

MAJOR IN ELECTRICAL ENGINEERING, LASERS AND OPTICAL ENGINEERING CONCENTRATION

requires a cumulative grade point average of at least 2.000 in Electrical Engineering courses as a graduation requirement. It is the responsibility of any student who fails to maintain a 2.000 average to work with their advisor to correct grade point deficiencies. ECE courses required for the major at the 100, 200, and 300 level must be passed with a minimum grade of C (2.000); grades below a C will require the student to retake the course. ECE courses designated as an elective are exempt from the C or higher minimum grade requirement.

Requirements Effective Fall 2026

In order to maintain professional standards required of practicing engineers, the Department of Electrical and Computer Engineering

Freshman

		AUCC	Credits
CHEM 111	General Chemistry I (GT-SC2)	3A	4
CHEM 112	General Chemistry Lab I (GT-SC1)	3A	1
CO 150	College Composition (GT-CO2)	1A	3
ENGR 111	Fundamentals of Engineering		3
ENGR 114	Engineering for Grand Challenges		3
MATH 160	Calculus for Physical Scientists I (GT-MA1)	1B	4
MATH 161	Calculus for Physical Scientists II (GT-MA1)	1B	4
PH 141	Physics for Scientists and Engineers I (GT-SC1)	3A	5
Select one group from the following:			3
Group A			
CS 150B	Culture and Coding: Python	3B	
Group B			
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		3B	
Group C			
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		3B	
Total Credits			30

Sophomore

ECE 205	Analog Circuits I		3
ECE 206	Analog Circuits II		3
ECE 232	Introduction to Project Practices		1
ECE 252	Introduction to Digital Circuits		3
MATH 261	Calculus for Physical Scientists III		4
MATH 340	Intro to Ordinary Differential Equations		4
PH 142	Physics for Scientists and Engineers II (GT-SC1)	3A	5
Select one group from the following: ¹			4
Group A			
CS 164	CS1—Computational Thinking with Java		
Group B			
CS 164 or 163	CS1—Computational Thinking with Java CS1—No Prior Programming Experience		
Group C			
CS 152	Python for STEM		
CS 162	CS1—Introduction to Java Programming		

1C (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc)	1C	3
Total Credits		30
Junior		
ECE 303/STAT 303	Introduction to Communications Principles	3
ECE 311	Linear System Analysis I	3
ECE 331	Electronics Principles I	4
ECE 332	Electronics Principles II	4A 4
ECE 341	Electromagnetic Fields and Devices I	3
ECE 342	Electromagnetic Fields and Devices II	3
JTC 300 or CO 301B	Strategic Writing and Communication (GT-CO3) Writing in the Disciplines: Sciences (GT-CO3)	2 3
PH 314	Introduction to Modern Physics	4
PH 353	Optics and Waves	4
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		3B 3
Total Credits		34
Senior		
ECE 401 ²	Senior Design Project I	4A,4B 3
ECE 402 ²	Senior Design Project II	4C 3
ECE 404	Experiments in Optical Electronics	2
ECE 441	Optical Electronics	3
ECE 457	Fourier Optics	3
PH 451	Introductory Quantum Mechanics I	3
Technical Electives (see list below)		9
Historical Perspectives (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		3D 3
Social and Behavioral Sciences (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences)		3C 3
Total Credits		32
Program Total Credits:		126

Technical Electives

Code	Title	Credits
ECE 312	Linear System Analysis II	3
ECE 403/BIOM 403	Intro to Optical Techniques in Biomedical Eng	3
ECE 415	Semiconductor Physics and Junctions	2
ECE 430/MATH 430	Fourier and Wavelet Analysis with Apps	3
Select up to 3 credits from the following:		
ECE 495A	Independent Study ²	
ECE 495B	Independent Study: Open Option Project ²	
ECE 495C	Independent Study: Vertically Integrated Projects ²	
ECE 503	Ultrafast Optics	3
ECE 504	Physical Optics	3
ECE 506	Optical Interferometry and Laser Metrology	3
ECE 507	Plasma Physics and Applications	3
ECE 526/BIOM 526	Biological Physics	3
ECE 527B/BIOM 527B	Biosensing: Signal and Noise in Biosensors	1

ECE 527F/BIOM 527F	Biosensing: Biophotonic Sensors Using Refractive Index	1
ECE 544	Silicon Photonics for Computing Systems	3
ECE 546	Laser Fundamentals and Devices	3
ECE 559/BIOM 559	Machine Learning in Imaging and Spectroscopy	3
ECE 572	Semiconductor Transistors	1
ECE 573	Semiconductor Optoelectronics Laboratory	3
ECE 574	Optical Properties in Solids	3
MATH 419	Introduction to Complex Variables	3
PH 315	Modern Physics Laboratory	2
PH 425	Advanced Physics Laboratory	2
PH 452	Introductory Quantum Mechanics II	3
PH 462	Statistical Physics	3

¹ Recommended sequence for most incoming students is Group A: CS 150B to CS 164.

² Project must be a laser and optical engineering topic.