COMPUTER ENGINEERING, MINOR (ENGINEERING)

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description

The Computer Engineering Minor provides students with the fundamental topics of computer hardware design, including digital logic design, computer organization, computer communication networks and computer architecture. Complimenting these core topics are elective courses in areas including embedded systems, digital integrated circuits, field programmable devices, and functional verification. This minor complements disciplines related to computing and that make use of specialized computing hardware. Students in majors related to computer engineering will already have the mathematics and physics background to pursue this major without taking additional foundational courses.

What is Computer Engineering?

Computer engineering is the study of the design, analysis, and implementation of computer systems including processors, memory, embedded devices, and data communication systems for a wide range of application domains. It includes the study of digital systems, computer architecture, and computer networks. It encompasses many design activities spanning from designing individual logic components to designing complete computer systems composed of hardware, software, and hardware-software co-design. Computer engineering drives the development of new computing systems that enable the latest technologies impacting our everyday lives.

You Might Like This Program If...

- You excel in math and physics and have an interest in working with computer hardware.
- You want to understand how current computer hardware and software work together.
- You want to work with computing systems that impact and improve everyday lives.

Program Requirements

Requirement	Credits
Requirements for the Minor	19

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
Prescribed Courses: Require a grade of C or better		
CMPEN 331	Computer Organization And Design	3
CMPEN 431	Introduction to Computer Architecture	3
CMPEN/EE 362	Communication Networks	3
Additional Courses		
Additional Courses: Require a grade of C or better		

CMPEN 270
  or CMPEN 271
  & CMPEN 275
	Digital Design: Theory and Practice
	Introduction to Digital Systems
	and Digital Design Laboratory
		4

Supporting Courses and Related Areas		
Supporting Courses and Related Areas: Require a grade of C or better		
Select 6 credits of additional 400-level CMPEN courses, excluding independent studies and honors thesis credits.		6

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/policies-and-rules-for-undergraduate-students/32-00-advising-policy/)

University Park

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Career Paths

The Computer Engineering minor provides graduates with the foundations of computer hardware design, including topics such as FPGA, embedded systems, digital integrated circuits, computer vision systems, which complements their studies, whether in software, electronics, or another discipline. This minor prepares them for a wide range of opportunities in which computers and related hardware systems play an important role.

Careers

Graduates with a minor in computer engineering can find positions where they will apply their knowledge of hardware systems and skills with technology companies and with companies in a broader range of fields such as aerospace, communication, entertainment, finance, healthcare, transportation, and defense. Most graduates will find themselves a part of a team to design and build complex systems with many integrated parts. With the rapid changes and advances in the field of computing, graduates must continually keep up with the latest technology as their careers adapt and evolve to meet the new opportunities and challenges of computing.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES WITH A MINOR IN COMPUTER ENGINEERING (https://career.engr.psu.edu/)

Opportunities for Graduate Studies

Graduates of this minor can pursue graduate studies in computer engineering, and related disciplines, concentrating in specialized areas such as multicore architectures, low-power architectures, application-specific hardware architectures, and computer networking. They research, study, and develop the new technologies that apply the advances in computing to impact our everyday lives. A master's degree allows one to specialize beyond the broad foundations offered an undergraduate degree. A doctoral degree prepares one for a career in research and academia.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (https://www.eecs.psu.edu/students/graduate/EECS-Graduate-Prospective.aspx)

Contact
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