

Programming & Software Development (Computer Science)

Statewide Program of Study

Information Technology Career Cluster

The Engineering program of study focuses on the design, development, and use of engines, machines, and structures. CTE learners will learn how to apply science, mathematical methods, and empirical evidence to the innovation, design, construction, operation, and maintenance of different manufacturing systems.

Program of Study Course Sequences

Year	High School Course	Credits
1	Computer Science Principles <u>OR</u> AP Computer Science Principles	1 1
2	Computer Science I <u>OR</u> AP Computer Science A	1
3	Computer Science 2 H	1
4	Computer Science 3 H	1

Industry Certifications

May include:

- Certified Entry-Level Python Programmer (PCEP)
- Certified User: Programmer
- CompTIA A+ Certification
- IT Specialist: Java

Learning Opportunities

Participate in a coding club at school

Aligned Occupations

Occupations	Median Wage	Annual Openings	Growth
Software Developer, Systems Software	\$103,334	2,985	25%
Software Developers, Application	\$104,499	6,311	30%
Computer Programmers	\$79,893	1,454	9%

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. Revised – October 2024



Programming & Software Development (Computer Science)

Level 1

Course Name	Credit	Course Number	Service ID	Location	Grade Level
Computer Science Principles	1	3496	03580140	Odessa High School & Permian High School	9-12

Course Description: This course is intended as a first course for those students just beginning the study of computer science. Students will learn about the computing tools that are used every day. Students will foster their creativity and innovation through opportunities to design, implement, and present solutions to real-world problems. Students will collaborate and use computer science concepts to access, analyze, and evaluate information needed to solve problems. Students will learn computational thinking, problem-solving, and reasoning skills that are the foundation of computer science. 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, regulations, and best practices and by practicing integrity and respect. Students will gain an understanding of the principles of computer science through the study of technology operations and concepts.

GPA: none

Level 2

Course Name	Credit	Course Number	Service ID	Location	Grade Level
Entrepreneurship	1	8492	13011101	Odessa High School & Permian High School	9-12

Course Description: Students will gain the knowledge and skills needed to become an entrepreneur. 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. In addition, students will understand the capital required, the return on investment desired, and the potential for profit.

GPA: none

AP Computer Science Principles	1	2000	A3580300	Odessa High School & Permian High School	9-12
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Course Description: AP Computer Science Principles introduces students to the breadth of the field of computer science. In this course, students will learn to design and evaluate solutions and to apply computer science to solve problems through the development of algorithms and programs. They will incorporate abstraction into programs and use data to discover new knowledge. Students will also explain how computing innovations and computing systems, including the Internet, work, explore their potential impacts, and contribute to a computing culture that is collaborative and ethical. It is important to note that the AP Computer Science Principles course does not have a designated programming language. Teachers have the flexibility to choose a programming language(s) that is most appropriate for their students to use in the classroom.

Note: This course can be used as a foreign language credit. Please check with your college to make sure they will accept it for college entrance purposes.

Prerequisite: Algebra 1

GPA (pre 2027 grad): 5.0

GPA (2027 grad +): 5.0

Computer Science I	1	2496	03580200	Odessa High School & Permian High School	10-12
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Course Description: 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 computational thinking and 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, regulations, and best practices 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.

GPA: 4.0

Note: This course can be used as a foreign language credit. Please check with your college to make sure they will accept it for college entrance purposes.

Level 3

Course Name	Credit	Course Number	Service ID	Location	Grade Level
Computer Science II H	1	2494	03580300	Odessa High School & Permian High School	11-12

Course Description: 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 computational thinking and 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 gain an understanding of computer science through the study of technology operations, systems, and concepts.

Note: This course can be used as a foreign language credit. Please check with your college to make sure they will accept it for college entrance purposes.

Prerequisite: Computer Science I

GPA (pre 2027 grad): 5.0

GPA (2027 grad +): 5.0

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Level 3 (continued)

Course Name	Credit	Course Number	Service ID	Location	Grade Level
AP Computer Science A, Math & LOTE	1 Math 1 LOTE	4499 Math 4493 Math GT 4497 LOTE	A3580110 A3580120	Odessa High School & Permian High School	11-12

Course Description: 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 can be used as a foreign language credit. Please check with your college to make sure they will accept it for college entrance purposes.

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

Prerequisite: Algebra 1

GPA (pre 2027 grad): 5.0

GPA (2027 grad +): 5.0

Level 4

Course Name	Credit	Course Number	Service ID	Location	Grade Level
Computer Science III H	1	4494	03580350	Odessa High School & Permian High School	12

Course Description: 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 computational thinking and 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 gain an understanding of advanced computer science data structures through the study of technology operations, systems, and concepts.

Prerequisite: Computer Science II or AP Computer Science

GPA (pre 2027 grad): 5.0

GPA (2027 grad +): 5.0