Information Technology Career Cluster

The Information Technology (IT) career cluster focuses on the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from Software Developer and Programmer to Cybersecurity Specialists and Network Analysts.

Statewide Program of Study: 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.

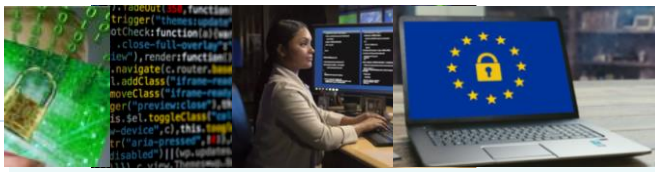
Secondary Courses for High School Credit

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

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

Level 3
- Engineering Applications of Computer Science Principles
- Internetworking Technologies II (Cisco)
- Advanced Cloud Computing
- Digital Forensics
- Discrete Mathematics for Computer Science
- Networking
- Networking/Networking Lab
- AP Computer Science A
- IB Computer Science Standard Level
- IB Computer Science Higher Level

Level 4
- Cybersecurity Capstone
- Independent Study In Technology Applications
- Independent Study in Evolving/Emerging Technologies
- Practicum in Information Technology
- Practicum in Information Technology + Extended Practicum in Information Technology
- Practicum in Science, Technology, Engineering, and Mathematics
- Practicum in Science, Technology, Engineering, and Mathematics + Extended Practicum in Science, Technology, Engineering, and Mathematics
- Career Preparation for Programs of Study
- Career Preparation for Programs of Study + Extended Career Preparation
- Career and Technical Education Project-Based Capstone



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/Licensures
- Certified Ethical Hacker (CEH)

Aligned Advanced Academic Courses

AP or IB	AP Computer Science A AP Computer Science Principles
Dual Credit	Dual credit offerings will vary by Local Education Agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	• Intern at a local bank, hospital, or government office to develop skills in implementing security measures • Interview an information security analyst to learn how they plan for, monitor, and upgrade security measures at their organization
Expanded Learning Opportunities	• Participate in a Hackathon • Participate in TSA or SkillsUSA

Aligned Industry-Based Certifications

- Cisco 100-490 RSTECH Supporting Cisco Routing and Switching Network Devices
- Cisco 200-201 CBROPS - Understanding Cisco Cybersecurity Operations Fundamentals
- Cisco CCNA (200-301) Implementing and Administering Cisco Solutions
- CodeHS Cybersecurity Level 1 Certification
- CompTIA A+ Certification
- CompTIA IT Fundamentals+
- CompTIA Network+
- CompTIA Security+
- Computer Networking Fundamentals - Job Ready
- Cybersecurity Fundamentals
- Cybersecurity Fundamentals: An ISACA Certificate
- Information Technology Specialist: Networking
- Information Technology Specialist: Java
- Information Technology Specialist: JavaScript
- Microsoft 365 Fundamentals
- Microsoft Security, Compliance, and Identity Fundamentals
- Oracle Certified Associate Java SE 8 Programmer
- Cloud Essentials+
- CompTIA Linux+
- CompTIA Server+

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.

Example Aligned Occupations

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%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.

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

Cybersecurity

Information Technology Career Cluster

Statewide Program of Study: Cybersecurity

Course Information

Level 1

Course	Prerequisites | Corequisites	Career Clusters
Principles of Information Technology* 13027200 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Fundamentals of Computer Science* 03580140 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Foundations of Cybersecurity 03580850 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** None Recommended Corequisites: None	

Level 2

Course	Prerequisites | Corequisites	Career Clusters
Computer Science I* 03580200 (1 credit)	**Prerequisites:** Algebra I *or* **Corequisites:** Algebra I **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Internetworking Technologies I (Cisco)* N1302803 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Computer Maintenance* 13027300 (1 credit)	**Prerequisites:** None **Recommended Corequisites:** Computer Maintenance Lab **Recommended Prerequisites:** Principles of Information Technology **Recommended Corequisites:** None	
Computer Maintenance + Computer Maintenance Lab* 13027310 (2 credits)	**Prerequisites:** None **Recommended Corequisites:** Computer Maintenance **Recommended Prerequisites:** None **Recommended Corequisites:** None	
AP Computer Science Principles* A3580300 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Algebra I **Recommended Corequisites:** None	

Level 3

Course	Prerequisites | Corequisites	Career Clusters
Engineering Applications of Computer Science Principles N1303772 (1 credit)	**Prerequisites:** Algebra I **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Internetworking Technologies II (Cisco)* N1302804 (1 credit)	**Prerequisites:** Internetworking Technologies I **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Advanced Cloud Computing* N1302813 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** At least one credit in a Level 2 or higher course in computer science, programming, software development, or networking systems. **Recommended Corequisites:** None	

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** Indicates course is included in more than one program of study.*

For additional information on the **Information Technology** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

Information Technology Career Cluster

Statewide Program of Study: Cybersecurity

Course Information

Level 3

Course	Prerequisites | Corequisites	Career Clusters
Digital Forensics 03580360 (1 credit)	**Prerequisites:** Foundations of Cybersecurity **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Discrete Mathematics for Computer Science* 03580370 (1 credit)	**Prerequisites:** Algebra II **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Networking* 13027400 (1 credit)	**Prerequisites:** None **Corequisites:** Networking Lab **Recommended Prerequisites:** Principles of Information Technology, Computer Maintenance, and Computer Maintenance Lab **Recommended Corequisites:** None	
Networking + Networking Lab* 13027410 (2 credits)	**Prerequisites:** None **Corequisites:** Networking **Recommended Prerequisites:** Principles of Information Technology, Computer Maintenance, and Computer Maintenance Lab **Recommended Corequisites:** None	
AP Computer Science A A3580110 (1 math credit) A3580120 (1 LOTE credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Algebra I or a student should be comfortable with functions and the concepts found in the uses of functional notation such as f(x) = x + 2 and f(x) = g(h(x)) **Recommended Corequisites:** None	
IB Computer Science Standard Level* I3580200 (2 credits)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Computer Science I, Algebra II **Recommended Corequisites:** None	
IB Computer Science Higher Level * I3580310 (1 math credit) I3580320 (1 LOTE credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Computer Science I, Algebra II Recommended Corequisites: None **Recommended Corequisites:** None	

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Cybersecurity

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Information Technology Career Cluster

Statewide Program of Study: Cybersecurity

Course Information

Level 4

Course	Prerequisites | Corequisites	Career Clusters
Cybersecurity Capstone 03580855 (1 credit)	**Prerequisites:** Foundations of Cybersecurity **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Independent Study In Technology Applications First Time Taken: 03580900 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** a minimum of one credit from the courses in the Information Technology Career Cluster **Recommended Corequisites:** None	
Independent Study in Evolving/Emerging Technologies First Time Taken: 03581500 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** a minimum of one credit from the courses in the Information Technology Career Cluster **Recommended Corequisites:** None	
Practicum in Information Technology* First Time Taken: 13028000 (2 credits) Second Time Taken: 13028010 (2 credits)	**Prerequisites:** A minimum of two high school information technology (IT) courses **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Practicum in Information Technology + Extended Practicum in Information Technology* First Time Taken: 13028005 (3 credits) Second Time Taken: 13028015 (3 credits)	**Prerequisites:** Minimum of two high school information technology (IT) courses. **Corequisites:** Practicum in Information Technology **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Practicum in Science, Technology, Engineering, and Mathematics First Time Taken: 13037400 (2 credits) Second Time Taken: 13037410 (2 credits)	**Prerequisites:** Algebra I and Geometry **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	

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Information Technology Career Cluster

Statewide Program of Study: Cybersecurity

Course Information

Level 4

Course	Prerequisites | Corequisites	Career Clusters
Practicum in Science, Technology, Engineering, and Mathematics + Extended Practicum in Science, Technology, Engineering, and Mathematics First Time Taken: 13037405 (3 credits) Second Time Taken: 13037415 (3 credits)	**Prerequisites:** Algebra I and Geometry **Corequisites:** Practicum in Science, Technology, Engineering, and Mathematics **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Career Preparation for Programs of Study First Time Taken: 12701121 (2 credits)	**Prerequisites**: at least one Level 2 or higher Career and Technical Education course **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Career Preparation for Programs of Study + Extended Career Preparation First Time Taken: 12701141(3 credits)	**Prerequisites:** at least one Level 2 or higher Career and Technical Education course **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Career and Technical Education Project-Based Capstone First Time Taken: 12701101 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	

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