

FSU CURRICULUM FILE SYLLABUS

DATE APPROVED _____ (COMPLETED AT UNIV LEVEL)

COURSE PREFIX/NUMBER: COP 3014

COURSE TITLE: Programming I

PRE OR COREQUISITES: MAC 1140 REPEAT CODE: 00

LIST COURSE OBJECTIVES:

By the end of the semester, a student who has completed this course with a passing grade should be able to:

- Demonstrate a basic understanding of fundamental computer science concepts, including software and hardware
- Solve computing problems using a top-down approach in a well-structured design in the procedural paradigm
- Design, implement, test and debug a C++ program to solve a given problem
- Demonstrate knowledge and use of control structures including sequence, selection, iteration and functions
- Make use of data types and structures in C++ including integer and floating point types, arrays, structs, and a introductory knowledge of how to use standard classes (C++ IO streams and the C++ string class)
- Utilize algorithms studied to perform tasks such as finding max and min in a data set, counting, summing, tracking a previous value, searching and sorting, reading until EOF, etc.
- Consider, compare and evaluate code segments or algorithms for relative efficiency in a basic fashion

OBJECTIVES SHOULD BE BROADLY STATED TO ALLOW FACULTY DIFFERENCES AND ALLOW CHANGES IN MODE OF DELIVERY. ENOUGH DETAIL SHOULD BE GIVEN TO DISTINGUISH FROM OTHER COURSES IN ASSIGNMENT OF A SUS COURSE NUMBER. COMMITTEE APPROVALS ARE REQUIRED FOR A CHANGE IN OBJECTIVES.

GIVE BRIEF OUTLINE OF TOPICS TO BE COVERED (NO DATES):

- Introduction to computers (hardware and software) and programming
- Computing facilities we use: FSU computing sites, the C++ compiler
- Introduction to C++, problem solving and algorithms; declarations
- Simple data types: integer and floating point, char, bool
- Input/output classes (cin, cout) and certain member functions
- Assignment, operators, expressions, standard mathematical functions
- Conditional statements and logical expressions; if, switch statements
- Looping structures; while, for, do while statements
- Functions, parameter passing, scope, storage classes
- Number representation and common calculation errors
- Arrays: 1-dimensional and multi-dimensional
- Sorting (selection sort) and Searching (linear search, binary search)
- Pointers and an introduction to dynamic memory allocation
- C-style strings and the C++ string class
- Structs
- Abstract Data Types; using data structures built from structs and arrays
- File IO
- Time permitting: introductions to recursion, dynamic data structures, more on classes
- Throughout the course we will discuss good programming style, design, documentation, and efficiency using a procedural paradigm

EVALUATION CRITERIA CHECK ONE (CHANGE IN EVALUATION CRITERIA REQUIRES THE DEPARTMENT TO SUBMIT A NEW SYLLABUS FOR THE FILE)

EXAMS ONLY (THE NUMBER AND WEIGHT OF EACH TO BE REFLECTED ON THE STUDENT SYLLABUS)

XX EXAMS AND OTHER (SUCH AS LAB REPORTS OR ASSIGNMENTS, TERM PAPER OR WRITTEN PROJECT, ORAL PRESENTATION; THE WEIGHT OF EACH TO BE REFLECTED ON THE STUDENT SYLLABUS.

NO EXAMS - ONLY ASSIGNMENTS (TO BE DESCRIBED CLEARLY ON THE STUDENT SYLLABUS)