



# Computer Science

The Computer Science 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.



## Courses for High School Credit

<b>Level 1</b>	• Computer Science I
<b>Level 2</b>	• AP Computer Science A • Entrepreneurship
<b>Level 3</b>	• Computer Science II
<b>Level 4</b>	• Computer Science III

## Aligned Industry-Based Certifications

- Information Technology Specialist: Java
- Oracle Certified Associate Java SE 8 Programmer

## Work-Based Learning and Expanded Learning Opportunities

<b>Work-Based Learning Activities</b>	<ul style="list-style-type: none"> <li>• Intern at a local IT company to develop skills in programming and coding</li> <li>• Shadow a software developer to learn how they create and improve software to support efficient processes at their company</li> </ul>
<b>Expanded Learning Opportunities</b>	<ul style="list-style-type: none"> <li>• Program and create a game</li> </ul>



## 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

*(Based on statewide employment data)*



### 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%



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



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



# Computer Science Course Descriptions:

## Computer Science I - COS1020Q (1 Credit)

Level: 1  
Prerequisite or Corequisite: Algebra I

Course Fee: \$20  
GPA Weight: Advanced

Computer Science I will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of the principles of computer science through the study of technology operations, systems, and concepts. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts.

## AP Computer Science A- COS1330P (2 credits)

Level: 2  
Prerequisites: None

Course Fee: None  
GPA Weight: Advanced

AP Computer Science A introduces students to computer science through programming. Fundamental topics in this course include the design of solutions to problems, the use of data structures to organize large sets of data, the development and implementation of algorithms to process data and discover new information, the analysis of potential solutions, and the ethical and social implications of computing systems. The course emphasizes object-oriented programming and design using the Java programming language.

**Note: This course satisfies a math and LOTE credit requirement for students on the Foundation High School Program.**

## Entrepreneurship- BUS1220 (1 credit)

Level: 2  
Prerequisites: None

Course Fee: None  
GPA Weight: Regular

Students will learn the principles necessary to begin and operate a business. The primary focus of the course is to help students understand the process of analyzing a business opportunity, preparing a business plan, determining feasibility of an idea using research, and developing a plan to organize and promote the business and its products and services.

## Computer Science II - COS2200H (1 credit)

Level: 3  
Prerequisites: Algebra I and Computer Science I

Course Fee: \$20  
GPA Weight: Advanced

Computer Science II will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of computer science through the study of technology operations, systems, and concepts. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts.

## Computer Science III - COS3100H (1 credit)

Level: 4  
Prerequisites: Comp. Sci. II, AP Comp Science A

Course Fee: \$20  
GPA Weight: Advanced

Computer Science III will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of advanced computer science data structures through the study of technology operations, systems, and concepts. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts.



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



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