UAA Academic Affairs
UNIVERSITY *of* ALASKA ANCHORAGE

2022 ANNUAL ACADEMIC ASSESSMENT REPORT FORM
(Due October 15 to the dean)

PROGRAM SECTION (Due to the dean on October 15)

Submission date: 10/27/2022

Submitted by: Frank Witmer, Associate Professor and Chair, fwitmer@alaska.edu

Program(s) covered in this report: Computer Systems Engineering BS

If you selected "Other" above, please identify. *(100 characters or less)*

College: College of Engineering

Campuses where the program(s) is delivered: ☒**Anchorage** ☐**KOD** ☐**KPC** ☐**MSC** ☐**PWSC**

Specialized accrediting agency (if applicable): Applied Science Accreditation Commission of ABET
 If explanation is necessary, such as only some of the certificates and degrees are covered by the specialized accreditation, briefly describe:

1.   A. *Personal, Professional, and Community Responsibility: The knowledge and skills necessary to promote personal flourishing, professional excellence, and community engagement.*

   - **If last year you provided your program's current or planned example of an intentionally designed course, assignment, or activity that develops and showcases the student learning in this core competency, please discuss that implementation and any observations you have regarding how well it is working. *(500 characters or less)***
     NA

   - **If last year you *did not* identify a current or planned example of an intentionally designed course, assignment, or activity that provides students the opportunity to develop and showcase this core competency, please identify one now. *(500 characters or less)***
     As part of the CSCE A470 Capstone class, students discuss ethics and moral responsibility to society and their community. They complete an essay where they evaluate the larger impact on society/community from their capstone project or related field.

B. *Effective Communication: The knowledge and skills necessary to engage in effective communication in diverse contexts and formats.*

- **What would you hope a student would say if asked where in your program or support service they had the opportunity to develop proficiency in this core competency?** *(500 characters or less)*

  Oral Communication GER

  Written Communication GER

  CSCE A470 Capstone

- **Provide your program's current or planned example(s) of an intentionally designed course, assignment, or activity that showcases the student learning in this core competency.** *(500 characters or less)*

  As part of the CSCE A470 Capstone class, students must present their project both to their classmates during class, as well as to department faculty. The latter format is typically a poster session during which faculty members evaluate the extent to which students meet department learning outcomes.

PROGRAM STUDENT LEARNING OUTCOMES

2. **Please list the Program Student Learning Outcomes your program assessed in AY22. For each outcome, indicate one of the following: Exceeded faculty expectations, Met faculty expectations, or Did not meet faculty expectations.**

   Example: Communicate effectively in a variety of contexts and formats – Exceeded faculty expectations.

   We attempted to assess all seven Program Student Learning Outcomes for AY2020-21, but since no CSE students enrolled in CSCE A470, there is no data for three of the seven outcomes. Faculty expectations are met when at least 75% of students are rated Satisfactory or Excellent; expectations are exceeded when at least 90% of students are rated Satisfactory or Excellent.

   Outcome 1: An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
       Did not meet faculty expectations.
   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.
       No students enrolled in the evaluation course.
   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.
       No students enrolled in the evaluation course.

Outcome 4 Data: 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.

Exceeded faculty expectations.

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.

No students enrolled in the evaluation course.

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

Did not meet faculty expectations.

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

Did not meet faculty expectations.

3. **Describe your assessment process in AY22 for these Program Student Learning Outcomes, including the collection of data, analysis of data, and faculty (and other, e.g., advisory board) conversations around the findings.** *(750 characters or less)*

Faculty teaching the below courses evaluate students based on established rubrics for each outcome. Students are evaluated as Poor, Developing, Satisfactory, or Excellent. Results are entered into a master spreadsheet for analysis and discussion by department faculty members.

Outcome 1: CSCE A342 (Digital Circuits Design) and CSCE A470 (Capstone)
Outcome 2: CSCE A470
Outcome 3: CSCE A470
Outcome 4: CSCE A465 (Computer and Network Security)
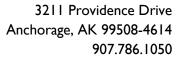Outcome 5: CSCE A470
Outcome 6: CSCE A448 (Computer Architecture) and CSCE A470
Outcome 7: CSCE A448 (Computer Architecture) and CSCE A470

4. **What are the findings and what do they tell the faculty about student learning in your program?** *(750 characters or less)*

For the first time, we had no CSE students enroll in the CSCE A470 class during AY2021-22. This means that two key sources of assessment data, CSCE A470 and the Exit Survey, are not available to assess student learning. Additionally, data from CSCE A465 were not disaggregated by degree, so CS students are included in the data for CSE students. For Outcome 1, only 2 students were assessed, and for Outcomes 6 and 7, only 4 students were assessed.

Given the dearth of data collected during AY2021-22, we evaluated the student learning outcomes with an eye towards historical trends. Based on this assessment, we concluded that Outcomes 5, 6, and 7 were weak enough to merit addressing.

5. **Based on the findings, did the faculty make any recommendations for changes to improve student achievement of the Program Student Learning Outcomes? Please describe the recommended action, what improvement in student learning the program hopes to see with this change, the proposed timeline, and how the program will know if the change has worked. If no recommendations for changes were made, please explain that decision.** *(750 Characters or less)*

    For Outcome 5, the department agreed to introduce more team-based projects in CSCE A342, but to keep the evaluation of this outcome in CSCE A470.

    For Outcome 6, the department agreed to add an engineering experimentation problem that includes probability and statistics to CSCE A448 and to use it for evaluation purposes.

    For Outcome 7, the department agreed to add a research survey/review assignment for CSCE A342.

    We hope that by making these changes, student assessments for these outcomes will improve in 1-2 years.

PROGRAM IMPROVEMENTS AND ASSESSING IMPACT ON STUDENT LEARNING

6. **In the past academic year, how did your program use the results of previous assessment cycles to make changes intended to improve student achievement of the Program Student Learning Outcomes? Please check all that apply.**
    ☐ Course curriculum changes
    ☐ Course prerequisite changes
    ☐ Changes in teaching methods
    ☐ Changes in advising
    ☐ Degree requirement changes
    ☐ Degree course sequencing
    ☐ Course enrollment changes (e.g., course capacity, grading structure [pass/fail, A-F])
    ☐ Changes in program policies/procedures
    ☐ Changes to Program Student Learning Outcomes (PSLOs)
    ☐ College-wide initiatives (e.g., High-Impact Practices)
    ☐ Faculty, staff, student development
    ☐ Other
    ☒ No changes were implemented in AY22.

    If you checked "Other" above, please describe. *(100 characters or less)*

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7. **Do you have any information about how well these or other past improvements are working? Are they achieving their intended goals? Please include any data or assessment results that help you demonstrate this.** *(750 characters or less)*

For AY2020-21, we revised the introductory sequence to require a new class, CSCE A101 Introduction to Computer Science, as a prerequisite to CSCE A201. The goal was to reduce the high Drop/Fail/Withdraw (DFW) rates for CSCE A201 and improve student programming skills throughout the program. The following table shows DFW rates have improved (decreased) for CSCE A201 since implementing these changes in Fall 2020:

Term	DFW
SP17	48%
FA17	52%
SP18	44%
FA18	47%
SP19	45%
FA19	59%
SP20	51%
FA20	38%
SP21	27%
FA21	27%
SP22	36%

8. **PROGRAMS ARE NOT REQUIRED TO RESPOND TO QUESTION #8 FOR THEIR REPORT DUE ON OCTOBER 15, 2022. IT IS HERE JUST FOR THEIR REFERENCE.**

9. **Do you have any examples of post-graduate success you want to highlight? For example, major scholarships, the percent of students who pass licensure examinations, the percent of students accepted to graduate programs, the percent in post-graduation employment in the field or a related field.** *(750 characters or less)*

DEAN SECTION (Due to the program on January 15)

1. **Based on the program's responses above, what guidance and support do you have for the program moving forward?** *(750 characters or less)*

We acknowledge that the program is dealing with low enrollments, which can make interpreting data difficult. The lack of graduates last year made assessment of Outcomes 2, 3, and 5 impossible. We also acknowledge that the disappointing results for Outcomes 1, 6, and 7 are a normal part of

the assessment process. We support the plans that the Department has proposed for improving student attainment of these outcomes.

2. **What is the program doing particularly well in terms of its processes for the assessment and improvement of student learning, for example, the achievement of the Program Student Learning Outcomes, the closing of equity gaps, or addressing the core competencies?** *(750 characters or less)*
The program is commended for a successful ABET visit in October 2022, and for all the accompanying preparation. The program is commended for taking the step of adding CSCE A101 to the curriculum, which was intended to improve the pass rate for CSCE A201. The data seem to bear out that that new course is having the intended effect.

Dean's signature: _____   **Date:** 1/23/2023