Science, Technology, Engineering, and Mathematics Career Cluster

The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster focuses on planning, managing, and providing, scientific research and professional and technical services, including laboratory and testing services, and research and development services.

Cybersecurity
Statewide Program of Study

The Cybersecurity program of study includes the occupations and educational opportunities related to planning, implementing, upgrading, or monitoring security measure for the protection of computer networks and information. This program of study may also include exploration into responding to computer security breaches and virus and administering network security measures.

Secondary Courses for High School Credit

Level 1
- Principles of Information Technology
- Fundamentals of Computer Science
- Foundations of Cybersecurity

Level 2
- Internetworking Technologies I
- Computer Science I
- AP Computer Science Principles
- Computer Maintenance/Lab

Level 3
- Engineering Applications of Computer Science Principles
- Networking/Lab
- Digital Forensics
- Internetworking Technologies II
- AP Computer Science A-Math
- AP computer Science B-LOTE
- IB Computer Science Standard Level
- Discrete Mathematics for Computer Science

Level 4
- Cybersecurity Capstone
- Practicum in Information Technology
- Practicum in STEM
- Project-Based Research
- Independent Study in Technology Applications
- Independent Study in Evolving/Emerging Technologies
- IB Computer Science Higher Level- Math
- IB Computer Science Higher Level-LOTE

Postsecondary Opportunities

Associates Degrees
- System Networking, and LAN/WAN Management
- Information Technology
- Computer and Information Sciences, General
- Computer Science

Bachelor's Degrees
- Computer Systems Networking and Telecommunications
- Computer Systems Networking and Telecommunications
- Computer and Information Sciences, General
- Computer Science

Master's, Doctoral, and Professional Degrees
- Computer Systems Analysis/Analyst
- Information Technology
- Computer Information Sciences, General
- Computer Science

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join TSA • Job shadow a computer system analyst or information security analyst	• Obtain a cybersecurity IBC

Industry-Based Certifications

- Cisco 200-201 CBROPS - Understanding Cisco Cybersecurity Operations Fundamentals
- CompTIA A+ Certification
- CompTIA Network+
- CompTIA Security+
- Cybersecurity Fundamentals
- CyberSecurity Fundamentals: An ISACA Certificate
- Oracle Certified Associate Java SE 8 Programmer

- Associate of (ISC)*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Information Security Analysts	$91,915	814	29%
Network and Computer System Administrators	$82,597	2,814	19%
Computer System Analysts	$87,568	5,937	29%

Successful completion of the Agribusiness program of study will fulfill requirements of the Business and Industry endorsement. Revised – August 2022

TEA Texas Education Agency

Cybersecurity
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principals of Information Technology	1302700 (1 credit)	None	None
Fundamentals of Computer Science	03580140 (1 credit)	None	None
Foundations of Cybersecurity	03580850 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Internetworking Technologies I	N1302803 (1 credit)	None	None
Computer Science I	03580200 (1 credit)	None	Algebra I
AP Computer Science Principles	A3580300 (1 credit)	None	None
Computer Maintenance/Lab	13027300 (1 credit) 13027310 (2 credits)	Principles of Technology	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Engineering Applications of Computer Science Principles	N1303772 (1 credit)	None	None
Networking/Lab	13027400 (1 credit) 13027410 (1 credit)	None	None
Digital Forensics	03580360 (1 credit)	None	None
Internetworking Technologies II	N1302804 (1 credit)	Internetworking Technologies I	None
AP Computer Science A-Math	A3580110 (1 credit)	None	None
AP Computer Science B-LOTE	A3580120 (1 credit)	None	None
IB Computer Science Standard Level	I3580200 (2 credits)	None	None
Discrete Mathematics for Computer Science	03580370 (1 credit)	Algebra II	None

See next page for Level 4 courses

Cybersecurity
Course Information

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Cybersecurity Capstone	03580855 (1 credit)	None	None
Practicum in Information Technology	13028000 (2 credits) 13028005 (3 credits) 13028010 (2 credits) 13028015 (3 credits)	Two high school Information Technology courses	None
Practicum in STEM	13037400 (2 credits) 13037405 (3 credits) 13037410 (2 credits) 13037415 (3 credits)	Algebra I and Geometry	None
Project-Based Research	12701500 (1 credit)	None	None
Independent Study in Technology Applications	03580900 (1 credit)	None	None
Independent Study in Evolving/Emerging Technologies	03581500 (1 credit)	None	None
IB Computer Science Higher Level - Math	I3580310 (1 credit)	None	None
IB Computer Science Higher Level-LOTE	I3580320 (1 credit)	None	None

FOR ADDITIONAL INFORMATION ON THE SCIENCE, TECHNOLOGY, ENGINEEERING, AND MATHEMATICS CAREER CLUSTER,
PLEASE CONTACT: CTE@tea.texas.gov
https://tea.texas.gov/cte

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Further nondiscrimination information can be found at Notification of Nondiscrimination in Career and Technical Education Programs.