

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: **MICRO COMPUTER APPLICATIONS**

Course No.: **CET128**

Program: **COMPUTER ENGINEERING TECHNOLOGY**

Semester: **Third (3)**

Date: **August 1995**

Author: **PETER SAVICH**

Previous

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APPROVED:

Dean

Date

P. Savich 95-08-23

MICROCOMPUTER APPLICATIONS

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COURSE OUTLINE

PREREQUISITES: NONE

However, the student is expected to have skills equivalent to the CET 105 course learning outcomes concerning: the MS DOS ver 5.0 operating system, and Wordperfect ver 5.1 wordprocessing.

LENGTH OF COURSE: 4 HOURS PER WEEK comprised of:

2 - 1 hour theory classes (combined sections)

1 - 2 hour lab class

TOTAL CREDIT HOURS: 64

I. PHILOSOPHY/GOALS

This course is intended to provide for the student, the necessary skills related to **application software for the PC environment** (at the introductory post-secondary level). This course continues to discuss the similarities and differences in typical PC application software packages initiated in the CET 105 course. Two particular applications software packages: spreadsheet analysis, and database management will be studied in-depth. For this course Sault College uses the licensed application software packages: dBASE 5 for windows for database management; and QuattroPro ver 5 (or QPro ver 5) for windows for spreadsheets. Several practical exercises will be completed which require the dBase 5 and Qpro ver 5 software to provide solutions or **what if analysis** to a variety of typical problems in business or engineering environments. The student is expected to gain familiarity with these packages if the student is already familiar with other database or spreadsheet packages.

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The student will also be expected to do an independent study of an application software package not previously covered. The topic to be chosen, is at the student's discretion, but is subject to the Instructor's approval. The purposes of the independent study are: to build confidence, interest, and good literature searching techniques for the student, that are essential to maintaining currency in the computer related profession.

II. STUDENT PERFORMANCE OBJECTIVES (OUTCOMES)

At the end of this course the student will be able to:

1. Describe the general concepts encompassing the following generic application software packages: wordprocessing, spreadsheets, and database management.
2. Demonstrate proficiency in using the **QPRO ver 5 for windows** spreadsheet software.
3. Demonstrate proficiency in using the **dBASE 5 for windows** database management software.
4. Demonstrate some proficiency in the application software he/she studied (independently).

III. TOPICS TO BE COVERED

1. Generic application software packages: wordprocessing, spreadsheets, and database management.
2. What are spreadsheets?
3. Typical applications of spreadsheets.
4. Common features and components of spreadsheets.
5. Specific details related to QPro ver 5 for windows.
6. Spreadsheet design
7. What is a database?
8. Typical applications of databases.
9. Common features and components of a database.
10. Specific details related to dBASE 5 for windows.
11. Programming with dBASE 5 for windows.
12. SQL programming
13. Independent study of application software presentations to classmates and professor.

IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

LEARNING ACTIVITIES

Module 1 SPREADSHEET APPLICATIONS USING Qpro ver 5 for windows

Module 1 Quattro Pro 5.0 for Windows textbook

In this module, spreadsheet applications will be investigated using QPro ver 5 for windows.

Anticipated length of module is 4 to 5 weeks.

The students will be tested on or will apply the following learning outcomes and at the end of this module the student should be able to:

1. List several spreadsheet application software packages and differentiate between them as to price, availability, hardware requirements, and currency.
2. Within the "ready" mode, enter data, perform worksheet navigation, enter labels, enter numbers and formulas, specify range, and enter functions.
3. Use the "file" sub-menu to change the default directory, save a worksheet, and retrieve a worksheet file.
4. Use the "utilities" sub-menu option to temporarily leave QPro and create a directory.
5. Use the "move" and "copy" sub-menu to move and copy data.

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6. Use the "edit" function key and alter a formula in a given cell.
7. Differentiate between relative reference, and absolute reference.
8. Use the "worksheet" sub-menu to erase the current worksheet data, change row height, change column width, and insert/delete rows and columns.
9. Use the "range" sub-menu to change data appearance: format values, align labels, and erase a range of data.
10. Use the "graph" sub-menu to create a graph, change graph type, add X-axis and Y axis titles, add first and second line titles, add a legend, add grid lines, insert a graph into the worksheet, and produce a slide show of named graphs.
10. Use the "print" sub-menu to print a worksheet, preview a worksheet, and print a graph.
11. Import worksheets and graphs into a WordPerfect document.

Module 2 DBASE IV: DATABASE MANAGER

"dBase 5 for windows" textbook

This module introduces students to dBASE 5 as a representation of single-user data base management system software. Anticipated length of this module is: 3 weeks Part I; 3 weeks Part II; 3 weeks Part III; and 2 weeks Part IV.

The student will be tested on or will apply the following learning outcomes and at the end of this module the student should be able to:

Part I

Introduction to dBase

1. List several database management application software packages and differentiate between them as to: price, availability, hardware requirements, and currency.
2. Explain the relationship between DBASE IV and Structure Query Language (SQL).
3. Discuss and contrast the following database management concepts: sort & retrieve, search & report, and inter-relate.
4. Distinguish between the different versions of dBASE.
5. Differentiate between report generation and data entry; describe the primary data entry operations.

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6. Load dBASE and arrive at the dot prompt.
7. Define the terms: field, record, file, file structure.
8. Create and/or modify a dBase file structure by using the CREATE, MODIFY STRUCTURE, and DISPLAY STRUCTURE commands.
9. Add, modify, or delete records by using the APPEND, EDIT, BROWSE, DELETE, RECALL, and PACK commands.
10. List some or all records in a file through variations of the DISPLAY command.
11. Obtain summary information by using the SUM, COUNT, and AVERAGE commands.
12. Explain how to use the dBase on-line help facility.
13. Define the command buffer; use the arrow keys when entering commands in the dot prompt mode.
14. Describe the concept of indexing and how indexes are created in dBase.
15. Define and build a concatenated index.
16. Describe how to list records in ascending as well as descending sequence; also how to index on a calculated field.

Part II

The Control Center

17. Use the report generator to create and/or modify report forms; describe the use of pull-down menus within the report generator and the significance of the quick layout option.
18. Define the dBase record pointer; discuss how the SET ORDER and REPORT FORM

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commands alter its position within a DBF file.

19. Define a report band: list the different types of report bands and describe when and where they are generated.
20. Differentiate between character, numeric, date, and logical fields as they are used within a file structure.
21. Define mail merge; describe several similarities associated with the procedure for creating mailing labels and form letters.
22. Describe the relational and logical operators that provide query and conditions for dBase.
23. Use the FIND and LOCATE commands to move individual records within a DBF file.
24. Create a dBase query file.
25. Discuss several considerations in the design of a file structure.
26. Use the dBase screen generator to create customized screens for data entry and file maintenance.
27. Describe in general terms the functions of various statements in the format file produced by the screen generator.
28. Name the six panels in the control center.
29. Use the application generator to create a quick application consisting of a sign-on banner, input screen, report form and label form.

Part III

Command-Level Programming

30. Describe the requirements of a menu-driven program
31. Define structured programming and pseudocode and list the dBase statements use to implement the basic building blocks of structured programming.
32. Distinguish between dBase interactive and command modes.
33. List the three coding standards to follow when writing dBase programs.
34. Define debugging in dBase; distinguish between errors in compilation and errors in execution.
35. Discuss the need for proper documentation of programs; describe several elements used in program documentation.
36. State how a system may be tested before its programs are completed; describe what is meant by top-down testing.
37. List and elaborate on the three basic file maintenance operations: addition, modification, and deletion of existing records.
38. Perform file maintenance at the dot prompt and file maintenance through a program; describe the advantages and disadvantages of each method.
39. Differentiate between a program and a procedure; explain what is meant by a dBase procedure file.
40. Describe the general function of SET commands; list at least five set commands and the specific purpose of each.

Part IV

Relational Databases: Implementation in dBASE IV and

Introduction to Structured Query Language (SQL)

41. List the characteristics of a relational database.
42. Define one-to-many relationship and define a many-to-many relationship and describe how they are implemented in relational databases.
43. Define relational integrity.
44. Explain the SELECT and SET RELATION commands and how they are used to implement relational concepts in dBase.
45. Describe the output of the DISPLAY STATUS command as it pertains to relational database.
46. Explain the relationship between SQL and dBase IV and how do you go back and forth between the two.
47. Describe the purpose of the following SQL commands: CREATE DATABASE, DBDEFINE, SHOW DATABASE, START DATABASE, STOP DATABASE, and DROP DATABASE.
48. Use the SQL SELECT command for multiple-file queries; define the concept of join operation.
49. Explain the SQL edit window and its use with interactive SQL commands.
50. Show how SQL tables can be maintained as DBF files through ordinary dBase commands: APPEND, EDIT, BROWSE, DELETE, and PACK; describe the purpose of the SQL commands DBCHECK and RUNSTATS.

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CET 128Module 3: INDIVIDUAL STUDY OF AN APPLICATION SOFTWARE PACKAGE

The final module provides the student, the opportunity to study a particular software application package that he/she may be interested in. The main objective of this module is to suggest independent study, extra-curricular to the classroom (or workplace), is a requirement of the student (or employee) in computer technology. Two expected learning outcomes are: develop good study techniques and gain confidence in oral presentations. Both outcomes are essential skills that employers and CSAC generic skills ministry guidelines are demanding for post secondary education programs. Another learning outcome expected is that the student appreciates that although he/she may not work specifically with the tools presented in this course (in industry), the learning strategies employed can be used to learn other software. The two concepts of life-long learning and independent study to remain current, is important particularly in the constantly changing technologies of computers and telecommunications.

Specifically, for this module, the student will be required to:

1. Perform a computer literature search of application software.
2. Identify a package of interest to the student and possibly of interest to the student's classmates.
3. Discuss and gain approval of topic from the Instructor by week 3.

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4. Prepare a fact sheet for the oral presentation and copies for the class on his/her chosen software package.
5. Demonstrate software to class and list alternative or competing software packages available. Presentation should be between 5 and 15 minutes. Students will be scheduled throughout the semester for their presentation date.

REQUIRED RESOURCES

Student will be expected to do individual research on his/her approved topic with guidance from the Instructor.

V. METE OD(S) OF EVALUATION**1. Tests**

The student will be assessed through a series of three (3) written tests. Assignments must be completed and demonstrated and mark recorded before these tests will be given. 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 "peer tutoring" to each other within the class, with significantly advanced skills students helping others less advanced in the class. All test questions are individualized and are of the same complexity, with the marking scheme and learning outcomes being tested stated on the test paper.

Each test will be weighted to 20% of the final mark. In all test situations the testing concept is: open book, using a computer, perform some tasks previously demonstrated in the assignment(s) within a defined time period. All tests are designed to be completed in less than 1 hour.

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The concept of "outcome based learning" has been incorporated into the evaluation system of this course. This implies that the student must **master** each of the defined outcomes in order to obtain credit in this course. Thus, failing one particular test or part of a test, means re-doing the test or part of the test again. The questions from the original test are altered in the re-test, however the testing procedure is measuring the same learning outcomes and these learning outcomes must be mastered. The test or re-test will be given when the student is "ready" and the instructor is available. For some students, a formal "peer tutoring" situation may constitute being "ready" for a test. Additionally, time permitting, the student may **contract** with the Professor for a specific grade, for example, what must be done and by when for an A+, an A, or a B grade. No A+ final grade is possible if a student contracts for an "X" grade after Dec 18/95, however the A, B or the C passing grades are possible.

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The entire class should have completed tests or assignments by certain milestone dates. The tentative dates for completion of the preceding assignments and tests are for the lab periods during the week of:

Test	Tentative Date	Concepts
1	Sept 25- 29/95	Independent study of software topic approval
	Oct 9 - Oct 13/95	Qpro ver 5 spreadsheets
2	Nov 27- Dec 1/95	Databases & dBASE IV
3	Dec 18 - Dec 21/95	dBASE IV and SQL

Re-writes of tests

A re-write for a failing student is possible only if certain conditions are met. The student must have a formal peer tutoring arrangement made and verified. If the peer tutor is a classmate then a 100% performance during the re-write will translate into a further bonus of 2% for the peer tutor.

2. Quizzes

The student will be assessed through a series of unannounced quizzes. The total weight of these quizzes are not to exceed 10% of the final mark. The student should expect an "easy" 2 minute, one or two word answer quiz every lecture. The only way to get permission to write a missed quiz is to agree to attend an extra hour outside of class to make up for the missed hour. In the past, students volunteered to attend another section's lab time and provide peer tutoring.

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. Seminar

The student presentation to the class in the last week will be worth 5% of the final mark.

5. Attendance

The student attending 15 out of the 16 lectures and labs offered, will receive a 2% bonus for excellent attendance.

Summary of Marking Scheme

*	1.	Tests	60%
	2.	Quizzes	10%
	3.	Assignments	25%
**	4.	Seminar	5%

			100%
	4.	Attendance	2% bonus only

Some minor modifications to the above percentages may be necessary.

- * - All required assignments must be completed satisfactorily to take a particular test in this course. Late hand in penalties may be 5% per day. Assignments may not be accepted past one month late unless there are extenuating and legitimate circumstances.
- ** - Seminar must be completed, presented and submitted to pass the course.

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CET 128**TENTATIVE SCHEDULE:**

The following is provided as a reasonable guide to the time spent on each of the major areas in this course.

dBASE 5	48 HOURS
QPRO ver 5	16 HOURS
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	64 HOURS
SEMINAR	10 HOURS (external to class)

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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VI. SPECIAL NOTES

1. Students with special needs 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.

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VII. Required Student Resources

1. "dBase 5 for windows" by Charles Hommel and Roy Ageloff
Publishers: Course Technology. ISBN 1-56527-285-4
2. Previously purchased in 1st semester, Four Module textbooks by Maran Graphics:
Computers Simplified
WordPerfect Version 5.1 for DOS
Lotus Release 2.3 for DOS
MS-DOS 5.0 Simplified User Guide for Microsoft

Authored by: Richard and Ruth Maran

Published by: Prentice Hall Canada

3. At least five (5) 3.5" high density floppy disks.

VIII. Additional Resource Materials

(available in col ege bookstore, Audiovisual Center, and/or library)

There are many other books on Lotus, QPro, dBASE 5 and SQL programming.

1. Sault College Software Support:

Lotus notes
dBASE notes

2. Sault College bookstore sells the popular series:

MS DOS For Dummies
Wordperfect For Dummies
Lotus 123 For Dummies
dBASE for Dummies

3. Video Tapes:

Six Part TVO Series: Bits and Bytes
Spreadsheets
Advanced Spreadsheet and Programming
Word Processing 1
Word Processing 2
Word Processing 3
Computer Applications/Software Introduction
Applications
Electronic Publishing

Periodicals: PC Mag, Byte Mag, Computing Canada

Computers in Education
Computers in Nursing