

# ELECTRICAL ENGINEERING B.S.

## Program Requirements

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## Minimum Requirements for Electrical Engineering B.S.: 125 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="http://catalog.uaf.edu/bachelors/#gurbachelorsdegreestext">http://catalog.uaf.edu/bachelors/#gurbachelorsdegreestext</a> )		
<b>General Education Requirements</b>		
Complete the general education requirements. ( <a href="http://catalog.uaf.edu/bachelors/#generaleducationrequirementstext">http://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="http://catalog.uaf.edu/bachelors/#bachelorofsciencetext">http://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	
PHYS F212X	General Physics II	
<b>Electrical Engineering Program Requirements</b>		
Complete the following:		
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 F301	Analytical Methods for Electrical and Computer Engineers	3
EE F303	Electric Power Systems and Machines	4
EE F311	Engineering Electromagnetics I	3
EE F331	High-frequency Lab	1
EE F333	Electronic Devices	4
EE F354	Engineering Signal Analysis	3
EE F444	Embedded Systems Design	4
EE F451	Digital Signal Processing	4
EE F461	Communication Systems and Networks	4
EE F471	Automatic Control	3
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
ES F201	Computer Techniques	3
MATH F253X	Calculus III	4
MATH F302	Differential Equations	3

### Electives

Complete three approved upper division EE elective courses. 9-12

Graduate level EE and upper level and graduate CS courses may be used as electives upon approval.

Recommended Electives:

EE F334	Electronic Circuit Design	
EE F404	Electric Power Systems Analysis	
EE F406	Electric Power Protection and Control Systems	
EE F408	Power Electronics Design	
EE F412	Engineering Electromagnetics II	
EE F443	Computer Engineering Analysis and Design	
EE F464	Advanced Communications Systems	

### Fundamentals of Engineering (FE) Examination

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

**Total Credits** **125-133**

**Note:** Students must plan their elective courses in consultation with their electrical engineering faculty advisor, and all elective courses must be approved by their electrical engineering faculty advisor.

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

## Program Learning Outcomes

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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 Electrical 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.