Computer Science Course Descriptions

**Intro to Computers** - is an introductory computer science course that empowers students to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun.

**Office 1** - provides you with the proper knowledge, skills and procedures to create documents, workbooks, and presentations using Office (Microsoft Word, Microsoft Excel, and Microsoft PowerPoint). (prerequisite Intro to Computers)

**Office 2** - offers a deeper study of the Microsoft Office suite including Word, Excel, and PowerPoint. The knowledge gained from Office 1 will be expanded as you learn more functions available in each application. (prerequisite Office 1)

**HTML5 & CSS** - master the HTML5 and CSS3 skills you need to create exceptional web designs. This class covers basic to advanced concepts and skills for developing web pages and websites using the most current versions of HTML5 and CSS3. You will learn to create dynamic websites that incorporate forms, videos, JavaScript, cutting-edge CSS3, and more. (prerequisite Intro to Computers)

**Dreamweaver** - allows you to quickly create Web pages without writing the code in HTML. In this class you learn about the Dreamweaver workspace, how to develop a Web Page, and work with text, graphics, links, tables, and forms. If time permits, you will use style sheets, create layers, and add multimedia elements. (prerequisite HTML)

**Adobe Animate** - offers a fun learning experience because it allows you to create animations, transformations, creative typography, and Internet applications. You will learn the basics of Animate which include learning the Animate environment, drawing objects, working with symbols and interactivity, creating animations, and creating special effects. You will prepare and publish movies and complex animations that run seamlessly across desktops, smart phone and tablets. (prerequisite Intro to Computers)

**Adobe InDesign** - learn how to create engaging page layouts, flow and edit text, create and use styles, incorporate graphics and tables, and create PDF forms and ebooks. (prerequisite Intro to Computers)

**Pre-Architecture** - Building Information Modeling (BIM) is an intelligent model-based process that provides insight for creating and managing building projects faster, more economically, and with less environmental impact. Students will learn basic techniques for creating building information models, including: building elements, building envelope, curtain systems, interiors and circulation, and creating families in AutoDesk Revit. (prerequisite Intro to Computers)

**Computer Aided Engineering** - Computer Aided Design (CAD) and Computer Aided Engineering (CAE) software tools are essential to the engineering design, analysis, and manufacturing process. This course teaches fundamental CAD and CAE skills through a series of lectures and exercises using Autodesk Fusion 360, a cloud based CAD/CAM tool. This course is based on the Introduction to CAD/CAE tools course currently taught by Adjunct Professor Sualp Ozel at Carnegie Mellon University, PA.

**3-D Design** - Students will learn to make original designs and maybe even customize those designs to specific people. That means you can’t just download and print other people’s files— you need to rock that software yourself. Well, if you are just learning how to do that or have outgrown the “starter” apps, you’ve come to the right place! With this class you’ll soon be making your own designs with Autodesk’s Fusion 360 software. The course fee covers the 3-D printing of student designs. Course fee - $30 (prerequisite Intro to Computers)

**Intro to Cybersecurity** - As our world becomes increasingly dependent on technology, cybersecurity is a topic of growing importance. It is crucial that companies and individuals take precautions to protect themselves from the growing threat of cyber attacks. This course prepares students with crucial skills to be responsible citizens in a digital future. Students will learn foundational cybersecurity topics including networking fundamentals, software security, and basics of cryptography. (prerequisite Intro to Computers)

**Cybersecurity I** - The Cybersecurity I course presents the fundamental tenets of networking and covers the general concepts involved in maintaining a secure network computing environment. Upon completing this course, students will be able to examine and implement basic networking configuration techniques as well as describe general networking fundamentals.(prerequisite Intro to Cybersecurity)
PC Repair I - This course introduces students to the field of IT technical support in how to install, maintain and troubleshoot computer hardware and networks. This course uses CompTIA A+ Exam objectives as a framework to prepare you for the 220-1001 certification exam. The class covers the latest hardware, security, mobile device support, cloud computing and virtualization. CompTIA A+ certification is not included with the course. (prerequisite Intro to Computers)

PC Repair II - Master the details of IT technical support as you learn how to work effectively with users as well as how to install, maintain and troubleshoot computer software. This course uses CompTIA A+ Exam objectives as a framework to prepare you for the 220-1002 certification exam. The class covers core and advanced topics while emphasizing practical application of the most current technology, techniques and industry standards in IT technical support today. You learn by doing with lessons on the latest security, Active Directory, operational procedures, basics of scripting, mobile operating systems, virtualization, remote support and Windows 10. CompTIA A+ certification is not included with the course. (prerequisite PC Repair I)

Javascript - This course teaches the foundations of computer science and basic programming, with an emphasis on helping students develop logical thinking and problem solving skills. Once students complete the Javascript course, they will have learned material equivalent to a semester college introductory course in Computer Science and be able to program in JavaScript. (prerequisite Intro to Computers)

App Development - In this course, students will learn how to create mobile apps using React Native, a popular platform-agnostic framework developed by Facebook and used by successful tech companies including Airbnb, Facebook, Instagram, Tesla, and more. As an online blended high school course, students will design and build applications to run on their own smartphones and will use the latest tools and technologies available for mobile app development. Students will learn the foundations of the React Native framework, components, and how to use components to create scalable, custom, and fast mobile applications. Students will also learn about important computer science topics including state changes, using XML and stylesheet objects, mapping through objects, rendering dynamic data, and creating modular app layouts with flex. (prerequisite Javascript)

Python Programming - This course will provide a gentle, yet intense, introduction to programming using Python for highly motivated students with little or no prior experience in programming. The course will focus on planning and organizing programs, as well as the grammar of the Python programming language. (prerequisite Intro to Computers)

Raspberry Pi - The Raspberry Pi is a small, affordable single-board computer that the student will use to design and develop IoT (Internet of Things) devices while learning programming and computer hardware. In addition, students will learn how to setup the Raspberry Pi environment, get a Linux operating system running, and write and execute some basic Python code on the Raspberry Pi. Students will also learn how to use Python-based IDE (Integrated Development Environments) for the Raspberry Pi and how to trace and debug Python code on the device. (prerequisite Python Programming)

Artificial Intelligence - Machine learning is the science of getting computers to act without being explicitly programmed. In the past decade, machine learning has given us self-driving cars, practical speech recognition, effective web search, and a vastly improved understanding of the human genome. Machine learning is so pervasive today that you probably use it dozens of times a day without knowing it. Many researchers also think it is the best way to make progress towards human-level AI. In this class, you will learn about the most effective machine learning techniques, and gain practice implementing them and getting them to work for yourself. More importantly, you'll learn about not only the theoretical underpinnings of learning, but also gain the practical know-how needed to quickly and powerfully apply these techniques to new problems.

Python Game Programming - Once you have an understanding of the basics of Python programming, you can now expand your abilities using the Pygame library to make games with graphics, animation, and sound. (prerequisite Python Programming)
Beginning Java Programming – An introduction to Java using a project-oriented approach to learning, presenting difficult Java programming concepts in a straightforward and exciting way! The real-world examples provided reinforce concepts and empower student to apply the knowledge acquired. This course maps the Computer Science AP examination. (prerequisite Intro to Computers)

AP Computer Science A - AP® Computer Science A is both a college-prep course for potential computer science majors and a foundation course for students planning to study in other technical fields such as engineering, physics, chemistry, and geology. The course emphasizes programming methodology, procedural abstraction, and in-depth study of algorithms, data structures, and data abstractions, as well as a detailed examination of a large case study program. Instruction includes preparation for the AP Computer Science A Exam. Click here for additional info on AP Computer Science (prerequisite Beginning Java Programming and Permission of Instructor)

Computing Ideas - The Computing Ideas course is a first computer science course introducing the basics of designing a web page, and how information and images are represented with computers. Students will learn to code using blocks to drag and drop, but they can switch between blocks and text as desired. Students will create a portfolio on the web of projects they build throughout the course. With a unique focus on creativity, problem solving and project based learning, Computing Ideas gives students the opportunity to explore several important topics of computing using their own ideas and creativity and develop an interest in computer science that will foster further endeavors in the field. (prerequisite Intro to Computers)

AP Computer Science Principles - This course is a rigorous, entry-level computer science course that introduces high school students to the foundations of modern computing. The course covers a broad range of foundational topics such as programming, algorithms, the Internet, big data, digital privacy and security, and the societal impacts of computing. (prerequisite Creative Computing and Permission of Instructor)

C# Programming - In this official course from Unity, you will learn to Create with Code as you program your own exciting projects from scratch in C#. As you iterate with prototypes, tackle programming challenges, complete quizzes, and develop your own personal project, you will transform from an absolute beginner to a capable Unity developer. By the end of the course - if you are completing it through a school program - you will also be ready to put your skills to the test on the Unity Certified User Programmer Exam. Most importantly, though, when you complete this course, you will have the confidence that you can Create with Code. (prerequisite Intro to Computers)

Computer Game Programming I - This course goes from absolute beginner all the way to building and programming your own games in Unity. Included in this course are various tutorials and projects as well as resources to help you learn concepts of the Unity development platform. This course will help you understand the foundations of programming - from variables to loops - to the nuances of Unity that help makes people's lives easier. This course will help you learn the terminology and the concepts to know when using C# to program games and projects in Unity. (prerequisite C# programming)

Computer Game Programming II - This course will provide a strong foundation in software engineering, programming, and the C# language. You will work on all major aspects of developing video games using the Unity engine. Through this course, students will learn programming by working on games, and will learn to write code to run every part of their game, from physics to AI to game servers. Rather than focusing narrowly on topics needed to make games, this course will teach you to be a programmer with a solid foundation in Unity.(prerequisite Computer Game Programming I)

Immersive Realities - Virtual and mixed reality technologies are becoming booming industries. In this course you will design content for Virtual Reality and Mixed Reality. Learn how to take advantage of the newest advances in VR and MR modeling, texturing, and rendering in this course. Using Maya and Unity, you'll look at how to create assets that are efficient and effective, contributing to an overall more compelling virtual reality experience. Dive into modeling, texturing, and rendering, and learn some tips for making more sophisticated content with ambient lighting and effects. Plus, get insights on cutting-edge VR and MR techniques, such as creating content with Unity, Unreal Engine 4, Tilt Brush, SculptrVR, MakeVR, and more.(prerequisite C# programming)
Adobe Premiere - Learn to edit video in Adobe Premiere Pro CC 2020 and get the most out of your workflow. Learn how to take a project from beginning to end, organize media, add audio, create transitions, produce titles and captions, and add effects. Take your projects further by sweetening and mixing sound, compositing footage, adjusting color, using advanced editing techniques, managing projects, working with 360 video for VR headsets, animating graphics and video, exporting, and much more. Workflows incorporating Adobe Photoshop, Adobe After Effects, and Adobe Audition expand your creative options. (prerequisite Intro to Computers)