7/1/04   MINNESOTA SCHOOL OF BUSINESS
GLOBE COLLEGE
TECHNICAL COURSE SYLLABUS

COURSE NUMBER: **SD110**   COURSE TITLE: COMPUTER PROGRAMMING LOGIC
COURSE LENGTH: 12 WEEKS   CREDIT HOURS: 4
PREREQUISITES: NONE   CONTACT HOURS: 40 (LECTURE 40)

TEXT: A GUIDE TO PROGRAMMING LOGIC & DESIGN, Farrell, Lesley. USA: Course Technology, Current. Ed.

COURSE DESCRIPTION: This course will teach students the application of logic and structured design to the construction of computer programs. The course is not language specific so that it may be applied across a range of programming languages such as 3rd generation, script, and object-oriented variants. Students will learn pseudocode, algorithms, data structures and other tools and skills used to design programs.

OBJECTIVES: Upon completion of this course, the student will be able to:

1.   Identify the logic and design principles underlying programming languages.
2.   List the operations and terminology involved in the program's structure.
3.   Identify the tools available to the programmer to structure the program.
4.   Apply the use of pseudocode, structured English, flow charts, & data flow diagrams in program design.
5.   Apply problem-solving skills and use some software development tools.
6.   Generate program designs using algorithms and data structures.
7.   Create structured programs.

COURSE OUTLINE:

Topic/s & Class Activities	Required Reading
Week 1	
Introduction to algorithms, data structures, and design considerations	Chapter 1
Development of programming languages Introduction to algorithms, basic data structures, and basic design conventions.	
Week 2	
Structured program design	Chapter 2
Use of Structured English and pseudocode Flowcharts and Data Flow Diagrams Basic Set theory	

Week 3
Documentation, modularization, and hierarchies   Chapter 3

    Modules hierarchy charts and documentation
    Problem solving techniques

Week 4
Problem Solving Techniques   Chapter 4
    Procedural language, initialization tasks,
    main structure, finishing and housekeeping.

Week 5
Decision structures   Chapter 5
    Making decisions, Boolean AND/OR Logic
    Decision Tables

Week 6
Loop structures   Chapters 6
    Loops
    Control Structures (Single / Multiple)

Week 7   Chapter 7
Arrays
    Arrays
    Array manipulation

Week 8   Chapter 8
Arrays
    Sorting and Searching

Week 9   Chapter 9
Number systems
    Number Systems and Number representation

Week 10
Input and output Validation   Chapter 10
    Input and output validation

Week 11   Chapter 11
Program Optimization techniques
    Program optimization techniques

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Week 12
    Final Project

INSTRUCTIONAL METHODS: Students grades depend on participation in classroom discussions. Students must have a satisfactory attendance record, in accordance with the school's attendance policies. All required assignments must be completed to obtain a passing grade in the class. All projects and assignments are due on the date specified.

EVALUATION METHODS:

Grades are an indicator of overall performance, achievement and participation. Students are responsible for completing all course requirements on time to receive credit. Final projects will be presented during finals week.

Written projects / reports	300
Classroom exercises	200
Final Project	300
Participation	200
	1,000 points

The final grade for the course is based on an accumulation of points in each of the above areas and weighted accordingly. A total of 1000 points are possible. These points are based on the following percentages:

100-90%	A
89-80%	B
79-70%	C
69-60%	D
59% and lower	N/C