Date Adopted: _____
Date Reviewed: Aug 2015
Date Revised: Aug 2015

CIS 150 Introduction to Computer Logic and Programming

I. **CIS 150 Introduction to Computer Logic and Programming– 3 Semester Hours**

II. **Course Description**
This course includes logic, design and problem solving techniques used by programmers and analysts in addressing and solving common programming and computing problems. The most commonly used techniques of flowcharts, structure charts, and pseudo code will be covered and students will be expected to apply the techniques to designated situations and problems.

III. **Prerequisite**
CIS 130 or equivalent background

IV. **Textbook**
Title: Starting Out With Programming Logic and Design, 4rd Edition
Publisher: Addison-Wesley (Pearson)
Author: Gaddis, Tony

V. **Course Objectives**
1. Problem solving and algorithms
2. Design tools
3. Sequential and selection programming structures
4. Repetition programming structures
5. Variable types and definitions
6. Modularization
7. Introduction to programming

VI. **Course Outline of Topics**
1. Problem solving and algorithms
    a. Problems and problem solving
    b. Defining the problem
    c. algorithms
    d. Designing a solution algorithm
    e. Checking the solution algorithm
    f. Stages of algorithmic development
    g. Input and output
    h. Variable types
    i. Memory mapping

2. Design tools
    a. Steps in program development
    b. Program design methodology
    c. Procedural versus object oriented programming
    d. Introduction to pseudo code
    e. Program data
    f. How to write pseudo code
    g. Meaningful names
    h. The structure theorem
    i. Flowcharts
    j. How to develop flowcharts

3. Sequential and selection programming structures
    a. Sequential execution
    b. Boolean logic
    c. Simple selection algorithms
    d. Multiple selection algorithms
    e. Nested selection algorithms

4. Repetition programming structures
    a. Repetition statements
    b. Repetition structures
    c. Repetition using the dowhile structure
    d. Repetition using the repeat…until structure
    e. Counted repetition
    f. Repetition algorithms
    g. Looping
    h. Nested control structures

5. Variable types and definitions
    a. Complex variables
    b. Variable usage
    c. Arrays
    d. Arrays and variables
    e. Pseudo code for common array operations
    f. Single dimensional array
    g. Multi dimensional array

6. Modularization
    a. Modularization
    b. Hierarchy of charts or structure charts
    c. Further modularization
    d. Communication between modules
    e. Using parameters in program design
    f. Steps in modularization
    g. Programming examples using modules
    h. Steps in modularization
    i. Module cohesion
    j. Module coupling
    k. Scalability

7. Introduction to programming
    a. Programming languages
    b. Syntax and semantics
    c. Creating object code
    d. Executing object code
    e. Debugging
    f. Project: comprehensive problem utilizing skills learned

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).