Date October 2005

Course Name: Data Structures I
Prefix and Number: CSC 190
Credit Hours and Contact Hours: 3 credit hours – 4 contact hours
Course Description:
This course is designed to present to the student the basic data structures necessary to design and write structured programs. The topics covered include methods and classes, strings, arrays, inheritance, composition, exceptions, events, files, recursion, advanced GUI's and graphics. Prerequisite: Successful completion of CSC115 with a C or better.

II. Course Outcomes and Objectives

Learning Outcomes

Upon completion of the course the participant will be able to:

a. design and construct programs with methods/classes and to manipulate variables using structured programming techniques.
b. design and construct programs with appropriate methods including recursion.
c. use and manipulate string data types.
d. construct and use one and two dimensional arrays. They will be able to understand and use searching techniques, parallel arrays, merging techniques, and sorting techniques.
e. design and construct programs with inheritance and composition.
f. construct programs handling exceptions and events.
g. design and construct programs using advanced GUIs and Graphics

Relationship to Academic Programs and Curriculum

This course is a required course for the IS and CSC majors. This course is the pre-requisite for Data Structures II. This course in combination with Data Structures II usually transfers to four year institutions.

Competencies Addressed in this Course

Writing
Oral Communication
Reading
Computer Literacy
Problem Solving and Critical Thinking
Ethics and Values
Global Concerns
Professional Competency

III. Methods of Instruction

Types of Materials

Textbook: text in Java
The texts are used in Introduction to Computing CSC 115 and finished in this course

Methods of Instruction

1. Lecture
2. Discussions
3. Demonstrations
4. Group programming
5. Programming

Assessment Measures

Activities will emphasize problem solving using the computer - specifically programming the computer. The students should demonstrate proficiency programming using the given data structure with the Pascal language.

Methods of Evaluation

The demonstration of the satisfactory achievement of the above learning outcomes will be the responsibility of the student, facilitated by the instructor. The department maintains a very open attitude and believes each instructor should determine the grading system and evaluation methods that will be used in his/her sections of the course. It is highly recommended that these be communicated to the students the first week of the semester, preferably in writing.

Among the evaluation methods that could be used are exams, quizzes, and programming assignment projects and programs. Any grading system used must be consistent with the College Catalog and Middle States grading procedure. Course policies about attendance, late work, plagiarism, etc. are at the discretion of the instructor. If such policies exist, they must be communicated to the student, preferably in writing.

IV. General Outline of Topics Covered

A. Review syntax through methods
B. User-defined Classes and ADTs
C. Arrays
D. Applications of Arrays and Strings
E. Inheritance and Composition
F. Handling Exceptions and Events
G. Advanced GUIs and Graphics
H. Recursion