California State University, Northridge
Summer Academic Enrichment Program

Video Game Development

Course Description:
Students will learn computer science and programming skills in the context of game design and interactive visual programming. Students will use the java programming language and the Processing platform to create their projects. Here is a brief introduction to Processing from the projects own website at www.processing.org:

"Processing is a flexible software sketchbook and a language for learning how to code within the context of the visual arts. Since 2001, Processing has promoted software literacy within the visual arts and visual literacy within technology. There are tens of thousands of students, artists, designers, researchers, and hobbyists who use Processing for learning and prototyping."

Processing provides an easy way to get something visually appealing and interactive with just a few lines of code. Of course Processing and Java are flexible and scale-able enough to build something elaborate as well.

Course Goals and Objectives :
The student will be able to:

1. **Use Processing version 3.5 to draw graphics on the computer screen**
2. **Understand the principles of object oriented coding**
   - Classes
   - Objects
   - Inheritance
3. **Program Flow Control**
   - if statements
   - loops
   - switch
4. **Finite State Machine Logic**
5. **"ArrayList" data structures**
6. **Apply Math Concepts to Programming**
   - Vectors
   - Radians and the Unit Circle
7. **Using the computer to model physics**
   - position
   - velocity
   - acceleration

Course Materials:
1. USB Thumb Drive no less than 1GB in size
2. Notebook and pen/pencil