

HUMAN-CENTERED DESIGN AND DEVELOPMENT, B.S. (INFORMATION SCIENCES AND TECHNOLOGY)

Begin Campus: Abington, Altoona, Berks, Beaver, Brandywine, DuBois, Erie, Fayette, Greater Allegheny, Harrisburg, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, University Park, Wilkes-Barre, Scranton, York

End Campus: University Park

Degree Requirements

For the Bachelor of Science degree in Information Sciences and Technology, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	6-12
Requirements for the Major	78-84

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 3 credits of GS courses, 6 credits of GWS courses.

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 (<https://senate.psu.edu/students/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/>).

Code	Title	Credits
Prescribed Courses		
IST 495	Internship	1
<i>Prescribed Courses: Require a grade of C or better</i>		
HCDD 264	Design Practice in Human-Centered Design and Development	3
HCDD 311	Object-Oriented Design and Software Applications	3
HCDD 340	Human-Centered Design for Mobile Computing	3
HCDD 364W	Methods for Studying Users	3
HCDD 411	Distributed-Object Computing	3
HCDD 412	The Engineering of Complex Software Systems	3
HCDD 440	Human-Centered Design and Development Capstone Course	3
IST 210	Organization of Data	3
IST 220	Networking and Telecommunications	3
IST 230	Language, Logic, and Discrete Mathematics	3
IST 256	Programming for the Web	3
IST 402	Emerging Issues and Technologies	3
STAT 200	Elementary Statistics	4
Additional Courses		
ENGL 15 or ENGL 30H	Rhetoric and Composition Honors Rhetoric and Composition	3

ENGL 202C or ENGL 202D	Effective Writing: Technical Writing Effective Writing: Business Writing	3
PSYCH 100 or SOC 3	Introductory Psychology Introductory Social Psychology	3
Select 12 credits from the Application Focus course listings. These are listings maintained by the department as support of major courses. At least one course must be at the 400 level. Students may also complete a custom Application Focus course sequence with approval from an academic adviser and an HCDD teaching faculty member. Students may want to consider choosing courses that also fulfill US and/or IL requirements.		12
<i>Additional Courses: Require a grade of C or better</i>		
HCDD 113S or HCDD 113	Foundations of Human-Centered Design and Development FYS Foundations of Human-Centered Design and Development	3
IST 261 or HCDD 361	Application Development Design Studio I Application Development Design Studio II	3
MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
Select one of the following:		3-6
IST 140	Introduction to Application Development	
CMPS 121	Introduction to Programming Techniques	
CMPS 131	Programming and Computation I: Fundamentals	
CMPS 101 & IST 240	Introduction to Programming and Introduction to Computer Languages	
Select one of the following:		3-6
IST 242	Intermediate & Object-Oriented Application Development	
CMPS 221 & CMPS 122	Object Oriented Programming with Web-Based Applications and Intermediate Programming	
CMPS 132 & CMPS 221	Programming and Computation II: Data Structures and Object Oriented Programming with Web-Based Applications	

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.