

Information Technology - Cyber Security Emphasis, BS

Program Description

The Bachelor of Science degree in Information Technology (IT) will prepare students for a wide range of job opportunities such as systems analyst, network administrator, systems administrator, and IT administrator. Students will learn to apply their skills to real world problems arising in various settings, as they master new technological techniques. This applied approach will motivate IT majors to develop the skills and knowledge necessary to solve complex organizational problems using technology.

This emphasis focuses on Cyber Security specialization.

Students will develop the knowledge and skills necessary for immediate employment and/or entrance into graduate school.

Program Curriculum

120 credits

Utah Tech General Education Requirements

All Utah Tech General Education requirements must be fulfilled. A previously earned degree may fulfill those requirements, but courses must be equivalent to Utah Tech's minimum General Education standards in American Institutions, English, and Mathematics.

General Education Core Requirements (catalog.utahtech.edu/programs/generaleducation/#gerequirementstext)

Code	Title	Hours
English		3-7
Mathematics		3-5
American Institutions		3-6
Life Sciences		3-10
Physical Sciences		3-5
Fine Arts		3
Literature/Humanities		3
Social & Behavioral Sciences		3
Exploration		3-5

Information Technology with Cyber Security Emphasis Core Requirements

Code	Title	Hours
CS 1400	Fundamentals of Programming	3
CS 1410	Object Oriented Programming	3
IT 1100	Introduction to Unix/Linux	3
IT 1200	A+ Computer Hardware/Windows OS	3
IT 1500	Cloud Fundamentals	1
IT 2300	Database Design & Management	3
IT 2400	Intro to Networking	3
IT 2500	Cloud Computing	3
IT 2700	Information Security	3
IT 3100	Systems Design and Administration	3
IT 3150	Windows Servers	3
IT 3400	Intermediate Computer Networking	3
IT 4600	Senior Capstone	3
ENGL 3010	Professional Writing and Business Ethics	3

MATH 1040	Introduction to Statistics (MA)	3
or MATH 1050	College Algebra / Pre-Calculus (MA)	

Cybersecurity Emphasis Requirements

Code	Title	Hours
IT 3710	Network Defense	3
IT 4400	Network Design & Management	3
IT 4510	Ethical Hacking & Network Defense	3
Plus complete two (2) of the following:		
IT 4310	Database Administration	3
IT 4990	Special Topics in Information Technology	3
CS 2420	Introduction to Algorithms and Data Structures	3
CJ 2700	Introduction to Digital Forensics	3
CS 2810	Computer Organization and Architecture	3

Information Technology Core Elective

Code	Title	Hours
Choose three (3) of the following courses:		
IT 3110	System Automation	3
IT 3300	DevOps Virtualization	3
IT 4100	Files Systems and Storage Technologies	3
IT 4200	DevOps Lifecycle Management	3
IT 4310	Database Administration	3
IT 4920R	Internship	1-3

Information Technology Elective Requirements

Code	Title	Hours
Choose three (3) of the following courses:		
CS 2420	Introduction to Algorithms and Data Structures	3
CS 2450	Software Engineering	3
CS 2810	Computer Organization and Architecture	3
CS 3005	Programming in C++	3
ISA 2050	Management Information Systems	3
IT 3110	System Automation	3
IT 3300	DevOps Virtualization	3
IT 4060	Big Data Analytics	3
IT 4070	Data Visualization and Storytelling	3
IT 4100	Files Systems and Storage Technologies	3
IT 4200	DevOps Lifecycle Management	3
IT 4310	Database Administration	3
IT 4920R	Internship	1-3
IT 4990	Special Topics in Information Technology	3
SE 3200	Web Application Development I	3
SE 3250	Internet of Things Programming	3
SE 3400	Human-Computer Interaction	3
SE 4200	Web Application Development II	3

Graduation Requirements

1. Complete a minimum of 120 college-level credits (1000 and above).
2. Complete at least 40 upper-division credits (3000 and above).

3. Complete at least 30 upper-division credits at Utah Tech for institutional residency.
4. Maximum 12 upper-division transfer credits may fulfill Utah Tech Information Technology program requirements.
5. Cumulative GPA 2.0 or higher.
6. Grade C or higher in each Core Requirement, Core Elective Requirement, and Elective Requirement course.

Graduation Plan

1st Year

Fall Semester	Hours Spring Semester	Hours
SSC 1010	2 ENGL 2010	3
ENGL 1010 or 1010D	3 CS 1410	3
MATH 1040 or 1050	3 IT 1200	3
CS 1400	3 IT 1500	1
IT 1100	3 IT 2400	3
Open Elective	1 GE Physical Science	3
	15	16

2nd Year

Fall Semester	Hours Spring Semester	Hours
IT 2500	3 IT 2300	3
IT 2700	3 GE Social & Behavioral	3
GE Fine Arts	3 GE Life Sciences	3
GE Literature/Humanities	3 GE Laboratory Science	1
GE American Institutions	3 GE Exploration	3
	Open Elective	2
	15	15

3rd Year

Fall Semester	Hours Spring Semester	Hours
IT 3100	3 IT 3150	3
ENGL 3010	3 IT 3400	3
IT Core Elective	3 IT Core Elective	3
IT Elective	3 IT Core Elective	3
Open Elective	3 IT Elective	3
	15	15

4th Year

Fall Semester	Hours Spring Semester	Hours
IT 4400	3 IT 4510	3
IT Core Elective	3 IT 4600	3
IT Elective	3 IT Open Elective	3
Open Elective	3 IT Open Elective	3
Open Elective	3 IT Open Elective	3
	15	15

Total Hours 121

BS Information Technology Program Learning Outcomes

At the successful completion of this program, students will be able to:

1. Administer computing resources to support organizational needs, including networks, operating systems, and security configurations.
2. Create repeatable and automated infrastructure solutions that provide information assurance and security.
3. Identify and resolve technical problems using troubleshooting techniques.
4. Explain ethical and legal issues impacting information technology.
5. Understand and implement sound cybersecurity protections, procedures, and implementations to protect resources and data.