

Computer Science I Syllabus

Course Description/Goals:

This course will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will understand Computer Science through the study of technology operations, systems and concepts using TechSmart Curriculum. Course studies include the coding language Python, analyzing and designing algorithms, and demonstrating proficiency in digital citizenship. Professional skills, like collaboration and communication, portfolio building are key elements. Students will prepare for the Certified Entry-Level Python Programmer (PCEP) certification. This course may be used as a Language Other than English credit and will be included in the calculation of the weighted GPA

Course TEKS/Objectives:

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.

<https://tea.texas.gov/state-board-of-education/sboe-2022/sboe-2022-june/4cofb-tues-chap-127-career-devt-sub-o-attach-0622.pdf>

Course Outline:

Semester 1	Semester 2
<p>Linear Programs</p> <ul style="list-style-type: none">- Libraries- Machine Translation- Variables- Operators- Typecasting- Expressions <p>Decisions</p> <ul style="list-style-type: none">- Conditionals- Comments & Debugging- Using Built in Libraries- Shortcut Operators- Booleans & Boolean Logic <p>Loops</p> <ul style="list-style-type: none">- While & For-Range Loops- Controlling Loops- Loop Keywords- Intro to classes, graphics & Interaction	<p>Lists</p> <ul style="list-style-type: none">- Lists & For each loops- List operations- Data privacy- Strings as collections- String Operations <p>Data Structures</p> <ul style="list-style-type: none">- Tuples- Dictionaries- Computer Networks- Nested collections/ Data Models <p>Functions</p> <ul style="list-style-type: none">- User-Defined Functions- Scope & Reference- Dockstrings- Advanced Parameters