PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

ACCELERATED C PROGRAMMING
CST 2310

Class Hours: 3.0  Credit Hours: 4.0
Laboratory Hours: 3.0  Date Revised: Spring
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Catalog Course Description:

A study of the C programming language. Language topics include language structure, syntax, functions, macro design, arrays, pointers, string handling, file I/O, structures, unions, and bitwise operations. Program development and practical applications of C will be an integral part of the course. Students may not receive credit towards graduation for this course if CST 1540 or CST 1560 have been completed.

Entry Level Standards:

The entering student should have a familiarity with both the VAX/VMS operating system and the Windows environment. Basic file handling capabilities are essential. The student is expected to have moderate understanding of programming logic, programming structures, number systems, and internal storage of data. The student should be able to keyboard at least 20 words per minute.

Prerequisite:

CST 1410 or department approval

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


I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction, using compiled languages, program development on the VAX, basic input/output, documentation, data types, arithmetic operators, header files, object libraries</td>
</tr>
<tr>
<td>2</td>
<td>Relational operators, simple and nested loop control structures, formatted output</td>
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<tr>
<td>3</td>
<td>Output, simple and nested decision structures, logical operators, operator precedence</td>
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<tr>
<td>4</td>
<td>Functions, arguments, return values</td>
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<tr>
<td>5</td>
<td>Preprocessor directives, macro substitution, prototypes</td>
</tr>
<tr>
<td>6</td>
<td>Arrays</td>
</tr>
<tr>
<td>7</td>
<td>Single and n-dimensional arrays, strings</td>
</tr>
</tbody>
</table>
Strings, files, file pointers, standard I/O

Pointers, pointer arithmetic, returning multiple values or strings, indirection, double indirection

Dynamic data structures, struct data type, recursive calls

Structures

Typcasting, dynamic memory management, unions

Standard I/O, Record I/O

Bitwise operators, storage classes, typedef

Graphics, escape sequences, review

Exam Period

II. Course Objectives*

A. Become familiar with the syntax of the C language. I, II, III

B. Write C programs to solve a wide variety of problems. I, II, III

C. Reinforce structured programming concepts developed in earlier courses. I, II, III

*Roman numerals after course objectives reference goals of the Computer Science Technology program.

III. Instructional Processes*

Students will:

1. Gain proficiency in an industry standard high-level programming language. Technological Literacy Outcome, Information Literacy Outcome, Numerical Literacy Outcome, Active Learning Strategy, Communication Outcome

2. Learn to analyze and solve problems using structured analytical techniques. Technological Literacy Outcome, Numerical Literacy Outcome, Active Learning Strategy, Problem Solving and Decision Making Outcome, Active Learning Strategy, Personal Development Outcome

3. Use professionally accepted methods and materials in completion of applications. Technological Literacy Outcome, Transitional Strategy

4. Use professional tools to produce software components and documentation. Technological Literacy Outcome, Transitional Strategy, Personal Development Outcome

5. Practice elements of the work ethic such as punctuality, professionalism, dependability, cooperation, and contribution. Personal Development Outcome

6. Use the Internet as a medium for obtaining documentation and instruction. Communications Outcome, Technological Literacy Outcome, Information Literacy Outcome, Transitional Strategy

7. Use Computer-Based Training for obtaining instruction. Communication Outcome, Information Literacy Outcome, Technological Literacy Outcome, Transitional Strategy
8. Examine and implement algorithms that are efficient and reliable. *Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Information Literacy 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. Recognize basic data types. A B
2. Use arithmetic, logical and bitwise operators. A B
3. Use data conversions and casts. A B
4. Use arrays, strings and pointers. A B
5. Use structures and unions. A B C
6. Use program control structures. A B C
7. Use library and programmer developed functions. A B C
8. Use parameter passing. A B C
9. Understand storage classes and their usage. A B C
10. Use the preprocessor and macro substitution. A B C
11. Relate external files. A B C
12. Maintain portability of C programs. B C

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

V. Evaluation:

A. Testing Procedures:

Three 50-minute tests will be given during the term. Dates will be announced in class and each test will count as a percent of the grade as follows: (Mid-term and final only in Summer.)

<table>
<thead>
<tr>
<th>Test #</th>
<th>% of Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15%</td>
</tr>
<tr>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>25%</td>
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</tbody>
</table>

B. Laboratory Expectations:

Several lab assignments will be made during the term. Lab assignments will be selected from topics covered in class. If all lab assignments are completed, they will count 25% of the final grade. Failure to complete all labs will result in a grade of F in the course.
C. Field Work:

A quiz over the current class or lab topic may be given at any time, with or without notice, in class or in lab. These may be given in class, in lab, or as take-home quizzes. These quizzes will account for 20% of your final grade. NO makeups.

D. Other Evaluation Methods:

None

E. Grading Scale:

93 - 100   A
83 - 92    B
70 - 82    C
60 - 69    D
0 - 60     F

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.