

# Computer Science III Syllabus

## Course Description/Goals:

Students will build on previous knowledge and skills in this advanced computer science course. Course studies include comparing and contrasting high-level programming languages, model ethical acquisition and use of digital information, developing algorithms to solve problems. Curriculum will incorporate HTML/CSS. Certifications will be earned in Microsoft Office and industry based certifications. 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 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.

<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
<b>Advanced OOP</b> <ul style="list-style-type: none"><li>- Customizing Classes</li><li>- Inheritance</li><li>- Domain Driven Design</li></ul>	<b>GUI Professional Extensions</b> <ul style="list-style-type: none"><li>- Tkinter</li><li>- Widgets, Windows, events</li><li>- Real-world GUI projects</li></ul>

**PCAP Prep -**

- Advanced Modules, Packages, and POP
- Advanced Strings, Methods & Exception Handling
- Advanced Files & Processing
- Advanced Machine Code & Bitwise operations
- Advanced Comprehensions & Recursions
- Lambda Functions

**Careers in Python**

- Data Science
- Web Development
- Cybersecurity
- Project Portfolio
- Advanced Coding Standardization
- Coding Interviews

**Capstone Project**

- Project Envisioning & Planning
- Project Design
- Project Building
- Project Testing
- Project Presentations
- Project Reflections