

Rockville HS – Computer Science

Requirements: 1 credit of Technology is required to graduate. Students can also take the Computer Science courses for the Computer Science Program of Study (POS). To complete the POS, students must take all 4 Computer Science, Code.org) POS classes.

Technology Credit

Title	Gr Level	Course Type	Descriptions
AP Computer Science Principles A/B COURSE CODE: ITC2084 A/B (TE) Corequisite: <i>Algebra 1</i>	9-12	Tech or Computer Science POS	This course, offered in partnership with Code.org, advances student understanding of the central ideas of computer science, engaging them in activities that show how computing has changed the world. Through a focus on creativity, students explore technology as a means for solving computational problems, examining computer science's relevance to and impact on the world today. Aligned to the new AP test of the same name, this course is part of an MSDE-approved 4 credit Program of Studies in Computer Science.
Foundations of Computer Science A/B COURSE CODE: ITC2083 A/B	9-12	Tech	Based on Code.org' Exploring Computer Science curriculum which is a national program committed to democratizing computer science knowledge by increasing learning opportunities at the high school level for all students, with a specific focus on access for traditionally underrepresented students. Course includes units on human computer interaction, web design, introduction to programming, computing and data analysis, and robotics. Includes culturally relevant lessons designed to be inclusive and based on an inquiry-based teaching. <i>Recommended for students to have passed or be concurrently enrolled in Algebra 1.</i>
Introduction to Engineering Design (IED) COURSE CODE: TEC2017 A/B Prerequisite: <i>Algebra 1</i>	9-12	Tech	This is an introductory course that develops students' problem-solving skills, with emphasis on visualization and communication skills using a computer and 3-D solid modeling software. This course emphasizes the development of a design using computer software to produce, analyze, and evaluate models of projects and solutions. Students will study the design concepts of form and function and then use state-of-the-art technology to translate conceptual design into reproducible products.

Computer Science POS/IBCP

Title	Gr Level	Course Type	Descriptions
AP Computer Science Principles A/B COURSE CODE: ITC2084 A/B Corequisite: Algebra 1	9-12	Computer Science POS	<p>This course, offered in partnership with Code.org, advances student understanding of the central ideas of computer science, engaging them in activities that show how computing has changed the world. Through a focus on creativity, students explore technology as a means for solving computational problems, examining computer science's relevance to and impact on the world today. Aligned to the new AP test of the same name, this course is part of an MSDE-approved 4 credit Program of Studies in Computer Science.</p>
Computer Programming 1 A/B (Hon) COURSE CODE: ITC2024 A/B Corequisite: <i>Geometry or Honors Geometry</i>	9-12	Computer Science POS	<p>This course introduces the basic principles of structured programming, within the context of an object-oriented language. Topics covered include fundamentals of the Python programming language, simple and structured data types, control statements, functions, arrays, and classes. Emphasis is placed on developing effective problem-solving techniques through individual and team projects.</p>
AP Computer Science JAVA A/B COURSE CODE: ITC2007 A/B Prerequisite: <i>AP Computer Science Principles A/B or Computer Programming 1 A/B</i>	11-12	Computer Science POS	<p>Using the Java language, students explore in-depth work with text files and arrays, abstract data types, recursion, searching and sorting algorithms, and program efficiency. Examination of specified class behaviors, interrelated objects, and object hierarchies are studied. Students may elect to take the A version of the Advanced Placement Computer Science exam.</p>
IB Computer Science 1 SL A/B COURSE CODE: ITC 2064 A/B	12	Computer Science POS	<p>This course develops an understanding of the fundamental concepts of computational thinking as well as knowledge of how computers and other digital devices operate. During this course, students will develop computational solutions. This will involve the ability to identify a problem or unanswered question, design, prototype and test a proposed solution, and liaise with clients to evaluate the success of the proposed solution and make recommendations for future developments. Through a balanced blend of theoretical understanding and practical application, students develop critical skills in designing algorithms, writing code, and analyzing the societal implications of computing.</p> <p>Non-IB students can enroll in this class as long as they are</p>

			utilizing it for a POS completer.
Computer Programing 3 (Adv) COURSE CODE: ITC2021 A/B	12	Computer Science POS	In this Advanced course, students will study advanced programming methodology, the features of programming languages, primitive data types, dynamic allocation of memory, data structures, searching, sorting, and numerical algorithms, using the JAVA programming language. Students are also introduced to software engineering concepts and team oriented approaches for solving problems. Students will explore advanced topics such as memory management, network programming, simulation and game development, and multimedia programming.

Hon – Honors Adv – Advanced AP – Advanced Placement IB – International Baccalaureate

Course abbreviations:

AP CSP = Advanced Placement Computer Science Principles*

CP 1 = Computer Programming 1

IB C.S. SL = International Baccalaureate Computer Science (Standard Level)

CP 3 = Computer Programming 3

AP JAVA = Advanced Placement Computer Science 2 JAVA

Computer Science Program of Study:

AP CSP + CP1 + AP JAVA + CP 3

IBCP:

AP CSP + CP1 + AP JAVA + IB C

For any other options or questions, please see Mr. Jason Lomax, Resource Teacher (RT) for guidance and information.