

COMPUTER ENGINEERING, B.S. (BEHREND)

Begin Campus: Any Penn State Campus

End Campus: Erie

Degree Requirements

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

Requirement	Credits
General Education	45
Electives	1
Requirements for the Major	105

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/students/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/>).

Code	Title	Credits
Prescribed Courses		
CMPSC 121	Introduction to Programming Techniques	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
CHEM 111	Experimental Chemistry I	1
CMPEN 271	Introduction to Digital Systems	3
CMPEN 275	Digital Design Laboratory	1
CMPEN 351	Microprocessors	3
CMPEN 352W	Embedded Systems Design	3
CMPEN 371	Advanced Digital Design	3
CMPEN 411	VLSI Digital Circuits	3
CMPEN 431	Introduction to Computer Architecture	3
CMPEN 441	Operating Systems	3
CMPEN 461	Communication Networks	3
CMPEN 480	Computer Engineering Design	3
CMPEN 481	Computer Engineering Project	3

CMPSC 122	Intermediate Programming	3
CMPSC 360	Discrete Mathematics for Computer Science	3
CMPSC 465	Data Structures and Algorithms	3
EE 210	Circuits and Devices	4
EE 310	Electronic Circuit Design I	4
EE 352	Signals and Systems: Continuous and Discrete-Time	4
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 220	Matrices	3
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	

Supporting Courses and Related Areas

Select 9 credits of technical elective courses from school-approved list	9
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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.