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 removes the requirements for the baccalaureate major with individualization. It 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. This option enables students to work closely with an adviser to develop a plan of study that meets the dual objectives of allowing for 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>

9-12 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; 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 9-3 credits of GS courses to equal 9-12 credits that double count.

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.

**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 Program**

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>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>or ENGL 202D</td>
<td>Effective Writing: Business Writing</td>
<td></td>
</tr>
</tbody>
</table>

**Additional 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>IST 295A</td>
<td>Distributed Team Project</td>
<td>1</td>
</tr>
<tr>
<td>or IST 295B</td>
<td>IST Internship</td>
<td></td>
</tr>
</tbody>
</table>

**Requirements for the Option**

Select an option 15-17

**Requirements for the Option**

**Baccalaureate Option (17 credits)**

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

<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>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 230</td>
<td>Language, Logic, and Discrete Mathematics</td>
<td>6</td>
</tr>
<tr>
<td>&amp; IST 240</td>
<td>Introduction to Computer Languages</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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)**

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

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<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>ECON 102</td>
<td>Introductory Microeconomic Analysis and Policy</td>
<td></td>
</tr>
<tr>
<td>or ECON 104</td>
<td>Introductory Macroeconomic Analysis and Policy</td>
<td></td>
</tr>
<tr>
<td>or ECON 14</td>
<td>Principles of Economics</td>
<td></td>
</tr>
<tr>
<td>MATH 17</td>
<td>Finite Mathematics</td>
<td></td>
</tr>
<tr>
<td>or MATH 21</td>
<td>College Algebra I</td>
<td></td>
</tr>
<tr>
<td>or MATH 22</td>
<td>College Algebra II and Analytic Geometry</td>
<td></td>
</tr>
<tr>
<td>or MATH 26</td>
<td>Plane Trigonometry</td>
<td></td>
</tr>
<tr>
<td>MGMT 100</td>
<td>Survey of Management</td>
<td></td>
</tr>
<tr>
<td>MGMT 150</td>
<td>Supervisory Management</td>
<td></td>
</tr>
</tbody>
</table>
MGMT 321 Leadership and Motivation
MGMT 341 Human Resource Management
MKTG 220 Introduction to Selling Techniques
MKTG 221 Contemporary American Marketing
MKTG 310 Public Relations and Marketing
MKTG 327 Retailing

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supporting Courses and Related Areas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supporting Courses and Related Areas: Require a grade of C or better</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prescribed Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prescribed Courses: Require a grade of C or better</td>
<td></td>
</tr>
<tr>
<td>CMPSC 302</td>
<td>Intermediate Visual Programming</td>
<td>3</td>
</tr>
<tr>
<td>IST 211</td>
<td>Programming for the Web</td>
<td>3</td>
</tr>
<tr>
<td>IST 247</td>
<td>Programming for the Web</td>
<td>3</td>
</tr>
<tr>
<td>IST 256</td>
<td>Programming for the Web</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Additional Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 17</td>
<td>Finite Mathematics</td>
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<tr>
<td></td>
<td>MATH 21</td>
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<td></td>
<td>MATH 22</td>
<td>College Algebra II and Analytic Geometry</td>
</tr>
<tr>
<td></td>
<td>MATH 26</td>
<td>Plane Trigonometry</td>
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</table>

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

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td></td>
<td>Prescribed Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prescribed Courses: Require a grade of C or better</td>
<td></td>
</tr>
<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>
<tr>
<td></td>
<td>Additional Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
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</tr>
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<td></td>
<td>MATH 26</td>
<td>Plane Trigonometry</td>
</tr>
</tbody>
</table>

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

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 needed 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)

University Park
Office of Undergraduate Academic Advising
E101 Westgate Building
University Park, PA 16802
814-865-8947
advising@ist.psu.edu

Berks
Tricia Clark
Program Coordinator, Instructor
Gaige 211
Reading, PA 19610
610-396-6349
tkc3@psu.edu

DuBois
Jason Long
Assistant Teaching Professor
1 College Place
DuBois, PA 16823
814-372-3000
jel115@psu.edu

Hazleton
Barbara Brazon
Assistant Teaching Professor of Information Sciences and Technology
Kostos 117
Hazleton, PA 18202
570-450-3089
bxb30@psu.edu

Mont Alto
Paul Bart
Lecturer, IST
6 Bookstore Building
Mont Alto, PA 17237
717-749-6241
pjb159@psu.edu

Scranton
Debra Smarkusky
Associate Professor
212F Dawson
Dunmore, PA 18512
570-963-2593
dls102@psu.edu

Wilkes-Barre
Wei-Fan Chen
Associate Professor, IST
P.O. Box PSU
Lehman, PA 18627
570-675-9142
weifan@psu.edu

World Campus
Undergraduate Academic Advising
301 Outreach Building
University Park, PA 16802
814-863-3283
advising@outreach.psu.edu

York
William Cantor
Assistant Teaching Professor in IST
226 Grumbacher Building (GISTC)
York, PA 17403
717-771-4143
wpc2@psu.edu

Contact
University Park
OFFICE OF THE ASSOCIATE DEAN FOR GRADUATE AND
UNDERGRADUATE STUDIES
E397F Westgate Building
University Park, PA 16802
814-863-3450
programs@ist.psu.edu
https://ist.psu.edu/directory/office/grad_undergrad_studies

Berks
EBC DIVISION
Gaige Building
Reading, PA 19610
610-396-6349
tkc3@psu.edu
http://berks.psu.edu/associate-information-sciences-and-technology

DuBois
1 College Place
DuBois, PA 16823
814-372-3000
jel115@psu.edu
http://dubois.psu.edu/ist

Hazleton
Kostos 117
Hazleton, PA 18202
570-450-3089
bxb30@psu.edu
http://hazleton.psu.edu/associate-science-information-sciences-technology

Mont Alto
6 Bookstore Building
Mont Alto, PA 17237
717-749-6241
pjb159@psu.edu
http://montalto.psu.edu/directory/baccalaureate-information-technology-program

Scranton
212F Dawson
Dunmore, PA 18512
570-963-2593
dls102@psu.edu
http://worthingtonscranert.psu.edu/information-sciences-and-technology

Wilkes-Barre
P.O. Box PSU
Lehman, PA 18627
570-675-9142
weifan@psu.edu

http://wilkesbarre.psu.edu/academics/ist

World Campus
OFFICE OF THE ASSOCIATE DEAN FOR GRADUATE AND
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E397F Westgate Building
University Park, PA 16802
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programs@ist.psu.edu

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

York
226 Grumbacher Building (GISTC)
York, PA 17403
717-771-4143
wpc2@psu.edu

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