

# ELECTRICAL ENGINEERING TECHNOLOGY, A.ENG.T. (ENGINEERING)

**Begin Campus:** Fayette, York

**End Campus:** Fayette, York

## Program Description

The Electrical Engineering Technology (2EET) major helps prepare graduates for technical positions in the expanding fields of electronics, computers and microprocessors, instrumentation, and electrical equipment. The primary objective is to provide a broad foundation of theoretical and practical knowledge in the areas of electrical and electronic circuits, digital circuits, computers, electrical machinery, and programmable logic controls.

Graduates of the Electrical Engineering Technology major may qualify for admission to the baccalaureate degree majors in Electrical Engineering Technology offered at Penn State Harrisburg, Capital College; the baccalaureate degree major in Electrical and Computer Engineering Technology at Penn State Erie, The Behrend College; or the baccalaureate degree major in Electro-Mechanical Engineering Technology offered at Penn State Altoona, Penn State Berks, Penn State New Kensington or Penn State York. Two baccalaureate tracks are available to streamline the transition to these degree programs. Students interested in pursuing the baccalaureate degree major of Electrical Engineering Technology at Penn State Harrisburg should follow track c. A general track is also provided for students who decide not to continue their engineering technology education at the baccalaureate level.

## What is Electrical Engineering Technology?

Electrical engineering technology focuses on the planning, designing, installing, operating, and maintaining electrical power systems and electronic devices. Electrical engineering technicians assist engineers with the manufacture, installation, operation, design, and repair of a wide range of electronic products.

### You Might Like This Program If...

You are interested in science and technology but prefer spending time applying your skills in a laboratory or field setting as opposed to studying the theory behind these subjects in a classroom setting. If you like to know how things that are controlled by electronics work, from computers to robotics, this may be for you. While theory is covered in this major, there is a greater emphasis on the application of theory with much of what you learn in the classroom being built as lab experiments.

## Entrance to Major

Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

## Degree Requirements

**For the Associate in Engineering Technology degree in Electrical Engineering Technology, a minimum of 65 credits is required:**

Requirement	Credits
General Education	21
Requirements for the Major	56-62

**12-15 of the 21 credits for General Education are included in the Requirements for the Major. This includes: 3 credits of GN courses; 3 credits of GQ courses; 6 credits of GWS courses, 0-3 credits of GH or GS.**

### 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/associate-degree-general-education-program/>) section of the Bulletin and consult your academic adviser.

### Foundations (grade of C or better is required.)

- **Quantification (GQ):** 3 credits
- **Writing and Speaking (GWS):** 3 credits

### Knowledge Domains

- **Arts (GA):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

### Foundations or Knowledge Domains

- **A General Education course selected from GWS, GQ, GN, GA, GH, or GS, and may include Integrative Studies (Inter-domain or Linked) courses:** 3 credits

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.

## University Degree Requirements

### Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

### 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 60 degree credits must be earned for an associates degree. The requirements for some programs may exceed 60 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

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>).

Code	Title	Credits
<b>Prescribed Courses</b>		
CAS 100	Effective Speech	3
CMPET 211	Embedded Processors and DSP	3
EET 212W	Op Amp and Integrated Circuit Electronics	4
EET 214	Electric Machines and Energy Conversion	3
EET 215	Electric Machines and Energy Conversion Laboratory	1
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPET 117	Digital Electronics	3
CMPET 120	Digital Electronics Laboratory	1
EET 114	Electrical Circuits II	4
EET 118	Electrical Circuits Laboratory	1
<b>Additional Courses</b>		
ENGL 15	Rhetoric and Composition	3
	or ENGL 30	
PHYS 150	Technical Physics I	3-4
	or PHYS 211 General Physics: Mechanics	
	or PHYS 250 Introductory Physics I	
Select 5-6 credits of the following:		5-6
MATH 22 & MATH 26	College Algebra II and Analytic Geometry and Plane Trigonometry <sup>1</sup>	
MATH 40	Algebra, Trigonometry, and Analytic Geometry <sup>1</sup>	
MATH 81 & MATH 82	Technical Mathematics I and Technical Mathematics II <sup>1</sup>	
Select at least 22-26 credits from one of the following three tracks: 22-26		
<b>A. General Track <sup>2</sup></b>		
EDSGN 100	Cornerstone Engineering Design	
EET 105	Electrical Systems	
EET 275	Introduction to Programmable Logic Controls	
	or EMET 230 Computerized I/O Systems	
IET 101	Manufacturing Materials, Processes, and Laboratory	
MET 111	Mechanics for Technology: Statics	
PHYS 151	Technical Physics II	
	or PHYS 212 General Physics: Electricity and Magnetism	
	or PHYS 251 Introductory Physics II	
	or CHEM 110 Chemical Principles I & CHEM 111 and Experimental Chemistry I	
STS 200	Critical Issues in Science, Technology, and Society	
	or STS/PHIL 233	
	or STS 245	

Select 3-4 credits in consultation with your adviser from the approved program list

### **B. Baccalaureate Electrical and Computer Engineering Technology (ECET) Track:**

CHEM 110	Chemical Principles I
CHEM 111	Experimental Chemistry I
CMPET 5	Engineering Methods in Engineering Technology
EET 2	Introduction to Engineering Technology
EET 101	Electrical Circuits I
EET 109	Electrical Circuits Laboratory I
EET 275	Introduction to Programmable Logic Controls
EGT 119	Introduction to CAD for Electrical and Computer Engineering
MATH 83	Technical Calculus
	or MATH 140 Calculus With Analytic Geometry I
MATH 210	Calculus with Engineering Technology Applications (or 3 credits of General Education natural science GN)

### **C. Baccalaureate Electro-Mechanical Engineering Technology (EMET) Track <sup>2,3</sup>**

EDSGN 100	Cornerstone Engineering Design
EET 105	Electrical Systems
EET 275	Introduction to Programmable Logic Controls
	or EMET 230 Computerized I/O Systems
IET 101	Manufacturing Materials, Processes, and Laboratory
MET 111	Mechanics for Technology: Statics
MATH 83	Technical Calculus
	or MATH 140 Calculus With Analytic Geometry I
PHYS 151	Technical Physics II
	or PHYS 212 General Physics: Electricity and Magnetism
	or PHYS 251 Introductory Physics II
	or CHEM 110 Chemical Principles I & CHEM 111 and Experimental Chemistry I
STS 200	Critical Issues in Science, Technology, and Society
	or STS/PHIL 233
	or STS 245

<sup>1</sup> A student planning to re-enroll into the baccalaureate degree major of Electro-Mechanical Engineering Technology (EMET), after graduation from the 2 EET program, must receive a grade of C or better in order to meet requirements of the EMET degree.

<sup>2</sup> This includes 3 credits of General Education courses: 3 credits of GH or GS.

<sup>3</sup> A student planning to re-enroll into the baccalaureate degree major of Electrical Engineering Technology at Penn State Harrisburg, after graduation from the 2EET program, should follow Track C. They should select MATH 140 instead of MATH 83.

## Program Educational Objectives

The Associate Electrical Engineering Technology program is designed to provide a curriculum that prepares students to pursue a career in the industry and to develop in their profession. Due to their experience in the

Associate Electrical Engineering Technology program, within few years of graduation, we expect our graduates to have the ability to:

1. Apply analytical and empirical skills in the operation, testing, or maintenance of electrical systems.
2. Collaborate effectively in project team activities through recognizing the global, societal, and ethical contexts of their work.
3. Communicate effectively through preparation and delivery of technical and non-technical documentation and communications.

## Student Outcomes

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Associate Electrical Engineering Technology program is designed to enable students to:

1. Apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline.
2. Design solutions for well-defined technical problems and assist with engineering design of systems, components, or processes appropriate to the discipline.
3. Apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. Conduct standard tests, measurements, and experiments and to analyze and interpret the results.
5. Function effectively as a member of a technical team.

## 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/>)

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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*).

### Electrical Engineering Technology - General Track at Fayette Campus

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 26 (GQ) <sup>††</sup>	3 EET 114 <sup>*</sup>	4
ENGL 15 (GWS) <sup>††</sup>	3 EET 118 <sup>*</sup>	1
EET 105	3 CMPET 117 <sup>*</sup>	3
IET 101	3 CMPET 120	1
EDSGN 100	3 MET 111	3
PSU 8	1 MATH 22 (GQ) <sup>††</sup>	3
	CAS 100 (GWS) <sup>††</sup>	3
	16	18

#### Second Year

Fall	Credits Spring	Credits
EET 214	3 EET 212W	4
EET 215	1 EET 275	3
CMPET 211	3 PHYS 251	4
PHYS 250 <sup>†</sup>	4 STS 245	3
General Education Course	3 Technical Elective or General Education Course	3-4
General Education Course or Technical Elective	3-4	
	17-18	17-18

Total Credits 68-70

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

**Advising Notes:**

- Technical Elective choose from: MATH 140, BISC 3, CHEM 110.
- Students need one of each: GA, GH, GS, Technical Elective. Students also need an IL-designated course.
- STS 245 will satisfy the GS requirement and is also designated IL.
- Students can also take STS 200 (GS) or STS 233 (GH) as a substitution for STS 245, but in either case they will need to re-adjust other general education courses to make sure they satisfy all general education requirements. Students should consult with an adviser in this situation.
- Suggested Technical Electives: MATH 140 (typically offered spring and fall), BISC 3 (typically offered spring and fall), CHEM 110 (spring and fall).
- Students should consult their adviser for other possible technical electives.

**Electrical Engineering Technology at York Campus**

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
EDSGN 100	3 CMPET 117*	3
IET 101	3 CMPET 120*	1
EET 105	3 MET 111	3
MATH 26 (GQ) <sup>†‡</sup>	3 PHYS 150 or 250 (GN)	3-4
ENGL 15, 30, or ESL 15 (GWS) <sup>†‡</sup>	3 MATH 22 <sup>†‡</sup>	3
	CAS 100 (GWS) <sup>†‡</sup>	3
	15	16-17

**Second Year**

Fall	Credits Spring	Credits
EET 114*	4 CMPET 211	3
EET 118*	1 EET 214	3
EET 212W*	4 EET 215	1
EET 275 or EMET 230	3 Technical Elective	3
PHYS 151 or 251 ( or CHEM 110 and CHEM 111 (GN))	3-4 Arts (GA)	3

STS 233 (GH)	3 Social and Behavioral Sciences (GS)	3
	18-19	16

Total Credits 65-67

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

**College Notes:**

- **Scheduling patterns for courses not taught each semester** : Some major/option courses are offered only Fall or Spring semester, as listed on guide.
- The courses in this major are sequential. If taken out of sequence, scheduling conflicts may arise.

**Program Notes:**

- Track Selections - see audit.

**Academic Advising Notes**

- Academic planning guides should always be used in conjunction with a degree audit and consultation with an adviser.

US, IL, and US;IL are codes used to designate courses that satisfy University United States/International Cultures requirements. All students are required to take one IL or one US course before graduation. A course designated as US;IL may be used as a US or an IL, not both.

**Career Paths**

For students that do not continue on for a Bachelor of Engineering Technology Degree, there are various opportunities in the field for Electrical Engineering Technology. In many industrial settings, an Engineer works on the design of an electronic device, such as an electronic sensor, or system, such as a robotic arm, and the technician helps to build and test it. The technician might also be responsible for building test equipment to test the device or system once it is manufactured. In addition, the Electronic Technician might also be involved in servicing equipment in the field or be involved in sales.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELECTRICAL ENGINEERING TECHNOLOGY PROGRAM (<http://career.engr.psu.edu/>)

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<http://www.engr.psu.edu/students/grad-prospective/default.aspx>)

## Accreditation

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

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

## Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://psu.edu/state-licensure-disclosures/>) interactive map.

## Contact

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