# COMPUTER SCIENCE DEPARTMENT

**COMPUTER PROGRAMMING 1 A/B** **298900/299000**

This course introduces the basic principles of structured programming within the context of an object-oriented language. Topics covered include fundamentals of the **C + + 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.
*Co-requisite*: Geometry or Honors Geometry
Grade Level: 9-10-11-12 May be repeated one time

**AP® COMPUTER SCIENCE (JAVA) A/B** **290100/290200**

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 examination upon completion of this course.
*Prerequisite*: Computer Programming 1 A/B
Grade Level: 10-11-12 No repeats for credit

**AP COMPUTER SCIENCE PRINCIPLES A/B #** **291800/291900**

The course provides an engaging introduction to computing concepts through a nationally-developed curriculum, offered through a unique partnership with Code.org. The course focuses on the conceptual ideas of computing so that students understand why tools and languages are used to solve problems through a study of human computer interaction, problem solving, web design, programming, data analysis, and robotics.
Freshman co-requisite: Honors Geometry
Grade Level**:** 9 - 10 - 11 – 12 No repeats for credit

**APPLICATION DEVELOPMENT WITH SWIFT, LEVEL 1** **TBD**

This introductory course is designed to help students build a solid foundation in programming fundamentals and is aligned with Maryland Computer Science Standards. Students gain practical experience with the tools, techniques, and concepts needed to build a basic IOS app using Apple's Swift coding language.
Prerequisite: None
Grade Level: 9-10-11-12 No repeats for credit

**FOUNDATIONS OF COMPUTER SCIENCE A/B**
**# BASIC TECH CREDIT** **292400/292500**
**CTE PATHWAY COMPLETER** **291800/291900**

This course provides an engaging introduction to computing concepts. The course focuses on the conceptual ideas of computing so that students understand why computing tools and languages are used to solve problems through a study of human computer interaction, problem solving, web design, programming, data analysis and robotics. This course satisfies the technology education graduation requirement.
Grade Level: 9-10-11-12 No repeats for credit

**WEB SITE DEVELOPMENT A/B** **299100/299200**

Students learn Web design from storyboard to a finished online Web page and develop actual sites from customers' specifications using HTML, JavaScript, Macromedia web development tools, and object-oriented programming languages. Skills in streaming media, server applications, and 3-D animation are developed. Project management provides students with skills to lead teams through projects, from inception to completion.
Grade Level: 9-10-11-12 No repeats for credit

**WEB DESIGN, ADVANCED (Web Tools and Digital Media) A/B** **293600/293700**

This course introduces students to advanced web topics such as web scripting, web server administration, and web-based multimedia tools. Students also study digital media and related topics, including audio, video, graphics, text, and animation tools as well as color and animation concepts.
*Pre*-requisite: Attainment of the outcomes of Web Site Development A/B and teacher approval
Grade Level: 10-11-12 No repeats for credit