



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

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|----------------|---|
| Level 1 | <ul style="list-style-type: none"> Principles of Information Technology Fundamentals of Computer Science |
| Level 2 | <ul style="list-style-type: none"> AP Computer Science Principles |
| Level 3 | <ul style="list-style-type: none"> AP Computer Science A |
| Level 4 | <ul style="list-style-type: none"> Career and Technical Education Project-Based Capstone Extended Career Prep for Programs of Study |

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

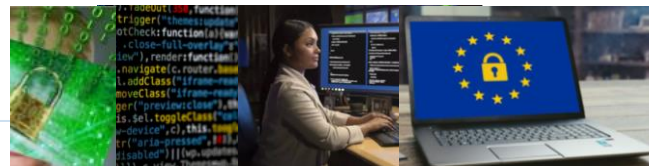
- Intern at a local bank, hospital, or government office to develop skills in implementing security measures
- Interview an information security analyst to learn how they plan for, monitor, and upgrade security measures at their organization

Expanded Learning Opportunities

- Participate in a Hackathon
- Participate in TSA or SkillsUSA

Aligned Industry-Based Certifications

- Information Technology Specialist: Java



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)



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>

COURSE INFORMATION

COURSE NAME	COURSE NUMBER AND CREDITS	PREREQUISITES (PREQ) COREQUISITES (CREQ)	GRADE
Fundamentals of Computer Science	8801 (1 credit)	None	9-10
AP Computer Science Principles	8803 (1 credit)	Algebra I & Fundamentals of Computer Science	10-11
AP Computer Science A: Math & LOTE	8805AP & 8806AP (2 credits)	AP Computer Science Principles	11-12
Career & Technical Education Project-Based Capstone	8807 (1 credit)	AP Computer Science A	12
Extended Career Prep for Programs of Study Reg or DC	8607 (3 credits) or 8607DC & D2 (3 credits)	AP Computer Science Principles DC: pre-req & SWTC reqs.	12

COURSE DESCRIPTIONS

Fundamentals of Computer Science:

Students will experience the major topics, big ideas, and computational thinking practices used by computing professionals to solve problems and create value for others. This course will empower students to develop computational thinking skills while building confidence that prepares them to advance to Computer Science Principles.

AP Computer Science Principles:

Satisfies a LOTE credit

Using Python® as a primary tool, students explore and become inspired by career paths that utilize computing, discover tools that foster creativity and collaboration, and use what they've learned to tackle challenges like app development and simulation. *This course is endorsed by the College Board, giving students the opportunity to take the AP CSP exam for college credit.*

AP Computer Science A:

Satisfies an Advanced Math and LOTE credit

Digital forensics is an evolving discipline concerned with analyzing anomalous activity on computers, networks, programs, and data. As a discipline, it has grown with the emergence of a globally-connected digital society. As computing has become more sophisticated, so too have the abilities of malicious agents to access systems and private information. By evaluating prior incidents, digital forensics professionals have the ability to investigate and craft appropriate responses to disruptions to corporations, governments, and individuals. Whereas cybersecurity takes a proactive approach to information assurance to minimize harm, digital forensics takes a reactive approach to incident response.

Career & Technical Education Project-Based Capstone:

Project-Based Research is a course for students to research a real-world problem. Students are matched with a mentor from the business or professional community to develop an original project on a topic related to career interests. Students use scientific methods of investigation to conduct in-depth research, compile findings, and present their findings to an audience that includes experts in the field. To attain academic success, students must have opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.

Extended Career Prep for Programs of Study Reg or DC:

College Credit: BMGT 1382

Students are given the opportunity to work in their program of study while earning high school credit and develop employment experiences, which must be related to the student's current program of study alongside advanced classroom instruction. The goal is to prepare students with a variety of skills to transition from job- to career-mindedness. This course provides a continuing focus on collaborative feedback between the employer, teacher, and student. Students are taught about finding their future careers, keeping, as well as leaving, a job, and how to expound on their employable talents.

Courses in yellow are Level 3 or 4 courses.



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