

CEF-238: C/C++ Programming Course Outline

Credit Value: 4

Lectures – Tutorials – Practicals: 30 – 15 – 15

Instructor: Nde D Nguti, PhD

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Course Schedule: Mondays 07:00 – 09:00 and Thursdays 07:00 – 09:00

Venue: Classroom Block II 150 B

Tutorials: TBA

Course Objectives:

- The main objective of this course is to provide to students a good understanding about the concept of object-oriented programming using C/C++, be able to write and read basic C/C++ code

Expected Outcomes: At the end of this course, students will be able to

- Understand and use the basic programming constructs of C/C++
- Manipulate various C/C++ data types, such as arrays, strings, and pointers
- Isolate and fix common errors in C++ programs
- Use memory appropriately, including proper allocation/deallocation procedures
- Apply object-oriented approaches to software problems in C++
- Write small-scale C++ programs using the above skills

Week	Topics
1 - 2	Presentation of CEF-238: C/C++ Programming
	Generalities <ul style="list-style-type: none">• What is C/C++?• Why C/C++?• C and C++• Exception Handling• Object Oriented Programming• Standard Template Library
3 - 4	Types and declarations <ul style="list-style-type: none">• Types• Booleans• Integer Types• Floating-Point Types• Sizes• Void• Enumerations• Declarations
	TUTORIAL I
5 - 6	Pointers, Arrays and Structure <ul style="list-style-type: none">• Pointers

Week	Topics
	<ul style="list-style-type: none"> • Arrays • Pointers into Arrays • Constants • References • Pointers to void • Structures
7 - 9	Operator overloading <ul style="list-style-type: none"> • Introduction • Operator • Functions • A Complete Number Type • Conversion Operators • Friends • Large Objects • Essential Operators • Subscripting • Functions Calls • Dereferencing • Increment and Decrement • A String Class
	TUTORIAL II
10 - 11	Derived class <ul style="list-style-type: none"> • Introduction • <u>Derived</u> Classes • Abstract Classes • Design of Class Hierarchies • Class Hierarchies and • Abstract Class
12	TUTORIAL III
13	Revision Exam

Books: The C Programming Language (Brian Kernighan and Denis Ritchie)
 The C++ Tutorial (Available at <http://www.cplusplus.com/doc/tutorial/>)