



Cybersecurity

The Cybersecurity program of study focuses on occupational and educational opportunities associated with planning, implementing, upgrading, or monitoring security measures for the protection of computer networks and information. This program of study includes responding to computer security breaches and viruses and administering network security measures.



Courses for High School Credit

Level 1	• Foundations of Cybersecurity
Level 2	• AP Computer Science Principles
Level 3	• Internetworking Technologies
Level 4	• Cybersecurity Capstone

Aligned Industry-Based Certifications

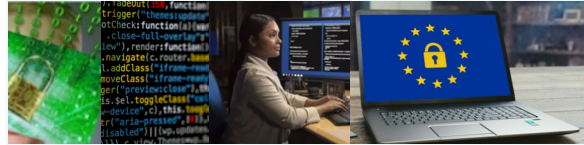
- CompTIA A+ Certification
- CompTIA Network+

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> • Intern at a local bank, hospital, or government office to develop skills in implementing security measures • Interview with an information security analyst to learn how they plan for, monitor, and upgrade security measures at their organization
Expanded Learning Opportunities	<ul style="list-style-type: none"> • Participate in a Hackathon • Participate in TSA or SkillsUSA



Successful completion of the Cybersecurity program of study will fulfill requirements of the STEM endorsement if the math and science requirements are met or the Business and Industry endorsement.



Examples Postsecondary Opportunities

Associate Degrees

- Computer and Information Systems Security
- Computer Programming

Bachelor's Degrees

- Computer Science
- Computer Software Engineering

Master's, Doctoral, and Professional Degrees

- Computer and Information Systems Security/Auditing/Information Assurance
- Computer Software Engineering

Additional Stackable IBCs/License

- Certified Ethical Hacker (CEH)

Example Aligned Occupations

(Based on statewide employment data)



Computer User Support Specialists

Median Wage: \$51,411
Annual Openings: 5,757
10-Year Growth: 21%

Software Developers

Median Wage: \$111,705
Annual Openings: 15,324
10-Year Growth: 36%

Information Security Analysts

Median Wage: \$110,268
Annual Openings: 1,719
10-Year Growth: 49%



For more information visit:
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>



Cybersecurity Course Descriptions:



Foundations of Cybersecurity - CYB2000Q (1 credit)

Level: 1 Course Fee: None
Prerequisites: None GPA Weight: Advanced

In the Foundations of Cybersecurity course, students will develop the knowledge and skills needed to explore fundamental concepts related to the ethics, laws, and operations of cybersecurity. Students will examine trends and operations of cyberattacks, threats, and vulnerabilities. Students will review and explore security policies designed to mitigate risks. The skills obtained in this course prepare students for additional study in cybersecurity. A variety of courses are available to students interested in this field. Foundations of Cybersecurity may serve as an introductory course in this field of study.

AP Computer Science Principles- COS2000P (1 credit)

Level: 2 Course Fee: None
Prerequisite: Algebra 1 GPA Weight: Advanced

AP Computer Science Principles is an introductory college-level computing course that introduces students to the breadth of the field of computer science. Students learn to design and evaluate solutions and to apply computer science to solve problems through the development of algorithms and programs. They incorporate abstraction into programs and use data to discover new knowledge. Students also explain how computing innovations and computing systems—including the internet—work, explore their potential impacts, and contribute to a computing culture that is collaborative and ethical.

Internetworking Technologies- CYB1500Q (1 credit)

Level: 3 Course Fee: None
Prerequisite: None GPA Weight: Advanced

The Internetworking Technologies I course is normally comprised of the courses called Cisco CCNA R&S: Introduction to Networks (CCNA 1) and Cisco CCNA R&S: Routing and Switching Essentials (CCNA 2). The Introduction to Networks course introduces the concept of networking, using various analogies to help the student understand the movement of packets throughout the Internet, and the protocol standards used. The Routing and Switching course moves the student into the theory of “moving packets.” The concepts of routing and switching “packets” to the correct destination is covered, and how a network administrator can direct and/or streamline this process through device configuration and deployment.

Cybersecurity Capstone- CYB4000Q (1 Credit)

Level: 4 Course Fee: None
Prerequisites: Foundations of Cybersecurity GPA Weight: Advanced

In the Cybersecurity Capstone course, students will develop the knowledge and skills needed to explore advanced concepts related to the ethics, laws, and operations of cybersecurity. Students will examine trends and operations of cyberattacks, threats, and vulnerabilities. Students will develop security policies to mitigate risks. The skills obtained in this course prepare students for additional study toward industry certification. A variety of courses are available to students interested in the cybersecurity field. Cybersecurity Capstone may serve as a culminating course in this field of study.



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