

# Computer Programming

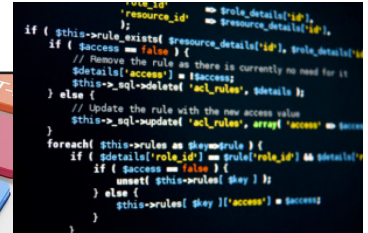
## Business and Industry Endorsement

### Career Pathways

- Computer Information Research Scientist
- Computer Hardware Engineer
- Computer Network Architect
- Database Administrator
- Software Developer



## Information Technology



Program of Study Course Sequence	9th. Grade	10th. Grade	11th. Grade	12th. Grade
<b>Computer Programming</b>	<b>Computer Science I</b> (1 Credit) <i>Prerequisite:</i> <i>Algebra I</i>	<b>AP Computer Science</b> (1 Credit) <i>Prerequisite:</i> <i>Computer Science I</i>	<b>Computer Programming I</b> (1 Credit) <b>and Computer Programming II</b> (1 Credit) <i>Prerequisite:</i> AP <i>Computer Science</i>	<b>Practicum in Information Technology</b> (2 Credits) <i>Prerequisite:</i> <i>3 credits in Information Technology Program</i>

### CTSO(s)

- Various programming contests

### Program Highlights

- Work with Virtual Reality
- Work with Augmented Reality

### Program Location

- Course(s) available at CHS
- Course(s) available at FRHS
- Course(s) available at KHS
- Course(s) available at TCHS
- Grey courses at KCAL (Only)

Texas is at the heart of the information technology revolution. Our state is home to world-class high-tech companies such as Texas Instruments, Dell, and Advanced Microsystems. Countless smaller firms create computer games, set up custom networks, service computer equipment, or develop and manage websites. In fact, every business in Texas needs IT expertise, either from in-house staff or from outside vendors. Keeping electronic data flowing takes both technical expertise and problem-solving savvy. If you are good at grasping how technology works, have an idea for a new website or computer game, or want a career that is always changing, then Information Technology may be the right cluster for you.

Computer programmers work in a wide range of industries, but generally in offices as salaried employees who code or write computer software and write, design, debug, troubleshoot, and maintain source code related to various computer programs. They also ensure that all source code is written in programming languages that can be understood by the computer so that programs can then be used by end-users. They may also customize computer programs which were purchased from vendors.

Computer programmers must know computer algorithms and application domains, and they may be required to work with vendors to test and approve their products. They must document the programs they write, and documentation should include charts, flowcharts, layouts, diagrams, and code comments and revision dates.

**Computer Science I (TEDS: 03580200 / KISD: 82301)**

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, 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. The purpose of this course is to continue on to AP Computer Science and prepare for the AP exam.

**AP Computer Science (TEDS: A3580100 / KISD: 82340)**

AP Computer Science A is equivalent to a first-semester, college-level course in computer science and is a continuation of Computer Science I. The course introduces students to computer science with fundamental topics that include problem solving, design strategies and methodologies, organization of data (data structures), approaches to processing data (algorithms), analysis of potential solutions, and the ethical and social implications of computing. The course emphasizes both object-oriented and imperative problem solving and design using Java language. These techniques represent proven approaches for developing solutions that can scale up from small, simple problems to large, complex problems. The AP Computer Science A course curriculum is compatible with many CS1 courses in colleges and universities. This course will strengthen the skills developed in Computer Science I. It involves more detailed programming using records, set, stacks, pointers, and recursion. AP students prepare to take the Advanced Placement Exam in May for possible college credit.

**Computer Programming I & II (TEDS: 13027600/13027700 / KISD: 82341)**

Students acquire knowledge of structured programming techniques and concepts appropriate to developing executable programs and creating appropriate documentation. Students analyze the social responsibility of business and industry regarding the significant issues relating to the environment, ethics, health, safety, and diversity in society and in the workplace as it relates to computer programming. Students apply technical skills to address business applications of emerging technologies. Class is taught at the Keller Center for Advanced Learning.

**Practicum in Information Technology (TEDS: 13028000 / KISD: 82361)**

In this course, students will gain advanced knowledge and skills in the application, design, production, implementation, maintenance, evaluation, and assessment of products, services, and systems. Knowledge in the proper use of analytical skills and application of IT concepts and standards are essential to prepare students for success in a technology-driven society. Critical thinking, IT experience, and product development may be conducted in a classroom setting with an industry mentor, as an internship, as part of a capstone project, or as career preparation. Class is taught at the Keller Center for Advanced Learning.

Career	High School	On the Job Training	Certificate	Associates Degree	Bachelor's Degree	Advance College Degree	Average Annual Salary	Possible Majors for this Pathway
Programmer					x		\$60,433	• Computer Science • Computer Engineering
Video Game Designer		x			x		\$59,600	
Software Developer					x	x	\$102,280	