

## Programming and Software Development CTE Program

### Information Technology Fundamentals

Course Code: 1 Credit

Prerequisite: None Course Fee: None

Information Technology Fundamentals is a one-credit course that introduces students to the knowledge base and technical skills for information technology careers. Students study the nature of business and demonstrate knowledge of the functions of information systems in business. Emphasis is placed on maintaining a safe working environment and on building interpersonal skills needed for working in the information technology environment. Students will demonstrate appropriate knowledge and behaviors regarding legal responsibilities of information technology professionals. They will explore a variety of information technology career opportunities and develop a personal career plan to meet career goals and objectives.

### Introduction to Python

Course Code: 1 Credit

Prerequisite: None Course Fee: None

Introduction to Python is a one-credit introductory course that focuses on Python language basics such as data types, variables, input, functions, operators, conditional statements, loops, and incrementing. Python data structures such as strings, lists, and range sequences, as well as methods for working with these structures are introduced. Students will use the Python language to develop sustainable code. The Python language will be introduced in a blended learning environment which includes video content, practice labs, and coding projects.

### Exploring Computer Science

Course Code: 1 Credit

Prerequisite: Algebra I Course Fee: None

This introductory high school Computer Science course is for students in grades 9-10. Students will be introduced to the breadth of the field of Computer Science through an exploration of engaging and accessible topics. This course is designed to focus on conceptual ideas of computing and help students understand why certain tools or languages might be utilized to solve particular problems. The goal of Exploring Computer Science is to develop in students the computational practices of algorithm development, problem solving and programming within the context of problems that are relevant to the lives of today's students. Students will also be introduced to topics such as interface design, limits of computers, and social and ethical issues.

### AP Computer Science Principles

Course Code: 1 Credit

Prerequisite: Geometry and Algebra I Exam Fee: \$100

AP Computer Science Principles is equivalent to a first-semester, college-level breadth course, which follows the curriculum established by the College Board Advanced Placement

(AP) program for computer science. 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. The AP Computer Science Principles Exam is required and will be administered in May.

## **AP Computer Science A**

Course Code:

1 Credit

Prerequisite: Algebra II w/Stats

Exam Fee: \$100

AP Computer Science A is equivalent to a first semester, college level course in computer science. This course introduces students to computer science with fundamental topics that includes 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. The AP Computer Science A Exam is required and will be administered in May.