

# Bachelor of Science in Computer Systems Engineering

The Bachelor of Science (BS) in Computer Systems Engineering program at the University of Alaska Anchorage teaches students the fundamental principles of computer systems engineering and topical issues in computing so they may pursue advanced degrees or enter the workplace as productive, competent engineers. The program seeks to further the profession of computer systems engineering through professional activities and public service within the local community and beyond. Faculty engage in and disseminate research to advance the development of computer systems engineering and provide innovative technological solutions to address the needs of modern society.

The BS in Computer Systems Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org> (<https://www.abet.org/>).

## Admission Requirements

- Complete the Admission Requirements for Baccalaureate Degrees (<https://catalog.uaa.alaska.edu/academicpoliciesprocesses/admissions/undergraduate/>).

## Special Considerations

- Students who intend to enroll in this program of study are strongly encouraged to complete the following content in high school with a minimum grade of C: Trigonometry (1/2 year), Physics (1 year), Algebra (2 years), Chemistry (1 year), and English (3 years). Insufficient preparation may increase the number of semesters required to complete the degree.
- A student who is unable to earn a minimum grade of C in any course offered by the college may retake that course up to two additional times. A student who fails to earn a minimum grade of C on the second attempt will be required to meet with an academic advisor and a member of the College of Engineering professional advising staff to develop a plan for improvement of academic performance before continuing in the program. Failure to earn a minimum grade of C on the third attempt will result in removal from the program. Re-admittance requires a letter of appeal from the student with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the program.

## Graduation Requirements

- Complete the General University Requirements for Baccalaureate Degrees (<https://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements/>).
- Complete the General Education Requirements for Baccalaureate Degrees (<https://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements/gers/>).

- The Quantitative Skills GER will be met and exceeded by the following degree requirements: MATH A251 or MATH A251F, MATH A252 or MATH A252F, and MATH A253.
- The Natural Sciences GER will be met and exceeded by the following degree requirements: PHYS A211, PHYS A211L, PHYS A212, and PHYS A212L.
- Complete the following major requirements with a minimum grade of C:

Code	Title	Credits
<b>Core Courses</b>		
CSCE A101	Introduction to Computer Science	3
CSCE A201	Computer Programming I	4
CSCE A211	Computer Programming II	4
CSCE/EE A241	Computer Hardware Concepts	4
CSCE A248	Computer Organization and Assembly Language Programming	3
CSCE A311	Data Structures and Algorithms	3
CSCE A321	Operating Systems	3
CSCE A342	Digital Circuits Design	3
CSCE A365	Computer Networks	3
CSCE A448	Computer Architecture	3
CSCE A465	Computer and Network Security	3
CSCE A470	Computer Science and Engineering Capstone Project	3
EE A203 & A203L	Fundamentals of Electrical Engineering I and Fundamentals of Electrical Engineering I Laboratory	4
EE A333 & A333L	Electronic Devices and Electronic Devices Laboratory	4
EE A353	Circuit Theory	3
ESM A450	Economic Analysis and Operations	3
MATH A251 or MATH A251F	Calculus I F.A.T. Calculus I	4-6
MATH A252 or MATH A252F	Calculus II F.A.T. Calculus II	4-6
MATH A253	Calculus III	4
MATH A261	Introduction to Discrete Mathematics	3
MATH A302	Ordinary Differential Equations	3
PHIL A305	Professional Ethics	3
PHYS A211 & A211L	General Physics I and General Physics I Laboratory	4
PHYS A212 & A212L	General Physics II and General Physics II Laboratory	4
STAT A307	Probability and Statistics	4
<b>Advanced Engineering Electives</b>		
Complete 12 credits from the following: <sup>1</sup>		12
Any upper-division elective with a CSCE prefix		
EE/PHYS A314	Electromagnetics	

EE/PHYS A324	Electromagnetics II
EE A324L	Electromagnetics Laboratory II
EE A354	Engineering Signal Analysis
EE A441	Integrated Circuit Design
EE A451	Digital Signal Processing
EE A462	Communication Systems
EE A465	Telecommunications
<b>Total</b>	<b>98-102</b>

<sup>1</sup> At least 6 credits must be from CSCE courses. A maximum of 3 credits from CSCE A395, a maximum of 3 credits from CSCE A495 and a maximum of 6 credits from CSCE A498 may be applied toward this degree requirement. Other relevant courses may be accepted by approved petition.

**A minimum of 120 credits is required for the degree, of which 39 credits must be upper-division.**

## Honors in Computer Systems Engineering

The Bachelor of Science in Computer Systems Engineering recognizes distinguished achievements by conferring programmatic honors in computer systems engineering. In order to receive honors in computer systems engineering, a student must meet the following requirements:

- Meet the requirements for Graduation with Honors;
- Meet the requirements for a Bachelor of Science in Computer Systems Engineering;
- Earn a minimum GPA of 3.50 in the courses required for the major;
- Show active participation in a computer science related organization such as a UAA club or community group. Membership in a national professional organization such as the Association for Computing Machinery (ACM) or the Institute of Electrical and Electronics Engineers (IEEE) is encouraged but insufficient to meet this requirement. To apply for honors, students must submit a written reflection to the computer science and engineering department chair by the graduation application deadline that explains how participation enhanced the student's learning experience in computer science.