

ELECTRICAL ENGINEERING TECHNOLOGY, B.S. (ENGINEERING)

Begin Campus: Any Penn State Campus

End Campus: Wilkes-Barre

Program Description

Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.

The Bachelor of Science graduate with a major in Electrical Engineering Technology (EET) is an engineering technologist who can bridge the gap between scientific advancement and practical electrical devices and systems. Research in all fields of electrical engineering has produced an abundance of new knowledge in recent years. Many of these advanced scientific achievements have been unused due to the shortage of engineering technologists specifically educated to convert scientific information into practical devices and systems.

The EET major helps equip students with the various skills necessary to adapt new scientific knowledge to new products. Technical selections are offered in the senior year to provide some degree of specialization, but all graduates receive a well-rounded basic education in electrical and electronic design principles. The strengths of the program include: an applied hands-on program; extensive laboratory experience; promising job placement; and accreditation by the Engineering Technology Accreditation Commission of ABET, www.abet.org (<http://www.abet.org>).

EET graduates who wish to continue their professional development can take the Fundamentals of Engineering examination in Pennsylvania, a prerequisite for taking the Professional Engineering examination.

Students are directed to <https://bulletins.psu.edu/undergraduate/general-education/> for an explanation of the Penn State General Education requirements.

What is Electrical Engineering Technology?

Electrical engineering technology (EET) is an engineering technology field that implements and applies the principles of electrical engineering. Like electrical engineering, EET deals with the design, application, installation, manufacturing, operation or maintenance of electrical/electronic systems. However, EET is a specialized discipline that has more focus on application, theory, and applied design, and implementation, while electrical engineering may have more of a generalized emphasis on theory and conceptual design.

You Might Like This Program If...

- You enjoy problem-solving and math.
- You prefer practical rather than theoretical solutions, and application and implementation over conceptual modeling.
- You enjoy working on multidisciplinary teams on complex problems.
- You want to pursue a career as a technologist in sectors such as manufacturing, product design, testing, or technical services and sales.

Entrance to Major

Entry to the Electrical Engineering Technology major requires a 2.00 or higher cumulative grade-point average.

Re-enrollment

Associate degree students should file a re-enrollment form during the final semester of their associate degree. Students re-enrolling from an associate's degree into the bachelor's degree should run a degree audit from LionPATH, using the EET major code, to determine their curriculum requirements. Similar considerations apply to students changing majors from programs in science or engineering.

Admission Requirements for Transfer Students:

Applicants must have earned a high school diploma or equivalent and have attempted at least 18 semester credits at a regionally accredited college or university with at least a 2.0 cumulative grade-point average (4.0 scale). The evaluation of prior college work is done on an individual basis by the Office of Enrollment Services at Penn State Harrisburg.

Degree Requirements

For the Bachelor of Science degree in Electrical Engineering Technology, a minimum of 128 credits is required:

Requirement	Credits
General Education	45
Electives	5-16
Requirements for the Major	85-96

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

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 (<http://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.)

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

Knowledge Domains

- **Arts (GA):** 6 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 6 credits
- **Social and Behavioral Sciences (GS):** 6 credits
- **Natural Sciences (GN):** 9 credits

Integrative Studies (may also complete a Knowledge Domain requirement)

- **Inter-Domain or Approved Linked Courses:** 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 (<http://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.

Requirements for the Major

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 (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CHEM 110	Chemical Principles I	3
CHEM 111	Experimental Chemistry I	1
EET 419	Project Proposal Preparation	1
ENGL 202C	Effective Writing: Technical Writing	3

MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
<i>Prescribed Courses: Require a grade of C or better</i>		
EET 312	Electric Transients	4
EET 331	Electronic Design	4
EET 420W	Electrical Design Project	3
Additional Courses		
Select 2-3 credits of the following: ¹		2-3
EDSGN 100	Cornerstone Engineering Design	
EGT 101	and Introduction to Computer Aided Drafting & EGT 102	
Select 3 credits of the following:		3
CMPSC 101	Introduction to Programming	
CMPSC 121	Introduction to Programming Techniques	
CMPSC 201	Programming for Engineers with C++	
Select 6-8 credits of the following: ¹		6-8
PHYS 150	Technical Physics I	
& PHYS 151	and Technical Physics II	
PHYS 211	General Physics: Mechanics	
& PHYS 212	and General Physics: Electricity and Magnetism	
Select 3-4 credits of the following:		3-4
MATH 230	Calculus and Vector Analysis	
MATH 250	Ordinary Differential Equations	
MATH 411	Ordinary Differential Equations	
STAT 200	Elementary Statistics	
Select 4 credits of the following: ¹		4
CMPEN 271	Introduction to Digital Systems	
& CMPEN 275	and Digital Design Laboratory	
CMPET 117	Digital Electronics	
& CMPET 120	and Digital Electronics Laboratory	
Select 3-4 credits of the following: ¹		3-4
CMPEH 472	Microprocessors	
CMPET 211	Embedded Processors and DSP	
Select 3-4 credits of the following: ¹		3-4
EE 310	Electronic Circuit Design I	
EET 205	and	
& EET 210		
Select 3-5 credits of the following: ¹		3-5
EE 485	Energy Systems and Conversion	
EET 213W	Fundamentals of Electrical Machines Using Writing Skills	
<i>Additional Courses: Require a grade of C or better</i>		
Select 5-8 credits of the following: ¹		5-8
EE 210	Circuits and Devices	
& EE 314	and Signals and Circuits II	
EE 315	Electrical Signals and Circuits with Lab	
EET 311	Alternating Current Circuits	
& EET 114	and Electrical Circuits II ²	

Requirements for the Option

Select an option 26

¹ Courses required by PSU 2 EET programs.

² EET 114 does not require a grade of C or better.

Requirements for the Option**Computer Engineering Technology Option (26 credits)***Available at the following campuses: Harrisburg, Wilkes-Barre*

Code	Title	Credits
Prescribed Courses		
CMPEN 431	Introduction to Computer Architecture	3
CMPET 401	Data Communication and Networking	3
CMPET 402	Data Communication and Networking Laboratory	1
CMPET 403	Switching Circuit Design	4
Additional Courses		
<i>2nd Programming Elective</i>		
Select 3 credits of the following:		3
CMPSC 122	Intermediate Programming	
CMPSC 402		
<i>Applications Elective</i>		
Select 4 credits of technical electives of the following:		4
CMPET 412	Microcomputers	
EET 456	Automation and Robotics	
<i>CMPET Technical Electives</i>		
Select 8 credits of the following:		8
EE 341	Semiconductor Device Principles	
EE 441	Semiconductor Integrated Circuit Technology	
EE 453	Fundamentals of Digital Signal Processing	
EET 402	High-Frequency Circuit Design	
EET 408	Communication System Design	
EET 413	Optoelectronics	
EET 414	Biomedical Instrumentation	
EET 431	Advanced Electronic Design	
EET 433	Control System Analysis and Design	
EET 478	Digital Communication Systems	
ET 496	Independent Studies	

General Electrical Engineering Technology Option (26 credits)*Available at the following campuses: Harrisburg, Wilkes-Barre*

Code	Title	Credits
Additional Courses		
<i>System Elective</i>		
Select 8 credits of technical electives of the following:		8
EET 408	Communication System Design	
EET 409	Power System Analysis I	
EET 433	Control System Analysis and Design	
<i>Electronics Elective</i>		
Select 4 credits of the following:		4
EET 402	High-Frequency Circuit Design	
EET 431	Advanced Electronic Design	
<i>GEET Technical Electives</i>		
Select 8 credits of GEET technical electives of the following:		8
CMPEN 431	Introduction to Computer Architecture	
CMPET 401	Data Communication and Networking	
CMPET 402	Data Communication and Networking Laboratory	
CMPET 403	Switching Circuit Design	
CMPET 412	Microcomputers	

EE 441	Semiconductor Integrated Circuit Technology	
EE 453	Fundamentals of Digital Signal Processing	
EE 458	Digital Image Processing and Computer Vision	
EET 410	Power System Analysis II	
EET 413	Optoelectronics	
EET 414	Biomedical Instrumentation	
EET 456	Automation and Robotics	
EET 478	Digital Communication Systems	
ET 496	Independent Studies	
Select 6 credits from any previous elective list plus the following:		6
<i>CMPSC 452</i>		
EMCH 211	Statics	
EMCH 212	Dynamics	
ME 201	Introduction to Thermal Science	

Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and-out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

Wilkes-Barre

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Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2020-21 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contain suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

Wilkes-Barre Campus

General Option

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

Fall	Credits Spring	Credits
MATH 22 or higher placement on ALEKS [‡]	3 EET 114	4
MATH 26 or higher placement on ALEKS [‡]	3 EET 118	1
EET 105	3 CMPET 117	3
ENGL 15 [‡]	3 CMPET 120	1
PSU 8	1 MATH 140 [‡]	4
CMPSC 101 [‡]	3 EDSGN 100	3
	PHYS 150 or 250	3-4
	16	19-20

Second Year

Fall	Credits Spring	Credits
EET 212W	4 General Education Course	3
EET 214	3 General Education Course	3
EET 215	1 General Education Course	3
MATH 141 [‡]	4 CMPET 211	3
PHYS 151 or 251	3-4 CAS 100A [‡]	3
	General Education Course (GHW)	3
	15-16	18

Third Year

Fall	Credits Spring	Credits
CHEM 110	3 EET 312 [*]	4
CHEM 111	1 EET 331 [*]	4
EET 311 [*]	4 ENGL 202C [‡]	3
General Education Course	3 General Education Course	3
STAT 200 ¹	4 General Education Course	3
	15	17

Fourth Year

Fall	Credits Spring	Credits
EET 419	1 EET 420W	3
EET 431 ³	4 EET 456 ²	4
EET 414 ²	4 EET 408 ⁴	4
EET 478 ²	4 EET 4XX elective from list	4
EET 433 ⁴	4	
	17	15

Total Credits 132-134

- * Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

- ¹ **Math electives include:**
MATH 230, MATH 250, MATH 408, MATH 411, MATH 444, MATH 446, STAT 200.
- ² **GEET electives include:**
&CMPEH 449, CMPET 401, CMPET 402, CMPET 403, CMPET 412, CMPEN 431, EET 441, EE 453, EET 410, EET 413, EET 414, EET 456, EET 478, ET 496
- ³ **Electronics Elective:**
Select 4 credits from: EET 402, EET 423, EET 431.
- ⁴ **System Elective:**
Select 8 credits of technical electives from: EET 408, EET 409, EET 433.

Career Paths

According to the U.S. Bureau of Labor Statistics, electrical engineering technologists work closely with electrical and electronics engineers and computer hardware engineers in the computer systems design services industry. Opportunities can be found in a variety of firms engaged in electronic manufacturing, industrial control, applications engineering, and in power utilities. EET graduates are encouraged to continue their professional development by taking the Fundamentals of Engineering Examination at the end of their senior year; the FE exam is a prerequisite for taking the Professional Engineering Examination.

Accreditation

This program is accredited by the Engineering Technology Accreditation Commission of ABET, www.abet.org (<http://www.abet.org>).

MORE INFORMATION ABOUT ABET ACCREDITATION (<http://www.abet.org>)

Contact

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