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**CPL-201: Introduction to C++**

**Description:**

**3 credits/126 hours**

**Prerequisite: None**

This course will teach students how to program using the C++ language. C++ evolved from C and is used for programming language across disciplines. Students will learn a combination of structures programming and object-oriented programing. Students will not only learn the syntax and see examples but will also learn the “why” behind the C++ concepts.

**Textbook:** C++ Programming: Program Design Including Data Structures, 8th ed., Malik – ISBN: 978-1-337-11756-2

**Course objectives:**

Throughout the course, you will meet the following goals:

* Gain a foundational understanding of a C++ program and concepts
* Understand control structures such as selection and repetition
* Learn C++ functions that will allow you to program multi-faceted programs
* Learn the components of Standard Template Library (STL) and how to utilize it during programming
* Build and test various program applications using C++

**Contents:**

Chapter 1: An Overview of Computers and Programming Languages

Chapter 2: Basic Elements of C++

Chapter 3: Input/Output

Chapter 4: Control Structures I (Selection)

Chapter 5: Control Structures II (Repetition)

Chapter 6: User-Defined Functions

Chapter 7: User-Defined Simple Data Types, Namespaces, and the String Type

Chapter 8: Arrays and Strings

Chapter 9: Records (Structs)

Chapter 10: Classes and Data Abstraction

Chapter 11: Inheritance and Composition

Chapter 12: Pointers, Classes, Virtual Functions, Abstract Classes, and Lists

Chapter 13: Overloading and Templates

Chapter 14: Exception Handling

Chapter 15: Recursion

Chapter 16: Linked Lists

Chapter 17: Stacks and Queues

Chapter 18: Searching and Sorting Algorithms

Chapter 19: Binary Trees

Chapter 20: Graphs

Chapter 21: Standard Template Library (STL)

**Grading Scale (70% required for passing) Grade Weighting**

**A = 90-100% Chapter Quizzes…………. 50%**

**B = 80-89.9% Activities ………….......... 20%**

**C = 70-79.9% Final Exam ……………..... 30%**

**F = Below 70% 100%**