ELECTRICAL ENGINEERING (SPACE SYSTEMS) - BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Overview
The Bachelor of Science in Electrical Engineering (B.S. EE) program of the Klipsch School is accredited by the Engineering Accreditation Commission of ABET, Inc. This particular concentration in the B.S. EE program gives students the opportunity to explore more deeply the area of space systems.

Electrical Engineering Program Educational Objectives
Below are the program educational objectives (PEOs) that describe the expected accomplishments of graduate during their first few years after graduation.

1. Our graduates will obtain relevant, productive employment in the private sector, government and/or pursue an advanced degree.
2. Our graduates will be using their engineering foundation to innovate solutions to the problems of the real world.

Requirements (121 credits)
Students must complete all University degree requirements, which include: General Education requirements, Viewing a Wider World requirements, and elective credits to total at least 121 credits with 48 credits in courses numbered 300 or above. Developmental coursework will not count towards the degree requirements and/or elective credits, but may be needed in order to take the necessary English and Mathematics coursework.

Prefix | Title | Credits
--- | --- | ---
**General Education**
*Area I: Communications*
- ENGL 1110G Composition I 4
- English Composition - Level 1 3
- Oral Communication 1

*Area II: Mathematics*
- MATH 1511G Calculus and Analytic Geometry I 2
- MATH 1512G Calculus and Analytic Geometry II 4
- MATH 1521G Introduction to Ordinary Differential Equations 3
- MATH 1522G Introduction to Linear Algebra 3

*Area III/IV: Laboratory Sciences and Social/Behavioral Sciences*
- CHEM 1215G General Chemistry I Laboratory for STEM Majors 3
- PHYS 1310G Calculus -Based Physics I 4
- PHYS 1310L Calculus -Based Physics I Lab 4
- PHYS 1311G Calculus -Based Physics II 4
- PHYS 1311L Calculus -Based Physics II Lab 4

*Non-Departmental Requirements (in addition to Gen.Ed/VWW)*

Program Specific Requirements

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<th>Prefix</th>
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| **Mathematics and Natural Science**
- MATH 392 Introduction to Ordinary Differential Equations 3
- PHYS 1320G Calculus -Based Physics II 4
- PHYS 1320L Calculus -Based Physics II Lab 4
- EEE 200 Linear Algebra, Probability and Statistics Applications 4
- EEE 240 Multivariate and Vector Calculus Applications 3

**STEM**
Choose two STEM Electives 4

**Electrical and Computer Engineering**

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<th>Prefix</th>
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<th>Credits</th>
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- ENGR 100G Introduction to Engineering (or choose third STEM Elective) 3
- EEE 100 Introduction to Electrical and Computer Engineering 4
- EEE 112 Embedded Systems 4
- EEE 212 Introduction to Computer Organization 4
- EEE 230 Circuit Analysis and Introduction to Electronics 4
- EEE 300 Cornerstone Design 2
- EEE 317 Semiconductor Devices and Electronics I 4
- EEE 320 Signals and Systems I 3
- EEE 325 Signals and Systems II 4
- EEE 333 AC Circuit Analysis and Introduction to Power Systems 3
- EEE 340 Fields and Waves 4
- EEE 402 Capstone Design I 3

**E EE Concentration Required Courses**

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<th>Prefix</th>
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- MATH 392 Introduction to Ordinary Differential Equations 3
- EEE 120 Introduction to Electrical and Computer Engineering 4
- EEE 212 Introduction to Computer Organization 4
- EEE 230 Circuit Analysis and Introduction to Electronics 4
- EEE 300 Cornerstone Design 2
- EEE 317 Semiconductor Devices and Electronics I 4
- EEE 320 Signals and Systems I 3
- EEE 325 Signals and Systems II 4
- EEE 333 AC Circuit Analysis and Introduction to Power Systems 3
- EEE 340 Fields and Waves 4
- EEE 402 Capstone Design I 3

**E EE Concentration Electives**: Choose two courses from the following (one must be an EEE course): 6-7

- EEE 395 Introduction to Digital Signal Processing
- EEE 454 Antennas and Radiation
- EEE 473 Introduction to Optics
- EEE 487 Fundamentals of Photonics
- EEE 496 Introduction to Communication Systems
- AEE 362 Orbital Mechanics
- ASTR 401 Topics in Modern Astrophysics

Object-Oriented Programming

Select one course from the following: 3-4

- C S 151 C++ Programming
- C S 152 Java Programming
- C S 154 Python Programming II
- C S 172 Computer Science I
**Course** | **Title** | **Credits**
--- | --- | ---
First Year
Fall
E E 100 | Introduction to Electrical and Computer Engineering | 4
ENGR 100G | Introduction to Engineering | 3
ENGL 1110G | Composition I | 4
MATH 1511G | Calculus and Analytic Geometry I | 4
Spring
CHEM 1215G | General Chemistry I Lecture and Laboratory for STEM Majors | 4
E E 112 | Embedded Systems | 4
MATH 1521G | Calculus and Analytic Geometry II | 4
General Education Requirement (Area I, IV, V, VI or VWW) | 3
Credits | 15
Second Year
Fall
E E 212 | Introduction to Computer Organization | 4
E E 200 | Linear Algebra, Probability and Statistics Applications | 4
PHYS 1310G & PHYS 1310L | Calculus-Based Physics I and Calculus-Based Physics I Lab | 4
General Education Requirement (Area I, IV, V, VI or VWW) | 3
Credits | 15
Spring
MATH 392 | Introduction to Ordinary Differential Equations | 3
E E 230 | Circuit Analysis and Introduction to Electronics | 4
E E 240 | Multivariate and Vector Calculus Applications | 3
PHYS 1320G & PHYS 1320L | Calculus-Based Physics II and Calculus-Based Physics II Lab | 4
General Education Requirement (Area I, IV, V, VI or VWW) | 3
Credits | 17
Third Year
Fall
E E 300 | Cornerstone Design | 2
E E 320 | Signals and Systems I | 3
E E 333 | AC Circuit Analysis and Introduction to Power Systems | 3
E E 340 | Fields and Waves | 4
General Education Requirement (Area I, IV, V, VI or VWW) | 3
Credits | 15
Spring
E E 317 | Semiconductor Devices and Electronics I | 4
E E 325 | Signals and Systems II | 4
E E 460 | Space System Mission Design and Analysis | 3
General Education Requirement (Area I, IV, V, VI or VWW) | 3
Credits | 14
Fourth Year
Fall
E E 402 or ENGR 401 | Capstone Design I or Engineering Capstone I | 3
Space Systems Elective | 4
STEM Electives | 5
General Education Requirement (Area I, IV, V, VI or VWW) | 2
General Education Requirement (Area I, IV, V, VI or VWW) | 2
Credits | 18-19
Spring
E E 404 or ENGR 402 | Capstone Design II or Engineering Capstone II | 3
ASTR 402 | Introduction to Astronomical Observations and Techniques | 3
Choose one Object-Oriented Programming course from the following: | 3-4
C S 151 | C++ Programming | 
C S 152 | Java Programming | 
C S 154 | Python Programming II | 
C S 172 | Computer Science I | 
C S 271 | Object Oriented Programming | 
Space Systems Elective | 4
Credits | 12-13
Total Credits | 121-123

1. MATH 1511G Calculus and Analytic Geometry I is required for the degree but students may need to take any prerequisites needed to enter MATH 1511G Calculus and Analytic Geometry I first.
2. See the General Education and Viewing a Wider World section of the catalog for a full list of courses.
Students must take both E E 460 Space System Mission Design and Analysis and ASTR 402 Introduction to Astronomical Observations and Techniques.

One Space Systems Elective Course must be from the E E Prefix.

Space Systems Elective Courses:
- E E 395 Introduction to Digital Signal Processing
- E E 454 Antennas and Radiation
- E E 473 Introduction to Optics
- E E 478 Fundamentals of Photonics
- E E 496 Introduction to Communication Systems
- A E 362 Orbital Mechanics
- ASTR 401 Topics in Modern Astrophysics

STEM Elective: Course at the 300 level or above from E E that is not used to satisfy any other E E program requirement or courses at the 300 level or above from A E, C E, CHME, I E, M E, ASTR, BIOL, CHEM, C S, MATH, PHYS and STAT. Excluded courses include VWW courses and those which are substantially equivalent to an E E course. Click to view a list of excluded STEM Electives.