

# ELECTRICAL ENGINEERING, B.S. (BEHREND)

**Begin Campus:** Any Penn State Campus

**End Campus:** Erie

## Degree Requirements

For the Bachelor of Science degree in Electrical Engineering, a minimum of 130 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	106

**21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3 credits of GWS courses; 3 credits of GS courses.**

Per Senate Policy 83.80.5, the college dean or campus chancellor and program faculty may require up to 24 credits of coursework in the major to be taken at the location or in the college or program where the degree is earned.

### Requirements for the Major

Each student must earn at least a grade of C in each 300- and 400-level course in the major field.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
<b>Prescribed Courses</b>		
CHEM 111	Experimental Chemistry I	1
CMPS 201	Programming for Engineers with C++	3
EDSGN 100S	Introduction to Engineering Design	3
EMCH 211	Statics	3
ENGL 202C	Effective Writing: Technical Writing	3
PHYS 212	General Physics: Electricity and Magnetism	4
PHYS 214	General Physics: Wave Motion and Quantum Physics	2
<i>Prescribed Courses: Require a grade of C or better</i>		
CHEM 110	Chemical Principles I	3
CMPEN 271	Introduction to Digital Systems	3
CMPEN 275	Digital Design Laboratory	1
EE 210	Circuits and Devices	4
EE 310	Electronic Circuit Design I	4
EE 312	Electrical Circuit Analysis	3
EE 313W	Electronic Circuit Design II	4
EE 316	Introduction to Embedded Microcontrollers	3
EE 331	Electromagnetic Fields and Waves	3
EE 352	Signals and Systems: Continuous and Discrete-Time	4

EE 360	Communications Systems I	3
EE 380	Introduction to Linear Control Systems	3
EE 383	Signals and Controls Laboratory	1
EE 387	Energy Conversion	3
EE 400	Engineering Design Concepts	3
EE 401	Electrical Design Projects	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	2
MATH 230	Calculus and Vector Analysis	4
MATH 250	Ordinary Differential Equations	3
PHYS 211	General Physics: Mechanics	4
STAT 301		3

### Additional Courses

ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
Select one of the following:		3
CMPS 122	Intermediate Programming	
ME 201	Introduction to Thermal Science	
ME 300	Engineering Thermodynamics I <sup>1</sup>	
PHYS 237	Introduction to Modern Physics	

### Supporting Courses and Related Areas

Select 9 credits of technical courses from school-approved list <sup>2</sup> 9

<sup>1</sup> ME 300 requires a grade of C or better.

<sup>2</sup> These credits must be selected to fulfill the engineering science and design requirements of the major.

## General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (<https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/>) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

### Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

### Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits

- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

### **Integrative Studies**

- **Inter-Domain Courses (Inter-Domain):** 6 credits

### **Exploration**

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

## **University Degree Requirements**

### **First Year Engagement**

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

### **Cultures Requirement**

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

### **Writing Across the Curriculum**

3 credits required from the college of graduation and likely prescribed as part of major requirements.

### **Total Minimum Credits**

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

### **Quality of Work**

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

### **Limitations on Source and Time for Credit Acquisition**

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.