

# COMPUTER ENGINEERING B.S.

## Program Requirements

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## Minimum Requirements for Computer Engineering B.S.: 127 credits

Students must earn a C- grade or better in each course.

Code	Title	Credits
<b>General University Requirements</b>		
Complete the general university requirements. ( <a href="https://catalog.uaf.edu/bachelors/#gurbachelorsdegreestext">https://catalog.uaf.edu/bachelors/#gurbachelorsdegreestext</a> )		
<b>General Education Requirements</b>		
Complete the general education requirements. ( <a href="https://catalog.uaf.edu/bachelors/#generaleducationrequirementstext">https://catalog.uaf.edu/bachelors/#generaleducationrequirementstext</a> )		36-40
As part of the general education requirements, complete the following:		
CHEM F105X	General Chemistry I	
CHEM F106X	General Chemistry II	
or PHYS F213X	Elementary Modern Physics	
MATH F251X	Calculus I	
<b>B.S. Degree Requirements</b>		
Complete the B.S. degree requirements. ( <a href="https://catalog.uaf.edu/bachelors/#bachelorofsciencetext">https://catalog.uaf.edu/bachelors/#bachelorofsciencetext</a> )		16
As part of the B.S. requirements, complete the following:		
MATH F252X	Calculus II	
PHYS F211X	General Physics I	
and PHYS F212X	and General Physics II	
<b>Computer Engineering Program Requirements</b>		
Complete the following:		
CS F201	Computer Science I	3
CS F202	Computer Science II	3
CS F301	Assembly Language Programming	3
CS F311	Data Structures and Algorithms	3
CS F321	Operating Systems	3
EE F102	Introduction to Electrical and Computer Engineering	3
EE F203	Electric Circuits	4
EE F243	Digital Systems Design	4
EE F253	Circuit Theory	3
EE F333	Electronic Devices	4
EE F354	Engineering Signal Analysis	3
EE F443	Computer Engineering Analysis and Design	4
EE F444	Embedded Systems Design	4
EE F451	Digital Signal Processing	4
EE F461	Communication Systems and Networks	4

EE F481	Electrical and Computer Engineering Design I <sup>1</sup>	1
EE F482	Electrical and Computer Engineering Design II <sup>1</sup>	3
ES F100X	Engineering Alaska - An Introduction to Engineering	3
ES F100L	Makerspace Alaska - A Laboratory Introduction to Engineering	1
MATH F253X	Calculus III	4
MATH F302	Differential Equations	3
MATH F307	Discrete Mathematics	3

### Electives

Complete two approved upper-division EE or CS Electives <sup>2</sup> 6-8

### Fundamentals of Engineering (FE) Examination

Complete the Fundamentals of Engineering (FE) examination administered by the State of Alaska.

**Total Credits** **127-134**

<sup>1</sup> Fulfills the baccalaureate capstone requirement.

<sup>2</sup> Graduate-level CS and EE courses may be used as electives upon approval.

## RECOMMENDED ELECTIVES

Code	Title	Credits
CS F331	Programming Languages	3
CS F411	Analysis of Algorithms	3
CS F425	Database Systems	3
CS F453	Robotics & 3D Printing	3
CS F465	Computer and Network Security	3
EE F303	Electric Power Systems and Machines	4
EE F311	Engineering Electromagnetics I	3
EE F334	Electronic Circuit Design	4
EE F464	Advanced Communications Systems	4
EE F471	Automatic Control	3

## Program Learning Outcomes

Program learning outcomes are measurable statements that describe knowledge or skills achieved by students upon completion of the program.

Students graduating with this program will be able to demonstrate:

Within a few years of graduation, graduates of the UAF B.S. in Computer Engineering program are expected to:

1. Function independently and in diverse multidisciplinary teams as technically proficient, productive, and ethically responsible members of their profession.
2. Apply their fundamental understanding, acquire and apply new knowledge and skills, and allocate resources to solve real-world problems, including engineering for extreme environments.
3. Effectively communicate with technical and non-technical audiences, including employers, colleagues, clients, professional organizations, and the public.