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

**Begin Campus:** World Campus, University Park  
**End Campus:** World Campus, University Park

**Program Description**

*Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.*

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.

**Baccalaureate Option**

*Available at the following campuses: Berks, DuBois, Greater Allegheny, Mont Alto, New Kensington, Scranton, University Park, Wilkes-Barre, World Campus, York*

This option provides maximum articulation with the baccalaureate degree. Students who complete this option will meet all lower division requirements for the baccalaureate degree. This is not the case with the remaining options, although the degree of articulation is quite high for all associate degree options.

**Generalized Business Option**

*Available at the following campuses: Berks, DuBois, Hazleton, Mont Alto, New Kensington, Scranton, University Park, World Campus, York*

This option enables students to specialize in the general business areas of accounting, marketing, and management.

**Individualized Option**

*Available at the following campuses: Berks, Greater Allegheny, Hazleton, Mont Alto, New Kensington, Scranton, University Park, Wilkes-Barre, World Campus, York*

This 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 providing breadth of technical specialization. An example would be a program where a student would take some of the courses listed in the Web Administration option and the remainder in the Software option.

**Software Option**

*Available at the following campuses: York*

This option prepares graduates for entry-level programming support positions in industry. Students take courses in Web programming, database programming, and other contemporary programming environments.

**Networking Option**

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

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

**Telecommunications Option**

*Available at the following campuses: York*

This option prepares graduates for entry-level positions in the telecommunications industry. Students take courses in voice and data communications, protocols, networks, and wireless systems.

**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>4-7</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>44-46</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 baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (http://bulletins.psu.edu/undergraduate/general-education/associate-degree-general-education-program) section of the Bulletin and consult your academic adviser.

**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

Foundations or Knowledge Domains

- A General Education course selected from GWS, GQ, GN, GA, GH, or GS, and may include Integrative Studies (Inter-domain or Linked) courses: 3 credits

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.

9-12 of these 21 credits are included in the Requirements for the Major.

University Degree Requirements

Cultures Requirement
3 credits of United States (US) or International (IL) cultures coursework are required and may satisfy other requirements

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.

Requirements for the Major
This includes 9-12 credits of General Education courses, i.e., ALL options: 3 credits of GQ courses; 6 credits of GWS courses. The Baccalaureate Option also includes 3 credits of GS courses to equal a total of 12 credits that double count; the General Business Option also includes 0-3 credits of GS courses to equal 9-12 credits that double count.

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>
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</tr>
</thead>
<tbody>
<tr>
<td>CAS 100B</td>
<td>Effective Speech</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 15</td>
<td>Rhetoric and Composition</td>
<td>3</td>
</tr>
</tbody>
</table>

Prescribed Courses: Require a grade of C or better

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPSC 101</td>
<td>Introduction to C++ Programming</td>
<td>3</td>
</tr>
<tr>
<td>IST 110</td>
<td>Information, People and Technology</td>
<td>3</td>
</tr>
<tr>
<td>IST 111S</td>
<td>Seminar in Information Sciences and Technology</td>
<td>1</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 250</td>
<td>Introduction to Web Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>IST 260</td>
<td>Introduction to Systems Analysis and Design</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</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>3</td>
</tr>
</tbody>
</table>

Requirements for the Option
Select an option 15-17

Requirements for the Option

Baccalaureate Option (17 credits)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 102</td>
<td>Introductory Microeconomic Analysis and Policy</td>
<td>3</td>
</tr>
<tr>
<td>STAT 200</td>
<td>Elementary Statistics</td>
<td>4</td>
</tr>
</tbody>
</table>

Prescribed Courses: Require a grade of C or better

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>IST 230</td>
<td>Language, Logic, and Discrete Mathematics</td>
<td>6</td>
</tr>
<tr>
<td>IST 240</td>
<td>Introduction to Computer Languages</td>
<td>3</td>
</tr>
<tr>
<td>MATH 110</td>
<td>Techniques of Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 140</td>
<td>Calculus With Analytic Geometry I</td>
<td></td>
</tr>
</tbody>
</table>

Generalized Business Option (15-16 credits)

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<tr>
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<tbody>
<tr>
<td>ACCTG 151</td>
<td>Introductory Financial Accounting I</td>
<td></td>
</tr>
<tr>
<td>ACCTG 152</td>
<td>Introductory Financial Accounting II</td>
<td></td>
</tr>
<tr>
<td>ACCTG 211</td>
<td>Financial and Managerial Accounting for Decision Making</td>
<td></td>
</tr>
<tr>
<td>BA 250</td>
<td>Small Business Management</td>
<td></td>
</tr>
<tr>
<td>MKTG 220</td>
<td>Introduction to Selling Techniques</td>
<td></td>
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<tr>
<td>MKTG 221</td>
<td>Contemporary American Marketing</td>
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<tr>
<td>MKTG 310</td>
<td>Public Relations and Marketing</td>
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<td>MKTG 327</td>
<td>Retailing</td>
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<tr>
<td>MGMT 100</td>
<td>Survey of Management</td>
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<td>MGMT 150</td>
<td>Supervisory Management</td>
<td></td>
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<tr>
<td>MGMT 321</td>
<td>Leadership and Motivation</td>
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<tr>
<td>MGMT 341</td>
<td>Human Resource Management</td>
<td></td>
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<tr>
<td>ECON 102</td>
<td>Introductory Microeconomic Analysis and Policy</td>
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Additional Courses

Select 15 credits in consultation with the adviser of the following: 15

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<tr>
<td>ECON 102</td>
<td>Introductory Microeconomic Analysis and Policy</td>
<td></td>
</tr>
</tbody>
</table>
or ECON 104 Introductory Macroeconomic Analysis and Policy
or ECON 14 Principles of Economics

MATH 17 Finite Mathematics
or MATH 21 College Algebra I
or MATH 22 College Algebra II and Analytic Geometry
or MATH 26 Plane Trigonometry

Individualized Option (15 credits)
Available at the following campuses: Berks, Greater Allegheny, Hazleton, Mont Alto, New Kensington, Scranton, University Park, Wilkes-Barre, World Campus, York

Supporting Courses and Related Areas

Select 15 credits in consultation with an adviser that follow a coherent theme in information sciences and technology with a grade of C or better required for all IST courses.

Software Option (15 credits)
Available at the following campuses: York

Prescribed Courses

CMPSC 302 Intermediate Visual Programming 3

IST 211 3
IST 247 3
IST 256 Programming for the Web 3

Additional Courses

Select one of the following:

MATH 17 Finite Mathematics
MATH 21 College Algebra I
MATH 22 College Algebra II and Analytic Geometry
MATH 26 Plane Trigonometry

Networking Option (15 credits)
Available at the following campuses: DuBois, Mont Alto, Shenango, World Campus, York

Prescribed Courses

IST 225 PC Hardware Basics 3
IST 226 Networking Essentials 3
IST 227 Network Administration 3
IST 228 Advanced Network Administration 3

Additional Courses

Select one of the following:

MATH 17 Finite Mathematics
MATH 21 College Algebra I
MATH 22 College Algebra II and Analytic Geometry
MATH 26 Plane Trigonometry

Telecommunications Option (15 credits)
Available at the following campuses: York

Prescribed Courses

IST 221 3
IST 222 Community Informatics 3
IST 223 3
IST 224 3

Additional Courses

Select one of the following:

MATH 17 Finite Mathematics
MATH 21 College Algebra I
MATH 22 College Algebra II and Analytic Geometry
MATH 26 Plane Trigonometry

Program Learning Objectives

1. Know the System Development Lifecycle (SDL): Demonstrate knowledge of the SDL by applying its methods to network projects and various networking hand-on lab exercises.
2. Know Networking Systems and Industry Methods: Demonstrate ability to apply various industry standards in networking, server maintenance, and hardware standards.
3. 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.
4. Manage Network Systems: Demonstrate knowledge of designing and management various networking systems.
5. 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.).

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 need to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy)

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https://ist.psu.edu/directory/office/grad_undergrad_studies

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programs@ist.psu.edu  
https://www.worldcampus.psu.edu/degrees-and-certificates/information-sciences-and-technology-associates/overview

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