ELECTRICAL AND COMPUTER ENGINEERING TECHNOLOGY, B.S.

Begin Campus: Any Penn State Campus

End Campus: Erie

Program Description

This major prepares graduates for careers in such varied areas as electronics, microprocessors, computer hardware and software, communications, instrumentation and control, and power. The major consists of two options, one in Electrical Engineering Technology, the other in Computer Engineering Technology. Both options provide education in applied mathematics, physics, electrical and electronic circuit analysis and design, microprocessors, instrumentation and quality control. The Electrical Engineering Technology option provides specialty education in control theory, communication systems, and power systems. The Computer Engineering Technology option provides specialty education in software development, embedded computer systems, and networking. Both options in the major culminate with a capstone design project involving an actual design or manufacturing problem, often sponsored by industry. Graduates may qualify as engineering technologists working side-by-side with engineers, scientists, and other skilled workers in these capacities. Occupations include electrical and electronic systems design, microprocessor applications, instrumentation and control, computer programming, electrical testing, plant engineering, quality control, management, and technical sales and service.

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

What is Electrical and Computer Engineering Technology?

The study of electrical and computer engineering technology (ECET) offers a strong education in electrical and electronic systems design, computer programming, microprocessor applications, automation, programmable logic controllers, instrumentation and control, and electrical testing. ECET is different from traditional theory-based electrical engineering degree programs, and also unlike skills-based programs that are focused on repair and maintenance. The applied nature of ECET offers not only working knowledge of the foundational theories of engineering, but also the hands-on laboratory focus that enables students to analyze, design, and implement the many uses of electrical and computer systems. The degree program is industry focused and emphasizes solving real-world problems in the workplace.

You Might Like This Program If...

- You're fascinated by what's inside electrical and computer systems.
- You're interested in knowing how electrical and computer systems work, how to design new systems, and how to test existing systems.
- You're looking for a hands-on applied engineering discipline.
- You're interested in both engineering and computing—and in the application of these two disciplines in solving real-world problems.

Entrance to Major

To be eligible for entrance to the Electrical and Computer Engineering Technology major, a student must have:

1. attained at least a 2.00 cumulative grade-point average;
2. completed MATH 81 or MATH 26, and MATH 82 or MATH 22, and MATH 83 or MATH 140, and PHYS 250, and earned a grade of C or better in each of these courses.

Degree Requirements

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

Requirement	Credits
General Education	45
Requirements for the Major	107

24 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; 6 credits of GWS courses; and 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/students/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/).

Common Requirements for the Major (All Options)

Code	Title	Credits
Prescribed Courses		
CAS 100	Effective Speech	3
CMPET 5	Engineering Methods in Engineering Technology	1
CMPET 120	Digital Electronics Laboratory	1
CMPET 211	Embedded Processors and DSP	3
EET 101	Electrical Circuits I	3
EET 109	Electrical Circuits Laboratory I	1
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
EET 280	System Integration Project	1
ENGL 202C	Effective Writing: Technical Writing	3
MATH 210	Calculus with Engineering Technology Applications	3
MATH 211	Intermediate Calculus and Differential Equations with Applications	3
Prescribed Courses: Require a grade of C or better		
CMPET 117	Digital Electronics	3

CMPET 301	Algorithmic Processes for Electrical Systems	3
CMPET 355	Intermediate Microprocessors and Microcomputers	3
EET 114	Electrical Circuits II	4
EET 118	Electrical Circuits Laboratory	1
EET 315	Linear and Discrete System Analysis	3
EET 341	Measurements and Instrumentation	3
EET 480	Electrical and Computer Systems Senior Seminar	1
EET 490W	Electrical/Computer Senior Design Project	3
MGMT 409	Project Management for Engineers	3
Additional Courses		
ECON 102	Introductory Microeconomic Analysis and Policy	3
or ECON 104	Introductory Macroeconomic Analysis and Policy	
EET 2	Introduction to Engineering Technology	1
or ET 2		
EGT 101 & EGT 102	and Introduction to Computer Aided Drafting	2
or EGT 119	Introduction to CAD for Electrical and Computer Engineering	
Select one of the following sequences:		10
Sequence A		
CHEM 110	Chemical Principles I	
CHEM 111	Experimental Chemistry I	
PHYS 250	Introductory Physics I (requires a grade of C or better)	
2 credits of science		
Sequence B		
PHYS 150	Technical Physics I (requires a grade of C or better)	
PHYS 151	Technical Physics II (requires a grade of C or better)	
4 credits of science		
Select 3 credits of the following:		3
EET 275	Introduction to Programmable Logic Controls	
EET 220 and 1 credit in 200 level or higher of technical electives from school-approved list		
Additional Courses: Require a grade of C or better		
EET 450		3
or QC 450	Quality Control and Quality Improvement	
MATH 22	College Algebra With Analytic Geometry and Applications II	3
or MATH 82	Technical Mathematics II	
MATH 26	Plane Trigonometry and Applications of Trigonometry	3
or MATH 81	Technical Mathematics I	
MATH 83	Technical Calculus	4
or MATH 140	Calculus With Analytic Geometry I	
Requirements for the Option		
Requirements for the Option: Require a grade of C or better		
Select an option		18

Requirements for the Option

Electrical Engineering Technology Option (18 credits)

Code	Title	Credits
Prescribed Courses		
Prescribed Courses: Require a grade of C or better		
EET 330	Wireless Communications Systems	3
EET 416	Fluid and Thermal Design in Electrical Systems	3
EET 440	Applied Feedback Controls	3
Supporting Courses and Related Areas		
Supporting Courses and Related Areas: Require a grade of C or better		
Select 9 credits of technical electives at the 300 or 400 level from school-approved list (students may apply 6 credits of ROTC)		9

Computer Engineering Technology Option (18 credits)

Code	Title	Credits
Prescribed Courses		
Prescribed Courses: Require a grade of C or better		
CMPET 333	Computer Networking	3
CMPET 456	Advanced Microprocessors, High Level Interfacing	3
CMPET 457	Software Engineering	3
Supporting Courses and Related Areas		
Supporting Courses and Related Areas: Require a grade of C or better		
Select 9 credits of technical electives at the 300 or 400 level from school-approved list (students may apply 6 credits of ROTC)		9

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/students/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/)). For more information, check the Suggested Academic Plan for your intended program.

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 (https://senate.psu.edu/students/policies-and-rules-for-undergraduate-students/32-00-advising-policy/)

Erie

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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 2025-26 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.

Computer Engineering Technology Option (CMPET): Electrical and Computer Engineering Technology, B.S. at Erie 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
EET 2[†1]	1	CMPET 5	1
EET 101	3	CMPET 117[*]	3
EET 109	1	CMPET 120	1
ENGL 15 or 30H[‡†]	3	EET 114[*]	4
MATH 22[*‡#†]	3	EET 118[*]	1
General Education Course	3	MATH 41[*‡#†]	4
General Education Course (GHW)	1.5	General Education Course	3
	15.5		**17**

Second Year

Fall	Credits	Spring	Credits
CAS 100[‡†]	3	CHEM 110[†]	3
CMPET 211	3	CHEM 111[†]	1
EET 212W[2]	4	EET 275	3
EET 214	3	EET 280	1
EET 215	1	EGT 119	2
MATH 83[*#†]	4	MATH 210	3
		PHYS 250[*#†]	4
	18		**17**

Third Year

Fall	Credits	Spring	Credits
CMPET 301*	3	CMPET 333*	3
EET 341*	3	CMPET 355*	3
ENGL 202C‡†	3	ECON 102 or 104†	3
MATH 211	3	EET 315*	3
General Education Course	3	General Education Course	3
		General Education Course (GHW)	1.5
	15		**16.5**

Fourth Year

Fall	Credits	Spring	Credits
CMPET 456*	3	EET 490W*2	3
CMPET 457*	3	QC 450*	3
EET 480*	1	Technical Elective (300, 400-level)*	3
MGMT 409*	3	General Education Course	3
Technical Elective (300, 400-level)*	3	General Education Course (GN)	2
Technical Elective (300, 400-level)*	3		
	16		**14**

Total Credits 129

* 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

1 Course will satisfy First-Year Seminar requirement.
2 Course will satisfy Writing Across the Curriculum requirement.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity 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.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

Program Notes:

- Only students who have gone through the entrance to major process and have been accepted into this major may register for junior and senior-level EET and CMPET courses.
- Permissible Math substitutions: MATH 26 instead of MATH 81, MATH 22 instead of MATH 82, MATH 140 instead of MATH 83.

Advising Notes:

If ENGL 15 is full, schedule an S/H/A, 2nd semester ENGL15, 3rd semester CAS 100, and 4th semester PHYS 250.

School-Approved Electives for Electrical and Computer Engineering Technology

Electrical Engineering Technology Options:

- CMPET 333 (3:2:2) – Computer Networking
- CMPET 456 (3:2:2) – Advance Microprocessors, High Level Interfacing
- CMPET 457 (3:2:2) – Software Engineering

Computer Engineering Technology Options:

- EET 330 (3:2:2) – Wireless Communication Systems
- EET 416 (3:2:2) – Fluid and Thermal Design in Electrical Systems
- EET 440 (3:2:2) – Applied Feedback Controls

Electrical or Computer Engineering Technology Options:

- EET 395* (1-3) – Internship
- EET 397* (1-3) – Special Topics
- EET 461 (3:2:2) – Power Electronics
- EET 475 (3:2:2) – Intermediate Programmable Logic Controllers
- EET 495* (1-3) – Internship
- EET 496* (1-3) – Independent Studies
- EET 497* (1-3) – Special Topics

*Requires prior approval from the Electrical and Computer Engineering Technology Department Chair
Upon approval by the department chair, students may be allowed to select technical elective courses from other disciplines.

Electrical Engineering Technology Option (EET): Electrical and Computer Engineering Technology, B.S. at Erie Campus

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First Year

Fall	Credits	Spring	Credits
EET 2[†1]	1	CMPET 5	1
EET 101	3	CMPET 117*	3
EET 109	1	CMPET 120	1
ENGL 15 or 30H[‡†]	3	EET 114*	4
MATH 22	3	EET 118*	1
General Education Course	3	MATH 41	4
General Education Course (GHW)	1.5	General Education Course	3
	15.5		**17**

Second Year

Fall	Credits	Spring	Credits
CAS 100[‡†]	3	CHEM 110[†]	3
CMPET 211	3	CHEM 111[†]	1
EET 212W[2]	4	EET 275	3
EET 214	3	EET 280	1
EET 215	1	EGT 119	2
MATH 83[*#†]	4	MATH 210	3
		PHYS 250[*#†]	4
	18		**17**

Third Year

Fall	Credits	Spring	Credits
CMPET 301*	3	CMPET 355*	3
EET 341*	3	EET 315*	3
ENGL 202C[‡†]	3	EET 330*	3
MATH 211	3	ECON 102 or 104[†]	3
General Education Course	3	General Education Course	3
		General Education Course (GHW)	1.5
	15		**16.5**

Fourth Year

Fall	Credits	Spring	Credits
EET 416*	3	EET 490W[*2]	3
EET 440*	3	QC 450*	3
EET 480*	1	Technical Elective (300, 400-level)*	3
MGMT 409*	3	General Education Course	3
Technical Elective (300, 400-level)*	3	General Education Course (GN)	2
Technical Elective (300, 400-level)*	3		
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Total Credits 129

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- Permissible Math substitutions: MATH 26 instead of MATH 81, MATH 22 instead of MATH 82, MATH 140 instead of MATH 83.

Advising Notes:
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School-Approved Electives for Electrical and Computer Engineering Technology

Electrical Engineering Technology Options:

- CMPET 333 (3:2:2) – Computer Networking
- CMPET 456 (3:2:2) – Advance Microprocessors, High Level Interfacing
- CMPET 457 (3:2:2) – Software Engineering

Computer Engineering Technology Options:

- EET 330 (3:2:2) – Wireless Communication Systems
- EET 416 (3:2:2) – Fluid and Thermal Design in Electrical Systems
- EET 440 (3:2:2) – Applied Feedback Controls

Electrical or Computer Engineering Technology Options:

- EET 395* (1-3) – Internship
- EET 397* (1-3) – Special Topics
- EET 461 (3:2:2) – Power Electronics

- EET 475 (3:2:2) – Intermediate Programmable Logic Controllers
- EET 495* (1-3) – Internship
- EET 496* (1-3) – Independent Studies
- EET 497* (1-3) – Special Topics

*Requires prior approval from the Electrical and Computer Engineering Technology Department Chair

Upon approval by the department chair, students may be allowed to select technical elective courses from other disciplines.

Career Paths

Within the B.S. in Electrical and Computer Engineering Technology there are two options for emphasis study: Electrical Engineering Technology and Computer Engineering Technology. You'll chose the option that best fits your career aspirations. Penn State Behrend has a comprehensive support system to help you identify and achieve your goals for college and beyond. Meet with your academic adviser often and take advantage of the services offered by the Academic and Career Planning Center beginning in your first semester.

Careers

Because of the breadth of experience with both electrical and computer systems, graduates can begin their careers in such areas as electrical and electronic systems design, embedded systems and microcontroller/software applications, automation and process control, field service and application engineering, system integration and testing, quality control, and technical sales and service. Employers of recent Behrend B.S. in Electrical and Computer Engineering Technology graduates include Rovisys, Process and Data Automation, SKF Aeroengine, GE, Northrop Grumman, Lockheed Martin, Eriez Magnetics, First Energy, FMC Technologies, Lutron, and Westinghouse.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE ELECTRICAL AND COMPUTER ENGINEERING TECHNOLOGY PROGRAM (https://behrend.psu.edu/school-of-engineering/academic-programs/electrical-computer-engineering-technology/)

Opportunities for Graduate Studies

Master's degree programs in engineering or engineering technology are an option for graduates of the B.S. in Electrical and Computer Engineering Technology. Advanced degree programs delve more deeply into areas of specialization such as embedded systems, automation and process control, software development, networking, and power systems. Or, you can use a master's degree to learn management skills; Penn State Behrend offers a Master of Manufacturing Management (M.M.M) degree program for aspiring organizational leaders.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (https://behrend.psu.edu/school-of-engineering/academic-programs/master-of-manufacturing-management/)

Professional Resources

- ABET (https://www.abet.org/)
- Institution of Electrical and Electronics Engineers (https://www.ieee.org)
- IEEE Computer Society (https://www.computer.org/)
- Association for Computing Machinery (https://www.acm.org/)
- Institution of Engineering and Technology (https://www.theiet.org/)

- Society of Women Engineers (https://swe.org)
- National Society of Black Engineers (https://nsbe.org)

Accreditation

The Bachelor of Science in Electrical and Computer Engineering Technology at Penn State Behrend is accredited by the Engineering Technology Accreditation Commission of ABET, https://www.abet.org, under the commission's General Criteria and Program Criteria for Computer Engineering Technology and Similarly Named Programs and Program Criteria for Electrical/Electronic(s) Engineering Technology and Similarly Named Programs.

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://opair.psu.edu/plc/dashboard/) interactive map.

Contact

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