Course Overview

Content Area:
Course(s):
Time Period: **Year**
Length: **180**
Status: **Published**

Course Overview

Aligned to Standards: NJSLS 2023
Revision Date: 2024
In compliance with the NJ Student Learning Standards, climate change, career readiness, DEI (Diversity, Equity, & Inclusivity), as well as other standards have been integrated within the NBCRSD curricula (NJ Administrative Code Title 6A: chapter 8; Title 18A: chapter 35).

Course Overview

Sequence- Unit Titles, Summaries, and Number of weeks per unit (total = 18 semester/36 year)

Unit 1: Introduction to Programming - 3 weeks

- General overview of computer programming
- Computer programming is part of every student's life whether they realize it or not. It is not hard to find examples of how computer programming is used in new (and even older) technological innovations. Students can be motivated to overcome fears they may have about writing programs

Unit 2: Object-Oriented and Event Driven Programming - 5 weeks

- Programming basics
- Objects and 3D models are introduced as basic components of our programming environment. Object-oriented programming is functionally introduced along with the main attributes explored in this unit: direction, distance, position and center. A distinction will be maintained between event driven programming and procedural programming.

Unit 3: Variables, Math and Strings - 6 weeks

- There are many types of data in programming. Numeric values and string literals are two of the most common. It is useful to be able to store this data for future reference in predetermined locations in memory.

Unit 4: Functions and Methods - 6 weeks

- While methods contained in standard libraries are very helpful, user-defined methods are at the heart of programming. User-defined methods can be used to coordinate the execution of methods contained in standard libraries to achieved a desired result. The same can be said for functions.

Unit 5: Decision Structures - 3 weeks

- When programming, a programmer may want to do different things depending upon what conditions obtain during the course of program execution. The programmer can use decision structures to allow for more flexibility in terms of what the program will do or what

output will be produced. Three common decision structures are if, else, and else if.

Unit 6: Repetition Structures - 3 weeks

- Often times, when coding, a programmer finds that the same lines of code need to be repeated numerous times. Instead of writing out the same statements over and over again, repetition structures can be used. There are two pairs of repetition structures covered in this course. The second pair involving the use of arrays and lists will be covered in a later unit.

Unit 7: Events -- 4 weeks

- Programs can wait upon user input and perform executable commands based on the value of this input. There is another type of input, called events, where a program will not wait for input in order to proceed, but instead continues to run while listening for an event to happen. Event-driven programming adds interesting features to programs that can enhance user interaction.

Unit 8: Lists and Arrays - 4 weeks

- Whereas repetition structures aid in executing lines of code multiple times, there may be instances when a programmer would like to apply a segment of code one time to multiple pieces of data. Containers are data structures used to help accomplish this. Two examples covered in this unit are lists and arrays.

Unit 9: Recursion - 2 weeks

- Algorithms come in many varieties. One type of algorithm is the recursive algorithm. In this special case, a method will have a base case and in all other cases, call itself.

Reporting Student Progress (link to NB's Assessment System)
All courses follow a balanced assessment system with Practice and Assessments.
Each category includes formative, summative and alternative assessments.

Accommodations and Modifications (link to menu)
Integrated accommodations and modifications for special education students, English language learners, students at risk of school failure, gifted and talented students, and students with 504 plans.