Computer Science

Advanced Game Creation
.5 Credit/Elective

Grade: 9, 10, 11, 12  Laude Point: 0  Cost: Class Fee – None

Prerequisite: Game Creation and Exploring Programming

Course Content: This course is intended to expand what students have learned in the Game Creation class. Students will expand the skills and knowledge they have learned to create more complex computer games and improve upon their design planning and strategies. Advanced Game Creation will teach advanced skills which will include programming elements and techniques. Students will have access to Project Spark where they plan, design and program a game for Windows 8 and the Xbox One. There are a variety of other programs that students will have access to as long as time permits. These may include free software and/or open source software such as: Game Maker, RPG Maker, and 3D Adventure. Students will be required to create one major game as a final project for the course. Must have received a B or higher in Exploring Programming.

Activities: Due to the nature of the class, little to no tests or quizzes will be given. Rather the class grade will be comprised mostly of student created projects and effective use of class time. Students will write games using Microsoft’s Kode as the main project for the class as they work on their Project Spark game. Students may also be exposed to other programming languages and programs as they have time to work with other programs. Students will have opportunities to work collaboratively on smaller projects to help them develop skills to improve their own games. Students will also be given the opportunity to be creative as they build an interactive level for their game. Finally, students will have the opportunity to post their creations online so that others may play their creations.

Supplies: Headphones

Computer Animation
.5 Credit/Elective

Grade: 9, 10, 11, 12  Laude Point: 0  Cost: Class Fee – None

Prerequisite: None

Course Content: Students will learn the basics of animation. This class is intended for students for students who have no previous knowledge of computer animation. Students will learn how to create their own custom animations. For the custom animations students will be creating their own custom backgrounds. They will also be creating objects and moving objects on the different backgrounds to create short stories. Students will also get the chance to work with one of the top programs in animation. Blender, which is an open source free program for creating animations and games. Other programs and opportunities may become available to students time permitting.

Activities: Due to the nature of the class, little to no tests or quizzes will be given. Rather the class grade will be comprised mostly of student created projects and effective use of class time. Students will have opportunities to mix their creative side with their technical side as the animate and create animations.

Supplies: Headphones
Computer Science

Computer Repair

.5 Credit/Elective

Grade: 9, 10, 11, 12  Laude Point: 0  Cost: Class Fee – None

Prerequisite: Basic Computer Skills

Course Content: Students will use PC Pro, an online simulation, to learn all of the essentials for an IT introduction training course. Students will learn how to build, configure, and maintain a PC as well as learn the basics of networking and security. Many of the projects are in a simulation where students are required to complete tasks on several computers in different offices of a small business. Students who complete the class are eligible to take a certification exam at the end of the class. Students who pass the exam can earn the following certifications: CompTIA A+ 220-801, CompTIA A+ 220-802 and TestOut PC Pro Certification.

Activities: Students will use LabSim’s video tutorials, demonstrations and hand-on simulations. Students will not only be able to prove they know their material, you will be able to demonstrate that you can perform the IT tasks employers are looking for. Small quizzes and tests will be given (can be retaken as many times as needed) throughout the quarter to help evaluate progress and prepare you for the final certification exam.

Supplies: Headphones

Exploring Programming

.5 Credit/Elective

Grade: 10, 11, 12  Laude Point: 0  Cost: Class Fee–none

Prerequisite: Students should be highly motivated learn programming code

Course Content: This class is intended for students to explore a variety of programming opportunities and is intended for students who are interested in actually writing code line by line. Students will choose from a group of projects that interest them the most to complete a given number of mini-projects by the end of the quarter. Students would have a variety of instructional opportunities some of which may include online instructions, self-paced instructions, hardcopy materials, tech equipment (mini-robotics), raspberry Pi’s and other options.

Activities: Individual and partner work as students explore different programming units/projects. Students could be using online tutorials, online simulations, hands-on equipment programming, and online-text: all in a variety of programming languages and program settings. This course is project based.

Supplies: Headphones & Flash Drive
# Computer Science

## Game Creation

- **Grade:** 9, 10, 11, 12  
- **Laude Point:** 0  
- **Cost:** Class Fee – None  

**Prerequisite:** None

**Course Content:** This course will first teach students how to evaluate a game and determine what the key components are that make a good game. Students will have the chance to play Portal 2 as they work on problem solving and critical thinking skills, while they learn the basic components and design process of the game. From here students will be working both individually and in small groups to create different levels inside the Portal 2 environment. Students will be exposed to other game design programs, including a short intro to Project Spark for Windows 8 and Xbox One.

**Activities:** Students will progress through levels as they learn the basics of game creation. Students will have opportunities to play, build and review games made by professionals, peers and themselves. Building a game guide for a simple program is also part of the class. Students will be required to create a few game projects for the class and will have the ability to save the game and/or post game online to showcase their creations depending on the program being used.

**Supplies:** Headphones

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## HTML: Website Creation

- **Grade:** 9, 10, 11, 12  
- **Laude Point:** 0  
- **Cost:** Class Fee-none

**Prerequisite:** none

**Course Content:** Students would be exposed to an introduction to creating a website using HyperText Markup Language (HTML). In the class students will develop an understanding of how websites are created and develop an understanding of how to create the code to produce these sites. The class will cover design concepts, hypertext links, tables, and frames as some of the topics. Students could also have the chance of working with Cascading Style Sheets (CSS) to make their sites look more professional and add functionality.

**Activities:** Students will receive a variety of short programming assignments where they demonstrate what they have learned about the HTML or CSS code. As a final project students will have the opportunity to create a website of their own where they apply what they have learned about creating a website to an internet they have.

**Supplies:** Headphones and Flash Drive

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## Introduction to Robotics

- **Grade:** 11, 12  
- **Laude Point:** 0  
- **Cost:** Class Fee-$20

**Prerequisite:** none

**Course Content:** Students would be exposed to an introduction to robotics using the VEX Robotics Kits. Students would be responsible for designing, building, driving and programming their robots in small groups. Students will also be able to compete with other groups using the robots they design and build in class competitions.

**Activities:** Working in small group students will design and plan robotic builds, work together to physically build their creations, and control/program their robots. Students will also create building/programming guides to at least one of their group creations. This course is project based.

**Supplies:** Flash Drive
## Computer Science

### IT Career Exploration

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**New**

**Prerequisite:** none

**Course Content:** Students would be exposed to an introduction to robotics using the VEX Robotics Kits. Students would be responsible for designing, building, driving and programming their robots in small groups. Students will also be able to compete with other groups using the robots they design and build in class competitions. Recommended to have taken/taking at least on Computer Science class.

**Activities:** Students will be required to attend a select number of business meetings/talks by different companies in the Fox Valley. They will be able to choose the ones that interest them most and get a real feel for what they do as they meet the business themselves. There are also small projects and online curriculum that needs to be completed in order to complete the class.

**Supplies:** Vary year to year

### Wireless Apps Creation

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**Prerequisite:** Exploring Programming

**Course Content:** This course is designed to help students explore and write apps for smart phones and other wireless devices like Windows Mobile, Android, and IPhone. The class is designed for students are willing to put in the time to learn and create their own apps using a variety of programming languages. This course involves the use of code which could include but is not limited to: HTML, Java Scripting, and Cascading Style Sheets. Must receive a B or higher in Exploring Programming.

**Activities:** Students create their own apps for mobile and wireless devices. Free and commercial Software Development Kits will be used to develop the code necessary to create wireless device software. This software is used by people around the world on many portable devices. This course would allow students to create projects for courses throughout our current high school curriculum.

**Supplies:** Headphones