

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

**COMPUTER PROGRAMMING FOR ENGINEERS
CST 1330**

Class Hours: 3.0

Credit Hours: 4.0

Laboratory Hours: 3.0

**Date Revised: Fall
1999**

Catalog Course Description:

Introduction to computers, algorithms and structured programming through the use of the QuickBASIC programming language and environment. An introduction to PC operating systems, PC computer concepts, engineering problem solving and an application package (word processing) will also be covered.

Entry Level Standards:

The entering student is expected to have reading, writing, math, and problem-solving skills at the college entry level.

Corequisite:

MTH 1020 or MTH 1021

Textbook(s) and Other Reference Materials Basic to the Course:

A Guide to Programming Logic and Design, Joyce Farrell, Course Technology, 1999.
A Short Course in QBASIC, Stewart M. Venit, West Publishing, 1998.
MS Word 97, Swanson, Course Technology
MS Excel 97, Reading, Course Technology
(2) HD 3.5" floppy disks

I. Week/Unit/Topic Basis:

Week	Topic
1	Introduction to PC Systems and DOS
2-3	Word Processing
4-5	Spreadsheets
6	QBASIC Programs, Input/Output
7	Structured Programming
8	Looping

9	Decision, Case
10	Arrays
11	QBASIC Functions
12	File Maintenance
13	Graphics and Sound
14-15	Engineering Applications, Final Project
16	Final Exam

II. Course Objectives*:

- A. Operate a DOS-based keyboard/disk-driven/microcomputer and show proficiency using the QBASIC environment. II,IV
- B. Develop skills in solving problems and in using the computer effectively for engineering applications. I,II,VI,VIII,XI,XII
- C. Analyze problems, then design and code fully working, well structured BASIC statements/programs. I,II,III,V,VI
- D. Code, debug and interpret input/output features. I,II,III,IV,V,VI
- E. Apply logic and BASIC programming skills to engineering applications. VI,VII,VIII
- F. Demonstrate an understanding of DOS, Windows, spreadsheets and word processing. IV,IX

*Roman numerals after course objectives reference goals of the Business and Computer Technologies department.

III. Instructional Processes*:

Students will:

1. Use the Windows operating system to perform practical tasks for personal computing. *Technological Literacy Outcome, Active Learning Strategy, Transitional Strategy*
2. Analyze and solve problems using structural analytical techniques. *Technological Literacy Outcome, Information Literacy Outcome, Numerical Literacy Outcome, Problem Solving and Decision Making Outcome*
3. Complete a final project demonstrating proficiency in an industry standard, high-level programming language. *Technological Literacy Outcome, Information Literacy Outcome, Numerical Literacy Outcome*
4. Practice elements of the work ethic such as punctuality, professionalism, dependability, cooperation, and contribution. *Personal Development Outcome*

*Strategies and outcomes listed after instructional processes reference Pellissippi State's goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

Upon successful completion of this course, the student should be able to:

1. Identify and properly use DOS commands and Windows environment. A,B
2. Demonstrate the proper use of DOS level terms, including: CD, COPY, DIR, DELETE, ERASE, HELP, TYPE, QB, WP, RENAME, A:, C:, DATE, TIME, PROMPT, wildcards. A
3. Properly use the mouse, keyboard and microcomputer extended key set. A,B,F
4. FORMAT a diskette and SAVE all programs developed in the course on disk. A,B,E
5. Demonstrate program command level environment with use of the windows and mouse. A,B,C,D,F
6. Demonstrate good program and application product syntax. B,C,D,F
7. Demonstrate correct and appropriate program statements. B,C,D
8. Demonstrate conversion of math context into program format and/or functions. B,C,D
9. Demonstrate applications of the skills learned to develop a working final product. A,C,D,E,F
10. Demonstrate effective use and understanding of a word processing application. Use tab, indent, centering, underline, bold, print, save, retrieve, block-modify and format in production of at least one enhanced document. A,B,F
11. Demonstrate effective use and understanding of a spreadsheet product to calculate, produce trends, make decisions and produce graphic data plots. A,B,F
12. Demonstrate a working knowledge of the following program language terms:
READ, DATA, PRINT, IF, END, REM, INPUT, FOR, NEXT,
GOSUB, GOTO, DIM, ON, INKEY\$, LEN, VAL, ASC, CHR\$,
UCASE\$, LCASE\$, DO WHILE / UNTIL, LOOP, CASE, EOF,
OPEN, INPUT#, PRINT#, CLOSE, COLOR, BEEP, CONST,
INSTR\$, RIGHT\$, LEFT\$, MID\$, INT, LOCATE, LPRINT,
STR\$, RETURN, RESTORE, CLS, SWAP, CLEAR, TIMES
B,C,D,E
13. Debug and refine software. C,D,E
14. Document software products. B,E
15. Cut, paste, copy program elements and modules using the Quick-style environment. A,B,C
16. Use structured formats, control module, sub-modules, variable declaration and internal documentation. A,C,E
17. Produce fully structured programs which have appropriate entry and exit from all modules and which produce expected results. A,B,E
18. Check and verify output results against externally calculated results using appropriate test data. B,C,E
19. Contribute to the lecture and demonstration format used in this course. The student is

expected to be an active-learner and use the suggested on-line tools available. B,C,E

20. Produce a working client-based real-world software final product. B,C,E

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures:

Students are evaluated primarily on the basis of tests and laboratory assignments. Each instructor must provide more details during the first week of class. There will be at least three major tests. There will be no makeup tests unless prior arrangements are made with the instructor.

B. Laboratory Expectations:

Several labs will be assigned from each subject and must be completed and submitted by the expected date and time. There will be a penalty for submitting late assignments.

C. Field Work:

Each instructor must provide more details the first week of class.

D. Other Evaluation Methods:

None

E. Grading Scale:

93 - 100	A
88 - 92	B+
82 - 87	B
76 - 81	C+
70 - 75	C
60 - 69	D
Below 60	F

Note: Grade of "I" (incomplete) will not be given.

VI. Policies:

Attendance Policy:

Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course.