

COMPUTER AND DIGITAL TECHNOLOGIES

Computer and Digital Technologies courses fall under FutureForward Career and Technical Education (CTE) programming. FutureForward gives all students a competitive advantage as they enter college, career or the military. FutureForward Students:

- Explore opportunities that prepare them for high-demand careers and give them an edge entering college.
- Engage in authentic, hands-on learning.
- Equip themselves with relevant, rigorous, and practical skills.

FutureForward at Horizon offers introductory Computer and Digital Technologies courses: Web Design, Coding I, Coding II, AP Computer Science Principles, and AP Computer Science A. Students interested in further coursework may take courses at Bollman until the pathway grows at Horizon. Computer and Digital Technologies courses at Bollman are available to be taken synchronously online. Contact your counselor at Horizon or Bollman for details.



Career and Technical Student Organization (CTSO): Future Business Leaders of America (FBLA)

Each student will have the opportunity to participate in FBLA in and out of class. Any students interested in participating further in FBLA may compete at the state and national level. There are a variety of individual and team events. More info to come in class.

WEB DESIGN – 169300

10, 11, 12

.5 credit

Introduces web site planning, design and creation utilizing HTML through industry-standard development tools. Emphasis is placed on applying stylistic decisions using cascading style sheets. Web based considerations regarding color, typography, aesthetics, user interface design, and process integration with visual-based design tools will be explored.

RECOMMENDED PREREQUISITE: Computer Applications (Introduction to PC Applications)

CODING I – 169071 (formerly known as Intro to Computer Science, 1st semester)

9, 10, 11, 12

.5 credit

Coding I is a Python course intended to teach students the basics of computer programming. Students begin by learning the history of computing, the impacts it has had, and the impacts it may have. Students explore career opportunities associated with coding.

The course places emphasis on practicing standard programming techniques and learning the logic tools and methods typically used by programmers to create simple computer applications. Upon completion of this course, proficient students will be able to solve problems by planning multi-step procedures; understanding number systems and how they are used in programming; write, analyze, review, and revise programs, converting detailed information from workflow charts and diagrams into coded instructions in a computer language; and will be able to troubleshoot/debug programs and software applications on a computer and/or microcontroller to correct malfunctions and ensure their proper execution.

PREREQUISITE: NONE

NOTE: CODING I and CODING II may be taken the same year. If you are interested in both of these courses, register for both.

CODING II – 169072 (formerly known as Intro to Computer Science, 2nd semester)

9, 10, 11, 12

.5 credit

Coding II challenges students to develop advanced skills in problem analysis, construction of algorithms, and computer implementation of algorithms as they work on programming projects of increased complexity. In so doing, they develop key skills of discernment and judgment as they must choose from among many languages, development environments, and strategies for the program life cycle. Course content is reinforced through numerous short- and long-term programming projects, accomplished both individually and in small groups. These projects are meant to hone the discipline and logical thinking skills necessary to craft error-free syntax for the writing and testing of programs. Upon completion of this course, proficient students will demonstrate an understanding of object-oriented programming language using high-level languages such as Processing (Java version), FOCUS, Python, or SAS.

PREREQUISITE: Successful completion of Coding I or teacher approval

NOTE: CODING I and CODING II may be taken the same year. If you are interested in both of these courses, register for both.

AP COMPUTER SCIENCE PRINCIPLES – 169010

9, 10, 11, 12

1 Credit

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.

PREREQUISITE: Concurrently enrolled in or completion of Integrated Math II

AP COMPUTER SCIENCE A – 169000

10, 11, 12

1 Credit

AP Computer Science A is an introductory college-level computer science course. Students cultivate their understanding of coding through analyzing, writing, and testing code as they explore concepts like modularity, variables, and control structures. The course emphasizes object-oriented programming and design using the Java programming language.

PREREQUISITE: AP Computer Science Principles or Coding II AND enrolled or completed Integrated Math II

WORK-BASED LEARNING – 164900

9, 10, 11, 12

Potential Credit Earned: .5 per semester, up to 2.0 credits total

Potential Credit Earned: .5 credit per semester, up to 2.0 credits total

Interested students who are enrolled in or who have completed an approved Career and Technical Education program may choose to participate in Work-Based Learning. The Work-Based Learning Coordinator is available to sign students up after Future Forward courses have begun each semester. Please contact your Business/Marketing, Computer and Digital Technologies, or Family and Consumer Sciences teacher for more information.

- Students must complete the Training Agreement to enroll.
- Students must work a minimum of 125 documented hours to earn .5 credit and 250 documented hours for 1 credit. A student may not earn more than .5 credit of Work-Based Learning per semester.
- A student may not count more than 2 Work-Based Learning credits towards graduation requirements.
- Work-Based Learning credit may not be included in, nor does it count toward, the 6 total credits students are required to be enrolled in each year.



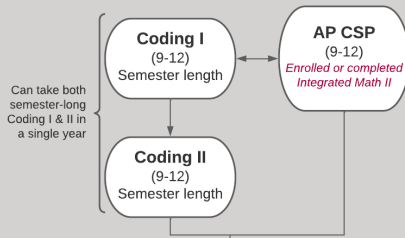
College credit opportunities, leadership development or certifications from:



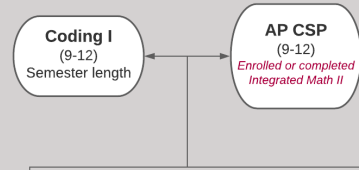
Computer and Digital Technologies

ENTRY-LEVEL:

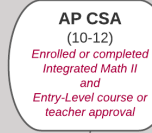
Programming Pathway



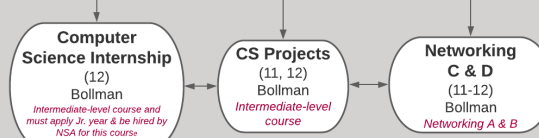
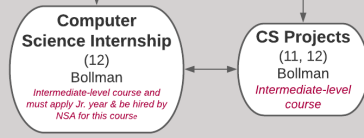
Networking & Cybersecurity Pathway



INTERMEDIATE:



ADVANCED:



Computer and Digital Technologies



ENTRY-LEVEL:

Coding I S1 & Coding II S2
AP Computer Science Principles S1 & S2[^]
Web Design



INTERMEDIATE:

AP Computer Science A S1 & S2[^]
Available at FutureForward at Bollman:

- Cybersecurity[^]
- Networking A & B[^]



ADVANCED:

WBL Computer/Digital Technology
Available at FutureForward at Bollman:

- CS Projects[^]
- Computer Science Internship[^]



ADDITIONAL BENEFITS:

CTSO Participation: FBLA
On-the-job Work-based Learning Credit Available

[^]Course has recommended prerequisite