

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: COMPUTER SYSTEMS II

✓ Code No.: CET220-5 Semester: THREE/FOUR

Program: COMPUTER ENGINEERING TECHNOLOGY

Author: TYCHO BLACK

Date: JUNE, 1993 Previous Outline Dated: SEPT, 1992

APPROVED:

T. Wright
Dean

93-06-10
Date



COMPUTER SYSTEMS II
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CET220-5
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TOTAL CREDIT HOURS: 75

PREREQUISITES: CET129 - STRUCTURED PROGRAM DEVELOPMENT

I. PHILOSOPHY/GOALS:

This course develops a student's ability to use the C Programming language effectively. In addition, the UNIX operating system is introduced (as implemented in ULTRIX-32), including its commands and utilities.

A series of C programming assignments will be done in both a PC and a VAX/VMS environment. The practical skills necessary to operate in a UNIX environment will also be reenforced with lab assignments.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will:

1. Be able to use the elements of the C Programming language to solve problems in both a VAX and a Turbo C environment.
2. Be able to use the commands and utilities of the UNIX operating system, as implemented in ULTRIX-32 to manage files, directories and processes effectively.

COMPUTER SYSTEMS II
COURSE NAME

CET220-5
CODE NO.

III. TOPICS TO BE COVERED:

1. C Programming structure, style, data types, expressions and operators.
2. Decision-making and looping structures in C.
3. String-handling and terminal I/O in C.
4. Arrays and pointers.
5. Functions, structures and unions.
6. File I/O in C.
7. ULTRIX commands and the UNIX environment.

IV. LEARNING ACTIVITIES

BLOCK 1- C PROGRAMMING FUNDAMENTALS

1. Be able to describe and use C program structure and style correctly.
2. Describe and use the VAX C and Turbo C environments for program generation and testing including C preprocessor directives; in particular, macros.
3. Describe and correctly use the various forms of C expressions, statements and operators.
4. Be able to define constants, declare variables, understand the different data types and the use of casting.
5. Be able to use standard C functions for basic string handling and terminal I/O.
6. Be able to use the available decision making and looping structures in C as elements of working programs.
7. Be able to solve problems using the elements of C described above in both a VMS and a PC environment.
8. Be able to describe the advantages and disadvantages of C as a programming language.

BLOCK 2 - ADVANCED C PROGRAMMING

1. Understand the role of and be able to use functions in C. Understand the nature of ANSI C prototyping of functions. In addition, be able to use the various string-handling functions available in C.

REQUIRED RESOURCES

TEXT:
"NEW C PRIMER
PLUS" by
Waite, Prata

Chap. 1,2,16

Chap. 5, 15

Chap. 3

Chap. 4,8

Chap. 6,7

Chap. 9,11

COMPUTER SYSTEMS II
COURSE NAME

CET220-5
CODE NO.

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|---|----------|
| 2. Be able to use arrays and pointers effectively in C programs. | Chap. 10 |
| 3. Be able to use structures and unions and be able to describe the various ways of specifying them. | Chap. 14 |
| 4. Be able to describe the various storage classes in C and their characteristics. | Chap. 13 |
| 5. Understand the nature of recursion and dynamic memory allocation and how they can be implemented in C. | Chap. 9 |
| 6. Be able to use C functions for file I/O. | Chap. 12 |
| 7. Be able to use other specialized C library functions. [as time permits.] | |
| 8. Be able to use the elements of C covered in this Block to solve assigned problems in a VMS or Turbo C environment. | |

BLOCK 3 - THE UNIX OPERATING SYSTEM

1. Understand the history of the UNIX operating system and its advantages and disadvantages in relation to other operating systems.
2. Understand the operating environment of ULTRIX from a users point of view.
3. Understand the ULTRIX file system, and be able to manage directories. In addition, be able to copy files back and forth between a VMS and an ULTRIX node.
4. Understand and be able to use redirecting, filtering and piping.
5. Be able to use a UNIX Text editor such as vi.

Notes supplied
by the
instructor or
text, as
assigned.

COMPUTER SYSTEMS II
COURSE NAME

CET220-5
CODE NO.

6. Be able to use ULTRIX Mail Utilities.
7. Be able to use shell command files and basic commands to manage processes.
8. Understand and be able to use a variety of ULTRIX commands and know their VMS equivalents. (where they exist.)
[as time permits]

COMPUTER SYSTEMS II
COURSE NAME

CET220-5
CODE NO.

V. METHOD OF EVALUATION:

3 WRITTEN TESTS	65%
2 C tests (25 % each)	
1 Unix test (15%)	
ASSIGNMENTS	25%
QUIZZES and PRACTICAL TESTS	10%

(The percentages shown above may vary slightly where circumstances warrant.)

GRADING SCHEME

A+	90	-	100%
A	80	-	89%
B	70	-	79%
C	55	-	69%
I	Incomplete		
R	Repeat		

UPGRADING OF INCOMPLETES

When a student's course work is incomplete or final grade is below 55%, there is the possibility of upgrading to a pass when a student meets the following criteria:

1. The student's attendance has been satisfactory.
2. An overall average of at least 40% has been achieved.
3. The student has not had a failing grade in all of the theory tests taken.
4. The student has made reasonable efforts to participate in class and complete assignments.

The nature of the upgrading requirements will be determined by the instructor and may involve one or more of the following: completion of existing assignments, completion of additional assignments, additional practical tests, re-testing on individual parts of the course or a comprehensive test on the entire course.

COMPUTER SYSTEMS II
COURSE NAME

CET220-5
CODE NO.

ATTENDANCE:

Absenteeism will affect a student's ability to succeed in this course. Absences due to medical or other unavoidable circumstances should be discussed with the instructor, so that remedial activities can be scheduled. Absence from tests without pre-arranged authorization may result in a zero grade being applied. It is the student's responsibility to consult with the instructor before such absences.

LATE PENALTY FOR ASSIGNMENTS

A late penalty of up to 10% per week may be applied to assignments which are not handed in by the due date, unless extenuating circumstances exist. Assignments will not be accepted if they are received after the assigned problems are taken up in class (typically one week after they are due).

VI. REQUIRED STUDENT RESOURCES:

TEXT BOOKS:

1. "NEW C PRIMER PLUS" by
M. Waite, S. Prata
(Howard Sams & Company)
2. * A UNIX textbook may be specified by the instructor

VII. ADDITIONAL RESOURCE MATERIALS AVAILABLE:

To be identified during the course.

VIII. SPECIAL NOTES:

Students with special needs (eg. physical limitations, visual or hearing impairments, or learning disabilities) are encouraged to discuss any required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as deemed necessary to meet the needs of students or take advantage of new or different learning opportunities.