entirely inappropriate while there is a major issue like this in her team 3: Maybe this is reasonable, she should definitely do something to rectify the problem, but her team should help her. Her fixing it alone isn't necessary 4: She needs to notify management so they don't send the faulty circuits to the customer 5: She shouldn't send them because they'll make the customers products light on fire. I don't think I need to explain why that's bad 6: It might be appropriate for a bigger mistake, but for only 10 circuits, firing them seems like an overreaction. 7: There's an issue that might get people injured or killed, keeping her mouth shut is intentionally injuring them. 8: Its her job to do that. Of course she needs to.

Student #20:

Table E32: Ethics Quiz Results for Student #20 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and

put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	Keeping your mouth shut would lead to the company getting sued if someone knew there was an issue and there actually is a fire. Redoing the circuits can help because this way the mistakes can be found and fixed. Sending the ten circuits is a bad idea because the company can get sued for selling bad products. Tell her management team is a good idea so they can help figure out a solution and this way they know not to use those circuits. Acknowledging the mistake was under her watch shows the leadership and commitment to the company and shows she is taking responsibility. I think firing the electrician is a little too much. He just made a mistake and if he can fix it he shouldn't be fired. Taking a vacation is a bad idea because avoiding an issue is not the best idea. Stepping up and facing the issue is the best solution. Working overnight alone is not a good idea because it is a group effort and your group can help you fix the problem. If you work alone you might make a mistake.

Table E33: Ethics Quiz Results for Student #20 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem, Tell her management that she cannot certify the products, Redo the shocks.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why?	Don't take a vacation, fix your mistakes. Don't work overnight alone because you might make a mistake since no one is there to help. Keeping your mouth shut can lead to the company getting sued since someone knew there was a mistake. Acknowledging the problem shows responsibility and leadership and let's the company know you care. Telling management to not certify the products yet allows her to have more time and prevents further issues. Sending the shocks is not good because it's bad for the company and can lead to the company getting sued for selling products not up to standards. I think firing someone over one mistake is too harsh. Unless this

5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	is a usual thing they deserve a second chance. Redoing the shocks allows for them to be at the right specifications and material.

Student #21:

Table E34: Ethics Quiz Results for Student #21 for RNEW 468

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	Since she was in charge of what they were doing she should take some of the responsibility. She should've double checked everything with everybody. She should still work with her team to fix the problem instead of just telling her workers that it needs to be fixed. She shouldnt have to fire the electrician he did the right work just used the wrong resistors.

Student #22:

Table E35: Ethics Quiz Results for Student #22 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1:	Redo the circuits, Tell her management that she cannot certify the products,

What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	She should redo the circuits because the mistake occurred under her watch, however it shouldn't just be her responsibility. She shouldn't fire the electrician because it was just simple error. She should also tell her management of the mistake and that she will work along side the team to fix the error.

Student #23:

Table E36: Ethics Quiz Results for Student #23 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. Redo the circuits to ensure the correct batch of resistors is in place 2. Do not take a vacation as that is just prolonging the problem at hand 3. If she is honest with management, there is a chance she can be fired but they can adjust the error and actually send working circuits to the consumer. 4. Firing the electrician may be the easy route, however, if the team works diligently to fix the issue, it would be as if the mistake never happened. 5. Acknowledging the mistake and fixing it is a very good sign of honesty and perseverance to continue with work even with drawbacks and faults. 6. Keeping her mouth shut could lead to the potential circuitry bursting into

	flames, causing more problems. 7. Working alone overnight would not be time efficient or fair because she was not original source of the error. Working with the team is the best alternative route. 8. Sending faulty circuits to the customer would lead to the loss of that consumers business had the consumer received and found out about his poorly wired product. Beyond that, if his product bursts into flames mid-use, he could potentially sue, and Ms. Williams and her team along with the company would be in a lot of legal trouble.

Table E37: Ethics Quiz Results for Student #23 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the shocks, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1. Do not fire the mechanic for he will be needed to fix the mistake 2. Re do the shocks to ensure that the product is now usable and can be sold to consumers 3. If she reports to her management that the shocks were done incorrectly she can ensure her and her team will be able to fix the problem and not cause more issues 4. Do not send the shocks to the customer because obviously they will not function properly and cause more issues 5. Keeping her mouth shut is a bad move because then the consumer would receive faulty products and the management could then look to fire the team 6. Working alone overnight without her team would be completely outrageous because it wasnt initially her issue 7. If her whole team works together it would be the better route to complete and fix the error faster

	8. Taking a vacation would be a bad route as it would lead to no solution and probably lead to her being fired from the company

Student #24:

Table E38: Ethics Quiz Results for Student #24 for ENGR 220

Background: Ms. Williams is an electrical engineer in an electrical circuit manufacturing company. Her responsibilities include the following tasks: a. To design a line of new circuits for cell phones, b. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new circuits, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the electricians took a wrong batch of resistors and put all the resistors in the first ten circuits. This wrong batch of resistors does not meet the design requirements and may cause a fire if the currents exceed 1 mA. and b. The management told Ms. Williams that a customer has ordered ten circuits and wants the immediate delivery.	
Questions	**Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Redo the circuits, Tell her management that she cannot certify the products, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1.) Ms. Williams should not "keep her mouth shut" and should inform management of the issue. 2.) Ms. Williams should tell management that she cannot certify the products 3.) Ms. Williams should redo the incorrect circuits 4.) Ms. Williams should not take a vacation when there is a pressing issue on her desk 5.) The electrician should not be fired if the problem can be remedied before the product is sold 6.) Ms. Williams will not have to work alone to fix the problem 7.) The circuits should not be sent to the customer 8.) Ms. Williams should acknowledge the mistake so it can be corrected

Table E39: Ethics Quiz Results for Student #24 for MECH 212

Background: Ms. Williams is a mechanical engineer in a car shock manufacturing company. Her responsibilities include the following tasks: a. To design a line of new shocks for race cars, b. To supervise a team of mechanics, machinists, and assembly workers to put various components together for the line of new shocks, and c. To report to her management regarding the manufacturing status. The problems Ms. Williams is facing are: a. One of the mechanics took a wrong batch of material and used it in the first ten shocks. This wrong batch of material does not meet the design requirements and may cause a failure if the load exceed 300 lbs. and b. The management told Ms. Williams that a customer has ordered ten shocks and wants the immediate delivery.

Questions	Answers
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Tell her management that she cannot certify the products, Redo the shocks, Acknowledge that the mistake was made under her watch, and she is willing to work with her team members to fix the problem.
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	1.) No, management should be informed of the mistake. 2.) No, don't take a vacation when there is an issue you are facing. 3.) Yes, management should be informed of the issue. 4.) No, Don't send the shocks with issues to the customer. 5.) No, working alone is not the correct way to fix the issue. 6.) No, the mechanic shouldn't be fired for the easy mistake. 7.) Yes, the shocks should be redone correctly. 8.) Yes, she should acknowledge the mistake and get her team together to fix the problem.

Appendix F: Globalization Quiz Results Sorted by Student Number

Student #1:

Table F1: Globalization Quiz Results for Student #1 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes because if it is for America, Americans should be able to read the writing.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No because it is for America and not many Americans can read German.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes because the sister company is the one that manufactured the product.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No because the Alfredville Company did not manufacture the product.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages.	a. Yes because that is the language most spoken in Alfredville. b. Maybe, it depends on whether the Alfredville

(This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	engineer can speak German. c. Yes beacuse math should be very easy between both engineers and they should both understand what is happening.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	No, the engineer should focus on making the products they have now better for the future while only making new products if needed.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes, so then they don't have to ask the German sister company to manufacture the product every time we need it.

Table F2: Globalization Quiz Results for Student #1 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes because the product is for America and not many Americans can speak German.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No because not many Americans can speak German and Americans need to know what it is saying.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes because the sister company is the company that manufactured the product.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No because the Alfredville company did not manufacture the product.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. Yes because that is most likely the primary language of the Alfredville engineer. b. Not necessarily because the Alfredville engineer may nnot be able to understand German. c. Yes because they both should understand the importance of mathematics in their jobs.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	No, they should instead improve the products that are already in use and only invent new electrical machines if needed.
Question 7:	Yes because they were invented in Alfredville

7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	so they should have access to make their own product when needed.

Student #2:

Table F3: Globalization Quiz Results for Student #2 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes it is an American product and should be marketed as so.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No it's an American designed product
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	The name of the product is of little importance to me as an engineer relative to the function and physics of the product.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	You can name the product whatever you want I am more interested in the physics of the product than it's name.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	All three languages will be useful to successfully communicate across the language barrier however mathematics will be the most indesputible and efficient way to convey information.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, there are always ways to improve a product as an engineer

Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	It would be advantageous to the US economy to manufacture the product here in the sense that it would keep jobs here. However it may be more advantageous (but potentially exploitative) for the company to produce the product in China or Mexico due to lesser worker wages and environmental regulations.

Student #3:

Table F4: Globalization Quiz Results for Student #3 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes. the transformer was made in the US.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, since the transformer was made in a company in the US it should be based off the US name.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	No, the transformer was made in its own company, and is only being manufactured by the sister-company.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	Yes, the Alfredville company was the one that designed the transformer.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	1.) Yes, English will be used to talk to the sister-company about being manufactured in Germany. 2.) Yes, Germany will be used by the sister-company and their employees. 3.) Mathematics will be used to make sure the transformer is made correct and takes account for the difference in the German Voltage and Frequency.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, if he continues to invent new machines, their will be greater outcomes and easier processes.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes, if the cost to manufacture the objects and ship it is greater than that of the sister-company then they should manufacture it in the US

Table F5: Globalization Quiz Results for Student #3 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes. Since it was designed in the US it should be based off English words, which then can be translated into German.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, the design was made in the US, so it should be based off English words. Those words can then be translated into German.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	No. The manufacture has his own company.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	Yes it should be the Alfredville name. It was designed in that company so therefore should have the companies name.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	A.) Yes they will communicate in English, both companies will have a meeting to discuss the transformer, this will require both German and English to be communicated. Then the sister company will have to communicate to their employees. B.) Given above... C.) Yes mathematics will be one of the most important aspects. This will connect how to make the right transformer without any miscalculations and make sure it will meet the quality.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes. There is always room for improvement and development in machines
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes. If there is a way to optimize manufacturing costs and shipping costs, it should be made int he US, if the German company always has better quality and costs, then it should stay manufactured in Germany.

Student #4:

Table F6: Globalization Quiz Results for Student #4 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, because it was designed by an American company.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, Its not designed by a german company.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	No, the main company should get the crdit.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	Yes, they are the main head company who designed the prduct, they should get the credit.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. Yes, main business language in the world. b. No, mainly only spoke in Germany. c. Yes, universal language.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, in order to continue the growth of the company they always need new ideas.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes, in order to expand the company they should look to manufacture there own products.

Table F7: Globalization Quiz Results for Student #4 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, because it was designed by an American and meant to be used in America.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no,	No because it was designed by an American.

why?	
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	No, it should be the main Company because they designed it.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	Yes, because they are the company where the whole design came from.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. Yes, because its the most common language in the world for business relations. b. No, its not spoken in many other places besides its own country. c. Yes, mathematics is a universal language.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, they should keep pushing themselves because if another company puts out a better electrical machine then they would lose business.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes, if his own company can expand to manufacturing there own products it would lead to more profits in the end that can further expand the company.

Student #5:

Table F8: Globalization Quiz Results for Student #5 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Nope it is an American product so the American brand name should be on it. The German manufacturer should be on it as well though.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No because the product was not designed by the German company, so the American brand name should be on it. The German manufacturer should include there company name on the product as well though.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	The manufacturer is the sister company so the manufacturers name should be written on the device as the manufacturers name.
Question 4:	The device should include the device owners name and the

4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	manufacturers name.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	The Alfredville engineer should most definitely use math and then use either English or German depending on who speaks the opposite language more effectively.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, because that is a good way to make the company money. There are other ways to do this but money is the main goal.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	They can make the suggestion, but the decision should be undertaken by the devices creator, or his company who owns the idea.

Table F9: Globalization Quiz Results for Student #5 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes because the product is owned by the American company, but the manufacturer should be included to.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No the brand should be the American company, but the manufacturer should be included to.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes because they manufactured the device.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No because they did not manufacturer the product.
Question 5:	He should definitely use math because math is

5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	universally known. Then the most well known language between the two colleegs should be used out of the other two.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes because this is one of the ways the company makes money and that is why engineers get paid.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	The Engineer could suggest this but this could close the German market and cause a divide between there sister company and themselves.

Student #6:

Table F10: Globalization Quiz Results for Student #6 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, it was designed in America.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, it is an American product.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes, the sister-company manufactured the part.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No, the part was made at the sister-company.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no,	Mathematics should be used because it is a universal language. English will be used because it is spoken in most places in the world. German should be used because that is the language the sister-company speaks.

why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	No, eventually there won't be anything else left to invent and other companies are probably doing the same things the Alfredville's engineer is and there will be too much competition.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	No, it is a good idea to continue work with the sister-company to help save money.

Table F11: Globalization Quiz Results for Student #6 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	It would be named in English because it is an American design and product.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, it is an American design so it should be in English.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes, because the sister-company is the one who manufactured it.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No, the company in Germany made it so there name should be put done for manufacturer.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	It is easiest to communicate through math because it is a universal language. However, English will be used because it is a language that is spoken everywhere.
Question 6:	No, if they continuously invent new things

6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	eventually there won't be anything left.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	No, because the parts can be made cheaper there.

Student #7:

Table F12: Globalization Quiz Results for Student #7 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes: The design was developed by an engineer in New York, so the manufacturing templates will originate from the United States, an English speaking country. Furthermore; a large portion of countries in Europe have English as their secondary language, and therefore is more reasonable that expecting the American market to handle Germanic words. Regardless, the templates should have an English version with an accompanying German translation should a mechanic in Germany need to read the template without English as a secondary language. Yes: The design was developed by an engineer in New York, so the manufacturing templates will originate from the United States, an English speaking country. Furthermore; a large portion of countries in Europe have English as their secondary language, and therefore is more reasonable that expecting the American market to handle Germanic words. Regardless, the templates should have an English version with an accompanying German translation should a mechanic in Germany need to read the template without English as a secondary language.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No: At least, not the initial template. As mentioned before, the design was initially developed in an English speaking country, and is expected to be sold in a country with English as the primary language and a country with English as the secondary language. The template should have a translated version accompanying it however.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes: For manufacturing, the facilities where it is going to be produced is considered the manufacturer. Therefore, the sister-company's name should be the manufacturer's name.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No: As mentioned above, the manufacturing facilities is not in Alfredville. For where the design was developed, the Alfredville's company should be listed, but not for manufacturing.

Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. Yes: As mentioned in the first two questions, Germany has a large portion of second-language English speakers, and the United States is largely primary English speakers. b. No: Unless the Alfredville company is heavily populated with German engineers, the designing company should not be expected to translate their templates into a language they do not speak, at least not as a primary or secondary language. c. Yes: With all design templates, diagrams should accompany the blueprints and any useful mathematics equations. For these equations, the Alfredville company should be using SI units, as the possibility to expand the markets the transformer will be availaboratoryle to.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes: The design of multiple methods of controlling something provides flexibility and specialization at the cost of manufacturing complexity (this can be mitigated with tile-able or modular designs which can be manufactured within a single assembly line). Having a large number of potential designs does not directly affect the complexity of manufacturing, and will only affect the manufacturer should they choose to implement multiple designs.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes: So long as the logistics of the production materials will not prove a significant problem, eliminating any mistakes from miscommunication through both a language and a unit system barrier may streamline the process. However, if the need to create a whole manufacturing facility, further cooperation with existing facilities would be best.

Student #8:

Table F13: Globalization Quiz Results for Student #8 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, whomever designed the product should get the credit and thus be able to name it.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, the product was not designed in Germany.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes, the product was manufactured in Germany so it should be the sister company's name as the manufacturer
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No, the product was not manufactured in Alfredville.
Question 5:	No, English is not a shared language.

5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	No, German is not a shared language. Yes, mathematics is a shared language so it should be used as the main form of communication.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, it is always a good idea to improve current products.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Only if it is cheaper to manufacture in Alfredville should the manufacturing process be moved.

Table F14: Globalization Quiz Results for Student #8 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, whomever designed the product should get credit and thus name the product.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, whomever designed the product should get credit and thus name the product.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes, the product is manufactured by the sister company so they should get credit.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No, the product is manufactured by the sister company so they should get credit.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	No, only a shared language should be used for communication. No, only a shared language should be used for communication. Yes, mathematics is a shared language thus is should be the main form of communication between the companies.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, it is always a good idea to improve current products.
Question 7: 7. Should the Alfredville's engineer suggest to his	Only if it is cheaper to do so then it would be a good idea to have the product manufactured

company that the future new products should be manufactured here? If yes, why? If no, why?	here.

Student #9:

Table F15: Globalization Quiz Results for Student #9 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, it should be based in English words to give a hint to the German manufacturers that this transformer is probably in US nominal voltage and nominal frequency. Then again the transformer will have a name plate that explains to the user that it needs a certain 120 V or 60 Hz for example. The transformer wouldn't be able to work properly until at those specific inputs.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	The engineer can also base it in German words and have the name plate work for German nominal voltage and frequency. I'm not sure about the conversion of these to make them work in different countries but I don't think it's too hard. Each side can change their voltage or frequency going into the transformer though.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Not necessarily, because it's a sister company that might have the same "parent" company, but that doesn't mean that the two sister companies are closely related which means their names don't really matter, it's irrelevant.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	It's name doesn't have to be where it's from. That's a preference choice that doesn't really matter.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	Depending on how much each company knows about the others' language, then I would just use the language you're used to. A translator can be used for the words, but the mathematics is the important part. The English company should use International units and mathematics in the blueprints and design drawings. That's the easiest way.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Probably not. The engineer should design and test and rework it and make the best design he/she can before finalizing it and sending it to the sister company. Making many devices that could be improved is pointless. Send the best one the first time so the other company doesn't have to make obvious comments.

Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Now this one depends on the raw materials needed and where they can be the easiest and cheapest to find. Cost versus profit is the most important thing to look at in a large manufacturing company. Alfredville could use more jobs, but could it handle the change? It might be a better setting in Germany to build the factory there, but since they're sister companies, then it'll be easier to communicate and decide.

Student #10:

Table F16: Globalization Quiz Results for Student #10 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	yes, because the product was designed in the U.S.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	no, designed in U.S. so they should get the name
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	yes, the transformers are made in Germany by them, not in U.S.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	no, transformers aren't manufactured in U.S
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. yes, most foreign countries speak English as well as they're own language b. yes, all people at company may not speak English so the engineer should be fluent in German. c. yes, he's an engineer, should be able to speak mathematically
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	yes, innovation is key
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	yes and no, they should be manufactured at both operations, in Germany and U.S.

Table F17: Globalization Quiz Results for Student #10 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the

American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	yes, because the product was designed in the U.S.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	no, designed in U.S. so they should get the name
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	yes, the transformers are made in Germany by them, not in U.S.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	no, transformers aren't manufactured in U.S.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. yes, most foreign countries speak English as well as they're own language b. yes, all people at company may not speak English so the engineer should be fluent in German. c. yes, he's an engineer, should be able to speak mathematically
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	yes, innovation is key
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	yes and no, they should be manufactured at both operations, in Germany and U.S.

Student #11:

Table F18: Globalization Quiz Results for Student #11 for RNEW 468

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	No the brand name of the transformer should not be based on English words because then when it is sold in Germany it seems like a foreign product. Most people like supporting their national economy.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	Yes it should be based on German words because then it seems German and it will be easier to sell more of them.
Question 3:	Yes because that sister company already has customers

3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	and it will be easier to sell if it is under the sister companies name. Plus, they are the company who manufactured it.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No, because although this is the company who came up with the design they are not the company who then did the manufacturing of the product.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	No, because his colleagues may not speak English. No, because he may not speak German. Yes, because all engineers world wide know the language of mathematics.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, engineers should always be looking towards the future and inventing new and better products to be manufactured.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes he should, it will bring jobs to the U.S. and it will also increase the market they are trying to sell too.

Student #12:

Table F19: Globalization Quiz Results for Student #12 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	The brand name should be based on English words because there is a higher percentage of people in the world that read English than German. It will make familiarizing with the brand much easier and faster in the America and Germany, or if the want to expand to other countries.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, in the German language you could find a nice clich word play to appeal to the masses but to familiarize the name with more people English is a better solution. The language is generally accepted more in other countries than German dialect
Question 3: 3. The manufacturer's name should be	No, the name should come from the combine effort of both the companies if the original company has not thought of a name

the sister-company's name. If yes, why? If no, why?	yet.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No, the name is still and out there word play. yes it shows the orgin of product but doesn't give a connection to its buyers/ audience.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	yes- commonly more accepted language across all borders no- he could do that to be polite when visiting another country but to express his thoughts and information he should speak in his native tongue because English is more widely used in the world. yes - math matics is a language spoken by all countries and can be understood with ease.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes - as a subdivision of the company, No - because it needs to focus on its product it has now and perfect it if not improve apon it.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes - to increase production flow keep design and build near each other and produce jobs in his own country. No - if there is an expenses issue.

Student #13:

Table F20: Globalization Quiz Results for Student #13 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, the brand name of the transformer should be based on the English word, because it was designed by someone in Alfredville, thus the person who designs it should give it the name he likes.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, because they were not the one to design it thus the Engineer in Alfredville should decide if their design should be in German or English.
Question 3: 3. The manufacturer's name should be	Yes, because they are in charge of manufacturing in, thus if there is any complaint in such about the performance of the

the sister-company's name. If yes, why? If no, why?	transformer, they will go to the manufacturer, not the designer. Thus it the manufacturer's name should be the sister company's name.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	no, because the did not manufacture the product thus they name should not be put as the manufacturer.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	English, yes because English is considered as a language spoken all around the world, thus they are high chance that someone in Germany can translate for everyone else. German, no because the is a chance that they are not familiar with the language, thus might create miscommunication that will affect their work. Mathematics, yes because mathematics is consistent in any place in the world, thus people will understand the calculation performed.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, because it will benefit the Compagnie as a whole, and gain more profit by inventing new types of electrical machines to sell on the market.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes, because by manufacturing product in Alfredville they are a lower chance of miscommunication and less accident will be made because they already know what they are supposed to do.

Table F21: Globalization Quiz Results for Student #13 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, the brand name of the transformer should be based on the English word, because it was designed by someone in Alfredville, thus the person who designs it should give it the name he likes.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	yes, if the design is going to be made in sold in Germany, it might as well be named in German word.
Question 3: 3. The manufacturer's name should be	Yes, because they are in charge of manufacturing in, thus if there is any complaint in such about the performance of the

the sister-company's name. If yes, why? If no, why?	transformer, they will go to the manufacturer, not the designer. Thus it the manufacturer's name should be the sister company's name.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	no, because the did not manufacture the product thus they name should not be put as the manufacturer.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	English, yes because English is considered as a language spoken all around the world, thus they are high chance that someone in Germany can translate for everyone else. German, no because the is a chance that they are not familiar with the language, thus might create miscommunication that will affect their work. Mathematics, yes because mathematics is consistent in any place in the world, thus people will understand the calculation performed.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, because it will benefit the Compagnie as a whole, and gain more profit by inventing new types of electrical machines to sell on the market.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes, because by manufacturing product in Alfredville they are a lower chance of miscommunication and less accident will be made because they already know what they are supposed to do.

Student #14:

Table F22: Globalization Quiz Results for Student #14 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	the brand should be based on English words as English is more widely spoken than German. there are more English speaking Germans than there are German speaking Americans
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	the brand should be based on German words as that is where the parts at being manufactured. it also will still be purchased by americans as we have many imported products
Question 3:	yes as that is the company that produces it, it tells

3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	people where they are getting their product from
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	it should have Alfredville as many people want to by locally it would promote sales in the us
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. yes because the engineers in Germany are likely to speak English b. no the English engineer is unlikly to speak German c. yes numbers are a universal language
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	no it is better to improve upon existing machines unless inventing another is dramatically better
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	no as interacting economically with other countries increases relations and makes the world a friendlier place

Student #15:

Table F23: Globalization Quiz Results for Student #15 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes because the company is located in Alfredville NY.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	Yes because it will be sold in german markets.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	No because that company did not make it.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No because it wont be marketable if Germeny.

Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. Yes because that's his native language b. Yes because that's what the other company speaks c. Yes because that his their common language.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes because everything can be improved
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	No, because they did it for a reason in the first place

Table F24: Globalization Quiz Results for Student #15 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes because they speak english
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	Yes because it will be sold in Germany.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	No because they didn't make the product
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No because then it wont be marketable in Germany.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. Yes that's what they speak b. Yes that's what they speak in Germany. c. yes because that's their common language
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes because everything can be improved
Question 7: 7. Should the Alfredville's engineer suggest to his company that the	No because they did it that way for a reason

future new products should be manufactured here? If yes, why? If no, why?	

Student #16:

Table F25: Globalization Quiz Results for Student #16 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, the brand name of the transformer should be written in English, because it is an American product that is being manufactured in Germany. When Nike sends their shoes to be manufactured in China, the brand name on the shoe is still Nike. The same applies for this transformer.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, the brand name should be written in English like I said in problem 1. This product is going to be sent to the American markets as well, and it would make more sense not to write the brand name in German if you were going to bring the transformers to a market that for the majority doesn't speak German.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes, the sister-company is being asked to manufacture the product. Therefore the manufacturer's name on the transformer would be the name of the sister company.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No, the manufacturer's name on the transformer should be where the transformer was manufactured. Therefore because the transformers aren't being manufactured at the Alfred's Company, their name shouldn't be listed as the manufacturer.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. Yes, If the engineer only speaks English, then he would need to speak English. Unless he can learn German on a scholarly level within the time of the collaboratoryoration, it wouldn't make any sense for him not to use English to communicate in English. Many citizens of Germany speak extensively fluent English, so there is a chance that speaking English would pose little to no cultural barrier, and if it does, an English-German translator fluent in the scientific language should help bridge any gaps in communication. b. Yes, If the engineer can speak English on a scholarly level, and express himself effectively and efficiently, then of course he should use language skills. However if he has little to know knowledge of the German language, then there would be little to no sense to trying to speak a language you don't know. That has little to no merit for a successful discussion. c. Yes, the language of mathematics can be understood by both American and German Engineers alike. Both understand and are

	fluent in mathematics and although there may be different words for the same variables of an equation, they are universally the same.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Not necessarily, The engineer should be creating new types of electrical machines that are solving problems and creating solutions that are most beneficial to their company. When the engineer's company says," we want to do this, figure out how to make this work," it is the engineer's job to find a solution, as well as create solutions to any issues that might arise. So if developing a new type of electrical machine is what the engineer needs to do to generate a solution, then yes they might need to invent a new type of electrical machine if nothing already exists.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Possibly, but... This question lacks too much context. According to the situation, the engineer needs to ask a sister company in Germany to manufacture their transformers. If it's something that needed to be done, then this implies that there was a reason to outsource the manufacturing process in the first place. If this was the engineer's responsibility as an employee, before making a suggestion about not outsourcing, the engineer should perform data collection and analysis to determine if manufacturing at their own facility would benefit their company more than outsourcing. So to say that they should or shouldn't would be an uneducated guess because there are too many variables to consider that I wasn't provided in the background of the question.

Table F26: Globalization Quiz Results for Student #16 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, If the product is going to be manufactured in Germany, but the product will be sold in German as well as American markets, then the product's brand name should be laboratoryeled in English. There are more German residents that speak English than there are English residents that speak German.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, the brand name should be the name of the original company and the original company's language.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes, if the sister company is manufacturing the product, then the manufacturer's name laboratoryeled on the product would be the name of the sister company.
Question 4: 4. The manufacturer's name	No, Alfred's Company did not manufacture the transformers. The transformers were sent to Germany to be manufactured. Therefore,

should be the Alfredville Company's name. If yes, why? If no, why?	the German's company should be titled as the manufacturer.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. Yes, if Alfred's engineer only speaks English, there would be too much of a barrier to not speak the only verbal language he knows... A great deal of Germany is fluent in the English language, so communication shouldn't suffer between the two sister companies. b. Yes, Now this question is lacking context. If the engineer speaks fluent German, and has the ability to express and explain in complex terms fluently, then he should do so. However, if the engineer doesn't speak a lick of German, how is he going to effectively communicate with the sister company? He would need an English-German translator who understood complex German engineering terms to bridge the communication barrier effectively. This is under the condition that the German company spoke absolutely zero English, and were also unable to communicate in effective English. c. Yes, mathematics is almost a universal language. Math and science experiments and theories are often sent from country to country to be tested and reviewed. This shows that mathematics can be expressed between the two company's, and should be a focus point for effective communication.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, but his machines that he should focus on should be the ones that solve the problems of his company. As an engineer, he should follow the demands of the company. If the company needs him to design a particular machine to solve a problem, he should do so. But the machines he designs should be crafted with a goal in mind.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes, again though this question lacks context. The background given states that he needs to ask the sister company to manufacture his company's transformers. This would imply that there is something that is restraining his company from manufacturing the products themselves. However, if it is his position to do so in the company, then through data collection and analysis the engineer can determine if it would be beneficial for the company to manufacturer the transformers themselves. But he would need to do so before he could make an educated suggestion.

Student #17:

Table F27: Globalization Quiz Results for Student #17 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer	Yes because the designer is an American.

should be based on English word(s). If yes, why? If no, why?	
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, because the engineer who designed the transformer is American, not German.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes because the sister-company is the one manufacturing the transformers.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No because they aren't the company that is manufacturing the transformers.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. Yes, being that the German sister-company has a translator on hand to avoid misinterpretations and confusion due to the language barrier. b. Yes, as long as someone from the Alfredville company has someone who is proficient in the German language. c. Yes, of course. Mathematics is a universal "language" that companies from both countries will understand.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes because when there is competition, there are a ton of new advancements and innovations. If he can help better society by inventing new types of electrical machines, then why wouldn't he continuously invent new types of electrical machines.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes because it should be the companies goal to grow and be more self-reliant, rather than have someone overseas manufacture their designs.

Table F28: Globalization Quiz Results for Student #17 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If	Yes because it was designed by an American and it was meant to be used in America as well.

yes, why? If no, why?	
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No because it is designed by an American even though it is made and sold in Germany.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes because the sister company is the manufacturer.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No because even though they came up with the design, they aren't the ones manufacturing the transformer.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. No, unless there is someone who is proficient with the English language that doesn't misinterpret what the Alfredville company says. b. Yes, because I would assume that more people in Germany understand the German language than the English language. Yes, the Alfredville company should communicate in German if they have an employee (translator) who is proficient in German. c. Yes because Mathematics is a universal language that anyone can understand.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes I believe he should continuously invent new types of electrical machines for the betterment of society and to drive competition and innovation.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes they should look to expand their business and manufacture their own products.

Student #18:

Table F29: Globalization Quiz Results for Student #18 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	The brand name of the transformer should be in English because it was designed by an American engineer and in English.

Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	The brand name of the transformer should also be based on English words again because the product was designed by an American Engineer.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	The manufacturer's name should be the sister-company's name because they were the ones to produce the product and should be credited with it.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	The manufacturer's name should not be the Alfredville Company because they were not the ones to produce it.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	A. English-Yes, if the German company uses English to do its communication. B. German-Yes, if the German company uses German to do its communication. C.Mathematics-Yes, because math is the universal language of all engineers.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, because that's how improvements are made in any engineering field. By constant new inventions being created.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes, because this brings jobs to the U.S. that wouldn't have been there without this company getting its product manufactured here.

Table F30: Globalization Quiz Results for Student #18 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	The brand name of the transformer should be in English because it was designed by an American engineer and in English.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	The brand name of the transformer should also be based on English words again because the product was designed by an American Engineer.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	The manufacturer's name should be the sister-company's name because they were the ones to produce the product and should be credited with it.
Question 4:	The manufacturer's name should not be the

4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	Alfredville Company because they were not the ones to produce it.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	A. English-Yes, if the German company uses English to do its communication. B. German-Yes, if the German company uses German to do its communication. C.Mathematics-Yes, because math is the universal language of all engineers.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, because that's how improvements are made in any engineering field. By constant new inventions being created.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes, because this brings jobs to the U.S. that wouldn't have been there without this company getting its product manufactured here.

Student #19:

Table F31: Globalization Quiz Results for Student #19 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	It should be based on American words. American words are easier to pronounce for audiences across the world, and the brand name is just a name. Those aren't very relevant to the product success. Plus, its an American designer, they should get to name it.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, the designer should name it. It doesn't matter that much what the name is, though. Most of the people who would buy it and use it will be looking at design specs, not brand names.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes, it should be. They are the ones making the product, so they should get credit as the manufacturer.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No, they are the designer, not the manufacturer. Which one is more prestigious is up for debate, but regardless, they should not be mixed up.

Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	They should communicate using all 3, ideally. This would result in the least confusion and most accurate and effective communication.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	If they are useful, valuable, original machines, and he has the funding and resources to do so, then yes. I would never say that we should intentionally stop technical innovation. It shouldn't matter which engineer comes up with them.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	That's up to company policy. Removing the language barrier, the long distance between facilities, and the possibility of international trade issues causing production issues are all nice, convenient things. However, this is real life, where they manufacture it will be wherever is cheapest. He shouldn't make recommendations, its not his jurisdiction, but the company will ignore his recommendations regardless.

Student #20:

Table F32: Globalization Quiz Results for Student #20 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	I think the brand name of the transformer should be based on English words since the transformer was designed in America.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	I think it should be based on English due to it being designed in America. When changing it into German, the words should be arranged to make the company's name flow better.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	I think the company's name should be the same. Having one name allows for the company to have a wider range of customers and allows for the brand name to get out to people. If there are different names people might not realize the company is the same.

Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	I think the manufacturers name should be the Alfredville Company's name, so the company gets more advertising because people like to tour factories and see how things are made and if the company's name is the same people will see the company's name more often, possibly leading to more sales.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	If the German engineer knows English, I think speaking it wouldn't be bad because it makes sure you're both on the same page. I think speaking German is more respectful, but might lead to difficulties if you don't speak fluent German. Speaking in mathematics is a must since you both have to be on the same page in dimensions and numbers. Making sure you both are using the same units is key when talking to engineers in different countries.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	I think inventing is always a good idea because there is always a solution to problems. When a problem comes up engineers always find a solution and over time the solutions get better and better. So inventing new types of electrical machines can further technology.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	I believe manufacturing products in the U.S. is always a good idea. It is more expensive, but products made in America are always respected by Americans and I think encourages them to buy the product.

Table F33: Globalization Quiz Results for Student #20 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	The brand name should be based on English since the product was designed and developed in America.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	I don't think the brand name should be based off of German, but it should be designed to sound nice in German. It shouldn't be based off of German since the product was designed in America.
Question 3:	I think the manufacturers name should be the sister company's name

3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	since they are manufacturing the product.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	I think the manufacturers name should not be the Alfredville Company's name since the manufacturing company is in Germany. Since it is in Germany it should have the sister company's name.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	If the German engineer speaks fluent English, then English is fine. If the German engineer doesn't, then the respectful thing to do is speak German since the German engineers have to manufacture the product. Definitely speak in mathematics, but make sure both engineers are using the same units system. This is a good idea so the engineers can make sure they understand each other.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	I think inventing is a must for a growing company. Inventing allows for the company to always be competing with other companies and allows for the company to thrive. There is always an upcoming invention that furthers technology.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	I think products made in America is always a good idea. These products usually look good to customers, since they know a product made in America is good quality. The downside is cost to make, but I believe it is worth it.

Student #21:

Table F34: Globalization Quiz Results for Student #21 for RNEW 468

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	yes, it was designed and engineered in the US therefore should have english brand name.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If	No, the product should say engineered in the US manufactured in Germany. It gives credit to both and will do fine on the market.

no, why?	
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	yes, the manufacturer is the sister company
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No, they are the designers/developers
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a. Yes, the final word to the germans will be in german but they probably would have to get a translator because they are talking about very important legal things. b. Yes, a translator should be involved c. yes, they know how to communicate with math more than a language.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	yes, he should always try to improve his machines efficiency
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	yes, if its designed and manufactured in US than they would save dealing with a company all the way in germany. People like products designed and manufactured in the same country.

Student #22:

Table F35: Globalization Quiz Results for Student #22 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, because it was originally designed by a company in the United States and outsourced for production like many other companies that originally started in the United States.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no,	No, because the product was originally designed in the United States and then outsourced for production.

why?	
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	The name should be based off the company in the United States, because the product was originally created there.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	Yes, because the development of the product started there and was only outsourced for production.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	The engineers would communicate with all three. They would communicate in English because usually it would be spoken by both parties even if its is a second language. They would also communicate in German if the colleagues in Germany don't speak English. Finally they would always communicate in mathematics because it's universal no matter what your cultural background is, even if they have to convert units.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, because it is always good to innovate or invent new products to keep up with current times. New technology is always needed or we wouldn't be moving ahead as a civilization.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	No, if it is more cost effective to outsource the manufacturing to the sister company than continue to do that. If it isn't cost effective to out source the product for manufacturing then move it to the United States.

Table F36: Globalization Quiz Results for Student #22 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, because it was originally designed by a company in the United States and outsourced for production.
Question 2: 2. The brand name of the transformer should be based on German word(s).	No, because the product was originally designed in the United States and the outsourced so the name shouldn't be German.

If yes, why? If no, why?	
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	The name should be based off the company in the United States because the product was originally created there.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	Yes, because the development of the product started there and was only outsourced for production.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	The engineers would communicated with all three. English because usually it would be spoken by both parties. Germany if the colleagues in Germany didn't speak English. Finally mathematics because its universally spoken no matter the country, even if there needs to be unit conversions.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, because in order to keep up with current times innovation and new inventions are required. As well as to stay ahead of their competitors.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	They should only have the new products manufactured here if it's more cost effective, if it's not than just continue with the production in Germany.

Student #23:

Table F37: Globalization Quiz Results for Student #23 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, because it was the original idea of the Americans to manufacture this transformer.
Question 2: 2. The brand name of the transformer should be	No, because it was the Americans who reached out to Germany for aid on the transformer, it was not

based on German word(s). If yes, why? If no, why?	Germanys original idea.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes, because the Germans were the group who continued the manufacturing process to see the Americans transformer project through
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No, because the Americans asked Germany to continue the manufacturing of the transformer.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	A. Yes, because the colleagues they outreached to in germany would most likely already know english B. No, because the colleagues are associating with a americans who also know english as it is. C. Yes, so long as the continued use of the metric system will be consistent.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes, because that is literally their job.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes and no because collaboratoryoration on a global scale is very good but american made goods are also better off

Table F38: Globalization Quiz Results for Student #23 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes, because the original idea of building a transformer was the plan of the American company
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No, it was the Americans idea not the colleagues in Germany
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes, because Germany had the task of completing the manufacturing end of the task
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no,	No, because the Americans asked Germany to help the manufacturing process along

why?	
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	Yes, it was the Americans who reached out to Germany No, it was the Americans who reached out to germnay not the other way around Yes, so long as metric unit system was used throughout the process
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes. that is absolutley in their job title
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes and no because any global help would always be worthy of any company and no because american made products are done well and amazingly

Student #24:

Table F39: Globalization Quiz Results for Student #24 for ENGR 220

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes. I feel that the brand name should be based on an English word because it was designed by an Engineer in the US. It is true that it is being manufactured in Germany but the intellectual property belongs to an American engineer, so the name should be based off of his language. Also, it is being sold in American and German markets, so an English name would be the most recognizable by the largest number of consumers.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No. I feel that the brand name should be based on an English word because it was designed by an Engineer in the US. It is true that it is being manufactured in Germany but the intellectual property belongs to an American engineer, so the name should be based off of his language. Also, it is being sold in American and German markets, so an English name would be the most recognizable by the largest number of consumers.
Question 3: 3. The manufacturer's name should	Yes

be the sister-company's name. If yes, why? If no, why?	The name of the manufacturer should be the sister-companies name because they are the ones that actually manufactured the product.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No The name of the manufacturer should be the sister-companies name because they are the ones that actually manufactured the product.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a.) The communication should not be in English because everyone on both sides cannot be apart of the conversation. b.) The communication should not be in German for the same reason i mentioned before. C.) Using mathematics is the most effective means of communication because both sides understand it equally and mathematics is a universal language.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes. It is likely the engineers job to continue to develop new types of electrical machinery, so he should continue to do so.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes. As long as there are no issues with the quality of the machines that are produced, maintaining the business connection with the other company would be a healthy decision for both parties involved.

Table F40: Globalization Quiz Results for Student #24 for MECH 212

Background: Today's economy is a global economy. An engineer at an electrical machinery company located in Alfredville, NY, has designed a new transformer. He needs to ask his colleagues at a sister company in Germany to manufacture the transformers to be sold to German markets, as well as the American markets. (In Germany, the nominal voltage is 220V and the nominal frequency is 50 Hz). Please select "suitable" answers and discuss your selections.	
Questions	**Answers**
Question 1: 1. The brand name of the transformer should be based on English word(s). If yes, why? If no, why?	Yes. I feel that the brand name should be based on an English word because it was designed by an Engineer in the US. It is true that it is being manufactured in Germany but the intellectual property belongs to an American engineer, so the name should be based off

	of his language. Also, it is being sold in American and German markets, so an English name would be the most recognizable by the largest number of consumers.
Question 2: 2. The brand name of the transformer should be based on German word(s). If yes, why? If no, why?	No. I feel that the brand name should be based on an English word because it was designed by an Engineer in the US. It is true that it is being manufactured in Germany but the intellectual property belongs to an American engineer, so the name should be based off of his language. Also, it is being sold in American and German markets, so an English name would be the most recognizable by the largest number of consumers.
Question 3: 3. The manufacturer's name should be the sister-company's name. If yes, why? If no, why?	Yes The name of the manufacturer should be the sister-companies name because they are the ones that actually manufactured the product.
Question 4: 4. The manufacturer's name should be the Alfredville Company's name. If yes, why? If no, why?	No The name of the manufacturer should be the sister-companies name because they are the ones that actually manufactured the product.
Question 5: 5. The Alfredville's engineer will communicate with his colleagues in Germany with the following languages. (This is a 3-part question) a. English: Yes or No, If yes, why? If no, why? b. German: Yes or No, If yes, why? If no, why? c. Mathematics: Yes or No, If yes, why? If no, why?	a.) The communication should not be in English because everyone on both sides cannot be apart of the conversation. b.) The communication should not be in German for the same reason i mentioned before. C.) Using mathematics is the most effective means of communication because both sides understand it equally and mathematics is a universal language.
Question 6: 6. Should the Alfredville's engineer continuously invent new types of electrical machines? If yes, why? If no, why?	Yes. It is likely the engineers job to continue to develop new types of electrical machinery, so he should continue to do so.
Question 7: 7. Should the Alfredville's engineer suggest to his company that the future new products should be manufactured here? If yes, why? If no, why?	Yes. As long as there are no issues with the quality of the machines that are produced, maintaining the business connection with the other company would be a healthy decision for both parties involved.

Appendix G: Example Laboratory Report and Final Project

Document G1: Group 3: Students 5 and 20 Lab Report

Lab #4: Section 2
Experiments 2-4

ENGR 220L-04

Students 5 & 20

Date Performed: February 22, 2017
Date Submitted: March 1, 2017

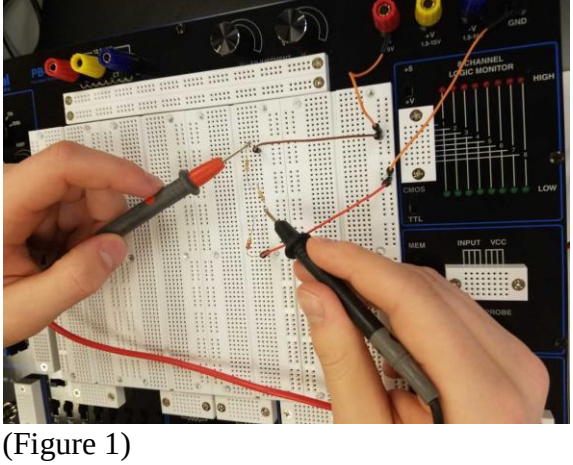
Abstract:
In this lab we performed three experiments. In section 2, experiment 2 we used resistors of various sizes to create voltage dividers. We went through Voltage calculations of our circuits and we took various measurements of our circuit in order to verify our calculations. After that we performed experiment three. In experiment three we made thevenin circuits. We used various resistors and a 12 v source to create the circuit. We then took measurements and compared them to mathematical calculations. In our final experiment, experiment 4, we sent an alternating current into a circuit with a resistor and a capacitor. We then obtained a graph on an oscilloscope of the charging of the capacitor in the circuit.

Introduction:
In this lab we created various circuits to obtain goals set for us in the lab manual. Our first goal was to create voltage dividers and then verify that we were successful through measurements and calculations. We then wanted to create a thevenin circuit and verify that it worked through calculations and measurements. We lastly used two oscilloscopes to create a graph of a charging capacitor for an RC circuit with an alternating current running through it.

Experimental Results:
Experiment 2:
In experiment 2 part 1 we designed a voltage diver with a ratio of 1/10. We measured the voltage of V_1 and V_2 and then found V_2/V_1.

Table 1: Voltage Divider #1

R_1 (kOhm)		R_2 (kOhm)		V_1 (v)		V_2 (v)		V_2/V_1	
Nom.	Meas.	Nom.	Meas.	Nom.	Meas.	Nom.	Meas.	Nom.	Meas.
11.2	11	1.2	1.17	5	5.01	.5	.48	1/10	.96/10.02



(Figure 1)
In experiment 2 part 2 we designed a voltage divider with a ratio of 1/3. Then we measured the voltage and found V_2/V_1.

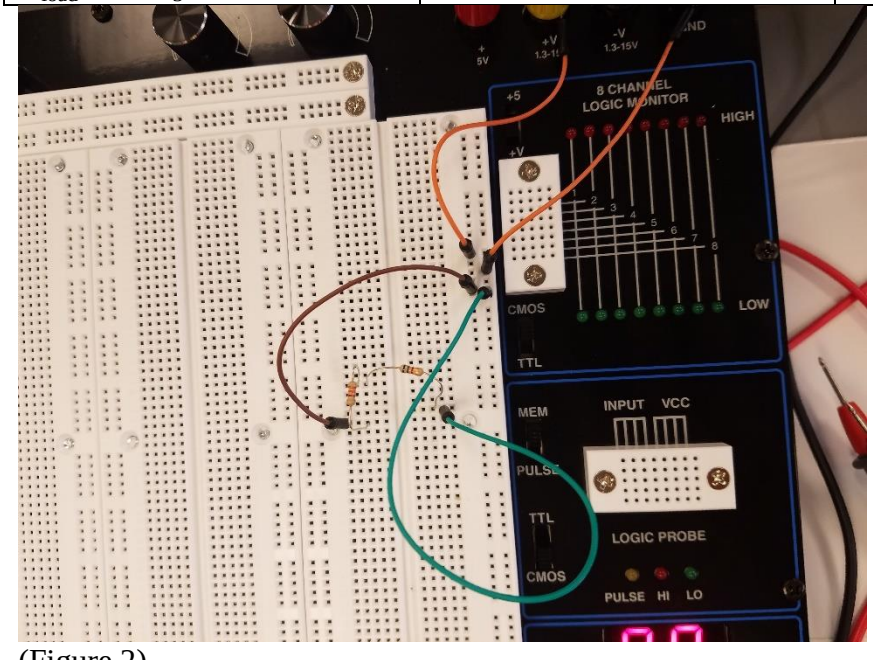
Table2: Voltage Divider #2

R_1 (Ohm)		R_2 (Ohm)		V_1 (v)		V_2 (v)		V_2/V_1	
Nom.	Meas.	Nom.	Meas.	Nom.	Meas.	Nom.	Meas.	Nom.	Meas.
200	180.8	100	90.2	5	5.01	1.67	1.67	1/3	1/3

Experiment 3:

In experiment 3 we connected R_1 and R_2 in parallel and found the Thevenin Resistance using the formula $R_{Thevenin}=(R_1 X R_2)/(R_1+R_2)$. After we found the Thevenin Resistance we got the Thevenin Voltage using the formula $V_{Thevenin}=12(R_2)/(R_1+R_2)$. After we had both the Thevinin Reistance and Voltage we could find the V_{load}. To find the V_{load} we used the formula $V_{load}=V_{Thevenin}(R_3)/(R_{Thevenin}+R_3)$.

	Calculated Theoretical Value	Measured Value
$R_{Thevenin}$	3.197 kOhm	3.132 kOhm
$V_{Thevenin}$	8.163 V	8.165 V
V_{load} with R_3 Connected	5.553 V	5.551 V



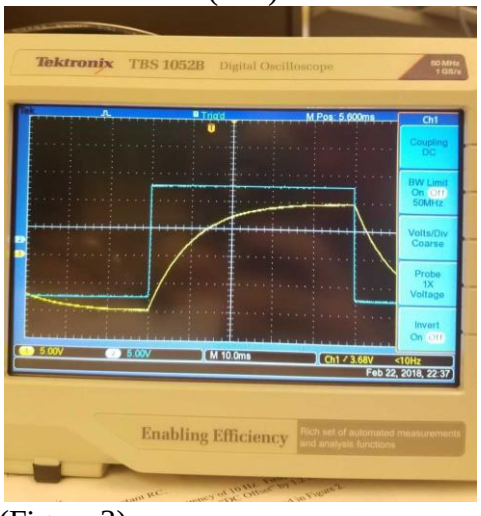
(Figure 2)

Experiment 4:

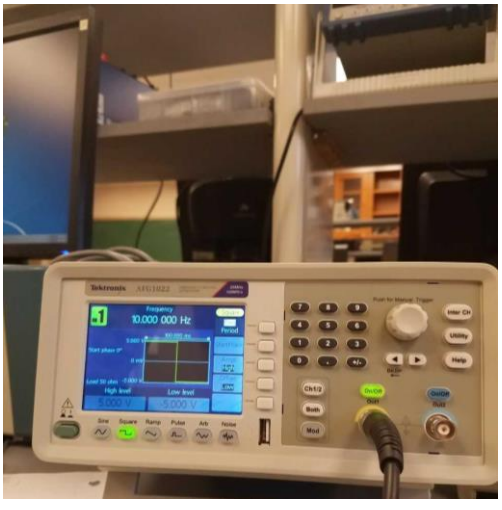
In experiment 4 we built a circuit with a capacitor and a resistor. Then we calculated the time constant RC through the circuit and applied a square wave with the frequency of 10 Hz. We obtained a charging curve through our circuit on the oscilloscope.

Voltage in a capacitor: $V_c(t)=4(1-e^{(-t/RC)})$

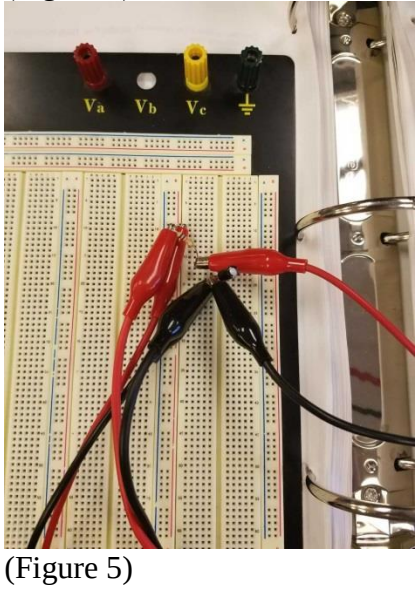
$t = \tau = RC = 10^4(10^{-6}) = 10^{-2}$ sec



(Figure 3)



(Figure 4)

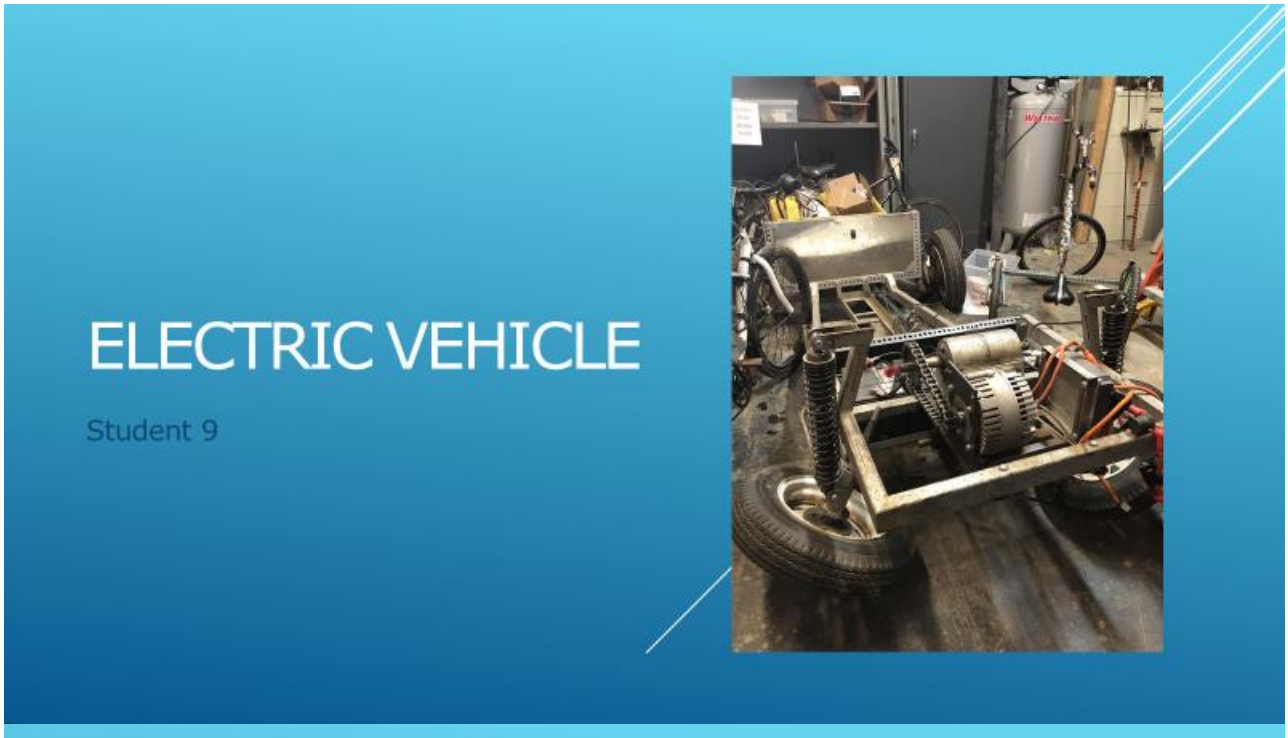


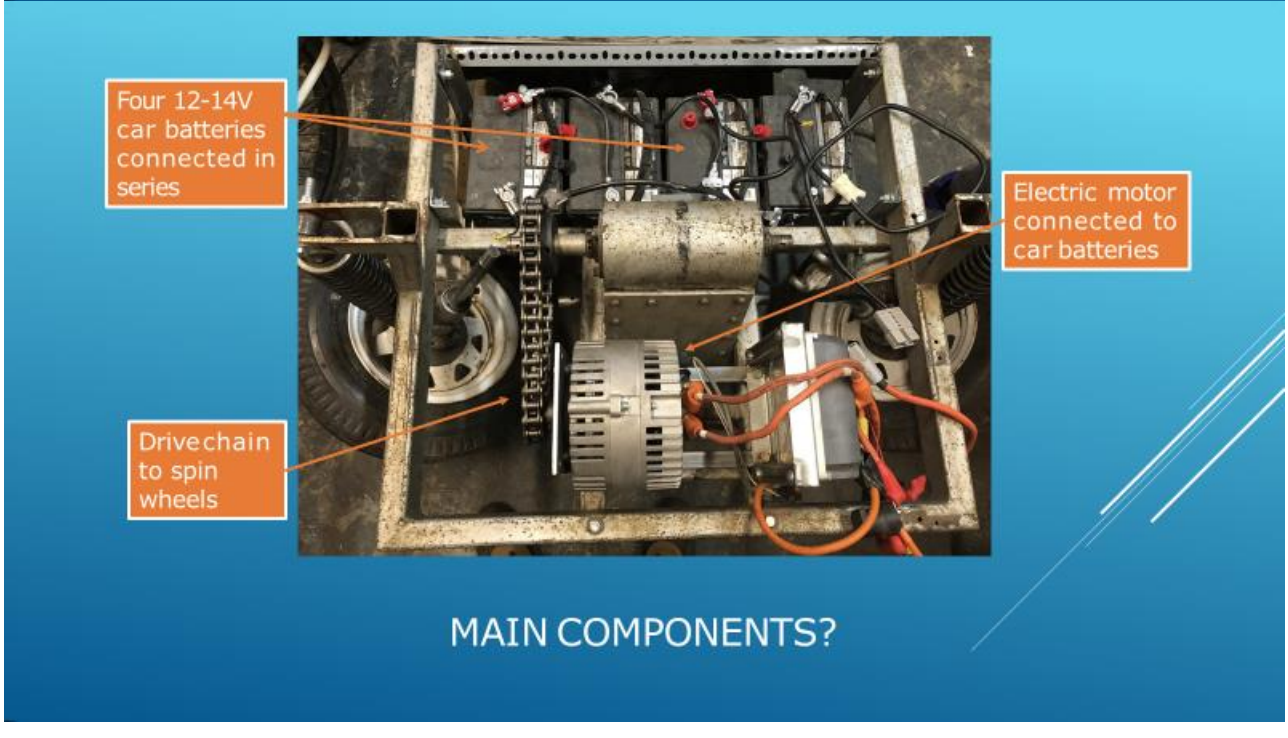
(Figure 5)

Conclusion:

This week of lab consisted of experiments two through four of section two for us. The results of the experiments show how the nominal and experimental values were pretty much the same. In experiment 2 we used resistors of various sizes to create voltage dividers. Experiment 3 consisted of finding the thevenin resistance and voltage of the circuit. In the 4^{th} experiment, which was the last one we did, we sent an alternating current into a circuit with a resistor and a capacitor. We then obtained a graph on an oscilloscope of the charging of the capacitor in the circuit.

Document G2: Group 5: Student 9 Final Project





PROCEDURE

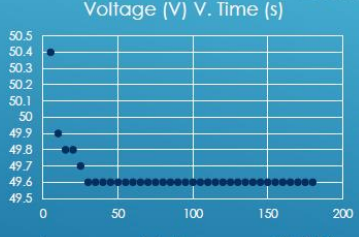
1. We started by connecting the batteries to the motor and turning the electric motor on
2. Then, we measured the initial voltage (V) and current (I) over the batteries using a multimeter
3. We proceeded to push the throttle to a low, medium, and high rpm, measuring it with a tachometer
4. At each rpm, we measured the voltage (V) every 5 seconds and the current (I) every 10 seconds using a multimeter until each remained constant
5. Then, we continued to make graphs and calculate variables for circuits and dynamics

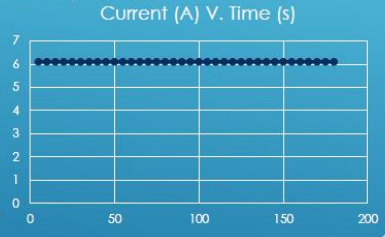
Voltage & Current V. Time		
Readings at Terminals		
Seconds	Voltage (V) V. Time (s)	Current (I) vs. Time (s)
5	50.4	6.1
10	49.9	6.1
15	49.8	6.1
20	49.8	6.1
25	49.7	6.1
30	49.6	6.1
35	49.6	6.1
40	49.6	6.1
45	49.6	6.1
50	49.6	6.1
55	49.6	6.1
60	49.6	6.1
65	49.6	6.1
70	49.6	6.1
75	49.6	6.1
80	49.6	6.1
85	49.6	6.1
90	49.6	6.1
95	49.6	6.1
100	49.6	6.1
105	49.6	6.1
110	49.6	6.1
115	49.6	6.1
120	49.6	6.1
125	49.6	6.1
130	49.6	6.1
135	49.6	6.1
140	49.6	6.1
145	49.6	6.1
150	49.6	6.1
155	49.6	6.1
160	49.6	6.1
165	49.6	6.1
170	49.6	6.1
175	49.6	6.1
180	49.6	6.1

LOW RPM (33.6)

Torque of motor: T = hp*(5252/rpm)
T = 15*(5252/33.6)
T = 2344.6 foot-pounds

Torque of wheels: T = ((radius of shaft)(torque of motor))/radius of wheel
T = ((0.08 ft)(2344.6 foot-pounds))/0.88 ft
T = 213.1 foot-pounds





Average Voltage = 49.7 V
Average Current = 6.1 A

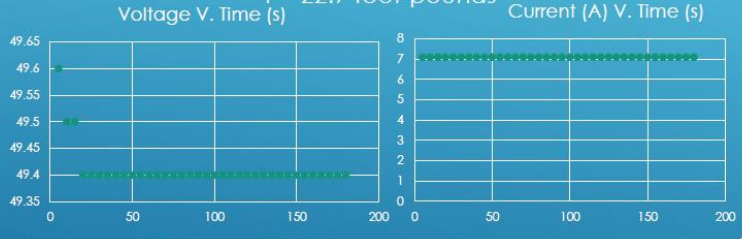
Average Power: P = I*V
P = (6.1 A)(49.7 V)
P = 303.2 W

Voltage & Current V. Time		
Readings at Terminals		
Seconds	Voltage (V) V. Time (s)	Current (A) V. Time (s)
5	49.6	7.1
10	49.5	7.1
15	49.5	7.1
20	49.4	7.1
25	49.4	7.1
30	49.4	7.1
35	49.4	7.1
40	49.4	7.1
45	49.4	7.1
50	49.4	7.1
55	49.4	7.1
60	49.4	7.1
65	49.4	7.1
70	49.4	7.1
75	49.4	7.1
80	49.4	7.1
85	49.4	7.1
90	49.4	7.1
95	49.4	7.1
100	49.4	7.1
105	49.4	7.1
110	49.4	7.1
115	49.4	7.1
120	49.4	7.1
125	49.4	7.1
130	49.4	7.1
135	49.4	7.1
140	49.4	7.1
145	49.4	7.1
150	49.4	7.1
155	49.4	7.1
160	49.4	7.1
165	49.4	7.1
170	49.4	7.1
175	49.4	7.1
180	49.4	7.1

MEDIUM RPM (312.5)

Torque of motor: T = hp*(5252/rpm)
T = 15*(5252/312.5)
T = 252.1 foot-pounds

Torque of wheels: T = ((radius of shaft)(torque of motor))/radius of wheel
T = ((0.08 ft)(252.1 foot-pounds))/0.88 ft
T = 22.9 foot-pounds



Average Voltage = 49.4 V
Average Current = 7.1 A

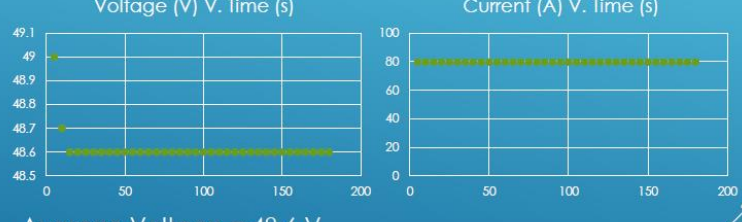
Average Power: P = I*V
P = (7.1 A)(49.4 V)
P = 350.7 W

Voltage & Current V. Time		
Readings at Terminals		
Seconds	Voltage (V) V. Time (s)	Current (A) V. Time (s)
5	49	79.7
10	48.7	79.7
15	48.6	79.7
20	48.6	79.7
25	48.6	79.7
30	48.6	79.7
35	48.6	79.7
40	48.6	79.7
45	48.6	79.7
50	48.6	79.7
55	48.6	79.7
60	48.6	79.7
65	48.6	79.7
70	48.6	79.7
75	48.6	79.7
80	48.6	79.7
85	48.6	79.7
90	48.6	79.7
95	48.6	79.7
100	48.6	79.7
105	48.6	79.7
110	48.6	79.7
115	48.6	79.7
120	48.6	79.7
125	48.6	79.7
130	48.6	79.7
135	48.6	79.7
140	48.6	79.7
145	48.6	79.7
150	48.6	79.7
155	48.6	79.7
160	48.6	79.7
165	48.6	79.7
170	48.6	79.7
175	48.6	79.7
180	48.6	79.7

HIGH RPM (526.4)

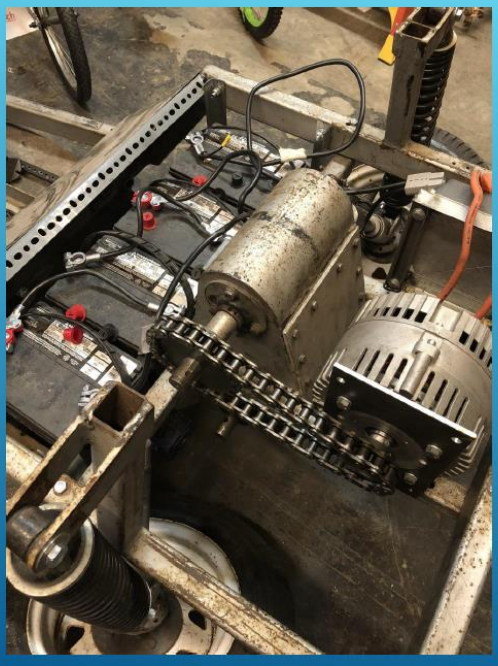
Torque of motor: T = hp*(5252/rpm)
T = 15*(5252/526.4)
T = 149.7 foot-pounds

Torque of wheels: T = ((radius of shaft)(torque of motor))/radius of wheel
T = ((0.08 ft)(149.7 foot-pounds))/0.88 ft
T = 13.6 foot-pounds



Average Voltage = 48.6 V
Average Current = 79.7 A

Average Power: P = I*V
P = (79.7 A)(48.6 V)
P = 3873.4 W



QUESTIONS?

Appendix H: ABET Criterion 3 – Student Outcomes: B, F, G, I, and K Results

Table H1: ABET Criterion 3 – Student Outcomes: B-1 – Average Result ABET Result by Student Number

B-1		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	2.00	Meets
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	2.00	Meets
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	2.00	Meets
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	2.00	Meets
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	2.00	Meets
25	2.33	Meets

Table H2: ABET Criterion 3 – Student Outcomes: B-1 – Number of Students and Percentage of Students for ABET Result

B-1: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	9	36.00%
Meets	12	48.00%
Exceeds	0	0.00%

Table H3: ABET Criterion 3 – Student Outcomes: B-2 – Average Result ABET Result by Student Number

B-2		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A

3	1.00	Developing
4	1.50	Developing
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.50	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	2.00	Meets
17	1.50	Developing
18	1.50	Developing
19	1.50	Developing
20	2.00	Meets
21	N/A	N/A
22	1.50	Developing
23	1.00	Developing
24	2.00	Meets
25	2.00	Meets

Table H4: ABET Criterion 3 – Student Outcomes: B-2 – Number of Students and Percentage of Students for ABET Result

B-2: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	15	60.00%
Meets	6	24.00%
Exceeds	0	0.00%

Table H5: ABET Criterion 3 – Student Outcomes: B-3 – Average Result ABET Result by Student Number

B-3		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	1.00	Developing
4	1.00	Developing
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.00	Developing

11	N/A	N/A
12	1.00	Developing
13	0.00	Fails to Meet
14	0.00	Fails to Meet
15	1.00	Developing
16	1.00	Developing
17	1.00	Developing
18	1.00	Developing
19	1.00	Developing
20	2.00	Meets
21	N/A	N/A
22	1.00	Developing
23	0.00	Fails to Meet
24	2.00	Meets
25	2.50	Meets

Table H6: ABET Criterion 3 – Student Outcomes: B-3 – Number of Students and Percentage of Students for ABET Result

B-3: ABET Result	Number of Students	Percentage of Students
N/A	4	16.00%
Fails to Meet	3	12.00%
Developing	14	56.00%
Meets	4	16.00%
Exceeds	0	0.00%

Table H7: ABET Criterion 3 – Student Outcomes: B-4 – Average Result ABET Result by Student Number

B-4		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	2.00	Meets
5	2.50	Meets
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	2.00	Meets
11	0.00	Fails to Meet
12	1.00	Developing
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.00	Developing
17	2.00	Meets
18	2.00	Meets

19	2.00	Meets
20	2.50	Meets
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	2.50	Meets
25	2.33	Meets

Table H8: ABET Criterion 3 – Student Outcomes: B-4 – Number of Students and Percentage of Students for ABET Result

B-4: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	2	8.00%
Developing	10	40.00%
Meets	10	40.00%
Exceeds	0	0.00%

Table H9: ABET Criterion 3 – Student Outcomes: B-5 – Average Result ABET Result by Student Number

B-5		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	2.00	Meets
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	0.00	Fails to Meet
9	1.00	Developing
10	2.00	Meets
11	0.00	Fails to Meet
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	2.00	Meets
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	2.00	Meets
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	2.00	Meets
25	2.33	Meets

Table H10: ABET Criterion 3 – Student Outcomes: B-5 – Number of Students and Percentage of Students for ABET Result

B-5: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	3	12.00%
Developing	7	28.00%
Meets	12	48.00%
Exceeds	0	0.00%

Table H11: ABET Criterion 3 – Student Outcomes: B-6 – Average Result ABET Result by Student Number

B-6		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	N/A	N/A
4	0.50	Fails to Meet
5	0.50	Fails to Meet
6	N/A	N/A
7	N/A	N/A
8	0.00	Fails to Meet
9	0.00	Fails to Meet
10	0.50	Fails to Meet
11	N/A	N/A
12	1.00	Developing
13	N/A	N/A
14	0.00	Fails to Meet
15	N/A	N/A
16	1.00	Developing
17	0.50	Fails to Meet
18	0.50	Fails to Meet
19	0.50	Fails to Meet
20	0.50	Fails to Meet
21	N/A	N/A
22	0.50	Fails to Meet
23	0.00	Fails to Meet
24	0.50	Fails to Meet
25	2.00	Meets

Table H12: ABET Criterion 3 – Student Outcomes: B-6 – Number of Students and Percentage of Students for ABET Result

B-6: ABET Result	Number of Students	Percentage of Students
N/A	8	32.00%
Fails to Meet	14	56.00%
Developing	2	8.00%

Meets	1	4.00%
Exceeds	0	0.00%

Table H13: ABET Criterion 3 – Student Outcomes: B-7 – Average Result ABET Result by Student Number

B-7		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	2.00	Meets
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	2.00	Meets
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	2.00	Meets
15	1.00	Developing
16	2.00	Meets
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	2.00	Meets
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	2.00	Meets
25	2.00	Meets

Table H14: ABET Criterion 3 – Student Outcomes: B-7 – Number of Students and Percentage of Students for ABET Result

B-7: ABET Result	**Number of Students**	**Percentage of Students**
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	8	32.00%
Meets	13	52.00%
Exceeds	0	0.00%

Table H15: ABET Criterion 3 – Student Outcomes: B-8 – Average Result ABET Result by Student Number

B-8		
Student Number	**Average Result**	**ABET Result**

1	0.00	Fails to Meet
2	N/A	N/A
3	0.00	Fails to Meet
4	2.00	Meets
5	0.50	Fails to Meet
6	0.00	Fails to Meet
7	N/A	N/A
8	0.00	Fails to Meet
9	0.00	Fails to Meet
10	2.00	Meets
11	0.00	Fails to Meet
12	0.00	Fails to Meet
13	0.00	Fails to Meet
14	0.00	Fails to Meet
15	0.00	Fails to Meet
16	0.00	Fails to Meet
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	0.50	Fails to Meet
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	0.50	Fails to Meet
25	2.00	Meets

Table H16: ABET Criterion 3 – Student Outcomes: B-8 – Number of Students and Percentage of Students for ABET Result

B-8: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	14	56.00%
Developing	1	4.00%
Meets	7	28.00%
Exceeds	0	0.00%

Table H17: ABET Criterion 3 – Student Outcomes: B-9 – Average Result ABET Result by Student Number

B-9		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	2.50	Meets
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A

8	2.00	Meets
9	1.00	Developing
10	2.50	Meets
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	2.00	Meets
17	2.50	Meets
18	2.50	Meets
19	2.50	Meets
20	2.00	Meets
21	N/A	N/A
22	2.50	Meets
23	1.00	Developing
24	2.00	Meets
25	2.33	Meets

Table H18: ABET Criterion 3 – Student Outcomes: B-9 – Number of Students and Percentage of Students for ABET Result

B-9: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	8	32.00%
Meets	13	52.00%
Exceeds	0	0.00%

Table H19: ABET Criterion 3 – Student Outcomes: F-2 – Average Result ABET Result by Student Number

F-2		
Student Number	**Average Result**	**ABET Result**
1	1.75	Developing
2	1.50	Developing
3	1.75	Developing
4	1.75	Developing
5	1.50	Developing
6	1.75	Developing
7	2.50	Meets
8	1.75	Developing
9	2.00	Meets
10	1.50	Developing
11	1.50	Developing
12	2.00	Meets
13	2.00	Meets
14	1.50	Developing

15	1.00	Developing
16	2.75	Meets
17	2.00	Meets
18	2.00	Meets
19	1.75	Developing
20	1.50	Developing
21	1.50	Developing
22	1.50	Developing
23	2.00	Meets
24	2.50	Meets
25	N/A	N/A

Table H20: ABET Criterion 3 – Student Outcomes: F-2 – Number of Students and Percentage of Students for ABET Result

F-2: ABET Result	Number of Students	Percentage of Students
N/A	1	4.00%
Fails to Meet	0	0.00%
Developing	15	60.00%
Meets	9	36.00%
Exceeds	0	0.00%

Table H21: ABET Criterion 3 – Student Outcomes: G-1 – Average Result ABET Result by Student Number

G-1		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	1.67	Developing
5	1.67	Developing
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.67	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.50	Developing
17	1.67	Developing
18	1.67	Developing
19	1.67	Developing
20	1.67	Developing
21	N/A	N/A

22	1.67	Developing
23	1.00	Developing
24	1.67	Developing
25	2.00	Meets

Table H22: ABET Criterion 3 – Student Outcomes: G-1 – Number of Students and Percentage of Students for ABET Result

G-1: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	19	76.00%
Meets	2	8.00%
Exceeds	0	0.00%

Table H23: ABET Criterion 3 – Student Outcomes: G-2 – Average Result ABET Result by Student Number

G-2		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.50	Developing
4	1.67	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.50	Developing
10	1.67	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.50	Developing
17	1.67	Developing
18	1.67	Developing
19	1.67	Developing
20	1.33	Developing
21	N/A	N/A
22	1.67	Developing
23	1.00	Developing
24	1.67	Developing
25	2.00	Meets

Table H24: ABET Criterion 3 – Student Outcomes: G-2 – Number of Students and Percentage of Students for ABET Result

G-2: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	19	76.00%
Meets	2	8.00%
Exceeds	0	0.00%

Table H25: ABET Criterion 3 – Student Outcomes: G-3 – Average Result ABET Result by Student Number

G-3		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.50	Developing
4	2.00	Meets
5	1.67	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.50	Developing
10	1.50	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.50	Developing
17	1.50	Developing
18	1.50	Developing
19	1.50	Developing
20	1.67	Developing
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	1.67	Developing
25	2.00	Meets

Table H26: ABET Criterion 3 – Student Outcomes: G-3 – Number of Students and Percentage of Students for ABET Result

G-3: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	17	68.00%

Meets	4	16.00%
Exceeds	0	0.00%

Table H27: ABET Criterion 3 – Student Outcomes: G-4 – Average Result ABET Result by Student Number

G-4		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.50	Developing
4	1.00	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.00	Developing
11	1.00	Developing
12	1.00	Developing
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.00	Developing
17	1.00	Developing
18	1.00	Developing
19	1.00	Developing
20	1.33	Developing
21	N/A	N/A
22	1.00	Developing
23	1.00	Developing
24	1.67	Developing
25	2.00	Meets

Table H28: ABET Criterion 3 – Student Outcomes: G-4 – Number of Students and Percentage of Students for ABET Result

G-4: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	20	80.00%
Meets	1	4.00%
Exceeds	0	0.00%

Table H29: ABET Criterion 3 – Student Outcomes: G-5 – Average Result ABET Result by Student Number

G-5		
Student Number	**Average Result**	**ABET Result**

1	0.00	Fails to Meet
2	N/A	N/A
3	0.50	Fails to Meet
4	1.00	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.00	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.50	Developing
17	1.00	Developing
18	1.00	Developing
19	1.00	Developing
20	1.33	Developing
21	N/A	N/A
22	1.00	Developing
23	1.00	Developing
24	1.33	Developing
25	2.00	Meets

Table H30: ABET Criterion 3 – Student Outcomes: G-5 – Number of Students and Percentage of Students for ABET Result

G-5: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	2	8.00%
Developing	18	72.00%
Meets	2	8.00%
Exceeds	0	0.00%

Table H31: ABET Criterion 3 – Student Outcomes: G-6 – Average Result ABET Result by Student Number

G-6		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	1.00	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A

8	1.00	Developing
9	1.00	Developing
10	1.00	Developing
11	1.00	Developing
12	1.00	Developing
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.00	Developing
17	1.00	Developing
18	1.00	Developing
19	1.00	Developing
20	1.33	Developing
21	N/A	N/A
22	1.00	Developing
23	1.00	Developing
24	1.33	Developing
25	2.00	Meets

Table H32: ABET Criterion 3 – Student Outcomes: G-6 – Number of Students and Percentage of Students for ABET Result

G-6: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	20	80.00%
Meets	1	4.00%
Exceeds	0	0.00%

Table H33: ABET Criterion 3 – Student Outcomes: G-7 – Average Result ABET Result by Student Number

G-7		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	2.00	Meets
4	1.50	Developing
5	1.67	Developing
6	2.00	Meets
7	N/A	N/A
8	2.00	Meets
9	2.00	Meets
10	2.00	Meets
11	2.00	Meets
12	2.00	Meets
13	2.00	Meets
14	1.00	Developing

15	2.00	Meets
16	1.50	Developing
17	2.00	Meets
18	2.00	Meets
19	1.50	Developing
20	1.67	Developing
21	N/A	N/A
22	1.50	Developing
23	2.00	Meets
24	1.67	Developing
25	2.33	Meets

Table H34: ABET Criterion 3 – Student Outcomes: G-7 – Number of Students and Percentage of Students for ABET Result

G-7: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	0	0.00%
Developing	9	36.00%
Meets	13	52.00%
Exceeds	0	0.00%

Table H35: ABET Criterion 3 – Student Outcomes: G-8 – Average Result ABET Result by Student Number

G-8		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	1.00	Developing
4	1.50	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	2.00	Meets
10	1.50	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.50	Developing
17	2.00	Meets
18	1.50	Developing
19	1.50	Developing
20	1.33	Developing
21	N/A	N/A

22	1.50	Developing
23	1.00	Developing
24	1.33	Developing
25	2.00	Meets

Table H36: ABET Criterion 3 – Student Outcomes: G-8 – Number of Students and Percentage of Students for ABET Result

G-8: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	0	0.00%
Developing	18	72.00%
Meets	4	16.00%
Exceeds	0	0.00%

Table H37: ABET Criterion 3 – Student Outcomes: G-9 – Average Result ABET Result by Student Number

G-9		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	1.00	Developing
5	2.00	Meets
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.50	Developing
10	1.00	Developing
11	1.00	Developing
12	1.00	Developing
13	1.00	Developing
14	1.00	Developing
15	1.00	Developing
16	1.00	Developing
17	1.50	Developing
18	1.00	Developing
19	1.00	Developing
20	2.00	Meets
21	N/A	N/A
22	1.00	Developing
23	1.00	Developing
24	1.67	Developing
25	2.00	Meets

Table H38: ABET Criterion 3 – Student Outcomes: G-9 – Number of Students and Percentage of Students for ABET Result

G-9: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	18	72.00%
Meets	3	12.00%
Exceeds	0	0.00%

Table H39: ABET Criterion 3 – Student Outcomes: G-10 – Average Result ABET Result by Student Number

G-10		
Student Number	**Average Result**	**ABET Result**
1	N/A	N/A
2	N/A	N/A
3	1.00	Developing
4	1.00	Developing
5	2.00	Meets
6	N/A	N/A
7	N/A	N/A
8	1.00	Developing
9	1.00	Developing
10	1.00	Developing
11	2.00	Meets
12	2.00	Meets
13	N/A	N/A
14	1.00	Developing
15	N/A	N/A
16	1.50	Developing
17	1.00	Developing
18	1.00	Developing
19	1.00	Developing
20	2.00	Meets
21	N/A	N/A
22	1.00	Developing
23	N/A	N/A
24	2.00	Meets
25	2.67	Meets

Table H40: ABET Criterion 3 – Student Outcomes: G-10 – Number of Students and Percentage of Students for ABET Result

G-10: ABET Result	Number of Students	Percentage of Students
N/A	8	32.00%
Fails to Meet	0	0.00%
Developing	11	44.00%

Meets	6	24.00%
Exceeds	0	0.00%

Table H41: ABET Criterion 3 – Student Outcomes: I-7 – Average Result ABET Result by Student Number

I-7		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	0.00	Fails to Meet
3	2.00	Meets
4	2.00	Meets
5	2.00	Meets
6	3.00	Exceeds
7	0.00	Fails to Meet
8	0.00	Fails to Meet
9	2.00	Meets
10	2.00	Meets
11	3.00	Exceeds
12	2.00	Meets
13	0.00	Fails to Meet
14	2.00	Meets
15	3.00	Exceeds
16	0.00	Fails to Meet
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	2.00	Meets
21	2.00	Meets
22	0.00	Fails to Meet
23	2.50	Meets
24	2.00	Meets
25	N/A	N/A

Table H42: ABET Criterion 3 – Student Outcomes: I-7 – Number of Students and Percentage of Students for ABET Result

I-7: ABET Result	**Number of Students**	**Percentage of Students**
N/A	1	4.00%
Fails to Meet	7	28.00%
Developing	0	0.00%
Meets	14	56.00%
Exceeds	3	12.00%

Table H43: ABET Criterion 3 – Student Outcomes: K-1 – Average Result ABET Result by Student Number

K-1		
Student Number	**Average Result**	**ABET Result**

1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	1.67	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.00	Developing
10	1.67	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.50	Developing
15	1.00	Developing
16	1.50	Developing
17	1.67	Developing
18	1.67	Developing
19	1.67	Developing
20	1.33	Developing
21	N/A	N/A
22	1.67	Developing
23	1.00	Developing
24	1.33	Developing
25	2.00	Meets

Table H44: ABET Criterion 3 – Student Outcomes: K-1 – Number of Students and Percentage of Students for ABET Result

K-1: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	19	76.00%
Meets	2	8.00%
Exceeds	0	0.00%

Table H45: ABET Criterion 3 – Student Outcomes: K-2 – Average Result ABET Result by Student Number

K-2		
Student Number	**Average Result**	**ABET Result**
1	0.00	Fails to Meet
2	N/A	N/A
3	1.00	Developing
4	1.67	Developing
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A

8	1.50	Developing
9	1.50	Developing
10	1.67	Developing
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.50	Developing
15	1.00	Developing
16	1.50	Developing
17	1.67	Developing
18	1.67	Developing
19	1.67	Developing
20	1.33	Developing
21	N/A	N/A
22	1.67	Developing
23	1.00	Developing
24	1.33	Developing
25	2.00	Meets

Table H46: ABET Criterion 3 – Student Outcomes: K-2 – Number of Students and Percentage of Students for ABET Result

K-2: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	1	4.00%
Developing	19	76.00%
Meets	2	8.00%
Exceeds	0	0.00%

Table H47: ABET Criterion 3 – Student Outcomes: K-3 – Average Result ABET Result by Student Number

K-3		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	1.50	Developing
4	2.00	Meets
5	1.33	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.50	Developing
10	2.00	Meets
11	1.00	Developing
12	2.00	Meets
13	1.00	Developing
14	1.50	Developing

15	1.00	Developing
16	1.50	Developing
17	2.00	Meets
18	2.00	Meets
19	2.00	Meets
20	1.33	Developing
21	N/A	N/A
22	2.00	Meets
23	1.00	Developing
24	1.33	Developing
25	3.00	Exceeds

Table H48: ABET Criterion 3 – Student Outcomes: K-3 – Number of Students and Percentage of Students for ABET Result

K-3: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	0	0.00%
Developing	14	56.00%
Meets	7	28.00%
Exceeds	1	4.00%

Table H49: ABET Criterion 3 – Student Outcomes: K-4 – Average Result ABET Result by Student Number

K-4		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	2.00	Meets
4	2.33	Meets
5	1.67	Developing
6	1.00	Developing
7	N/A	N/A
8	2.00	Meets
9	2.00	Meets
10	2.33	Meets
11	2.00	Meets
12	2.00	Meets
13	2.00	Meets
14	2.00	Meets
15	1.00	Developing
16	1.50	Developing
17	2.33	Meets
18	2.33	Meets
19	2.33	Meets
20	1.67	Developing
21	N/A	N/A

22	2.33	Meets
23	2.00	Meets
24	1.67	Developing
25	2.67	Meets

Table H50: ABET Criterion 3 – Student Outcomes: K-4 – Number of Students and Percentage of Students for ABET Result

K-4: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	0	0.00%
Developing	7	28.00%
Meets	15	60.00%
Exceeds	0	0.00%

Table H51: ABET Criterion 3 – Student Outcomes: K-5 – Average Result ABET Result by Student Number

K-5		
Student Number	**Average Result**	**ABET Result**
1	1.00	Developing
2	N/A	N/A
3	2.00	Meets
4	1.67	Developing
5	1.67	Developing
6	1.00	Developing
7	N/A	N/A
8	1.50	Developing
9	1.00	Developing
10	1.67	Developing
11	2.00	Meets
12	3.00	Exceeds
13	1.00	Developing
14	2.00	Meets
15	1.00	Developing
16	2.00	Meets
17	1.67	Developing
18	1.67	Developing
19	1.67	Developing
20	1.67	Developing
21	N/A	N/A
22	1.67	Developing
23	1.00	Developing
24	1.67	Developing
25	2.67	Meets

Table H52: ABET Criterion 3 – Student Outcomes: K-5 – Number of Students and Percentage of Students for ABET Result

K-5: ABET Result	Number of Students	Percentage of Students
N/A	3	12.00%
Fails to Meet	0	0.00%
Developing	16	64.00%
Meets	5	20.00%
Exceeds	1	4.00%

Appendix I: ABET Criterion 3 – a through k & 1 through 7, Recommendation Tables

Table I1: Changes in Criterion 3: Student Outcomes[7]

Current Language **EAC Criteria Effective 2017-18 and 2018-19 Cycles**	**New Language** **Approved by the EAD October 20, 2017** **Applicable beginning in the 2019-20 Cycle**
Criterion 3: Student Outcomes The program must have documented student outcomes that prepare graduates to attain the program educational objectives. Student outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program.[4]	**Criterion 3: Student Outcomes** The program must have documented student outcomes that support the program educational objectives. Attainment of these outcomes prepares graduates to enter the professional practice of engineering. Student outcomes are outcomes (1) through (7), plus any additional outcomes that may be articulated by the program.
(a) an ability to apply knowledge of mathematics, science, and engineering (e) an ability to identify, formulate, and solve engineering problems	2. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
(b) an ability to design and conduct experiments, as well as to analyze and interpret data	7. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	3. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
(d) an ability to function on multidisciplinary teams	6. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
(f) an understanding of professional and ethical responsibility (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context (j) a knowledge of contemporary issues	5. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
(g) an ability to communicate effectively	4. an ability to communicate effectively with a range of audiences
(i) a recognition of the need for, and an ability to engage in life-long learning	8. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	Implied in 1, 2, and 6

Table I2: School of Engineering Awareness Assessment Questions and Possible Answers

Number	**Question**	**Possible Answers**
1	What year in college are you?	Freshman, Sophomore, Junior, Senior, Super Senior

		(Can only pick one – multiple choice)
2	What school(s)/college(s) are you enrolled in at Alfred University?	College of Ceramics, College of Liberal Arts & Sciences, College of Professional Studies, Inamori School of Engineering, School of Art & Design, School of Business (Can pick more than one – multiple answer)
3	Which of the following is/are your engineering major(s)?	Biomaterials Engineering, Ceramic Engineering, Glass Engineering Science, Materials Science & Engineering, Mechanical Engineering, Renewable Energy Engineering, Undecided Engineering, I am not an engineer (Can pick more than one – multiple answer)
4	What is/are your minor(s)?	Biomaterials Engineering, Ceramic Engineering, Glass Engineering Science, Materials Science & Engineering, Mechanical Engineering, Renewable Energy Engineering, Business, Chemistry, Mathematics, Physics, Other, I do not have a minor (Can pick more than one – multiple answer)
5	Are you in a leadership position or active member of an engineering club on campus? (Active meaning you attend meeting regularly)	In a leadership position, Active member, No (Can pick more than one – multiple answer)
6	Are you a student athlete?	Yes, No (Can only pick one – multiple choice)
7	Are you a transfer student?	Yes, No (Can only pick one – multiple choice)
8	What are your plans for after graduation?	Graduate School, Job pertaining to your degree, Job that does NOT pertain to your degree, I do not know (Can only pick one – multiple choice)
9	Do you plan to take the Fundamentals of Engineering exam in your discipline?	Yes, No, I do not know (Can only pick one – multiple choice)
10	Do you plan to take the Principles and Practice of Engineering exam (after at least 4 years of experience in your discipline)?	Yes, No, I do not know (Can only pick one – multiple choice)

Table I3: Ethics & Globalization Quiz Questions and Possible Answers

Background:
Ms. Williams is an engineer in an international manufacturing company. Her responsibilities include the following tasks: e. To design a line of new products to be distributed globally f. To supervise a team of electricians, machinists, and assembly workers to put various components together for the line of the new products g. To ensure the products meet international standards h. To report to her management regarding the manufacturing status The problems Ms. Williams is facing are:

c. One of the electricians took a wrong batch of components and put them in the first ten products. This wrong batch of components does not meet the international standards and may cause a fire if the product is used. d. The management told Ms. Williams that an international customer has ordered ten products and wants the immediate delivery.	
Questions	**Possible Answers**
Question 1: What should Ms. Williams do? (Choose all that you believe ARE appropriate actions)	Tell her management that she cannot certify the products, She will work alone overnight to redo the products, Send the ten products to the customer, Acknowledge that the mistake was made under her watch and she is willing to work with her team members to fix the problem, Fire the electrician, Take a vacation, Do not say anything and send out the products, Redo the products (Can pick more than one – multiple answer)
Question 2: Discuss your reasons why Ms. Williams should AND should not do each action (1-8). 1. Yes/No and Why? 2. Yes/No and Why? 3. Yes/No and Why? 4. Yes/No and Why? 5. Yes/No and Why? 6. Yes/No and Why? 7. Yes/No and Why? 8. Yes/No and Why?	Results Vary by Student