Computer Science I HS/One Part

COURSE DESCRIPTION: This course introduces students to computer science concepts such as computer architecture, networks, and the Internet. Students use object-oriented programming, event-driven processes, modular computer programming, and data manipulation algorithms to produce finished software programs. They use the design process to create many programs by determining specifications, designing the software, and testing and improving the product until it meets the specifications. By the end of this course, students will have a solid foundation for further study in computer science.

PREREQUISITES: None

COURSE LENGTH: One Semester

REQUIRED TEXT: None

MATERIALS LIST: Free Downloads provided in course. Microsoft Windows or Mac OS X operating systems—Windows XP, Windows Vista, or Windows 7 recommended; at least 100 MB of available hard drive space. (List subject to change)

COURSE OUTLINE:

Unit 1: Course Overview

- Start the Course
- Set Up Your Computer
- Set Up a Browser
- Download Resources and Zip Assignments

Unit 2: Section 1: Starting with Python

- Draw a Line
- Draw Shapes
- Write a Program

Unit 3: Section 2: Graphical Hello World

- Draw an H
- Comments and Spaces

- Define a Function
- Define the Letter Functions

Unit 4: Section 3: Variables

- Values and Variables
- Changing Variable Values
- Functions and Variables
- Finish Adding Variables

Unit 5: Section 4: Loops

- The For Loop
- Continue Looping
- Loops and Bugs

Unit 6: Section 5: A Drawing Program

- IDLE Preparation
- Click the Turtle
- Finish the onclick Program

Unit 7: Section 6: Software Development

- A Simple Model of Software Development
- Exploring Software Development
- Developing Solutions
- Planning
- Writing and Testing

Unit 8: Section 7: Strings and Lists

- Escape Characters
- Manipulating Strings with Methods
- Slicing and Striding
- Using Concatenate and Comparing Strings
- Using Lists
- Manipulation a Text File