Cybersecurity, BS

Program Description

The Bachelor of Science in Cybersecurity prepares students for a variety of careers, including roles such as cybersecurity analyst, information security manager, security consultant, and network security engineer. The program focuses on practical, hands-on experience, enabling students to apply their knowledge to protect systems and data in real-world scenarios. Through this applied approach, cybersecurity majors develop the skills and expertise necessary to identify, assess, and mitigate security threats, ensuring the integrity, confidentiality, and availability of information across various organizational settings.

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

Cybersecurity Core Requirements

Code	Title	Hours
Required Courses		
CS 1400	Fundamentals of Programming	3
CS 1410	Object Oriented Programming	3
CS 2420	Introduction to Algorithms and Data Structures	3
MATH 1040	Introduction to Statistics (MA)	3-4
or MATH 1050	College Algebra / Pre-Calculus (MA)	
IT 1100	Introduction to Unix/Linux	3
IT 1200	A+ Computer Hardware/Windows OS	3
IT 1500	Cloud Fundamentals	1
IT 2400	Intro to Networking	3
IT 2500	Cloud Computing	3
IT 2700	Information Security	3
ENGL 2100	Technical Writing (ALCS)	3
or ENGL 3010	Professional Writing and Business Ethics	
IT 3100	Systems Design and Administration	3
IT 3110	System Automation	3
IT 3150	Windows Servers	3
IT 3400	Intermediate Computer Networking	3
IT 3700	CyberOps	3
IT 3710	Network Defense	3
IT 4510	Ethical Hacking & Network Defense	3

IT 4600	Senior Capstone	3
MGMT 3050	Business Law I: Law in the Commercial Environment	3
or CJ 3830	International Criminal Justice Systems	
SE 3200	Web Application Development I	3
SE 3250	Internet of Things Programming	3
SE 1400	Web Design Fundamentals (ALCS)	3
IT 4700	Cybersecurity Architecture	3

Cybersecurity Elective Requirements

Code	Title	Hours
Choose four (4) of the following courses:		
Breadth courses		
CJ 4975R	Digital Forensics Travel Study: Domestic & International	1-3
CS 3005	Programming in C++	3
CS 2450	Software Engineering	3
CS 2810	Computer Organization and Architecture	3
IT 2300	Database Design & Management	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 4400	Network Design & Management	3
IT 4990	Special Topics in Information Technology	0.5-3
IT 4991R	Competitive Cybersecurity	2
IT 4920R	Internship	1-3
SE 4200	Web Application Development II	3
SE 1400	Web Design Fundamentals (ALCS)	3
Open Electives		
Open Elective Credit		9

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. Cumulative GPA 2.5 or higher.
5. Grade B- or higher in lower-division Cybersecurity courses and a minimum C in all Cybersecurity courses.

Graduation Plan

1st Year

Fall Semester	Hours	Spring Semester	Hours
CS 1400	3	CS 1410	3
ENGL 1010	3	ENGL 2010	3
IT 1100	3	General Education- American Institutions	3
IT 1500	1	IT 1200	3
MATH 1050	4	IT 2400	3
SSC 1010	2		
	16		**15**

2nd Year

Fall Semester	Hours	Spring Semester	Hours
CS 2420	3	General Education- Literature/ Humanities	3
General Education- Physical Science	3	General Education- Social & Behavioral Sciences	3
General Education- Life Sciences	3	General Elective	3
General Education- Fine Arts	3	IT 2700	3
IT 2500	3	SE 1400	3
	15		**15**

3rd Year

Fall Semester	Hours	Spring Semester	Hours
ENGL 2100	3	Elective Course (1000)	3
Information Technology Elective (1000)	3	IT 3110	3
IT 3100	3	IT 3400	3
IT 3700	3	IT 3710	3
SE 3200	3	MGMT 3050	3
	15		**15**

4th Year

Fall Semester	Hours	Spring Semester	Hours
Elective Course (1000)	3	General Elective (1000)	3
Information Technology Elective (1000)	3	Information Technology Elective (3000)	3
Information Technology Elective (3000)	3	IT 3150	3
SE 3250	3	IT 4510	3
IT 4700	3	IT 4600	3
	15		**15**

Total Hours 121

BS Cybersecurity Program Learning Outcomes

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

1. Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply security principles and practices to maintain operations in the presence of risks and threats.