OBJECT-ORIENTED PROGRAMMING USING C++
CST 2690

Class Hours: 3.0
Laboratory Hours: 3.0
Credit Hours: 4.0
Date Revised: Spring 02

Catalog Course Description:
The study of object-oriented programming and design through the use and practical application of C++ language. The course covers program logic, coding specifications, documentation standards, I/O library, templates, functions, file handling techniques, tables and pointers, input/output techniques, and advantages of OOP.

Entry Level Standards:
The entering student should familiar with the Windows environment. The student is expected to have moderate programming skills in a high-level language. Problem solving skills will be essential.

Prerequisite:
CST 1540 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>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to C++, Data Types and Declarations</td>
</tr>
<tr>
<td>2</td>
<td>Basis I/O, Arithmetic Operations, Logical Structure</td>
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<td>3</td>
<td>Repetition Structure, Storage Classes</td>
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<tr>
<td>4</td>
<td>Functions</td>
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<td>5</td>
<td>Arrays</td>
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<tr>
<td>6</td>
<td>Pointers and Strings</td>
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<tr>
<td>7</td>
<td>Relationship between Pointers and Arrays</td>
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<tr>
<td>8</td>
<td>Structure and Records</td>
</tr>
<tr>
<td>9</td>
<td>Introduction to Classes</td>
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<tr>
<td>10</td>
<td>Additional Class Capabilities</td>
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II. Course Objectives*:

A. Demonstrate an understanding of computer program design principles and techniques. I III V VII XI

B. Demonstrate mastery of basic C programming statements that form a subset of the C++ language. I III V VI IX

C. Show a working knowledge of the C++ language by designing, coding, and implementing attractive and efficient C++ programs. I II IV VI IX

D. Demonstrate proficiency and knowledge of the use of the Borland C++ compiler in creating executable programs from C++ language statements. I II IV IX

E. Demonstrate knowledge of the concepts, methods, and differences associated with Object-Oriented Programming. I III IX

F. Demonstrate effective group participation in the design and implementation of computer programs. I II III IV V VI X XI

*Roman numerals after course objectives reference goals of the CST program.

III. Instructional Processes*:

Students will:

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

2. Create well-documented applications based on instructor specifications. Communication Outcome, Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Information Literacy Outcome, Transitional Strategy

3. Participate in a software development team. Communication Outcome, Problem Solving and Decision Making Outcome, Transitional Strategy, Active Learning Strategy

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

5. Present a finished product to the class. Communication Outcome, Active Learning Strategy

6. Use professionally accepted methods and materials in completion of applications. Technological Literacy Outcome, Transitional Strategy, Active Learning Strategy, 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. Effectively use terminology associated with the computer system, C++, and computer language compilers. A C D E
2. Explain the processes used to produce executable programs from C++ code. C D E
3. Write complete programs in both C and C++ from scratch, with only occasional need to consult additional written language documentation. B C E
4. Demonstrate knowledge of Object-Oriented design and implementation principles. E
5. Effectively apply good work ethics, teamwork, professionalism, and quality standards. B C F
6. Demonstrate the ability to work effectively both individually and as part of a group to produce programs that produce correct results as well as being attractive, readable, and modifiable. A B C D E F

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

V. Evaluation:

A. Testing Procedures:

Exams will comprise 50% of the final grade. Three exams will be given during the course of the semester. The first two exams are worth 150 points. The final exam is comprehensive and is worth 200 points. There will be no make-up tests unless prior arrangements have been made with the instructor.

B. Laboratory Expectations:

Programming assignments will be made during the course of the semester. A late penalty may be imposed on any overdue assignment. Failure to satisfactorily complete all labs may result in a grade of F in the course. Labs will count for 400 points (40%) of the final grade.

C. Field Work:

N/A

D. Other Evaluation Methods:

A number of quizzes and short assignments will be assigned throughout the semester. Most of these will be announced in the class/lab in which they are to be completed and graded.

E. Grading Scale:

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>900 - 1000</td>
<td>A</td>
</tr>
<tr>
<td>800 - 899</td>
<td>B</td>
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<tr>
<td>700 - 799</td>
<td>C</td>
</tr>
<tr>
<td>600 - 699</td>
<td>D</td>
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VI. Policies:

A. 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.

B. Academic Dishonesty:

Plagiarism, cheating, software piracy, non-educational use of computer systems and other forms of academic dishonesty are strictly prohibited.