

Electrical Engineering - Lasers & Optical Engineering Concentration

Degree requirements - 126 credits

Fall - 13-14 credits			Credits	Spring - 16-17 credits			Credits
FIRST YEAR	ECE102 or ECE103	Digital Circuit Logic (F,S) or DC Circuit Analysis (F,S; MATH159 with a C or higher or MATH160 with a C or higher)	3-4	ECE102 or ECE103	Digital Circuit Logic (F,S) or DC Circuit Analysis (F,S; MATH159 with a C or higher or MATH160 with a C or higher)	3-4	
	MATH160 Fulfills AUCC Category 1B	Calculus for Physical Scientists I (F,S,SS; MATH124 with a B or higher; MATH126 with a B or higher or MATH127 with a B or higher)	4	MATH161	Calculus for Physical Scientists II (F,S,SU; MATH124 or MATH127; MATH159 or MATH160)	4	
	CS150B ¹ Fulfills AUCC Category 3B	Culture and Coding: Python (F,S)	3	CS164 ¹	CS1 - Computational Thinking with Java (F,S; CS150B with a B or higher or CS152 with a B or higher B or CS163)	4	
	CO150 ² Fulfills AUCC Category 1A	College Composition (F,S,SU; CO 130 or Placement)	3	PH141 Fulfills AUCC Category 3A	Physics for Scientists and Engineers I (F,S,SU; MATH126; MATH159 or concurrent registration or MATH160 or concurrent registration)	5	

Fall - 16 credits			Credits	Spring - 16 credits			Credits
SECOND YEAR	University Core	AUCC Category 1C, 3B, 3C, 3D (F,S,SU)	3	ECE202	Circuit Theory Applications (S,SU; ECE103 with a C or higher; MATH161 with a C or higher)	4	
	CHEM111	General Chemistry I (F,S,SU; MATH118 or MATH127 or MATH160 or MATH161 or MATH229 or MATH261)	4	ECE232	Introduction to Project Practices (F,S; ECE202 or concurrent registration or ECE395B or concurrent registration)	1	
	PH142 Fulfills AUCC Category 3A	Physics for Scientists and Engineers II (F,S,SU; PH141; MATH161 or concurrent registration)	5	ECE303	Introduction to Communications Principles (S; MATH261 with a C or higher; MATH340 or concurrent registration)	3	
	MATH261	Calculus for Physical Scientists III (F,S,SU; MATH161)	4	MATH340	Intro to Ordinary Differential Equations (F,S,SU; MATH261)	4	
				PH314	Introduction to Modern Physics (S; PH 142; MATH261 or concurrent registration)	4	

Fall - 17 credits			Credits	Spring - 15 credits			Credits
THIRD YEAR	ECE311	Linear Systems Analysis I (F; ECE202 with a C or higher; MATH340 with a C or higher; ECE331 or concurrent registration; ECE341 or concurrent registration)	3	SME Electives ³	Science/Math/Engineering Elective (F,S,SU)	2	
	ECE331	Electronics Principles I (F; ECE202 with a C or higher; MATH340 with a C or higher; PH142 with a C or higher; ECE311 or concurrent registration; ECE341 or concurrent registration)	4	ECE332 Fulfills AUCC Category 4	Electronic Principles II (S; ECE331 with a C or higher)	4	
	ECE341	Electromagnetic Fields & Devices I (F; ECE202 with a C or higher; MATH340 with a C or higher; PH142 with a C or higher; ECE311 or concurrent registration; ECE331 or concurrent registration)	3	ECE342	Electromagnetic Fields & Devices II (S; ECE341 with a C or higher)	3	
	PH353	Optics & Waves (F; MATH261; PH142)	4	CO301B or JTC300 Fulfills AUCC Category 2	Writing in the Disciplines-Sciences (F,S; CO150 or HONR193) or Strategic Writing and Communication (F,S,SU; CO150 or HONR193)	3	
	University Core	AUCC Category 1C, 3B, 3C, 3D (F,S,SU)	3	University Core	AUCC Category 1C, 3B, 3C, 3D (F,S,SU)	3	

Fall - 17 credits			Credits	Spring - 15 credits			Credits
FOURTH YEAR	ECE401 ³ Fulfills AUCC Category 4	Senior Design Project I (F,S; ECE232 with a C or higher; ECE311 and ECE312 with a C or higher or (PH353 and PH314 with a C or higher); ECE331 and ECE332 with a C or higher; ECE341 and ECE342 with a C or higher)	3	ECE402 Fulfills AUCC Category 4	Senior Design Project II (F,S; ECE401)	3	
	ECE404	Experimental Optical Electronics (F; concurrent enrollment in ECE441)	2	ECE457	Fourier Optics (S; ECE311 with a C or higher; ECE342 with a C or higher)	3	
	ECE441	Optical Electronics (F; ECE342 with a C or higher)	3	Technical Electives ⁴	See Approved List (F,S)	6	
	PH451	Introductory Quantum Mechanics I (F; PH314 with a C or higher; MATH340)	3	University Core	AUCC Category 1C, 3B, 3C, 3D (F,S,SU)	3	
	Technical Electives ⁴	See Approved List (F,S)	6				

¹ Students may also choose one of the following: 1) Arts/Humanities AUCC + CS152 + CS162; or 2) Arts/Humanities AUCC + CS163

² College Composition must be completed within the first 60 credits taken (CSU and transfer credits)

³ Must have a faculty advisor from Lasers & Optics and be in a Lasers and Optical Engineering related topic

⁴ See list of approved courses on the ECE website: <https://www.engr.colostate.edu/ece/undergraduates/degree-programs/electrical-engineering-with-lasers-optics/>

ECE prefix courses required for the major at the 100, 200, and 300 level must be passed with a minimum grade of C; 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.