

PROGRAM OVERVIEW

The Bachelor of Science in Electrical Engineering, provides an ABET-accredited undergraduate education to a diverse group of students of different racial and cultural backgrounds, full-time students as well as those who have considerable work and family commitments outside their academic learning and students with a wide variety of work experiences. The department strives to continually update our program of study to qualify our graduates for technical positions in the Denver metropolitan area and beyond, while also providing sufficient breadth and depth to assure our graduates of success in their chosen profession. The electrical engineering program stresses the rigorous scientific and theoretical foundations of the discipline so our graduates can enter any advanced level educational program with the critical thinking skills needed for success. In addition, the program includes interdisciplinary work. Our electrical engineering graduates are productive engineers who can advance their careers on different professional tracks in the engineering industry.

ACADEMIC ADVISING

Advising in the College of Engineering, Design and Computing (CEDC) depends on your student standing—undergraduate students either are pre-engineering or are admitted to the program, depending on degree progress. *Pre-engineering* students must meet with a staff advisor each semester before they can register for classes.

Students admitted directly to the Electrical Engineering department are required to meet with an advisor in their specific department and should contact that department to schedule an appointment.

Students admitted to the College of Engineering, Design and Computing as pre-engineering are required to meet with a staff advisor.

Electrical Engineering

electrical@ucdenver.edu

Visit the department website [here](#)

North Classroom 2615
303-315-7520

College of Engineering, Design and Computing

Engineering@ucdenver.edu

North Classroom 3034
303-315-7170

GENERAL GRADUATION REQUIREMENTS & POLICIES

Courses	Credits	Notes	
* Course prerequisites change regularly. Students are responsible for consulting advisors and the class schedule in the student portal for prerequisite information. *			
Required Coursework (Continued)			
ENGR 1200 Intro. to Engineering Design	3		
ELEC 1510 Digital Logic	3		
ELEC 1520 Programming for EE	3		
ELEC 2132 Circuits Analysis I	3	*Prerequisite: PHYS 2311 and MATH 2411	
ELEC 2142 Circuits Analysis II	3	* Prerequisite: MATH 2421, PHYS 2331 and ELEC 2132	
ELEC 2531 Logic Lab	1	* Prerequisite/Co-requisite: ELEC 1510	
ELEC 2520 Embedded Systems Engr.	3	* Prerequisite: ELEC 1520	
ELEC 2651 Signal Processing	3	* Prerequisite: ELEC 1520 Coreq: Math 3195	
ELEC 3133 Electromagnetic Fields	3	* Prerequisite: MATH 3195, MATH 2421, PHYS 2331 and ELEC 2132	
ELEC 3164 Energy Systems	3	* Prerequisite: ELEC 2142, ENGR 1130	
ELEC 3225 Electronics	3	* Prerequisite: ELEC 2142, ENGR 1130, and PHYS 2331	
ELEC 3316 Signal and Systems	3	*Prerequisite: Elec 2142, ELEC 2651, and MATH 3195	
ELEC 3520 AI-IoT	3	*Prereq: ELEC 2520, ELEC 2531, and ELEC 2651	
ELEC 3701 Machine Learning	3	*Prereq: ELEC 3817 with a C- or better and MATH 3195 with a C- or better.	
ELEC 3724 Energy Systems Lab	1	*Prerequisite: ELEC 2142 and Co-Requisite ELEC 3164	
ELEC 3817 Probability and Statics	3	* Prerequisite: MATH 3195, MATH 2421	
ELEC 3900 Circuit Design and Fabrication Lab	3	* Prerequisite: ELEC 2142 and Pre-Requisite ELEC 3225	
Total Required EE credit hours:	47		
Senior Capstone Courses: ELEC Senior Design I and Design II Elec 4309 and Elec 4319	6		
EE Senior Specialty courses with 2 Labs Choose five approved Electrical Engineering Specialty Courses plus two one hour labs.	17	Check individual courses for prerequisites	
One professional Electives	3		
Total Program Hours:	128		

All CU Denver CEAS EE students are required to complete the following minimum general graduation requirements:
Complete a minimum of 128 semester hours

Achieve a minimum 2.0 CU cumulative grade point average (GPA)

Complete all college and major requirements

Residency: complete a minimum of 40 EE hours as a declared CEDC student in good standing at CU

PROGRAM REQUIREMENTS & POLICIES

Electrical Engineering B.S. Degree are required to complete the following minimum program requirements:

1. Complete 24 semester hours of **CU Denver Core Curriculum coursework**.
2. Complete a minimum of 30 semester hours of **pre-major coursework**.
3. Complete a minimum of 74 semester hours of **electrical engineering coursework**.

Courses	Credits	Notes
* Course prerequisites change regularly. Students are responsible for consulting advisors and the class schedule in the student portal for prerequisite information. *		
Required CU Denver Core Curriculum Coursework	24	CU Denver Core Curriculum
Required EE Pre-Major Coursework		
MATH1401 Calculus I	4	*Prerequisite: Placement; fulfills CORE Mathematics
MATH2411 Calculus II	4	*Prerequisite: C- or better in MATH1401
MATH2421 Calculus III	4	*Prerequisite: C- or better in MATH2411
MATH3195 Linear Algebra and Differential Equations	4	*Prerequisite: C- or better in MATH2411
ENGR 1130 Chemistry for Engineers	5	
PHYS 2311 & 2321 General Physics I with lab	5	*Prerequisite: MATH1401
PHYS 2331 General Physics II	4	*Prerequisite: PHYS 2311 and MATH 2411
Required EE Pre-Major Coursework	30	

SAMPLE ACADEMIC PLAN OF STUDY

The following academic plan is a *sample* pathway to completing degree requirements for this major. Students should tailor this plan based on previously completed college coursework (e.g., AP, IB, CLEP, dual/concurrent enrollment, and transfer credit), course availability, and individual preferences related to course load, schedules, or add-on programs such as minors or double-majors. **Students deviating from this plan must fulfill course prerequisites and must meet with the faculty advisor each semester in their department to confirm degree requirements.**

Year One	Semester 1		CRS
	MATH 1401 Calculus I	4	4
	ENGR 1130 Chemistry for Engineers	5	5
	Engr 1200 Intro. to Engineering Design	3	3
	ELEC 1510 Digital Logic	3	3
			15

Semester 2		CRS
PHYS 2311/2321 General Physics I & Lab	5	5
MATH2411 Calculus II	4	4
ELEC 1520 Programming for EE	3	3
ELEC 2531 Logic Laboratory	1	1
ENGL 1020 Core Composition I	3	3
		16

Year Two	Semester 3		CRS
	MATH2421 Calculus III	4	4
	ELEC 2132 Circuits Analysis I	3	3
	PHYS 2331 General Physics II	4	4
	ENGL 2030 Core Composition II	3	3
	Math 3195 Linear Algebra & Differential Equations	4	4
		18	

Semester 4		CRS
ELEC 2142 Circuits Analysis II	3	3
ELEC 2520 Embedded Systems Engr.	3	3
ELEC 2651 Signal Processing	3	3
ELEC 3817 Engineering Probability and Stats. (fall only)	3	3
CU Core Curriculum Course	3	3
		15

Year Three	Semester 5		CRS
	ELEC 3133 Electromagnetic Fields	3	3
	ELEC 3225 Electronics	4	4
	ELEC 3316 Signals and Systems	3	3
	CU Core Curriculum Course	3	3
	CU Core Curriculum Course	3	3
		16	

Semester 6		CRS
ELEC 3164 Energy Systems	3	3
ELEC 3520 AI-IOT (spring only)	3	3
ELEC 3701 Machine Learning (spring only)	3	3
ELEC 3724 Energy Systems Lab	1	1
ELEC 4xxx Specialty Course	3	3
ELEC 3900 Circuit Design and Fabrication Lab (fall and summer)	3	3
		16

Year Four	Semester 7		CRS
	ELEC 4309 Senior Design I project- (fall only)	3	3
	ENGR 3400 Technology and Culture	3	3
	ELEC Specialty 4xxx	3	3
	ELEC Specialty 4xxx & Lab	4	4
	CU Core Curriculum Course	3	3
		16	

Semester 8		CRS
ELEC 4319 Senior Design II project-- (spring only)	3	3
ELEC Specialty 4xxxx & Lab	4	4
ELEC Specialty 4xxx	3	3
Professional Elective	3	3
CU Core Curriculum Course	3	3
		16