**Computer Programming 1 Syllabus**

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**Contact Information**

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**Planning Period: 1st period**

**Text and Resource Materials**

**Required Text: *An Introduction to Programming with C++*, Diane Zak, (Cengage, 2008)**

**Course Description** C++ is an introductory programming course which is designed to help students learn both programming techniques and good problem solving skills. This is an introductory programming class that will help to get students familiar with the capabilities and limitations of computers. Students will write and analyze programs in C++, use basic C++ commands and use input and output files and procedures.

**Prerequisites:** “C” average in Algebra I or Algebra IB

**PA Academic Standards**

2.2.11 A Develop and use computation concepts, operations and procedures with

real numbers in problem-solving situations

2.2.11 B Use estimation to solve problems for which an exact answer is not needed.

2.2.11 E Recognize that the degree of precision needed in calculating a number

depends on how the results will be used and the instruments used to

generate the measure.

2.4.11 A Use direct proofs, indirect proofs or proof by contradiction to

validate conjectures.

2.4.11 B Construct valid arguments from stated facts.

2.4.11 C Determine the validity of an argument.

2.4.11 D Use truth tables to reveal the logic of mathematical statements.

3.6.12 C Analyze physical technologies of structural design, analysis and

engineering, personnel relations, financial affairs, structural production,

marketing, research and design to real world problems.

3.7.12 C Evaluate computer operations and concepts as to their effectiveness to

solve specific problems.

3.7.12 D Evaluate the effectiveness of computer software to solve specific

problems.

**Learning Objectives Upon completion of the course, the student will be able to:**

1. **Write code that used comparison operators and logical operators.**
2. **Convert the contents of a char variable to uppercase or lowercase**
3. **Create a flow chart of a given logic structure**
4. **Include a nested selection structure in pseudo code and in a flowchart.**
5. **Display a message along with the contents of one or more variables in a .NET program**
6. **Code a pretest loop using the C++ while statements**
7. **Nest repetition structures**
8. **Write a function prototype**
9. **Generate random integers in .NET C++**
10. **Invoke a function that does not return a value.**

**Course Outline**

**Marking Period One:**

* Brief history of programming languages
* Control structures
* Algorithms
* Desk-checking programs
* Creating a C++ program

**Marking Period Two:**

* Variables and Named Constants
* Arithmetic operators
* Using Variables, Constants and Arithmetic operators in a C++ program
* .NET C++ Programs
* Debugging programs

**Marking Period Three:**

* Pseudo code for If and if/else selection structures
* Flowcharts for the if and if/else structures
* Logical operators
* Strings
* Converting characters

**Marking Period Four:**

* Nested Selection Structures
* Logic Errors
* Multiple path selection structures
* Counter-controlled pretest loops
* Post-Test loops

**Classroom Procedures**

* Have all assignments completed on or before the due date
* Be courteous and respectful to the equipment.
* Ask me for help if you need it.
* Take this class seriously.
* Treat your fellow students with respect.
* Ask me what you missed, after you have been absent.
* Make up any and all work if you are absent.
* Absolutely NO Food or Drinks in the classroom
* Always save your work in your folder, if you do not have a copy of it in your folder I will assume that you did not complete the work by yourself.

**Assessments**

**Weekly Term Pages**

You will be expected to stay up to date with the weekly term pages. They will be handed out on Monday and handed in at the end of class on Friday. This is an easy grade for you to get and it will make a difference in your grade if they are not completed. The term pages are composed of objectives and vocabulary terms for the chapter. They must be hand written I will not accept typed journal pages.

**Tests**

You will be given a test at the end of each chapter. Test dates will be announced one day before the test. You are expected to take the test on the day given. If you need to make up a test due to an absence you will do so on your first day back into the classroom, unless other arrangements have been made.

**Programming Projects**

You will have projects that will be assigned throughout the entire school year. Unless you are working with a partner you will be expected to turn in your own work. If you copy anyone’s project, ***all of the people involved*** ***will receive a zero*** for that assignment.

**Grading Policy** Every attempt will be made to grade and return your test and projects in a timely manner. All assignments will have two numbers on them. The number of points that you earned and the total number of points that the assignment was worth.

I will use a total points system to calculate your grade. This means that all of your points will be divided by the total number of points for each assignment. Your final marking period grade will be calculated by taking the total amount of points earned divided by the total amount of points offered