# ELECTRICAL ENGINEERING B.S.EE.

The curriculum leading to the degree of Bachelor of Science in Electrical Engineering includes instruction in electrical and electronic circuits, energy systems, electromagnetics, semiconductor devices, signal processing, control systems, communications, digital systems, as well as in the physical sciences, humanities, and social sciences.

Engineering design is developed and integrated into each student's program and culminates in a required major design experience which draws upon prior course work and which focuses on the issues and expectations of professional practice.

The Electrical and Computer Engineering Program provides a flexible and hands-on experience for its students. Students can explore the breadth of electrical engineering through electives or focus their studies in areas such as energy systems, computer systems, or autonomous systems.

## ELECTRICAL ENGINEERING DEGREE PROGRAM EDUCATIONAL OBJECTIVES

The educational objectives of the Electrical Engineering program are to provide our graduates with disciplinary breadth and depth to fulfill complex professional and societal expectations by:

1. Pursuing careers as practicing engineers or using their program knowledge in a wide range of other professional, educational and service activities;
2. Assuming leadership roles and seeking continuous professional development;
3. Contributing to their profession and society while appreciating the importance of ethical and sustainable solutions for the betterment of society.

## REQUIREMENTS

## THE CURRICULUM FOR THE B.S. IN ELECTRICAL ENGINEERING

All students must meet the Degree and University Requirements.

All students must meet the Catamount Core Curriculum Requirements.

All students must meet the College Requirements.

Note that the University's Sustainability (SU), Quantitative and Data Literacy (QD), Natural Sciences (both N1 and N2), Mathematics (MA), and Writing and Information Literacy Tier 2 (WIL 2) requirements are built into the Electrical Engineering curriculum. A minimum of 129 credits are required.

| Requirement Description | Credits |
|---|---|
| GENERAL EDUCATION REQUIREMENTS (30 Credits) | |
| University WIL: Writing & Information Literacy | 3 |
| University D1: Diversity 1 | 3 |
| University D1/D2: Diversity 1 or Diversity 2 | 3 |
| University AH1/AH2/AH3: Arts & Humanities | 6 |
| University S1: Social Sciences | 6 |
| University GC: Global Citizenship | 3 |
| 2000-Level or Higher Free Electives [1] | 6 |
| MATHEMATICS & STATISTICS REQUIREMENTS (21 Credits) | |
| MATH 1234 Calculus I | 4 |
| MATH 1248 Calculus II | 4 |
| MATH 2248 Calculus III | 4 |
| MATH 2522 Applied Linear Algebra | 3 |
| or MATH 2544 Linear Algebra | |
| MATH 3201 Adv Engineering Mathematics | 3 |
| STAT 2510 Applied Probability | 3 |
| COMPUTING & SCIENCE REQUIREMENTS (14 Credits) | |
| CS 1210 Computer Programming I | 3 |
| CHEM 1400 General Chemistry 1 | 4 |
| PHYS 1500 Physics for Engineers I | 4 |
| PHYS 1550 Physics for Engineers II | 3 |
| ENGINEERING COURSE REQUIREMENTS (51 Credits) | |
| CEMS 1500 CEMS First Year Seminar [2] | 1 |
| CEE 1150 Applied Mechanics | 3 |
| EE 1100 EE Principles and Design [3] | 2 |
| EE 2125 Circuits I | 4 |
| EE 2135 Circuits II | 4 |
| EE 2185 Circuits Design Project [4] | 2 |
| CMPE 2810 Fundamentals of Digital Design | 4 |
| EE 3110 Electronics I | 4 |
| EE 3100 Electromagnetic Field Theory | 4 |
| EE 3150 Signals & Systems | 4 |
| EE 3000 Engineering Ethics/Leadership | 1 |
| EE 3115 Electronics Laboratory | 2 |
| EE 3415 Electronics Design Project | 3 |
| CMPE 3815 Microcontroller Systems | 4 |
| EE 4100 Capstone Design I | 3 |

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|---|---|---|
| EE 4200 | Capstone Design II | 3 |
| EMGT 2041 | Engineering Economics | 3 |
| EE/CMPE 3XXX or higher ECE Electives (12 Credits) [5] | | |
| TOTAL CREDITS | | 128 |
| OPTIONAL/RECOMMENDED COURSES | | |
| PHYS 1510 | Physics Problem Solving I | |
| PHYS 1560 | Physics Problem Solving II | |
| ENGR 1020 | Graphical Communication | |
| CS 2100 | Intermediate Programming | |

[1] 2000-level or Higher Free Electives: Free Electives allow students to further tailor their studies through, e.g., technical, general, and/or professional development electives. Students are encouraged to work with their advisor(s) to select courses that complement their curricula and support their academic and career goals (such as the pursuit of an EE certificate, additional EE courses in their field of interest, a minor in another discipline, or semester abroad).

[2] The First Year Seminar CEMS 1500 is designed for all first-year students in the College. Students entering the College after their first semester should work with their academic advisor to identify an appropriate substitution as approved for their major. The course used to fill CEMS 1500 requirement cannot be used to fulfill another requirement in the major.

[3] EE 1100 is a degree requirement designed for first-year students. Students who enter the ECE program with advanced experience or are internal/external transfer students who join the College during their second year should work with their advisor to identify and appropriate 2000-level substitution as approved for their major. The course used to fulfill the EE 1100 requirement cannot be used to fulfill another requirement in the major.

[4] Satisfies CEMS Professional Development Requirement.

[5] No more than 6 credits of teaching assistantship, independent study, internship, and research.