2019-20 Courses to Fulfill Computer Science Graduation Requirement (2 pages)

Course	Code
Computer Science SL	471D IB
Computer Science HL-1	471B IB
Computer Science HL-2	471C IB
AP Computer Science A	4771
AP Computer Science Principles	4775
Fundamentals of Computing Fundamentals of Computing Part I Fundamentals of Computing Part II	5023 502800CH (grade 7 for ½ high school credit) 502900CH (grade 8 for ½ high school credit
IT Fundamentals	5025
Fundamentals of Web Page Design and Development	5031
Advanced Web Page Design and Development	5033
Computer Programming 1	5050
Computer Programming 2	5051
Computer Programming 1 with JAVA	5052
Computer Programming 2 with JAVA	5053
Computer Programming 1 with Visual Basic	5054
Computer Programming 2 with Visual Basic	5055
Computer Programming 1 with C++	5056
Computer Programming 2 with C++	5057
Java Fundamentals and Java Programming	5058
Networking Fundamentals	5310
Advanced Networking	5311

Server Administration	5312
Advanced Server Administration	5313
Computer Repair and Service	5320
Advanced Computer Repair and Service	5321
Computer Operating Systems	5322
Advanced Computer Operating Systems	5323
Database Design and Programming with SQL	5324
Database Programming with PL/SQL	5326
SAS Programming 1	5327
SAS Programming 2	5328
Foundations of Animation	5350
Advanced Animation	5351
Game Design and Development	5352
GIS Technology 1	5361
GIS Technology 2	5362
Cybersecurity Fundamentals	5370
Advanced Cybersecurity	5372
Computer Forensics	5374
PLTW Principles of Engineering	6050
PLTW Computer Science Essentials	6372
PLTW Computer Science Applications	6373
PLTW Computer Science Principles	6377
PLTW Cybersecurity	6378
Discovering Computer Science Discovering Computer Science Part I Discovering Computer Science Part II	5061 506200CH (grade 7 for ½ high school credit) 506300CH (grade 8 for ½ high school credit)

Computer Science Introductory Course Descriptions

Discovering Computer Science

Students will be exposed to introductory computer science topics with an emphasis on computational thinking and problem solving. Students will be empowered to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun. Students will create their own websites, apps, and games.

- This survey course will expose students to introductory computer science topics with an emphasis on computational thinking and problem solving applied to a variety of contexts. Students will be empowered to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun.

Fundamentals of Computing

This course is designed to introduce students to the field of computer science through an exploration of engaging and accessible topics. Through creativity and innovation, students will use critical thinking and problem solving skills to implement projects that are relevant to their lives. They will create a variety of computing artifacts while collaborating in teams. Students will gain a fundamental understanding of the history and operation of computers, programming, and web design. Additionally, students will be introduced to computing careers and will examine societal and ethical issues of computing.

- This course is very similar to Discovering Computer Science, but it takes a deeper dive into computer science careers and career-related topics. This course is recommended for students pursuing a computer science major or pathway.

AP Computer Science Principles

AP Computer Science Principles offers a multidisciplinary approach to teaching the underlying principles of computation. The course introduces students to the creative aspects of programming, abstractions, algorithms, large data sets, the Internet, cybersecurity concerns, and computing impacts. AP Computer Science Principles also gives students the opportunity to use current technologies to create computational artifacts for both self-expression and problem solving. Together, these aspects of the course make up a rigorous and rich curriculum that aims to broaden participation in computer science.

- This course is designed as one credit for students in grades 9, 10, and 11.
- This course is similar to Fundamentals of Computing but is designed to be equivalent to a first-semester introductory college computing course.
- This course is designed for an inclusive audience and is intended to be a gateway for students interested in taking subsequent AP courses.
- It is recommended that students enrolled in this course have a strong foundation in Algebra 1.
- While there is no prerequisite for the course, students will take the AP exam at the end of the course.

Fundamentals of Web Page Design and Development
Students will gain the skills and knowledge needed to safely and effectively use internet applications and languages to create and maintain web pages using a structured development process. Students will learn the HTML, CSS, and basic scripting in a language like JavaScript needed to create websites that are well-organized, attractive, universally accessible, responsive, and easy to navigate. They will also learn the technological processes, requirements, and legal ramifications for publishing their websites.

- This course is designed as one credit for students in grades 9, 10, and 11.
- This is a specialized course focusing on one area of computer science and is recommended for students who are interested in learning web design and development industry languages. This course will prepare students for industry credentials.
- School districts may choose to require Discovering Computer Science or Fundamentals of Computing as a prerequisite.

IT Fundamentals
Students will learn essential Information Technology (IT) skills and knowledge needed to perform common entry-level IT tasks. Students will learn to install, repair, configure, secure, and manage computer hardware, operating systems, and software in home or corporate environments. Students will learn common practices for troubleshooting a variety of computer issues and customer service techniques for assisting computer users with their respective problems.

- This course is designed as one credit for students in grades 9, 10, and 11; specifically, it is not recommended for students below grade 9.
- This course is specialized and will afford students an opportunity to explore introductory IT topics, including networking, cybersecurity, operating systems, computer repair, and server administration. This rigorous course will prepare students for industry credentials in IT.
- This course is designed as the introductory course for students pursuing IT majors or pathways. This course is not recommended for students pursuing other computer science majors.