

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON

COURSE OUTLINE

COURSE TITLE: INTRODUCTION TO COMPUTER APPLICATIONS

CODE NO.: CET 110 - 3 SEMESTER: TWO

PROGRAM: SCHOOL OF ENGINEERING TECHNOLOGY PROGRAMS

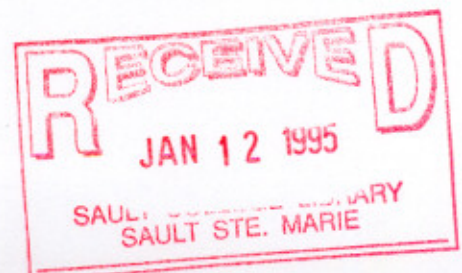
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DATE: January 1995 PREVIOUS OUTLINE DATED: August 1994

APPROVED:

P. Chazotte
DEAN

95-01-06
DATE



COURSE NAME:
INTRODUCTION TO COMPUTER APPLICATIONS

CODE NO.:
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COURSE OUTLINE

LENGTH OF COURSE: 3 HOURS PER WEEK FOR 16 WEEKS
(1 HOUR THEORY CLASS PER WEEK & 2 HOUR LAB
CLASS PER WEEK)

PREREQUISITES: NONE

I. PHILOSOPHY/GOALS

This is an introductory computer course for students enrolled in programs within the School of Engineering Technology, other than the C.E.T. Program. The goal of this course is to have the student appreciate the need for information technologies (computers) within today's society and specifically utilize his/her personal computer skills developed within this course throughout his/her career. This course provides the introduction to some of the terms and concepts that will be discussed more in depth, in later courses, specific to the students' program. Within this course, the student will learn what makes up the basic physical parts of the computer, what software is, and how computers process information.



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II. STUDENT PERFORMANCE OBJECTIVES (OUTCOMES):

Upon completion of the course, participants will be able to:

- 1. Demonstrate computer literacy in: computer concepts, and computer terminology. Be able to discuss how components (hardware, software, data, and people) are integrated into an effective microcomputer system that meets the needs of the individuals, businesses and society in general.**

- 2. Appraise the utility of some of the software application programs available for the IBM PC microcomputer and compatibles.**

- 3. Demonstrate basic skills with the operating system for personal computers: MS DOS ver 5.0**

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4. **Prepare sample engineering/business reports using representative software applications such as WordPerfect 5.1 for DOS (word processing package), and QuattroPro (spreadsheet package).**
5. **Program using Qbasic (a programming language provided with the operating system DOS ver 5.0).**

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III. Topics to be covered:

1. **General Computer Concepts**
2. **Application software for wordprocessing**
3. **Application software for spreadsheets**
4. **Operating systems (MS DOS ver 5.0 in detail)**
5. **Programming in Qbasic language**

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 1: General Computer Concepts

Learning Activities:

Complete all module activities in the text by Maran Graphics "Computers Simplified", and specifically be able to:

chapter 1

- 1. Define the terms hardware and software.**
- 2. Distinguish between "operating system software" and "application software".**
- 3. Identify and discuss the four elements in the flow of information in a computer: input, processing, output, and storage.**

chapter 2

- 4. Describe the two main types of cases: Desktop and Tower.**
- 5. Identify the major components of the computer.**
- 6. Define what an expansion card is and describe how it works with a computer.**
- 7. Name the different types of expansion slots.**
- 8. Explain different ways to protect your equipment.**

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 1: General Computer Concepts (cont'd)

chapter 3

9. List several input devices and explain how they work.
10. Explain the function of many of the computer keyboard's keys.
11. List several output devices and explain how they work.
12. Define what a video adapter is and how graphics are displayed.
13. Describe the differences between different types of monitors.
14. Identify two type of printers and describe the differences between them.
15. Describe how a printer's speed and quality are measured.
16. Explain what modems are used for.
17. Define what a scanner is and what it does.

chapter 4

18. Define memory
19. Discuss how memory works and how it is measured.
20. Define and discuss conventional and extended memory.
21. Explain the three factors that affect CPU performance: speed, type and generation.
22. Define the differences between Intel's CPU chips.

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 1: General Computer Concepts (cont'd)

23. Discuss what cache memory is and how it impacts the speed of a computer.

chapter 5

24. Discuss how data is stored and organized.
25. Define hard disk and explain how it works.
26. Explain how cache speeds up processing.
27. Discuss storage and speed as they relate to choosing a hard drive.
28. Define floppy disk drive.
29. Distinguish between and list characteristics of two types of disk drives and disks.
30. Explain what CD-ROM drives and disks are and discuss several CD-ROM applications.
31. Explain the function of backup.

chapter 6

32. Identify the features of a portable computer.
33. Identify the types of screens used for portable computers.
34. Discuss how to expand the capabilities of your portable computer.

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 1: General Computer Concepts (cont'd)

35. Discuss the advantages of "docking" a portable computer to a full-sized computer.
36. Discuss the "tricks" a portable computer uses to conserve power.
37. Explain how a portable computer's CPU, storage, and memory differ from a full-sized computer's.

chapter 7

38. Define what an operating system is and what it does.
39. Describe similarities and differences between entering commands using the MS-DOS command prompt and the MS-DOS Shell.
40. Describe six characteristics of the Microsoft Windows operating system.
41. Discuss the differences between MS-DOS, Windows , and OS/2.

chapter 8

42. Describe some of the common characteristics of word processing software.
43. Describe some of the common characteristics of spreadsheet software.
43. Describe some of the common characteristics of data base software.

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 1: General Computer Concepts (cont'd)

44. Differentiate between the different types of databases.
45. List some common desktop publishing features.

chapter 9

46. Define local area networks (LAN) and wide area networks (WAN).
47. Discuss how a computer is added to a network.
48. Identify the role of the "Network Administrator".
49. List and define some common network terms.
50. Identify the types of network layouts.

Resources:

textbook by Maran Graphics "Computers Simplified

Academic Edition"

handouts

videotapes

at least four 3 1/2" HD disks

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 2: WordPerfect version 5.1 for DOS textbook

Learning Activities:

1. **Utilize WP5.1's on-line help facility**
2. **Use the mouse and Alt key with arrow keys to activate the "Pull Down Menus" in WP5.1**
3. **Create and edit a document: start a document, save and name a document, retrieve a document, cursor control, insert or typeover text, delete text.**
4. **Move, copy, delete, and restore text.**
5. **Format your documents: setting margins, setting tabs, indent text, modify text, control text.**
6. **Check your documents: search, replace, and spellcheck**
7. **Print your documents: select paper and form sizes, view document, print displayed document.**
8. **Manage your documents: delete/move or rename/print/look, other directory/copy/name search.**

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 2: WordPerfect version 5.1 for DOS textbook (cont'd)

9. Produce a table with x rows and y columns. Within any cell place text, graphics, or equations.
10. Utilize WP5.1's equation editor to generate within reports, professional looking formulas at any given setpoint (i.e. font size).

Resources:

textbook by Maran Graphics "WordPerfect 5.1 for DOS Academic Edition"

handouts

videotapes

at least four 3 1/2" HD disks

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 3:

QuattroPro textbook

Learning Activities:

1. **Getting Started**
2. **Enter data: worksheet navigation, enter labels, enter numbers and formulas, specify range, enter functions.**
3. **Save and open worksheets: files and directories, create a directory, change a default directory, save a worksheet, the viewer Add-in, retrieve a file.**
4. **Move and copy data: move data, copy data, relative reference, and absolute reference.**
5. **Rows and columns: erase data, change row height, change column width, and insert/delete rows and columns.**
6. **Change data appearance: format values, align labels.**
7. **Create a graph: create a graph, change graph type, add X-axis labels, add a title, add a legend, add grid lines, 3D effect, add graph to worksheet, and re-size a graph.**
8. **Print: print worksheet, preview worksheet, and change page setup.**

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 3: QuattroPro textbook

Resources:

textbook by Que College "QuattroPro for DOS Smartstart"

handouts

videotapes

at least four 3 1/2" HD disks

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 4: MS-DOS 5.0 textbook.

Learning Activities:

Section I: Using the command prompt

1. **Getting started: using this guide, introduction to MS-DOS 5.0 change date or time, specify drives and directories, internal and external commands, and help facility.**
2. **Manage your directories: files and directories, make directory, change directory, remove directory, and tree command.**
3. **Manage your files: directory, sort files, copy files, rename files, delete files, undelete files, type files, print files, and edit files.**
4. **Manage your floppy disks: 3.5" and 5.25" floppy disks, format and diskcopy commands.**
5. **Manage your hard disk: backup, restore, xcopy, and check disk commands.**

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 4: MS-DOS 5.0 textbook (cont'd)

Section II: Using the MS-DOS Shell

- 1. Getting started: start the MS-DOS shell, select commands, change screen mode, change color scheme, and help facility.**
- 2. Manage your directories: change disk drives, change directories, create directories, expand or collapse directory levels, delete directories, and show information.**
- 3. Manage your programs: start a program, switch between programs, and quit the MS-DOS shell.**
- 4. Manage your files: change views, select multiple files, search for files, sort files, copy or move files, rename files, and delete files.**
- 5. Manage your disk with disk utility commands: disk copy, backup, restore, format and undelete.**

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IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

Module 4: MS-DOS 5.0 textbook (cont'd)

Resources:

textbook by Maran Graphics "MS-DOS 5.0 Academic Edition"

handouts

videotape

at least four 3 1/2" HD disks

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IV LEARNING ACTIVITIES/REQUIRED RESOURCES

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Module 5: Programming in Qbasic

Learning Activities:

1. Write a 5 or 6 line program using programming language Qbasic instructions Input and Print to enter your name via the keyboard and review your name on the monitor replicated 20 times.
2. Retrieve Qbasic programs already written to the disk as a file, then modify program, then save under another filename.
3. Employ alternate loop control methods for programming: IF statements; FOR NEXT statements.
4. Use the PRINT USING statement for more professional looking print outs.
5. Write programs requiring input data by first using the INPUT statement; then re-write the program to employ the READ / DATA statements. Give examples when either method is advantageous over the other method.

Resources:

handout "Qbasic For CET110 Students" by Peter Savich
videotape
at least four 3 1/2" HD disks

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V. METHOD(S) OF EVALUATION

1. Tests

The student will be assessed through a series of three (3) practical computer based tests.

Two assignments from the major module must be completed and demonstrated and mark recorded before a major module test will be given.

Major Module	Assessment	Sub-Module No./topic	Objective being assessed	Weight
A	A1	General computer concepts	ability to use microcomputer hardware & software terminology	5.00%
	A2	wordprocessing	ability to produce tables and use equations editor, spell check using WP5.1 for DOS	5.00%
	T1	wordprocessing	ability to produce tables and use equations editor, spell check using WP5.1 for DOS	20.00%
B	A3	spreadsheets	ability to produce a slide show of budget graphs using QPro	3.00%
	A4	spreadsheets	ability to produce a slide show of properly titled graphs requiring a physics formula using QPro	4.00%
	T2	spreadsheets	produce a budget or physics based QPro slide show of graphs	20.00%
C	A5	Operating Systems	perform a series of DOS commands using a batch file containing MS DOS ver 5.0 commands	4.00%
	A6	Qbasic	modify a Qbasic program as required to answer a particular math question	4.00%
	T3	Operating systems/Qbasic	write a batch file of MS DOS ver 5.0 commands and /or modify a Qbasic program as required to answer a particular math question	20.00%
	Quizzes			15.00%
	TOTAL			100.00%

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V. METHOD(S) OF EVALUATION (cont'd)

Thus, individual students will be completing tests before other students depending upon mastery of the learning outcome, or time constraints. Students, are encouraged to offer voluntary "peer tutoring" to each other within the class. Those students with significantly advanced skills or students just shown a computer skill or "trick" by the teacher should help others less advanced in the class. Students that want to be paid tutors are encouraged to sign up early in the L.A.C. The professor's recommendation is a strong factor in being accepted.

All test questions are individualized and are of the same complexity.

Each test will be weighted to 20% of the final mark. In all tests the testing concept is open book, using a computer, perform some tasks previously demonstrated in the assignment(s). All tests are designed to be completed in less than one hour. Historically, students have been allowed only a few mistakes on demonstrations for the professor, with 5% off for any such mistake/omission or required prompting by teacher. The skills being tested were previously demonstrated in the assignments and as such the minimum mark recorded will be 85% for a test. The test if suspended by the teacher can be re-attempted at no penalty later, other than a N.Q.A. coupon will be required. Mastery learning implies minimal mistakes, and any mistakes are usually self-corrected, with time taken to complete the test an overall factor. A student attempting a re-write test (and peer tutored by a classmate)

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V. METHOD(S) OF EVALUATION (cont'd)

obtaining 100% performance during the re-write, will result in a bonus of 2% for the peer tutor. This incentive is designed to encourage "team work" and "collective responsibility", as will be required in today's society. Finally, if during testing, it seems the student/teacher will not be able to complete the test, alternative arrangements will be made at that time, with no penalty to the student.

The professor's adaptation of "mastery learning" has been incorporated into the evaluation system of this computer course. Thus, failing one particular test, means re-doing the test again, the questions altered, but testing or measuring the same learning outcomes. The test will be re-given when the student is ready. A formal "peer tutoring" situation may constitute being more "ready" for a test. Only three N.Q.A. coupons will be given out per student. The using up of all three coupons on test #1 is not a desirable outcome.

The entire class should have completed tests by certain milestone dates. The tentative dates are as follows for the five modules:

Major Module	Module Name	Milestone
A	General Computer Concepts & Wordprocessing	Feb 17
B	Spreadsheets	Mar 17
C	MS DOS & Qbasic	Apr 21

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V. METHOD(S) OF EVALUATION (cont'd)

Students will be encouraged to be assessed outside of class lab times to beat the deadline. One "No Questions Asked" or N.Q.A. coupon will be required to write a test after these dates.

2. Quizzes

The student will be assessed through a series of quizzes. The total weight of these quizzes are not to exceed 15% of the final mark. The student should expect an "easy" 2 minute, one or two word answer quiz every lecture.

3. Assignments

The student will be assessed through a series of lab assignments. Collectively these assignments will be weighted to 25% of the final mark.

4. Attendance

The student attending 32 out of the 34 lectures and labs offered, will receive a 2% bonus for excellent attendance

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V. METHOD(S) OF EVALUATION (cont'd)

Summary of Final Mark

1.	Tests	60%
2.	Quizzes	15%
3.	Assignments	25%

		100%
5.	Attendance	2% bonus only

Course Grading Scheme

A+	90+	outstanding achievement
A	80 - 89	above average achievement
B	70 - 79	average achievement
C	55 - 69	satisfactory achievement
U		unsatisfactory given at midterm only
S		satisfactory given at midterm only
R		repeat
X		a temporary grade that is limited to instances where special circumstances have prevented the student from completing objectives by the end of the semester. An "X" grade must have the Dean's approval and has a maximum time limit of 120 days.

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V. METHOD(S) OF EVALUATION (cont'd)

Upgrading of an incomplete or "X" grade

When a student's course work is incomplete or final grade is below 55%, there is the possibility of upgrading to a pass when the student's performance warrants it. The student must request that an "X" grade be given before the semester ends. The professor, upon review of the student's attendance and assignment completion will decide whether the "X" grade will be granted. The "X" grade contract will be individualized and agreed to before the semester ends. The highest grade recordable for a student needing more than the one semester is an "A", the "A+" is reserved for students mastering the skills within the 16 week course.

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VI. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the Professor.

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VII. REQUIRED STUDENT RESOURCE

REQUIRED TEXTS:

1. **Three Module textbooks by
Maran Graphics, Prentice Hall:
Computers Simplified Academic Edition
WordPerfect 5.1 for DOS Academic Edition
MS-DOS 5.0 Academic Edition**

Authored by: Richard and Ruth Maran

Published by: Prentice Hall Canada, Toronto, Ont.

QuattroPro for DOS Smartstart by Que Publishing, Prentice Hall, Indianapolis, Ind.

2. **At least five (5) 3.5" high density floppy disks.
A Student may wish to also purchase "double density"
5 and 1/4" disks for older computer disk drive systems only if he/she has a
"low density" disk drive at home. He/she should not buy the "high density"
5 and 1/4" disks. Using a "high density disk" in the "low density drives" is
not reliable. Ideally, the student with only a 5 1/4" disk drive system at home
should consider upgrading to the 3 1/2" HD drives used today.**

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**VIII. ADDITIONAL RESOURCE MATERIAL AVAILABLE IN THE COLLEGE
LIBRARY AND CAMPUS SHOP**

There are many other books on Qbasic programming, WordPerfect, QuattroPro, and MS DOS operating systems.

1. Sault College software support Authored notes:

(sold in Campus Shop at approx. \$7 / notes)

MS DOS notes

WordPerfect 5.1

Advanced WordPerfect 5.1

Lotus 123 ver 2.1 notes

2. Best seller list published textbooks:

(sold in Campus Shop at approx. \$21 / book)

MS DOS For Dummies

WordPerfect For Dummies

Lotus 123 For Dummies

Networks for Dummies

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**VIII. ADDITIONAL RESOURCE MATERIAL AVAILABLE IN THE COLLEGE
LIBRARY AND CAMPUS SHOP**

3. Textbooks (not sold by Campus Shop)

**Feldman, Phil and Rugg, Tom Using Obasic, Que Publishing Co., Indianapolis,
Ind.**

Fenton, J.P. Obasic for Beginners, Benjamin/Cummings, Redwood, Calif.

**Perry, Greg Obasic by Example, Que Publishing Co.,
Indianapolis, Ind.**

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PERIODICALS: (available in Sault College Library)

PC Magazine

Byte Magazine

Computing Canada

Computers in Education

Computers in Nursing

VIDEO TAPES: (available at Sault College audio-visual centre)

Six Part TVO Series: Bits and Bytes (1992 edition)

Spreadsheets

Advanced Spreadsheet and Programming

Word Processing 1

Word Processing 2

Word Processing 3

Computer Applications/Software Introduction

Applications

Electronic Publishing

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IX. Special Notes

1. **Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.**
2. **Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.**
3. **The architectural, civil, and mechanical students will discover that much of their required course work within their programs in later semesters will require IBM PC microcomputer work. For this group, historically, the most frequently used application program other than WordPerfect or Autocad has been the spreadsheet software. Thus, the use of the spreadsheet program "QuattroPro" will be studied in greater depth for these students. The electrical, electronic, aviation students will also discover that much of their required course work within their programs assume the students "know computers". There is no time in this course to learn Mathcad, Maple, etc. As a consequence Qbasic software will be studied in greater depth for these students.**