

BACHELOR OF SCIENCE IN APPLIED SCIENCE IN INFORMATION TECHNOLOGY

Bachelor's Degree Program

The Bachelor's in Information Technology program at Youngstown State University prepares students as lifelong learners and innovative problem-solvers, equipped with comprehensive theoretical knowledge and technical skills in networking, data engineering, cybersecurity, software development, web technologies, and computing systems. The information technology graduates will develop the 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. The program emphasizes the planning, development, implementation, and maintenance of advanced computing technologies to meet the dynamic needs of users, organizations, and society.

The program is designed as a student-centered program to support the social growth of students, promote ethical decision-making, improve awareness of the role of information technology in a global environment, and equip students with the knowledge and skills to identify and resolve issues related to information technology. In addition to preparing students for immediate professional success, the program provides a robust foundation for pursuing advanced research and graduate studies in computing. Graduates are empowered with the expertise to independently design, integrate, and manage cutting-edge solutions that address complex challenges across diverse fields.

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

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

The Associate of Applied Science in Information Technology program at Youngstown State University prepares students to become lifelong learners equipped with foundational theoretical knowledge and technical skills in computing technologies. The program emphasizes the planning, development, implementation, and maintenance of solutions in networking, data engineering, cybersecurity, software development, web technologies, and computing hardware and software systems, meeting the evolving needs of users and organizations.

The program prepares students to 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. The program prepares students to assume responsibility for understanding how computing systems are composed and structured, their strengths and weaknesses, reliability, security, usability, effectiveness, and efficiency for their intended purpose, selecting hardware and software products appropriate for an organization, integrating those products with organizational needs and infrastructure, and installing, customizing, and maintaining those applications, thereby providing a secure and effective environment that supports the activities of the organization's computer users.

The Information Technology AAS degree program graduates may continue their studies towards a bachelor's degree in a computer or information technology area or obtain full-time employment as network technicians, database specialists, software developers, cybersecurity specialists, help desk support, web/digital designers, or in other closely related fields. Graduates are prepared to address challenges in information technology with ethical decision-making, a global perspective, and the technical expertise required to

make meaningful contributions in their personal, organizational, and societal roles.

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.
FIRST YEAR REQUIREMENT -STUDENT SUCCESS		
YSU 1500	Success Seminar	1-2
or YSU 1500S	Youngstown State University Success Seminar	
or HONR 1500	Intro to Honors	
General Education Requirements		
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		
Major Requirements		
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	3
	and Fundamentals of Programming and Problem-Solving 1 Lab	
CSIS 2605 & 2605L	Fundamentals of Programming and Problem-Solving 2	3
	and Fundamentals of Programming and Problem-Solving 2 Lab	
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
Concentration area (min 6 hours within the same area)		6
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	
Networking Concentration		

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	
Security Concentration		
CSIS 3756	Security Design	
CSIS 3757	Computer Forensics	
CSIS 5828	Computer Network Security	
CSCI 5857	Encoding and Encryption	
Software Development Concentration		
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	
Departmental Upper-Division Electives		
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
Support Courses		
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
Minor		
Select at least 12 s.h. from an unspecified minor.		12
Free Electives <small>Any courses to meet 120 total hours</small>		16
Total Semester Hours		120-123
Year 1		
Fall		
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
Semester Hours		14-16
Spring		
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
Semester Hours		16

Year 2		
Fall		
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
Semester Hours		15
Spring		
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
Semester Hours		15
Year 3		
Fall		
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
Semester Hours		15
Spring		
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.		
Semester Hours		15
Year 4		
Fall		
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
Semester Hours		15
Spring		
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
Semester Hours		15-16
Total Semester Hours		120-123

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.