# Bachelor of Science in Computer Systems Engineering

# Academic Assessment Plan

**Version 2.1**

**Adopted by**

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**Table of Contents**

[Mission Statement 3](#_Toc503185285)

[Program Introduction 3](#_Toc503185286)

[Assessment Process Introduction 3](#_Toc503185287)

[Program Student Learning Outcomes 4](#_Toc503185288)

[Mapping Previous Program Student Learning Outcomes to Current Program Student Learning Outcomes 5](#_Toc503185289)

[Table 1: Mapping of Prior To Current Program Student Learning Outcomes 5](#_Toc503185290)

[Program Educational Objectives (not assessed) 7](#_Toc503185291)

[Table 2: Association of Assessment Measures to Program Student Learning Outcomes 8](#_Toc503185292)

[Assessment Measures 9](#_Toc503185293)

[Table 3: Program Outcomes Assessment Measures and Administration 9](#_Toc503185294)

[Assessment Implementation & Analysis for Program Improvement 10](#_Toc503185295)

[General Implementation Strategy 10](#_Toc503185296)

[Method of Data Analysis and Formulation of Recommendations for Program Improvement 10](#_Toc503185297)

[Modification of the Assessment Plan 11](#_Toc503185298)

[Appendix A: Faculty Review of Student Artifacts 13](#_Toc503185299)

[Appendix B: Student Exit Survey 17](#_Toc503185300)

## Mission Statement

The Computer Systems Engineering program at the University of Alaska Anchorage is committed to the University’s mission to discover and disseminate knowledge through teaching, research, engagement, and creative expression.  First, we strive to teach our students the fundamental principles of computer systems engineering and important issues in computing so they may pursue advanced degrees or enter the workplace as productive, competent engineers.   Second, the program seeks to further the profession of computer systems engineering through professional activities and public service within the community, state, nation, and society at large.   Finally, the program engages in and disseminates research to advance the development of computer systems engineering and provide innovative technological solutions to address the needs of modern society.

## Program Introduction

The Computer Systems Engineering program is housed in the Department of Computer Science & Engineering (CS&E) in the College of Engineering. A common core curriculum consisting of computer programming, computer organization, digital circuits, and networking is shared by the BA/BS in Computer Science.

The Bachelor of Science in Computer Systems Engineering (BSCSE) program is accredited by the Engineering Accreditation Commission of ABET, Inc. The program was originally approved as the Computer Systems Engineering concentration of the Bachelor of Science in Engineering program by the University of Alaska Board of Regents on February 17, 2005.

## Assessment Process Introduction

The BSCSE program’s Educational outcomes and objectives were developed by CS&E faculty to prepare students for the profession of Computer Systems Engineering through study, experience and practice. The core of the assessment plan is based on faculty evaluation via rubrics. Student artifacts that are collected in different courses throughout the curriculum are evaluated by faculty members and the results are aggregated in the assessment report.

## Program Student Learning Outcomes

At the completion of this program, students will possess:

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, including technical and non-technical audiences for business, end-user, client, and computing contexts
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 judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

The highlighted text is not an ABET PSLO. It was added to our PSLO’s after discussion from our Advisory Board.

## Mapping Previous Program Student Learning Outcomes to Current Program Student Learning Outcomes

The previous PSLOs are listed below. Table 1 illustrates how the previous PSLOs map to the current PSLO’s.

| **Outcome Letter** | **Program Outcome (*and CSE interpretation*)** |
| --- | --- |
| a | An ability to apply knowledge of mathematics, science, and engineering*(Ability to apply computer systems engineering concepts to solve problems)* |
| b | An ability to design and conduct experiments, as well as analyze and interpret data*(ability to test, debug and analyze software/hardware/theoretical computing problems)*  |
| 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(as written) |
| d | An ability to function on multidisciplinary teams:*(Ability to work in teams on group projects )* |
| e | An ability to identify, formulate, and solve engineering problems:(as written) |
| f | An understanding of professional and ethical responsibility(as written) |
| g | An ability to communicate effectively(as written) |
| h | The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context(as written) |
| i | A recognition of the need for, and the ability to engage in, life-long learning(as written) |
| j | A knowledge of contemporary issues*(knowledge of recent and latest computer-related technology and research work)* |
| k | An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice*(ability to use algorithms, protocols, software tools and hardware tools to develop software or hardware solutions to a problem)* |

## Table 1: Mapping of Prior To Current Program Student Learning Outcomes

| **Prior PSLO** | **Current PSLO** |
| --- | --- |
| a. An ability to apply knowledge of mathematics, science, and engineeringe. 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 |
| 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 sustainabilityk. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice | 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 |
| g. An ability to communicate effectively | 3. An ability to communicate effectively with a range of audiences, including technical and non-technical audiences for business, end-user, client, and computing contexts. |
| f. An understanding of professional and ethical responsibilityh. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal contexti. A recognition of the need for, and the ability to engage in, life-long learning | 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 |
| 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 |
| b. An ability to design and conduct experiments, as well as analyze and interpret data | 6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions |
| j. A knowledge of contemporary issues | 7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies |

## Program Educational Objectives (not assessed)

1. Graduates are successful practitioners of computer engineering in a variety of industries, government agencies, and research/academic institutions, serving the State of Alaska as well as national/international needs.
2. Graduates exhibit high standards regarding ethical behavior and social responsibility.
3. Graduates successfully engage in life-long learning experiences such as graduate education, short courses, technical talks, conferences, training program, community groups, and writing and/or publishing papers.

## Table 2: Association of Assessment Measures to Program Student Learning Outcomes

| **Outcomes** | CSCE A342 | CSCE A448 | CSCE A465 | CSCE A470 | Exit Survey |
| --- | --- | --- | --- | --- | --- |
| 1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
 | 1 | 0 | 0 | 1 | 1 |
| 1. 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
 | 0 | 0 | 0 | 1 | 1 |
| 1. An ability to communicate effectively with a range of audiences, including technical and non-technical audiences for business, end-user, client, and computing contexts.
 | 0 | 0 | 0 | 1 | 1 |
| 1. 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
 | 0 | 0 | 1 | 0 | 1 |
| 1. 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
 | 0 | 0 | 0 | 1 | 1 |
| 1. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
 | 0 | 1 | 0 | 1 | 1 |
| 1. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies
 | 0 | 1 | 0 | 1 | 1 |

0 = Measure is not used to measure the associated outcome.

1 = Measure is used to measure the associated outcome.

## Assessment Measures

A description of the tools used in the assessment of the program outcomes and their implementation are summarized in Table 2. The tools and their relationships to the program outcomes are listed in Table 3.

## Table 3: Program Outcomes Assessment Measures and Administration

| **Measure** | **Description** | **Frequency/ Start Date** | **Collection Method** | **Administered by** |
| --- | --- | --- | --- | --- |
| Evaluation of student coursework | A rubric is used to evaluate student coursework in the context of a particular outcome. Currently work is used from:CSCE A342, CSCE A448, CSCE A465, and CSCE A470. | Yearly or every semester (depending on course offering) / Spring 2013 | Faculty collection | Instructor of course |
| Exit Survey | Graduating students are asked to directly provide feedback on the effectiveness of the entire program. | Yearly / Spring 2014 | Online survey sent to students in CSCE A470 | Assessment Coordinator |

## Assessment Implementation & Analysis for Program Improvement

### General Implementation Strategy

Implementation of our assessment plan revolves around faculty evaluation of student work. Faculty members in selected courses will choose student artifacts (e.g. papers, assignments, presentations) that relate to a particular outcome and will evaluate the work based on a rubric. Evaluation is independent of the grade assigned for the course. In some cases multiple faculty members may evaluate the same outcome. For example, faculty members attending a presentation may all evaluate a student’s ability to communicate effectively. The scores from all evaluators are averaged together in the final analysis.

A key course in assessment efforts is CSCE A470, the capstone course. This course requires students to research, specify, design, and implement a project of moderate complexity. This course touches upon most PSLOs.

### Method of Data Analysis and Formulation of Recommendations for Program Improvement

At the end of the spring semester we will collect and aggregate data that was collected in the spring and the previous fall. The data is simply averaged as we move up to higher levels of analysis. However, we will retain the low-level data if we need to drill down to see specific sub-outcomes that may need to be addressed.

For example, consider the following subset of the rubric for PSLO #3:

**Outcome 3:**  **Communicate effectively in a variety of professional contexts, including technical and non-technical audiences for business, end-user, client, and computing contexts.**

| **Evaluation Criteria** | **Poor** | **Developing** | **Satisfactory** | **Excellent** |
| --- | --- | --- | --- | --- |
| 1. Effectively organizes and structures a presentation or document
 | No logical structure | Some structure but erratic jumps in topic | Most information presented logically | All information presented logically |
| 1. Provides appropriate content to demonstrate detailed knowledge of subject area
 | No grasp of topic, cannot answer questions or extremely limited content | Only rudimentary knowledge demonstrated | At ease with content and provides some detail | Full command of subject matter |

Student #1 receives a score of “Poor” for Outcome 3.1, and a score of “Satisfactory” for Outcome 3.2

Student #2 receives a score of “Satisfactory” for Outcome 3.1 and a score of “Excellent” for Outcome 3.2.

These scores would be aggregated as percentages for each sub-outcome. The average of the percentages is then computed for the outcome overall. Our simple example with students 1 and 2 results in the following scores:

|  | Poor | Developing | Satisfactory | Excellent |
| --- | --- | --- | --- | --- |
| Outcome 3.1 | 50% (1/2) | 0% | 50% (1/2) | 0% |
| Outcome 3.2 | 0% | 0% | 50% (1/2) | 50% (1/2) |
| Outcome 3 Overall | 25% | 0% | 50% | 25%  |

To improve the score we can return to the low-level data and examine the evaluation criteria. In this case we would find that a lower score was attributed to “Identifies and appropriately formulates the problem” than “Formulates appropriate computing requirements” so we may elect to focus our efforts on how to better teach students how to identify and formulate problems.

Data is collected in the fall and spring semesters, analyzed at the end of the spring semester, discussed at the beginning of the fall semester, and recommendations implemented that fall or spring if possible. The assessment cycle schedule is shown below.

A proposed programmatic change may be any action or change in policy that the faculty deems as being necessary to improve performance relative to programs objectives and outcomes. Recommended changes should also consider workload (faculty, staff, and students), budgetary, facilities, and other relevant constraints. A few examples of changes made by programs at UAA include:

* changes in course content, scheduling, sequencing, prerequisites, delivery methods, etc.
* changes in advising methods and requirements
* addition and/or replacement of equipment
* changes to facilities

### Modification of the Assessment Plan

The faculty, after reviewing the collected data and the processes used to collect it, may decide to alter the assessment plan. Changes may be made to any component of the plan, including the objectives, outcomes, assessment tools, or any other aspect of the plan. The changes are to be approved by the faculty of the program. The modified assessment plan is to be forwarded to the Dean’s office, the School of Engineering Assessment Committee, the Faculty Senate Academic Assessment Committee, and the Office of Academic Affairs.

### **Program Educational Objectives**

The BSCSE program has also established Program Educational Objectives. Educational objectives are items that students should be able to accomplish within 5 years of graduation. ABET does not require assessment of the objectives, but we have a process in which they are examined through a survey of graduates and in a yearly meeting with constituents.

## Appendix A: Faculty Review of Student Artifacts

### Measure Description:

The student artifacts selected for assessment will vary depending upon the course and instructor but include assignments, exam questions, presentations, papers, design documents, requirements documents, and software.

Rubrics for each outcome are shown below.

**Outcome 1:** **An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics**

**Artifacts selected from CSCE A342 (Digital Circuit Design) and CSCE A470 (Capstone)**

| **Evaluation Criteria** | **Poor** | **Developing** | **Satisfactory** | **Excellent** |
| --- | --- | --- | --- | --- |
| 1. Identifies requirements and formulates solution by applying principles of engineering, science, and mathematics
 | No attempt or fails to formulate accurately | Formulates but key details are missing or confused | Most details identified and key relationships identified, appropriate solution formulated | Clearly identifies the challenge and embedded issues and formulates an appropriate solution |
| 1. Solves complex engineering problem by applying principles of engineering, science, and mathematics
 | Incorrect application of engineering principles or fails to implement solutions | Limited solution or only partly applies science, math, and engineering principles | Reasonable solution using science, math, and engineering principles | In-depth and comprehensive utilization of science, math, and engineering principles in solution |

**Outcome 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**

**Artifacts selected from CSCE A470 (Capstone)**

| **Evaluation Criteria** | **Poor** | **Developing** | **Satisfactory** | **Excellent** |
| --- | --- | --- | --- | --- |
| 1. Creates a final product for evaluation that meets specified needs
 | Does not create a final product, or the final product is especially poor | Makes a start on a final product but is unable to meet final specifications | Creates a satisfactory final product which meets defined specifications | Creates an exceptional final product which exceeds expectations |
| 1. Solution considers public health, safety, welfare, human, environmental, and economic factors
 | Limited or no consideration of specified factors | Basic evaluation and consideration but has gaps | Satisfactory consideration of specified factors  | Exceptional and comprehensive consideration of specified factors with strong tie to engineering design |

**Outcome 3:** **An ability to communicate effectively with a range of audiences, including technical and non-technical audiences for business, end-user, client, and computing contexts.**

**Artifacts selected from CSCE A470 (Capstone)**

| **Evaluation Criteria** | **Poor** | **Developing** | **Satisfactory** | **Excellent** |
| --- | --- | --- | --- | --- |
| 1. Effectively organizes and structures a presentation or document
 | No logical structure | Some structure but erratic jumps in topic | Most information presented logically | All information presented logically |
| 1. Provides appropriate content to demonstrate detailed knowledge of subject area
 | No grasp of topic, cannot answer questions or extremely limited content | Only rudimentary knowledge demonstrated | At ease with content and provides some detail | Full command of subject matter |
| 1. Effectively communicates details appropriate to the audience, including questions
 | Is unable to effectively communicate | Only able to answer/explain in a limited manner; limited detail | Provides sufficient detail to describe/answer questions | Communicates details exceptionally well |
| 1. Provides effective and appropriate visual aids and graphics
 | None | Weak support of the material, text or diagrams hard to see or understand | Mostly supports the material, most text and diagrams understandable | Text and diagrams strongly reinforce the presentation |
| 1. Writes using proper spelling and grammar
 | Significant errors | Several errors | Minor errors | Negligible errors |
| 1. Delivers oral presentation effectively
 | Significant delivery problems, little to no audience contact; much too long or much too short | Several mispronunciation, occasional audience contact; too long or too short | Clear voice, steady rate, some audience contact; slightly too long or too short | Clear voice, steady rate, strong audience contact, enthusiastic, confident; on time |

**Outcome 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**

**Artifacts selected from CSCE A465 (Computer Security)**

| **Evaluation Criteria** | **Poor** | **Developing** | **Satisfactory** | **Excellent** |
| --- | --- | --- | --- | --- |
| 1. Demonstrates the applicability of legal principles to the computing profession and impact on society, global, environmental, and economic contexts
 | Does not connect professional responsibilities to engineering practice and society and other contexts | Limited application of professional responsibilities to engineering practice and society and other contexts | Satisfactory application of professional responsibilities to engineering practice and society and other contexts | Strongly connects professional responsibilities to engineering practice and society and other contexts |
| 1. Demonstrates the applicability of ethical principles to the computing profession and impact on society, global, environmental, and economic contexts
 | Does not connect ethical principles to engineering practice and society and other contexts | Limited application of ethical principles to engineering practice and society and other contexts | Satisfactory application of ethical principles to engineering practice and society and other contexts | Strongly connects ethical principles to engineering practice and society and other contexts |

**Outcome 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**

**Artifacts selected from CSCE A470 (Capstone)**

| **Evaluation Criteria** | **Poor** | **Developing** | **Satisfactory** | **Excellent** |
| --- | --- | --- | --- | --- |
| 1. Understands and fulfills roles and responsibilities
 | Does not fulfill team role duties | Fulfills some, but not all, team role duties | Fulfills team role duties | Exceeds expectations with respect to team role duties |
| 1. Listens and works with others
 | Does not consider other team members’ ideas or concerns | Sometimes considers other team members’ ideas or concerns | Often addresses other team members’ ideas or concerns | Is exceptionally adept at addressing other team members’ ideas or concerns |
| 1. Communicates effectively with the group
 | Does not communicate to other members regarding the project progress | Provides terse outline of status of the project and relevant updates | Provides updates on a regular basis  | Works exceptionally well to provide documentation of progress  |

**Outcome 6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions**

**Artifacts selected from CSCE A448 (Computer Architecture) and CSCE A470 (Capstone)**

| **Evaluation Criteria** | **Poor** | **Developing** | **Satisfactory** | **Excellent** |
| --- | --- | --- | --- | --- |
| 1. Develops and conducts an appropriate engineering experiment to test a hypothesis
 | Unable to develop and conduct experiment | Partially develops and conducts experiment or flaws in experimental design | Satisfactorily develops and conducts experiment | Exceeds expectations in developing and conducting experiment |
| 1. Analyzes and interprets experimental data using engineering judgment
 | Unable to analyze and interpret data | Partially analyzes and interprets data, but gaps in analysis | Satisfactorily analyzes and interprets data; uses engineering judgment | Exceeds expectations in analysis and interpretation with engineering judgment |

**Outcome 7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies**

**Artifacts selected from CSCE A448 (Computer Architecture) and CSCE A470 (Capstone)**

| **Evaluation Criteria** | **Poor** | **Developing** | **Satisfactory** | **Excellent** |
| --- | --- | --- | --- | --- |
| 1. Demonstrates ability to independently learn the latest developments and technical issues surrounding a new topic
 | Does not demonstrate an understanding of the technical challenges / issues surrounding the topic | Demonstrates a vague understanding of the technical issues and the latest developments | Demonstrates satisfactory knowledge of the technical issues and the latest developments | Demonstrates exceptional knowledge of the technical issues and the latest developments |
| 1. Utilizes appropriate learning strategies
 | No or inappropriate learning strategy | Some appropriate learning strategy | Appropriate learning strategy | Exceptional learning strategy |

### Factors that affect the collected data:

* Time and energy requirements. Significant work is required to collect and analyze the data.
* Bias associated with the grading philosophy of a single faculty. This is somewhat mitigated by use of the rubrics and by aggregation across several courses, student artifacts, and instructors.

### Tabulating, Interpretation, and Reporting Results

A score of 1-4 is assigned to evaluations corresponding to Poor, Developing, Satisfactory, or Excellent. We will average data across each outcome and will drill down to averages and/or histograms of sub-outcomes as needed. An average score of “Poor” or “Developing” warrants remedial action while continuous improvement is possible for higher scores.

## Appendix B: Student Exit Survey

### Measure Description:

The exit survey asks graduates of the program to rate their performance relative to the program’s outcomes. Additionally, graduates are asked to rate the program’s delivery of the material related to the objectives from their viewpoint.

Surveys are distributed to students in the CSCE A470 course. The students anonymously complete the surveys online.

A sample of the survey instrument is in the following pages.

### Factors that affect the collected data:

A number of factors need to be taken into consideration when analyzing the data. The following factors are those that we have identified.

* Student knowledge. Students that enroll in CSCE A470 may not actually graduate until the following year and may not have the knowledge to answer the survey accurately.
* Student effort. The amount of effort students take to accurately complete the survey is variable.

### How to interpret the data:

Care should be taken to investigate and discuss the factors influencing the results before interpreting the results. The results of the surveys should also be compared against the averages for the rubric (direct measures) to get a picture of program performance relative the expected outcomes.

### Tabulating and Reporting Results:

The survey is administered by the assessment coordinator. The assessment coordinator receives the results and tabulates them for use in outcomes review. The results are charted and tracked separately from the rubric evaluation of student artifacts.

**CSE Exit Survey 18-19**

**Start of Block: Default Question Block**

Q1 All programs at UAA are required to implement an outcomes-based assessment program.  As a part of the assessment program, we are surveying graduating students to find ways of improving our program.  Your feedback will go a long way in helping us determine how well we are doing and what we can do to better serve our students, alumni, and the community.

Q2 Do you intend to pursue graduate study?

* Yes
* No

Q23 Have you received any job offers, and if so, how many?

* No, because I did not apply for any jobs
* No, not yet
* 1
* 2
* 3
* 4
* 5+
* N/A, I am planning to go straight to graduate school

Q3 Have you accepted a permanent position, and if so, where?

* No, still looking
* I am going to graduate school (if known, enter school name) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* I have accepted a job offer (enter company name) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Q24 If you received a job offer and are willing to share the information with us, what is your starting salary?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Q4 Primary area of computer systems that you hope to work in:

* Software Development
* Networking or communications
* Research
* Management
* Signal processing
* Systems administration
* Architecture/systems
* Robotics
* Integrated circuits / VLSI
* Embedded systems
* Not working in computer systems
* Other

Q5 Please explain what other area of computer systems you hope to work in.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Q6 The UAA Computer Systems Engineering program has adopted 11 expected outcomes, please rate your knowledge/skills and the program’s effectiveness in teaching you knowledge/skills relative to each outcome.
1.      An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | * Poor
 | * Fair
 | * Good
 | * Excellent
 | * Outstanding
 | * No Opinion
 |
| * What is your proficiency now?
 |  |  |  |  |  |  |
| * How well did we do teaching this?
 |  |  |  |  |  |  |

Q7   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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | * Poor
 | * Fair
 | * Good
 | * Excellent
 | * Outstanding
 | * No Opinion
 |
| * What is your proficiency now?
 |  |  |  |  |  |  |
| * How well did we do teaching this?
 |  |  |  |  |  |  |

Q8 3.      An ability to communicate effectively with a range of audiences, including technical and non-technical audiences for business, end-user, client, and computing contexts

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | * Poor
 | * Fair
 | * Good
 | * Excellent
 | * Outstanding
 | * No Opinion
 |
| * What is your proficiency now?
 |  |  |  |  |  |  |
| * How well did we do teaching this?
 |  |  |  |  |  |  |

Q9 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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | * Poor
 | * Fair
 | * Good
 | * Excellent
 | * Outstanding
 | * No Opinion
 |
| * What is your proficiency now?
 |  |  |  |  |  |  |
| * How well did we do teaching this?
 |  |  |  |  |  |  |

Q10 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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | * Poor
 | * Fair
 | * Good
 | * Excellent
 | * Outstanding
 | * No Opinion
 |
| * What is your proficiency now?
 |  |  |  |  |  |  |
| * How well did we do teaching this?
 |  |  |  |  |  |  |

Q11 6.      An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | * Poor
 | * Fair
 | * Good
 | * Excellent
 | * Outstanding
 | * No Opinion
 |
| * What is your proficiency now?
 |  |  |  |  |  |  |
| * How well did we do teaching this?
 |  |  |  |  |  |  |

Q19 7.      An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | * Poor
 | * Fair
 | * Good
 | * Excellent
 | * Outstanding
 | * No Opinion
 |
| * What is your proficiency now?
 |  |  |  |  |  |  |
| * How well did we do teaching this?
 |  |  |  |  |  |  |

Q12 Please indicate your satisfaction with each of the following aspects of your experience at UAA.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | * Poor
 | * Fair
 | * Good
 | * Excellent
 | * Outstanding
 | * No Opinion
 |
| * Quality of the Advising
 |  |  |  |  |  |  |
| * Quality of the Instruction
 |  |  |  |  |  |  |
| * Quality of Computer Laboratories
 |  |  |  |  |  |  |
| * Quality of Physical Facilities (other than computing labs)
 |  |  |  |  |  |  |

Q13 Please add any optional explanation for the previous question (Quality of the Advising, Instruction, Computer Labs, or Physical Facilities).

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Q14 Please list up to three major strengths of your undergraduate CSE education or other UAA experiences.

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Q15 Please list up to three areas for improvement in our undergraduate CSE program or other aspects of UAA.

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Q16 With respect to the previous question, do you have any suggestions on how UAA could address these improvements?

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Q17 Would you recommend a UAA computer systems engineering education to a friend or relative?

* Yes
* Maybe
* No

**End of Block: Default Question Block**