

# INFORMATION SCIENCES AND TECHNOLOGY FOR AEROSPACE ENGINEERING, MINOR

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 role of Information Sciences and Technology in the practice of Aerospace Engineering is very important. Aerospace systems rely heavily on computers, software, and digital information; for control, sensors, and other onboard systems. The Boeing 777 has more than 1000 processors and roughly 20 million lines of software onboard, and F-16 and F-117As cannot fly without their onboard computers. In addition, many future aerospace vehicles will be unmanned, and the software challenges will be even greater. The onboard memory has also increased exponentially, the F-106 had 20 KBytes of memory and the new Joint Strike Fighter might have 2 GBytes of memory. The hardware and software must be carefully designed and thoroughly tested, since most aerospace systems are mission- or safety-critical systems. Computers and software are heavily used in the design, development, and manufacturing of aerospace systems. Large supercomputers are often used in the design process. The IST minor will enrich their educational achievements and increase their chances in obtaining employment or entering graduate school. The NSF and the DOD are encouraging universities to enhance their educational programs so that we have well-qualified engineers for future systems, and our IPAC members have stressed the importance of IT for our students.

## What is Information Sciences and Technology for Aerospace Engineering?

The role of software in the practice of aerospace engineering is critical and continues to grow rapidly. The effective design, development, and manufacturing of aerospace systems rely heavily on computers, software, and digital information. Some aircraft cannot fly without their onboard computers, and many future aerospace vehicles will be unmanned, resulting in even greater software challenges. Providing undergraduate aerospace engineering students the opportunity to learn more about information sciences and technology by earning a minor in Information Sciences and Technology will not only enrich their educational achievements, but it will also make them more valuable to potential employers, and help them succeed in professional employment or graduate school. They will better appreciate the entire aerospace system better, and will be better equipped to work side-by-side with experts in the computing and software fields.

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

- You are interested in learning more about the role of software in the practice of aerospace engineering.
- You want to better appreciate the entire aerospace system, and be better equipped to work side-by-side with experts in the computing and software fields.

## Entrance to Minor

Student must apply for entrance to the minor no later than their 7th semester.

## Program Requirements

Requirement	Credits
Requirements for the Minor	18

### 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/students/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/>). 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
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better</i>		
CMPSC 201	Programming for Engineers with C++	3
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
<b>Additional Courses</b>		
<i>Additional Courses: Require a grade of C or better</i>		
Select 6 credits of the following:		6
AERSP 423	Introduction to Numerical Methods in Fluid Dynamics	
AERSP 424	Advanced Computer Programming	
AERSP 440	Introduction to Software Engineering for Aerospace Engineers	
AERSP 460	Aerospace Control Systems	

## 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/>)

### University Park

#### Amy R. Pritchett

Professor and Head of Aerospace Engineering  
222A Hammond Building  
University Park, PA 16802  
814-865-3648

arp78@psu.edu

## **Contact**

### **University Park**

DEPARTMENT OF AEROSPACE ENGINEERING

229 Hammond Building

University Park, PA 16802

814-865-2569

aerospace@enr.psu.edu

<https://www.aero.psu.edu>