PETERS TOWNSHIP HIGH SCHOOL
COURSE SYLLABUS: CHS-INTRO TO INFO SCIENCE

Course Overview and Essential Skills

This CHS course in partnership with the University of Pittsburgh will introduce students to information theory and the design/structure of information systems. Students will analyze how computers and networks work on a fundamental level by exploring social networks, collections of information and programming languages. Emphasis will be given to security and privacy issues throughout the course. Students will gain basic skills in building web pages, using JAVA Script, design and using simple databases.

Course Textbook and Required Materials

- Fluency with Information Technology 6 (Lawrence Snyder)
- Digital Documentation and Tutorials
- Web Apps account to utilize Google Apps
- Google Classroom (All students have access to this service to receive assignments electronically)

Course Outline of Material Covered:

Unit or Topic	Concepts/Skills/Resources	Timeframe
Defining Information Technology	- History of computing inventions - History of Information Technology - Define Information Technology terms - Define basic hardware and software terms	1 week
Human-Computer Interface	- We can figure out software because designers use consistent interfaces, suggestive metaphors, and standard functionality. - Making exact copies is a fundamental property of digital information that we use daily. - Metaphors are essential to computer usage because they guide us in learning and using software.	1-2 weeks
Digital Thinking	- Binary Numbers and Hexadecimals - Base Number System - Information Processing and Presentation	1 week
Digital Operations	- Learn about some people who had a significant impact on computer operations. - Develop a basic understanding of how binary numbers are represented and added in a computer. - Learn about logic gates and truth tables.	1 weeks
Telecommunications	Telecommunications has brought a more useful and more efficient form of communication to the world.	1 week

	• The Internet is network of interconnected computer systems that are either a browser or a server. • The history of telecommunications including analog and digital communication systems.	
Privacy and Security	• Unlike the past, with modern technological devices, people's privacy can be violated without their knowledge. • Historically, the governmental threat of spying on its citizens, worries people the most. • Guidelines often conflict with the interests of business and government, so some countries like the United States have not adopted privacy standards as law. • Hackers use a variety of methods to subvert safeguards put in place by computer scientist and other experts.	1 week
Database Concepts	• Almost all organizations today use some type of database to track products and customers or to deliver services. • Develop understanding of database definition. • Develop a working knowledge of how to model a problem in a database environment. • Develop an understanding of relational databases • Design basic tables with attributes • Learn to use a commercial database	2 week
Social Implications of I.T.	• Spam, Scams, and Phishing are everyday occurrences, but skepticism is a handy tool to avoid trouble. • When we create intellectual property, we immediately have copyright to it. • When others hold copyright, we may be restricted on how we can use it. • Creative Commons licenses provide a simple way to create and share intellectual property within the existing laws, promoting creative communities.	1-2 weeks
HTML Web Design	• HTML is a markup language that is used to format websites so that they can be read and displayed in web browsers. • HTML is comprised of tags and most appear in pairs.	2 weeks

	• All pages will have some sort of DOCTYPE that tells the browser what version of HTML is being used. • Pages are divided into a head section and a body section. There are specific rules on what belongs where.	
Cascading Style Sheet	• CSS is similar to a computer language but is considered a mark up language. • It allows a web author to "style" a web page by attaching styles to HTML Tags. • Styles can be attached to almost any HTML Tag. • CSS allows for a web designer to control the presentation of the web page.	2 weeks
Javascript	• Develop an appreciation of how the programming environment has changed over the last 50 years. • Learn about basic web page construction and what browsers do. • Learn the following programming concepts and techniques so you are able to write a small program. • Key differences between major programming languages. • Use programming constructs in order to write more realistic and complex programs.	2-3 weeks

Depending on the needs of the class or changes in the school year, the course outline is subject to change.