

SOUTHEAST MISSOURI STATE UNIVERSITY

DEPARTMENT OF Computer Science

COURSE NO. CS250

TITLE OF COURSE Computer Science III

REVISION 2/2000

- I. CATALOG DESCRIPTION AND CREDIT HOURS OF COURSE: Continued study of data structures, algorithms, object orientation, and standard libraries with an emphasis on practical programming. Prerequisite(s): CS165 with a minimum grade of C. (3)
- II. PREREQUISITE(S): CS165 Computer Science II with a minimum grade of C.
- III. PURPOSE OR OBJECTIVES OF THE COURSE:
  - A. To gain a working knowledge of object oriented programming including inheritance and polymorphism.
  - B. To gain a working knowledge of trees, graphs, hash tables and related algorithms.
  - C. To be able to use the standard libraries effectively.
  - D. To gain extensive practice in writing more complex programs.
- IV. EXPECTATION OF STUDENTS: Students are expected to demonstrate achievement of the above objectives on examinations and especially on lab assignments.
- V. COURSE CONTENT OR OUTLINE (class periods):
  - A. Review of vectors, stacks, deques and linked lists. (6)
  - B. Sorting techniques and analysis (6)
  - C. Advanced topics of object oriented programming, inheritance and polymorphism. (9)
  - D. Tree and graph algorithms (9)
  - E. Hash Tables (6)
  - F. Standard Library applications (9)
  - G. Exams (3)

VI. TEXTBOOK(S) AND OTHER REQUIRED MATERIALS OR EQUIPMENT:

- A. Student textbook: Data Structures and Algorithms by Bruno R. Preiss, Wiley, 1999.
- B. Reference textbooks and periodicals:
  - 1. C++ An Introduction to Data Structures by Larry Nyhoff.
  - 2. STL for C++ programmers by Leen Ammeraal.

VII. BASIS FOR STUDENT EVALUATION

- A. Programming Assignments (20 – 40%)
- B. Examinations (including the final exam) (60 – 80%)
- C. Class Participation (5 – 15 %)