

# BACHELOR OF SCIENCE IN APPLIED SCIENCE IN INFORMATION TECHNOLOGY

Information technology provides systematic foundations that include methodologies and models for conceptualizing the complex dynamics of the Information Technology environment as it applies to information systems design and implementation.

IT professionals possess the right combination of knowledge and practical, hands-on expertise to take care of both an organization's information technology infrastructure and the people who use it. They assume responsibility for selecting hardware and software products appropriate for an organization. They integrate those products with organizational needs and infrastructure and install, customize and maintain those applications, thereby providing a secure and effective environment that supports the activities of the organization's computer users. In IT, programming often involves writing short programs that typically connect existing components (scripting).

Planning and managing an organization's IT infrastructure is a difficult and complex job that requires a solid foundation in applied computing as well as management and people skills. Those in the IT discipline require special skills – in understanding, for example, how networked systems are composed and structured, and what their strengths and weaknesses are. There are important software systems concerns such as reliability, security, usability, and effectiveness and efficiency for their intended purpose; all of these concerns are vital. These topics are difficult and intellectually demanding.

The program supports work processes and employee performance enhancements; is designed to improve overall workgroup and individual productivity; and addresses the creation, distribution, storage, and use of information in all its states. Business processes are incorporated as an integral part of all course content. Information Technology encompasses:

- Client/Server Side Computing
- Project Management
- Multimedia
- Networks
- Database Systems
- System Analysis
- Information Security
- Network/ Cybersecurity
- Application Development
- E-Commerce Programming

IT graduates of the AAS degree program may continue their studies towards a bachelor's degree in a computer or information technology area or may obtain full-time employment as database specialist, help desk support, network technicians, web/digital designers, and in other closely related fields.

IT graduates of the BSAS degree program may obtain full-time employment as web & multimedia designers/developers, network administrators, computer programmers, application developers, database managers, computer systems analysts, cybersecurity specialist, and in other closely related fields.

## Bachelor's Degree Program

The information technology professional will develop his or her ability to conceptualize, design, and implement high-quality information systems based upon computer systems ranging from single-user systems to complex, interactive, and multi-user distributed systems.

IT majors will choose to follow one of several concentration areas:

- Database Engineering
- Networking
- Security
- Multimedia/Web
- Software Development

This degree may be earned in eight semesters if students average 16 hours per semester.

Students wishing to receive the Bachelor of Applied Science in Information Technology must complete the following:

COURSE	TITLE	S.H.
<b>FIRST YEAR REQUIREMENT -STUDENT SUCCESS</b>		
YSU 1500	Success Seminar	1-2
or YSU 1500S	Youngstown State University Success Seminar	
or HONR 1500	Intro to Honors	
<b>General Education Requirements</b>		
ENGL 1550	Writing 1	3-4
or ENGL 1549	Writing 1 with Support	
ENGL 1551	Writing 2	3
Mathematics Requirement <small>Included in Support Courses</small>		
Arts and Humanities (6 s.h.)		6
PHIL 2625	Introduction to Professional Ethics	
One additional Arts and Humanities course		
Natural Sciences (2 courses, 1 with lab) (6-7 s.h.)		6-7
Social Science (6 s.h.)		6
General Education Electives (9 s.h.)		9
Any 3 Gen Ed Courses		
<b>Major Requirements</b>		
CSIS 1525	Survey of Modern Operating Systems	3
CSIS 1570	Web Systems and Technologies	3
CSIS 1590	Foundations of Information Systems & Technologies	3
CSIS 1595 & 1595L	Fundamentals of Programming and Problem-Solving 1 and Fundamentals of Programming and Problem-Solving 1 Lab	3
CSIS 2605 & 2605L	Fundamentals of Programming and Problem-Solving 2 and Fundamentals of Programming and Problem-Solving 2 Lab	3
CSIS 2620	System Configuration and Maintenance	3
CSIS 3722	Development of Databases	3
CSIS 3731	Human-Computer Interaction	3
CSIS 3755	Information Assurance	3
CSIS 3782	Cisco Networking Academy 1	3
INFO 4880	Information Technology Analysis and Design	3
<b>Concentration area (min 6 hours within the same area)</b>		<b>6</b>
Data Engineering Concentration		
CSIS 3726	Visual/Object-Oriented Programming	
CSIS 4822	Database Applications	
CSIS 3760	Electronic Commerce Programming	
CSCI 4851	Data Science and Machine Learning	
CSCI 4852	Deep Learning	
CSCI 4871	Cloud Computing and Big Data	
Multimedia & Web Concentration		
INFO 3774	Digital Image Processing	
INFO 3775	Digital Multimedia Design & Creation	
INFO 3776	Client-Side Scripting Techniques	

INFO 3777	Digital Audio & Video Production	
INFO 5875	Advanced Multimedia Authoring	
CSIS 4878	Mobile Application Development	
<b>Networking Concentration</b>		
CSIS 3783	Cisco Networking Academy 2	
CSIS 3784	Cisco Networking Academy 3	
CSIS 4823	Data Communications Networking	
CSIS 5883	Remote Access and Multilayer Switched Networks	
CSIS 5884	Building Scalable Networks and Advanced Internetwork Troubleshooting	
<b>Security Concentration</b>		
CSIS 3756	Security Design	
CSIS 3757	Computer Forensics	
CSIS 5828	Computer Network Security	
CSCI 5857	Encoding and Encryption	
<b>Software Development Concentration</b>		
CSIS 3700 & 3700L	Data Structures and Objects and Data Structures and Objects Lab	
CSIS 3701	Advanced Object-oriented Programming	
CSIS 3726	Visual/Object-Oriented Programming	
CSIS 3760	Electronic Commerce Programming	
CSIS 4878	Mobile Application Development	
CSCI 4862	Server-Side Web Development and Programming	
CSCI 5801	Software Engineering	
<b>Departmental Upper-Division Electives</b>		
Select at least 9 additional semester hours of upper division Information Technology or CSIS courses. CSCI or CIS courses numbered 3000 and above with advisor approval, and up to 3 semester hours of STEM 4890 may also be used toward the 9 upper-division hours.		9
<b>Support Courses</b>		
MATH 1552	Applied Business Calculus	4
STAT 2601	Introductory Statistics	3
INFO 3704 or ENGL 3743	Business Communication or Introduction to Public, Professional and Technical Writing	3
<b>Minor</b>		
Select at least 12 s.h. from an unspecified minor.		12
Free Electives <small>Any courses to meet 120 total hours</small>		16
<b>Total Semester Hours</b>		<b>120-123</b>
<b>Year 1</b>		
<b>Fall</b>		
YSU 1500 or YSU 1500S or HONR 1500	Success Seminar or Youngstown State University Success Seminar or Intro to Honors	1-2
ENGL 1550 or ENGL 1549	Writing 1 or Writing 1 with Support	3-4
CSIS 1525	Survey of Modern Operating Systems	3
CSIS 1590	Foundations of Information Systems & Technologies	3
Free Elective <small>Any course(s) to meet the 120 total hours (i.e., prereq Math course for MATH 1552)</small>		4
<b>Semester Hours</b>		<b>14-16</b>
<b>Spring</b>		
ENGL 1551	Writing 2	3
CSIS 1570	Web Systems and Technologies	3
CSIS 1595	Fundamentals of Programming and Problem-Solving 1	2

CSIS 1595L	Fundamentals of Programming and Problem-Solving 1 Lab	1
MATH 1552	Applied Business Calculus	4
Gen Ed Arts & Humanities		3
<b>Semester Hours</b>		<b>16</b>
<b>Year 2</b>		
<b>Fall</b>		
CSIS 3722	Development of Databases	3
CSIS 2605	Fundamentals of Programming and Problem-Solving 2	2
CSIS 2605L	Fundamentals of Programming and Problem-Solving 2 Lab	1
CSIS 2620	System Configuration and Maintenance	3
STAT 2601	Introductory Statistics	3
Gen Ed Electives (Any Gen Ed Course)		3
<b>Semester Hours</b>		<b>15</b>
<b>Spring</b>		
CSIS 3731	Human-Computer Interaction	3
CSIS 3782	Cisco Networking Academy 1	3
INFO 3704 or ENGL 3743	Business Communication or Introduction to Public, Professional and Technical Writing	3
Minor Course		3
Gen Ed Social Science		3
<b>Semester Hours</b>		<b>15</b>
<b>Year 3</b>		
<b>Fall</b>		
CSIS 3755	Information Assurance	3
Departmental Upper Division Elective <small>CSIS/CSCI/INFO 37XX and above numbered courses, or STEM 4890</small>		3
Minor Course		3
Gen Ed Electives (Any Gen Ed Course)		3
Free Elective <small>Any course to meet the 120 total hours</small>		3
<b>Semester Hours</b>		<b>15</b>
<b>Spring</b>		
IT Concentration		
PHIL 2625	Introduction to Professional Ethics	3
Minor Course		3
Gen Ed Social Science		3
Free elective <small>Any course to meet the 120 total hours</small>		3
Request a Graduation Evaluation after completing 80-85 s.h. from the STEM Advising Center, 2325 Moser Hall, (330) 941-2512.		
<b>Semester Hours</b>		<b>15</b>
<b>Year 4</b>		
<b>Fall</b>		
IT Concentration		
Departmental Upper Division Elective <small>CSIS/CSCI/INFO 37XX and above numbered courses, or STEM 4890</small>		3
Minor Course		3
Gen Ed Natural Sciences		3
Free Elective <small>Any course to meet the 120 total hours</small>		3
<b>Semester Hours</b>		<b>15</b>
<b>Spring</b>		
INFO 4880	Information Technology Analysis and Design	3
Departmental Upper Division Elective <small>CSIS/CSCI/INFO 37XX and above numbered courses, or STEM 4890</small>		3
Gen Ed Electives (Any Gen Ed Course)		3
Gen Ed Natural Sciences + Lab		3-4

Free Elective <small>Any course to meet the 120 total hours</small>	3
<b>Semester Hours</b>	<b>15-16</b>
<b>Total Semester Hours</b>	<b>120-123</b>

*Learning Outcomes:*

The Bachelor program in Information Technology provides preparation and instruction that enables students:

1. to analyze computing technology related problems, identify and define computing technology requirements to address these problems
2. to design, implement, and evaluate computing technologies to meet the needs of organizations or individuals using current techniques, skills, and tools
3. to communicate with clients effectively while understanding their needs and identifying appropriate solutions
4. to work collaboratively within a team environment to achieve its goal(s)
5. to understand the need and importance of continuous professional development
6. to recognize the technical and legal issues involved with technologies and concepts used in information technology
7. to offer solutions and perform required tasks in networking design, implementation, and administration; information assurance and security; database design, development, and administration; interactive program design and development; e-commerce design, development, and implementation; and report and document preparation.

*Learning Outcomes*

1. The Bachelors program in Information Technology provides preparation and instruction that enables for students acquire knowledge and technical competencies to perform network design, implementation, and administration.
2. The Bachelors program in Information Technology provides preparation and instruction that enables for students acquire knowledge and technical competencies to perform information assurance and security.
3. The Bachelors program in Information Technology provides preparation and instruction that enables for students acquire knowledge and technical competencies to design, implement, and administer databases.
4. The Bachelors program in Information Technology provides preparation and instruction that enables for students acquire knowledge and technical competencies to design and implement reports and documents required by the organization through extraction of information using appropriate programs and applications.
5. The Bachelors program in Information Technology provides preparation and instruction that enables for students acquire knowledge and technical competencies to demonstrate information management skills in project management and system analysis, design, implementation, testing and monitoring.
6. The Bachelors program in Information Technology provides preparation and instruction that enables for students acquire knowledge and technical competencies to write and produce or assist in developing interactive programs.
7. The Bachelors program in Information Technology provides preparation and instruction that enables for students acquire knowledge and technical competencies to recognize technical and legal issues involved with technologies and concepts used in information technology.