

Date Adopted: September 1998

Date Reviewed: Aug 2015

Date Revised: Aug 2015

## **CIS 251 C++ Programming**

### **I. CIS 251 C++ Programming – 3 Semester Hours**

#### **II. Course Description**

This course is an introduction to the C++ programming language including object oriented programming. Topics include: problem solving and design; control structures; objects and events; user interface construction; and document and program testing.

#### **III. Prerequisite**

CIS 150

#### **IV. Textbook**

Textbook: Problem Solving with C++, 9th Edition

Publisher: Pearson

Author: Savitch

#### **V. Course Objectives**

- A. The student will be able to design, code, enter, compile, debug, execute and document programs.
- B. The student will have a working knowledge of operational statements in C++, including those for input/output, program execution control and data manipulation.
- C. The student will understand and be capable of employing function definitions, function templates and library routines.
- D. The student will develop an understanding of basic data types, abstract data types, classes and simple data structures.

#### **VI. Course Outline of Topics**

- A. The student will be able to design, code, enter, compile, debug, execute and document programs.
  1. The student will be able to describe and implement the steps involved in developing C++ programs as solutions to problems using top down, modular and object-oriented design techniques.
  2. The student will be able to execute the steps necessary to enter and compile C++ programs.
  3. The student will be able to follow the steps (compiler dependent) for testing and correcting programs written in C++.
- B. The student will have a working knowledge of operational statements in C++ including those for input/output, program execution control and data manipulation.
  1. The student will be able to apply the appropriate language constructs for console and file input and output.
  2. The student will be able to apply the program execution control structures for selection and looping.
  3. The student will be able to apply the arithmetic operators for addition, subtraction, multiplication, division and integer remainder; the logical operators; and the special operators for increment, decrement and assignment.
- C. The student will understand and be capable of employing function definitions, function templates and library routines.
  1. The student will understand the basic structure and purpose of functions and be able to write and call functions in C++ programs.

2. The student will understand the syntax and purpose of function templates and be able to use function templates in C++ programs.
  3. The student will understand the purpose of library routines and be able to use library routines in C++ programs.
- D. The student will develop an understanding of basic data types, abstract data types, classes and simple data structures.
1. The student will understand and be able to distinguish the basic data types that can be declared in a C++ program.
  2. The student will understand abstract data types and be able to write and use class definitions in C++ programs.
  3. The student will understand and be able to use pointers and dynamic memory allocation in C++ programs.
  4. The student will understand and be able to use simple data structures such as, arrays, linked lists and stacks, in C++ programs.

### **VII. Evaluation and Assessment**

Evaluation and assessment will be determined by the instructor and specified on the instructor's class syllabus. Grades will be based upon following scale: A = 90 – 100%, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, and F = below 60%.

### **VIII. Attendance**

Students are expected to attend all classes for which they are registered. Students who are unable to attend class regularly, regardless of the reason or circumstance, should withdraw from that class before poor attendance interferes with the student's ability to achieve the objectives required in the course. Withdrawal from class can affect eligibility for federal financial aid.

### **IX. Statement on Discrimination/Harassment**

The College and the Alabama State Board of Education are committed to providing both employment and educational environments free of harassment or discrimination related to an individual's race, color, gender, religion, national origin, age, or disability. Such harassment is a violation of State Board of Education policy. Any practice or behavior that constitutes harassment or discrimination will not be tolerated.

### **X. Americans with Disabilities**

The Rehabilitation Act of 1973 (Section 504) and the Americans with Disabilities Act of 1990 state that qualified students with disabilities who meet the essential functions and academic requirements are entitled to reasonable accommodations. It is the student's responsibility to provide appropriate disability documentation to the College. The ADA Accommodations Office is in FSC 305 (205-856-7731).