COURSE DESCRIPTION

Department and Course Number: CSCI 259

Course Title: Programming in C++

Current Catalog Description: Study of programming in the language C++, covering character processing; use of pointers with strings, arrays and functions; data structures; bit-wise operators.

Total Credits: 3 hours

Coordinator: H. Conrad Cunningham, Associate Professor of Computer and Information Science

Textbook: H. M. Deitel and P. J. Deitel. *C++ How to Program*,Third Edition, Prentice Hall, 2001.

Other required materials: None

References: None

Course Goals: This course is designed to provide students with an introduction to the C++ programming language. The student will learn skills relevant to problem solving techniques used in the generation, testing, and debugging of programs written in C++.

After Fall 2000, CSCI 259 was no longer allowed as an advanced computer science elective for BSCS and BA majors in computer science.

Prerequisites by Topic: Previous programming experience (CSCI 111, 203, 251, or the equivalent).

Major Topics Covered in the Course:

1. C++ Program Development Cycle (1 hour)
2. Basic C++ syntax and semantics (3 hours)
3. Variables and Constants (1 hour)
4. Keywords and Identifiers (1 hour)
5. Programming Style (1 hour)
6. Data Types (3 hours)
    a. Fundamental types
    b. Arrays
    c. Pointers
    d. Strings
    e. Programmer defined types
    f. Enumeration
    g. Implicit and explicit conversion of types
7. Operators and Expressions (3 hours)
    a. Arithmetic
    b. Relational
    c. Logical
    d. Bit-wise
    e. dynamic allocation of memory
8. Statements (2 hours)
9. Control Structures (6 hours)
    a. Sequential
    b. Selection to include if, if-else, and switch statements
    c. Iteration to include while, do and for statements
    d. Nested
10. Debugging Techniques (1 hour)

11. Scope (1 hour)
12. Storage Classes—Auto, extern, register and static (1 hours)
13. The C++ Preprocessor (3 hours)
    a. #include
    b. #define
    c. macro definitions
    d. conditional compilation
14. Functions (8 hours)
    a. Basic structure
    b. Parameter passing
    c. Calling
    d. Libraries
    e. Recursive

Laboratory projects: The student completes approximately nine programming assignments where each program is due 7 to 10 days after it is assigned. The focus of each assignment is selected from the topics listed above.

Estimate of ABET/CAC Category Content:

	CORE	ADVANCED		CORE	ADVANCED
Data Structures		1	Computer Organization and Architecture		
Algorithms			Concepts of Programming Languages		1
Software Design		1			

Oral and Written Communications:

Not a significant focus of the course.

Social and Ethical Issues:

Not a significant focus of the course.

Theoretical Content (Foundations):

Not a significant focus of the course.

Problem Analysis and Solution Design:

In order to complete each programming assignment, the student must apply a problem analysis and solution design.