

**MASTER SYLLABI**

7/1/04

MINNESOTA SCHOOL OF BUSINESS  
GLOBE COLLEGE  
TECHNICAL COURSE SYLLABUS

COURSE NUMBER: **SD230** COURSE TITLE: C PROGRAMMING  
COURSE LENGTH: 12 WEEKS CREDIT HOURS: 4  
PREREQUISITES: SD110 CONTACT HOURS: 60 (LECTURE 20 / LAB 40)

TEXT: C: HOW TO PROGRAM, 3<sup>RD</sup> Edition, H. M. Deitel & P.J. Deitel, Prentice Hall  
**IBSN:** 0-13-089572-5

**COURSE DESCRIPTION** This course introduces the student to the C programming language. Students will apply their knowledge of programming logic, analyze problems and construct solutions using source code in C. They will also test, debug and modify source code. Also, students will prepare to learn advanced languages, such as C++ or Java.

**OBJECTIVES:** Upon completion of this course the students will be able to:

1. Define good coding habits, by applying principles of structured programming to the C language.
2. Explain and apply the preprocessor, compiler and linker for C.
3. Identify, describe and apply the basic (primitive) data types in C.
4. Describe and apply operators, expressions and rules of precedence.
5. Identify, explain and apply the C language implementations of control structures (sequences, decisions, loops, etc.)
6. Identify, explain and apply both single and multi-dimensional arrays.
7. Identify, explain and apply pointers.
8. Identify and apply modularity in C using functions.
9. Create and apply structures, unions and enumerations.
10. Apply formatted input/output.
11. Apply basic file input/output.
12. Build multi-file programs.
13. Apply and use various C library functions.

**COURSE OUTLINE:**

<b>Topics &amp; Class Activities</b>	<b>Required Reading</b>
<b><u>Week 1:</u></b> Brief review of basic computing concepts; Intro to C as a language; Includes basic arithmetic & relational operators.	C: How to Program Chpt 1-2
<b><u>Week 2:</u></b> Begin with review of programming structures from <u>SD110 Computer Programming Logic</u> . Focus on how to implement those in C syntax (if/else, while)	C: How to Program Chpt 3
<b><u>Week 3:</u></b> Review control structures from: <u>SD110 Computer Programming Logic</u> , and implement additional control structures (do/while, for, switch, break, continue)	C: How to Program Chpt 4

**MASTER SYLLABI**  
**Required Reading**

**Topics & Class Activities**

**Week 4 & 5:**

C functions & modularity  
Random numbers  
Recursion  
Promotion of data types  
Definitions & prototypes, etc.  
Call by Value  
Arrays

C: How to Program  
Chpt 5-6

**Week 6:**

MIDTERM  
Review & Test

**Week 7:**

Pointers  
& and \* operators for pointers  
Call by reference  
Bubble sort  
Pointer arithmetic  
Pointers & arrays

C: How to Program  
Chpt 7

**Week 8:**

Characters & strings in C  
Fundamental operations for strings & characters  
String conversion functions  
Standard i/o library functions, etc.

C: How to Program  
Chpt 8

**Week 9:**

Formatted input/output, streams, etc,

C: How to Program  
Chpt 9

**Week 10:**

Structures, unions & enumerations  
Bitwise operations  
Typedef

C: How to Program  
Chpt 10

**Week 11:**

File input/output  
Preprocessor directives  
Conditional compilation  
Multi-file programs  
Macros

C: How to Program  
Chpt 11, 13  
& Selected Topics in  
Chpt 14

**Week 12:**

**Final Exam**

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**INSTRUCTIONAL METHODS:** The student will need access to a C compiler toolset. This course is intended to be platform-neutral; either Windows or Linux may be used to create the programs required for this course. It is recommended that the GNU gcc compiler be used. This is the native compiler for Linux and is part of the Cygwin tools provided by Cygnus Solutions, a Red Hat company. It is recommended that students be provided a CD-ROM available with the Cygwin package, as the current download is about 13 MB.

Each lesson is intended to take about a week. Some lessons are shorter than others to provide extra time for review and discussion. In addition, to performing a few exercises at the end of each chapter, two programming projects will be assigned.

**EVALUATION:** Student grades will be based on the following point scale:

Exercises	200
Projects (2)	300
Midterm Exam	200
Final Exam	200
Participation	<u>100</u>
	1,000 points total

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 and grades are based on the following percentages:

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