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

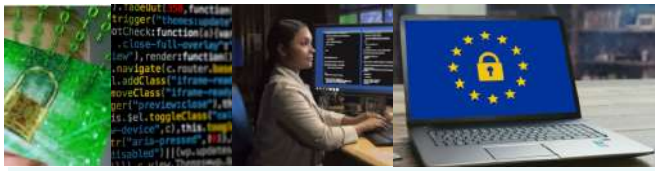
Level 4
- Independent Study in Technology Applications
- Independent Study in Evolving/Emerging Technologies
- Cybersecurity Capstone
- Career and Technical Education Project-Based Capstone
- Practicum in Information Technology
- Practicum in Information Technology + Extended Practicum in Information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

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 with 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

- AWS Certified Cloud Practitioner
- AWS Certified Solutions Architect - Associate
- AWS Certified SysOps Administrator - Associate
- Cabling Specialist Fiber Optic Systems
- Certified Associate JavaScript Programmer
- Certified Entry-Level JavaScript Programmer
- Certified Ethical Hacker (CEH)
- Certified in Cybersecurity
- Certified Network Defender (CND)
- Cisco Certified Network Administrator (CCNA)
- Cisco Certified Network Associate (200-301 CCNA)
- Cisco Certified Support Technician Cybersecurity
- Cisco Certified Support Technician Networking
- CompTIA A+ Certification
- CompTIA Cybersecurity Analyst (CySA+)
- CompTIA Linux+
- CompTIA Network+
- CompTIA Security+
- CompTIA Server+
- CompTIA Tech+
- Computer Hacking Forensic Investigator (CHFI) Certification
- Computer Networking Fundamentals - Job Ready
- Cybersecurity Fundamentals
- CyberSecurity Fundamentals: An ISACA Certificate
- Digital Forensics Essentials (DFE)
- Ethical Hacking Essentials (EHE)
- Information Technology Specialist Cloud Computing
- Information Technology Specialist Cybersecurity
- Information Technology Specialist Network Security
- Information Technology Specialist: Java
- Information Technology Specialist: JavaScript
- Information Technology Specialist: Networking
- Knowledge Pillars: Cyber Defense Specialist (CDS)
- Knowledge Pillars: JavaScript Coding Specialist (JSCS)
- Microsoft 365: Fundamentals
- Microsoft Certified: Azure Administrator Associate
- Microsoft Certified: Azure Fundamentals
- Microsoft Certified: Azure Solutions Architect Expert
- Microsoft Security, Compliance, and Identity Fundamentals
- Network Cabling Specialist Copper-based Systems
- Network Defense Essentials (NDE)
- Oracle Certified Associate Java SE 8 Programmer
- Telecommunications Technologies
- Tosa JavaScript (Advanced or Expert)
- Understanding Cisco Cybersecurity Operations Fundamentals (200-201 CBROPS)



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

Computer User Support Specialists
Median Wage: $51,823
Annual Openings: 6,387
10-Year Growth: 21%

Software Developers
Median Wage: $127,000
Annual Openings: 12,350
10-Year Growth: 36%

Information Security Analysts
Median Wage: $115,042
Annual Openings: 1,760
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/it-cybersecurity-extendedpptx.pdf

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.

Texas Education Agency

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 **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 **Corequisites:** None **Recommended Prerequisites:** Principles of Information Technology **Recommended Corequisites:** Computer Maintenance Lab	
Computer Maintenance + Computer Maintenance Lab* 13027310 (2 credits)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Principles of Information Technology **Recommended Corequisites:** None	
Advanced Placement (AP) Computer Science Principles* A3580300 (1 credit)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Algebra I **Recommended Corequisites:** None	

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

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
Engineering Applications of Computer Science Principles 13027540 (1 credit)	**Prerequisites:** Algebra I and at least one credit in a course from the Information Technology career cluster **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* 13027520 (1 credit)	**Prerequisites:** At least one credit from a course in computer science, programming, software development, or networking systems **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
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:** None **Recommended Prerequisites:** Principles of Information Technology, Computer Maintenance, and Computer Maintenance Lab **Recommended Corequisites:** Networking Lab	
Networking + Networking Lab* 13027410 (2 credits)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Principles of Information Technology, Computer Maintenance, and Computer Maintenance Lab **Recommended Corequisites:** None	

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Information Technology Career Cluster

Statewide Program of Study: Cybersecurity

Course Information

Level 3

Course	Prerequisites | Corequisites	Career Clusters
Advanced Placement (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	
International Baccalaureate (IB) Computer Science Standard Level* I3580200 (2 credits)	**Prerequisites:** None **Corequisites:** None **Recommended Prerequisites:** Computer Science I, Algebra II **Recommended Corequisites:** None	
International Baccalaureate (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	

Level 4

Course	Prerequisites | Corequisites	Career Clusters
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	
Cybersecurity Capstone 03580855 (1 credit)	**Prerequisites:** Foundations of Cybersecurity **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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Information Technology Career Cluster

Statewide Program of Study: Cybersecurity

Level 4

Course Information

Course	Prerequisites | Corequisites	Career Clusters
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:** A minimum of two high school information technology (IT) courses. **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Practicum in Engineering* First Time Taken: 12756080 (2 credits) Second Time Taken: 12756090 (2 credits)	**Prerequisites:** Algebra I and Geometry and a minimum of two credits with at least one course in a Level 2 or higher course from the Engineering career cluster **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	
Practicum in Engineering + Extended Practicum in Engineering* First Time Taken: 12756085 (3 credits) Second Time Taken: 12756095 (3 credits)	**Prerequisites:** Algebra I and Geometry and a minimum of two credits with at least one course in a Level 2 or higher course from the Engineering career cluster **Corequisites:** None **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 CTE 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 CTE course **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	

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Cybersecurity

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