



**SCHOOL OF BIOMEDICAL  
AND CHEMICAL ENGINEERING**  
COLORADO STATE UNIVERSITY

**Bachelor of Science in  
Biomedical Engineering +  
Electrical Engineering with  
Lasers and Optics**

<b>1st Semester</b> 15 Credit Hours	<b>ENGR 111</b> Fundamentals of Engineering 3 cr hr	<b>CS 150B</b> Culture and Coding: Python 3 cr hr	<b>CHEM 111</b> General Chemistry I 4 cr hr <i>MATH 118 or MATH 127</i>	<b>CHEM 112</b> General Chemistry Lab I 1 cr hr <i>CHEM 111</i>	<b>MATH 160</b> Calculus I 4 cr hr <i>B- in MATH 120 or MATH 124 &amp; MATH 126</i>
<b>2nd Semester</b> 15 Credit Hours	<b>ENGR 114</b> Engineering for Grand Challenges 3 cr hr <i>ENGR 111</i>	<b>PH 141</b> Physics for Scientists & Engineers I 5 cr hr <i>MATH 160</i>		<b>AUCC Requirement</b> 3 cr hr	<b>MATH 161</b> Calculus II 4 cr hr <i>MATH 120 or MATH 124 B- or better in MATH 160</i>
<b>3rd Semester</b> 15 Credit Hours	<b>BIOM 200</b> Fundamentals of Biomedical Engineering 3 cr hr <i>MATH 160 LIFE 102</i>	<b>ECE 205</b> Analog Circuits 2 cr hr <i>MATH 160 ENGR 114 or 123</i>	<b>ECE 252</b> Intro to Digital Circuits 3 cr hr <i>ENGR 114 or 123</i>	<b>LIFE 102</b> Attributes of Living Systems 4 cr hr	<b>MATH 261</b> Calculus III 4 cr hr <i>B- or better in MATH 161</i>
<b>4th Semester</b> 17 Credit Hours	<b>ECE 206</b> Analog Circuits II 3 cr hr <i>ECE 205, MATH 161</i>	<b>ECE 232</b> Intro to Project Practices 1 cr hr <i>ECE 202</i>	<b>CS 164</b> CS1 - Computational Thinking with Java 4 cr hr <i>B- in CS 150B or 152 or 163</i>	<b>PH 142</b> Physics for Scientists & Engineers II 5 cr hr <i>PH 141 MATH 161</i>	<b>MATH 340</b> Differential Equations 4 cr hr <i>B- or better in MATH 261</i>
<b>5th Semester</b> 16 Credit Hours	<b>ECE 311</b> Linear Systems Analysis 3 cr hr <i>ECE 206, MATH 340 ECE 331, 341</i>	<b>ECE 331</b> Electronics Principles I 4 cr hr <i>MATH 340, PH 142, ECE 311, 341</i>	<b>ECE 341</b> Electromagnetic Fields and Devices I 3 cr hr <i>MATH 340, PH 142, ECE 206 ECE 311, 331</i>	<b>ECE/STAT 303</b> Intro to Communications Principles 3 cr hr <i>MATH 261 MATH 340</i>	<b>CO 310B or JTC 300</b> Advanced Writing Course 3 cr hr
<b>6th Semester</b> 15 Credit Hours	<b>BIOM 300</b> Problem-Based Learning BME Lab 4 cr hr <i>BIOM 200 or CBE 205</i>	<b>ECE 332</b> Electronics Principles II 4 cr hr <i>ECE 331</i>	<b>ECE 342</b> Electromagnetic Fields and Devices II 3 cr hr <i>ECE 341</i>	<b>PH 314</b> Intro to Modern Physics 4 cr hr <i>MATH 261</i>	
<b>7th Semester</b> 16 Credit Hours	<b>ECE 404</b> Experiments in Optical Electronics 2 cr hr <i>ECE 441</i>	<b>ECE 441</b> Optical Electronics 3 cr hr <i>ECE 340 or 342</i>	<b>BMS 300</b> Principles of Human Physiology 4 cr hr <i>LIFE 102, CHEM 111</i>	<b>CHEM 113</b> General Chemistry II 3 cr hr <i>CHEM 111 Any MATH 160, 161, 261</i>	<b>PH 353</b> Optics and Waves 3 cr hr <i>MATH 261, PH 142</i>
<b>8th Semester</b> 17 Credit Hours	<b>BIOM 431</b> Biomedical Signal and Image Processing 3 cr hr <i>ECE/STAT 303, ECE 311, PH 142</i>	<b>ECE 457</b> Fourier Optics 3 cr hr <i>ECE 311, 342</i>	<b>CHEM 245</b> Fundamentals of Organic Chemistry 4 cr hr <i>CHEM 113</i>	<b>MECH 262</b> Engineering Mechanics 4 cr hr <i>MATH 161, PH 141</i>	<b>ECE Tech Elective</b> 3 cr hr
<b>9th Semester</b> 16 Credit Hours	<b>BIOM 486A</b> Biomedical Design Practicum: Capstone Design I 4 cr hr <i>BIOM 300, 431 ECE 311, 332, 342</i>	<b>MECH 339</b> Thermodynamics I for Engineers 3 cr hr <i>MATH 261, PH 141</i>	<b>PH 451</b> Intro Quantum Mechanics 3 cr hr <i>PH 314, MATH 340</i>	<b>AUCC Requirement</b> 3 cr hr	<b>AUCC Requirement</b> 3 cr hr
<b>10th Semester</b> 16 Credit Hours	<b>BIOM 486B</b> Biomedical Design Practicum: Capstone Design II 4 cr hr <i>BIOM 486A, PH 353</i>	<b>ECE Tech Elective</b> 3 cr hr	<b>BME Broad Elective</b> 3 cr hr	<b>AUCC Requirement</b> 3 cr hr	<b>AUCC Requirement</b> 3 cr hr

Engineering First-Year Coursework	<b>159 Total Credit Hours</b>
Dept./Major Coursework	
Coursework Outside Department	
Science Technical Elective*	
Engineering Technical Elective*	
Technical Elective*	
All-University Core Curriculum**	
Course	← Lab associated with course
<p><b>Course Prefix &amp; Number</b> Course Title</p> <p># Credit Hours      Co-requisite Prerequisite</p>	
<p><b>*All Technical Electives:</b> Course options can be found in the <i>CSU Catalog</i>. Note: Some technical electives may require department approval.</p> <p><b>**All-University Core Curriculum:</b> Course options available in the <i>CSU Catalog</i>.</p>	

Please refer to curriculum sheets or the CSU catalog to know what is required for final grades for courses within the EE curriculum.

This flowchart is provided as a guide only. Programs of study, course offerings, and prerequisites may change during the year. The CSU catalog is the official source of academic information. Honors Track 1 and Honors Track 2 check in with your major and honors advisors for your individual plan.

Undergraduate students interested in a CSU graduate degree in engineering could use up to 9 credits of 500-level class work towards an Accelerated Master's Program. Please contact your advisor for additional information.