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: *Programming and Software Development*

The Programming and Software Development program of study focuses on occupational and educational opportunities associated with researching, designing, developing, testing, and operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computer applications. This program of study includes creating, modifying, and testing the codes, forms, and script that allow computer applications to run.

Secondary Courses for High School Credit

Level 1

Level 2	• Computer Science I
Level 3	• Computer Science II
Level 4	• Computer Science III • Independent Study in Technology Applications • Career Preparation for Programs of Study + Extended Career Preparation

Aligned Advanced Academic Courses

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 IT company to develop skills in programming and coding • Shadow a software developer to learn how they create and improve software to support efficient processes at their company
Expanded Learning Opportunities	• Program and create a game • Participate in SkillsUSA or TSA

Aligned Industry-Based Certifications

- Apple App Development with Swift
- C++ Certified Associate Programmer
- Certified Entry-Level Python Programmer (PCEP)
- Certified Professional Programmer
- Certified User: Programmer
- CodeHS Python Level 1 Certification
- CompTIA IT Fundamentals+
- CompTIA Linux+
- Information Technology Specialist: Java
- Information Technology Specialist: JavaScript
- Microsoft Azure AI Fundamentals
- Microsoft Azure Data Fundamentals
- Oracle Certified Associate Java SE 8 Programmer
- Oracle Database SQL Certified Associate
- CompTIA A+ Certification
- CompTIA Server+

Example Postsecondary Opportunities

Apprenticeships
- Computer Programmer Apprenticeship

Associate Degrees
- Computer Programming
- Web Page, Digital/Multimedia and Information Resources Design

Bachelor's Degrees
- Data Science
- Computer Engineering

Master's, Doctoral, and Professional Degrees
- Management Science
- Computer Software Engineering

Additional Stackable IBCs/License
- AWS Certified Developer Associate

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%

Computer Programmers
Median Wage: $87,997
Annual Openings: 1,176
10-Year Growth: 4%

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

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

Programming and Software Development

Information Technology Career Cluster

Statewide Program of Study: Programming and Software Development

Course Information

Level 2

Course	Prerequisites	Corequisites	Career Clusters
Computer Science I* 03580200 (1 credit)	**Prerequisites:** Algebra I **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	

Level 3

Course	Prerequisites	Corequisites	Career Clusters
Computer Science II 03580300 (1 credit)	**Prerequisites:** Algebra I and either Computer Science I or Fundamentals of Computer Science **Corequisites:** None **Recommended Prerequisites:** None **Recommended Corequisites:** None	

Level 4

Course	Prerequisites	Corequisites	Career Clusters
Computer Science III 03580350 (1 credit)	**Prerequisites:** Computer Science II, Advanced Placement (AP) Computer Science A, or International Baccalaureate (IB) Computer Science Standard Level or IB Computer Science Higher Level **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	
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	

* 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

Programming and Software Development