SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: High Level Language Programming

Code No: CET331

Program: Electrical/ Electronic Technology

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Date: Sept. 1997

Approved: _____ **Date:** MAY 30/97

COURSE NAME **CODE NUMBER**
AN INTRODUCTION TO PROGRAMMING USING C++ CET331

PREREQUISITES: CET228

PHILOSOPHY/GOALS:
This course introduces the student to the C++ programming language. It is the student's first exposure to a "high level" programming language. It is not an introduction to programming concepts and entry to this course requires that the student has successfully completed CET228.
The student is introduced to C++ using the PC based Turbo C++. Practical skills will be developed with a series of C programming assignments.

STUDENT PERFORMANCE OBJECTIVES:
Upon successful completion of this course the student will be able to:

Write programs in C++ that utilize the following features:

* the various data and variable types
* arithmetic and assignment operators
* input/ output statements
* control statements and relational operators
* bytewise operators
* arrays and character strings
* pointer variables
* functions and arguments
* classes and object oriented programming

TOPICS TO BE COVERED

1. C++ Fundamentals
2. Structured Programming
3. Operations on Data and Decision Making
4. Looping and Recursion
5. Pointers, Scope and Class
6. Strings
7. Numeric Arrays
8. Data Structures
9. Classes and Objects
10. Disk I/O

REQUIRED RESOURCES
An Introduction to Programming Using C++. K.C. Mansfield Jr. and J.L. Antonakos
Prentice Hall, 1997.

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LEARNING ACTIVITIES	**REQUIRED RESOURCES**
1.0 C++ Fundamentals	TEXT CHAP. 1
1.1 Program Structure	
1.2 Elements of C++	
1.3 the cout Function	
1.4 Declaring Variables	
1.5 C++ Operators	
1.6 the cin Function	
2.0 Structured Programming	TEXT CHAP. 2
2.1 Concepts of a Program Block	
2.2 Using Functions	
2.3 Inside a C++ Function	
2.4 Using Function Arguments	
2.5 Using #define Statements	
3.0 Operations and Decision Making	TEXT CHAP. 3
3.1 Relational Operators	
3.2 the if statement	
3.3 the if - else statement	
3.4 Bit-wise Boolean Operations	
3.5 Logical Operations	
3.6 Conversion and Type Casting	
3.7 the switch Function	
4.0 Looping and Recursion	TEXT CHAP. 4
4.1 the for loop	
4.2 the while loop	
4.3 nested loops	
4.4 recursion	
5.0 Pointers, Scope and Class	TEXT CHAP 5.
5.1 Pointers	
5.2 Passing Variables	
5.3 Scope of Variables	
5.4 Variable Class	
6.0 Strings	TEXT CHAP 6.
6.1 Characters and Strings	
6.2 Initializing Strings	
6.3 Passing Strings Between Functions	
6.4 Working with String Elements	

6.5 String Handling Functions
6.6 String Sorting

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7.0 Numeric Arrays TEXT CHAP. 7

7.1 Numeric Arrays
7.2 Introduction to Numeric Array Applications
7.3 Sorting with Numeric Arrays

8.0 Data Structures TEXT CHAP. 8
8.1 Enumerating Types
8.2 Naming Your Own Data Types
8.3 Introduction to Data Structures
8.4 Unions
8.5 Structure arrays
8.4 Ways of Representing Structures
8.5 Advanced Data Structures

9.0 Classes and Objects TEXT CHAP. 9
9.1 Classes and Objects
9.2 Constructors and Destructors
9.3 Multiple Objects of the Same Class
9.4 Inheritance
9.5 Virtual Functions

10.0 Disk I/O TEXT CHAP. 10
10.1 Disk Input and Output
10.2 Command Line Arguments

METHODS OF EVALUATION
The final grade for the course will be derived from the results of in class tests and lab work with 50% being assigned to tests and 50% assigned to lab work.

The grading system used will be as follows:

A+	>=90%	Consistently Outstanding Achievement
A	80-89%	Excellent Achievement
B	70-79%	Above Average Achievement
C	55-69%	Satisfactory Achievement
R		Repeat

SPECIAL NOTES:

1. Lab attendance is compulsory and is included in the evaluation process.

2. The instructor reserves the right to modify the course to meet the needs of the students.