INFORMATION SCIENCES AND TECHNOLOGY, A.S. (INFORMATION SCIENCES AND TECHNOLOGY)

Begin Campus: World Campus
End Campus: World Campus

Program Description
This associate degree major is structured to prepare graduates for immediate and continuing employment opportunities in the broad disciplines of information science and technology. This includes positions such as application programmers, associate systems designers, network managers, web designers and administrators, or information systems support specialists. Specifically, the major is designed to ensure a thorough knowledge of information systems and includes extensive practice using contemporary technologies in the creation, organization, storage, analysis, evaluation, communication, and transmission of information. The major fosters communications, interpersonal, and group interaction skills through appropriate collaborative and active learning projects and experiences. Technical material covers the structure of database systems, web and multimedia systems, and considerations in the design of information systems. Team projects in most courses, a required internship, and a second-year capstone experience provide additional, focused venues for involving students in the cutting-edge issues and technologies in the field.

The Associate of Science in IST degree will be offered at multiple campuses within the Penn State system of colleges and campuses. Note that not all options will be available at all locations.

Application Development Option
Available at the following campuses: Berks, Greater Allegheny, Hazleton, Mont Alto, Scranton, World Campus, York

The Application Development option prepares students for entry-level positions in applications development and/or web development. It also prepares students for IST related baccalaureate degrees such as HCDD, IT, ETI, and CYBER. Students take courses such as web development and advanced java programming as well as usability.

Custom Option
Available at the following campuses: Berks, DuBois, Greater Allegheny, Hazleton, Mont Alto, Scranton, Wilkes-Barre, World Campus, York

The Custom option enables students to work closely with an adviser to develop a plan of study that meets the dual objectives of allowing a flexible academic program and a specific theme related to technology. Some examples of themes are web development, psychology, and usability.

Cybersecurity Option
Available at the following campuses: Berks, Greater Allegheny, Mont Alto, World Campus, York

The Cybersecurity option prepares students for an entry level position in the cyber security field. It also prepares students for IST related baccalaureate degrees such as Cybersecurity Analytics and Operations and SRA. Students take introductory courses in CYBER and SRA as well as advanced hand-on courses in these areas.

Generalized Business Option
Available at the following campuses: Berks, DuBois, Greater Allegheny, Mont Alto, Scranton, World Campus, York

The Generalized Business option enables students to specialize in the general business areas of accounting, marketing, and management, and is closely aligned with the requirements of the ETI major.

Networking Option
Available at the following campuses: DuBois, Mont Alto, World Campus

The Networking option prepares graduates for positions as entry-level computer network administrators. Students take courses in personal computer hardware, networking essentials, and network administration.

What is Information Sciences and Technology?
Information Sciences and Technology is a discipline that explores how we can strengthen the power of information and technology, and use it to increase human potential. This includes focusing on creating innovative systems and technological solutions that benefit businesses, organizations, and individuals, and understanding the role of technology in how we live our lives.

Entrance to Major
Students must have a minimum 2.0 GPA to change to this Associate degree after admission to the University.

Degree Requirements
For the Associate in Science degree in Information Sciences and Technology, a minimum of 60 credits is required:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>21</td>
</tr>
<tr>
<td>Electives</td>
<td>0-5</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>43-47</td>
</tr>
</tbody>
</table>

6-9 of the 21 credits for General Education are included in the Requirements for the Major. For all options, this includes: 3 credits of GQ courses; 3 credits of GWS courses; 0-3 credits of GS courses. (3 credits of GQ courses in Additional Courses includes MATH 21, MATH 22, MATH 110, SCM 200 or STAT 200) and 3 credits of GWS courses including ENGL 15 or CAS 100 which are Prescribed Courses. Students may also overlap 3 credits of GS if they select SRA 111 in Additional Courses for the Major or if they select ECON 102/ECON 104 in the Generalized Business Option Additional 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 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).
### Common Requirements for the Major (All Options)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prescribed Courses: Require a grade of C or better</td>
<td></td>
</tr>
<tr>
<td>CAS 100</td>
<td>Effective Speech</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 15</td>
<td>Rhetoric and Composition</td>
<td>3</td>
</tr>
<tr>
<td>IST 140</td>
<td>Introduction to Application Development</td>
<td>3</td>
</tr>
<tr>
<td>IST 210</td>
<td>Organization of Data</td>
<td>3</td>
</tr>
<tr>
<td>IST 220</td>
<td>Networking and Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>IST 260W</td>
<td>Introduction to Systems Analysis and Design</td>
<td>3</td>
</tr>
</tbody>
</table>

**Prescribed Courses**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>ENGL 202C</td>
<td>Effective Writing: Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 202D</td>
<td>Effective Writing: Business Writing</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Courses**

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CYBER 100</td>
<td>Computer Systems Literacy</td>
<td></td>
</tr>
<tr>
<td>CYBER 100S</td>
<td>Computer Systems Literacy</td>
<td></td>
</tr>
<tr>
<td>HCDD 113</td>
<td>Foundations of Human-Centered Design and Development</td>
<td></td>
</tr>
<tr>
<td>HCDD 113S</td>
<td>Foundations of Human-Centered Design and Development FYS</td>
<td></td>
</tr>
<tr>
<td>IST 110</td>
<td>Information, People and Technology</td>
<td></td>
</tr>
<tr>
<td>SRA 111</td>
<td>Introduction to Security and Risk Analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 credits from the following: 1</td>
<td>3</td>
</tr>
<tr>
<td>IST 295A</td>
<td>Distributed Team Project</td>
<td></td>
</tr>
<tr>
<td>IST 295B</td>
<td>IST Internship</td>
<td></td>
</tr>
<tr>
<td>IST 495</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3-4 credits from the following: 3-4</td>
<td></td>
</tr>
<tr>
<td>MATH 21</td>
<td>College Algebra I</td>
<td></td>
</tr>
<tr>
<td>MATH 22</td>
<td>College Algebra II and Analytic Geometry</td>
<td></td>
</tr>
<tr>
<td>MATH 26</td>
<td>Plane Trigonometry</td>
<td></td>
</tr>
<tr>
<td>MATH 110</td>
<td>Techniques of Calculus I</td>
<td></td>
</tr>
<tr>
<td>MATH 140</td>
<td>Calculus With Analytic Geometry I</td>
<td></td>
</tr>
<tr>
<td>SCM 200</td>
<td>Introduction to Statistics for Business</td>
<td></td>
</tr>
</tbody>
</table>

**Supporting Courses and Related Areas**

Select 12 credits in consultation with an adviser. All courses are C- required. Examples of specific themes include: Web Development, Psychology, Usability.

**Additional Courses**

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<tr>
<td>CYBER 262</td>
<td>Cyber-Defense Studio</td>
<td></td>
</tr>
<tr>
<td>IST 242</td>
<td>Intermediate &amp; Object-Oriented Application Development</td>
<td></td>
</tr>
<tr>
<td>SRA 111</td>
<td>Introduction to Security and Risk Analysis</td>
<td></td>
</tr>
<tr>
<td>SRA 211</td>
<td>Threat of Terrorism and Crime</td>
<td></td>
</tr>
<tr>
<td>SRA 221</td>
<td>Overview of Information Security</td>
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**Custom Option (12 credits)**

**Cybersecurity Option (12 credits)**

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<td></td>
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<tr>
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**Generalized Business Option (12-14 credits)**

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCTG 211</td>
<td>Financial and Managerial Accounting for Decision Making</td>
<td></td>
</tr>
<tr>
<td>BA 243</td>
<td>Social, Legal, and Ethical Environment of Business</td>
<td></td>
</tr>
<tr>
<td>or BLAW 243</td>
<td>Legal Environment of Business</td>
<td></td>
</tr>
</tbody>
</table>

1. Courses may not double count with the major requirements.
Foundations or Knowledge Domains

Only once.

more than one requirement, the credits from the course can be counted

Knowledge Domain requirement, but when a course is used to satisfy

Note:

Universities Degree Requirements

Cultures Requirement

3 credits of United States (US) or International (IL) cultures coursework

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 60 degree credits must be earned for a associates degree.
The requirements for some programs may exceed 60 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

Credit used toward degree programs may need to be earned from a

particular source or within time constraints (see Senate Policy

83-80 (http://senate.psu.edu/policies-and-rules-for-undergraduate-

students/82-00-and-83-00-degree-requirements/#83-80)). For more

information, check the Suggested Academic Plan for your intended

program.

Program Learning Objectives

• Know Networking Systems and Industry Methods: Demonstrate

ability to apply various industry standards in networking, server

maintenance, and hardware standards.

• Know Security Risk Factors: Demonstrate knowledge technology risk

factors for networks, servers, various hardware components and their

impact on technology systems. Having the ability to secure various

networks, using the latest industry standards and best practices,

design, develop, and implement (i.e. securing hardware, software

compliance, etc.).

• Know the System Development Lifecycle (SDLC): Demonstrate

knowledge of the SDLC by applying its methods to information

systems projects and lab exercises.

• Manage Network Systems: Demonstrate knowledge of designing and

management various networking systems.

• Use Information Sciences Theory/Practice: Use management theory

and information technology processes in managing networks.

Which includes best practices for network and infrastructure design,

development, and implementation.

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

Networking Option (12 credits)

Available at the following campuses: DuBois, Mont Alto, World Campus

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<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>IST 225</td>
<td>PC Hardware Basics</td>
<td>3</td>
</tr>
<tr>
<td>IST 226</td>
<td>Networking Essentials</td>
<td>3</td>
</tr>
<tr>
<td>IST 227</td>
<td>Network Administration</td>
<td>3</td>
</tr>
<tr>
<td>IST 228</td>
<td>Advanced Network Administration</td>
<td>3</td>
</tr>
</tbody>
</table>

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 associate degree

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/associate-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.)

• Quantification (GQ): 3 credits

• Writing and Speaking (GWS): 3 credits

Knowledge Domains

• Arts (GA): 3 credits

• Humanities (GH): 3 credits

• Social and Behavioral Sciences (GS): 3 credits

• Natural Sciences (GN): 3 credits

Note: Up to six credits of Inter-domain courses may be used for any

Knowledge Domain requirement, but when a course is used to satisfy

more than one requirement, the credits from the course can be counted

only once.

Foundations or Knowledge Domains

• Any General Education course: 3 credits
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/)

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pjbo159@psu.edu

https://montalto.psu.edu/academics/associate/associate-information-sciences-and-technology-degree

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https://scranton.psu.edu/academics/degrees/associate/ist

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http://wilkesbarre.psu.edu/academics/ist/associate-degrees

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http://york.psu.edu/academics/baccalaureate/information-sciences-and-technology