PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

ADVANCED C PROGRAMMING
CST 2660

Class Hours: 3.0  Credit Hours: 4.0
Laboratory Hours: 3.0  Date Revised: Spring 01

Catalog Course Description:
A study in C language techniques beyond the introductory course. Emphasis will include
development environment, code portability, modularity, efficiency, I/O, and techniques for solving
common problems.

Entry Level Standards:
The entering student should have familiarity with the computer language C, editing C source code,
and writing successful C programs.

Prerequisite:
CST 1540 or C programming experience

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

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Arrays, Pointers, Relationship of Arrays and Pointers, Array of Pointers</td>
</tr>
<tr>
<td>2</td>
<td>Strings and Pointers, String Manipulation Functions, Pointers to Function</td>
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<tr>
<td>3</td>
<td>Recursion</td>
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<tr>
<td>4</td>
<td>Structures, Bit Manipulation</td>
</tr>
<tr>
<td>5</td>
<td>Dynamic Data Structures, Linked Lists</td>
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<tr>
<td>6</td>
<td>Stacks, Queues, Trees</td>
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<tr>
<td>7</td>
<td>Formatted I/O</td>
</tr>
<tr>
<td>8</td>
<td>Files Revisited</td>
</tr>
<tr>
<td>9</td>
<td>Separate Compilation, Conditional Compilation</td>
</tr>
<tr>
<td>10</td>
<td>The Preprocessors</td>
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</tbody>
</table>
II. Course Objectives*:

A. Become familiar with the higher-level techniques of the C computer language. IV,VI,VII,XI

B. Create fairly complex C programs to solve fairly complex problems. III,V,VI,XII

C. Reinforce good programming habits introduced in earlier courses. II,III,VI,VIII

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

III. Instructional Processes*:

Students will:

1. Participate in a project development team. Communication Outcome, Problem Solving and Decision Making Outcome, Personal Development Outcome, Transitional Strategy, Active Learning Strategy

2. Use professionally accepted methods and materials in completion of a final project. Technological Literacy Outcome, Personal Development Outcome, Transitional Strategy

3. Use a variety of techniques to present a group project. Communication Outcome, Active Learning Strategy

4. Participate in a peer review of team projects. Problem Solving and Decision Making Outcome, Communication Outcome, Transitional Strategy, Active Learning Strategy

5. Practice the elements of 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. Understand the C language development environment. B

2. Use advanced file I/O functions and techniques. A,B

3. Use typedefs, arrays, and dynamic allocation. A,B,C
4. Use queues, stacks, linked lists and binary trees. A,B,C
5. Understand sorting and searching techniques. A,B,C
6. Understand parsing and evaluation techniques. A,B,C
7. Use time and date functions. A,B
8. Understand portability, modularity, cohesiveness, and coupling. A,B,C
9. Understand C++ object oriented concepts. C

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

V. Evaluation:

A. Testing Procedures:

There will be at least two major tests and a final exam. Tests will cover materials presented in the class. Tests are not to be missed without a valid excuse.

B. Laboratory Expectations:

Several programming assignments will be given, collected and evaluated. In addition, students will work on a final group project. The team will design, code a program, and present their findings to the class. The subject of the project must be approved by the instructor. Each team member will be assessed based on his/her participation in the project. Individual work is strongly discouraged. All team members MUST participate in coding the program. The instructor will give more information about the final project to students during the first two weeks of class.

C. Field Work:

N/A

D. Other Evaluation Methods:

Quizzes and short assignments may be given throughout the semester. Most of these will be announced in class/lab in which they are to be completed.

E. Grading Scale:

<table>
<thead>
<tr>
<th>Score</th>
<th>Grade</th>
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<tbody>
<tr>
<td>93 - 100</td>
<td>A</td>
</tr>
<tr>
<td>88 - 92</td>
<td>B+</td>
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<tr>
<td>81 - 87</td>
<td>B</td>
</tr>
<tr>
<td>75 - 80</td>
<td>C+</td>
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<tr>
<td>70 - 74</td>
<td>C</td>
</tr>
<tr>
<td>60 - 69</td>
<td>D</td>
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<tr>
<td>Below 60</td>
<td>F</td>
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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.