PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

PROGRAMMING FOR ENGINEERING TRANSFER
CSIT 1050

Class Hours: 0.67 (40 mins)  Credit Hours: 1.0
Laboratory Hours: 0.33 (55 mins)  Revised: Fall 09

Catalog Course Description:

Computer programming using C++ for engineering problem solving. Introduction to computer programming concepts, problem analysis, code formulation, engineering data utilization and applications.

Entry Level Standards:

The entry-level student is not expected to have familiarity with computers. The student must have math (trigonometry and algebra), writing, verbal and English language skills at the college-entry level.

Prerequisites:

None

Textbook(s) and Other Course Materials:

Introduction to C++ For Engineers And Scientists by Delores M. Etter, Prentice Hall 1997 (or newer edition if available.)

1GB (minimum) Flash/Pen/Jump USB Storage Drive, Notebook.

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Intro to computers, computer components, Math concepts, Engineering Use of Computers, C++ Development Editor and Environment, Lab Assignments</td>
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<tr>
<td>2</td>
<td>Engineering Problem Solving Methodology overview, Lab Assignments</td>
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<tr>
<td>3-4</td>
<td>C++ Programming structure, Constants &amp; Variables, Statements, I/O, Math Functions, Lab Assignments</td>
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<tr>
<td>5-7</td>
<td>Control Structures, Algorithms, Conditional Expressions, Selection, Looping, data file I/O, Lab Assignments, Review</td>
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<tr>
<td>8</td>
<td>Midterm Test (Written and Lab Requirements)</td>
</tr>
<tr>
<td>9-11</td>
<td>Modularity, Defined functions, Arrays, Arguments, Lab Assignments</td>
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II. Course Objectives*

A. Use terminology associated with the computers and programming for engineering applications. (III, VIII)

B. Demonstrate use of mathematical and engineering concepts, on-line resources and the PC microcomputer equipment. (II, III, IX)

C. Demonstrate a working knowledge of programming development software used in Engineering and Technology-based career areas. (IV, V, VI, VII, IX, X, XII)

D. Demonstrate proficiency in formulating problem solutions based on real-world data sets in engineering environments. (V, VIII, XI)

E. Demonstrate proficiency in using C++ Language. (IV, V, VI, VII, IX, X, XII)

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

III. Instructional Processes*

Students will:

1. Recognize and use computer related terminology and its associated meaning. *Technological Literacy Outcome, Active Learning Strategy*

2. Find resources and effectively use tutorials and other resources on the Internet and/or textbook material. *Technological Literacy Outcome, Communication Outcome, Transitional Strategy, Active Learning Strategy*

3. Create working desired output using the features of an editor, C++ development environment and existing tool sets. *Technological Literacy Outcome, Communication Outcome, Transitional Strategy, Active Learning Strategy*

4. Create working programs that produce desired results. *Technological Literacy Outcome, Transitional Strategy, Active Learning Strategy*

5. Meet deadlines while maintaining high quality results. *Communication Outcome, Transitional Strategy*

*Strategies and outcomes listed after instructional processes reference TBR's goals for strengthening general education knowledge and skills, connecting course work 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. Demonstrate proficient use of terminology associated with programming concepts and engineering applications. (A,B,C,D,E)

2. Demonstrate efficient use of the PC computer system and its operation. (A,B,C)

3. Use a programming development environment to produce data output, file storage,
functions, arrays and graphical representations of data sets. (A,B,D,E)

4. Demonstrate computer problem solving in the engineering environment. (A,B,D)

5. Demonstrate proficient use of the C++ language for engineering problem solving and data manipulation. (B,C,D,E)

6. Enter programs and data to produce correct tested and debugged outcomes using the C++ language. (A,B,C,D,E)

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

**V. Evaluation:**

A. Testing Procedures:

   There will be quizzes to access knowledge and proficiency of the products used. There will be a comprehensive midterm and final test. Grades are determined based on a total points accumulated process using the scale provided below.

B. Laboratory Expectations:

   There will be a graded lab outcome for each section. Lecture and Lab attendance is required. Assignments will be given and must be completed and handed in at the expected date and time. All assignments turned in late will be reduced by 50%. No assignment will be accepted more than one week late unless approved in advance by the lab instructor. Students must sign the roll sheet daily in both lecture and lab to be counted as in attendance.

C. Field Work:

   N/A

D. Other Evaluation Methods:

   N/A

E. Grading Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>93 – 100%</td>
</tr>
<tr>
<td>B+</td>
<td>88 – 92%</td>
</tr>
<tr>
<td>B</td>
<td>83 – 87%</td>
</tr>
<tr>
<td>C+</td>
<td>78 – 82%</td>
</tr>
<tr>
<td>C</td>
<td>73 – 77%</td>
</tr>
<tr>
<td>D</td>
<td>65 – 72%</td>
</tr>
<tr>
<td>F</td>
<td>Below 65%</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. (Pellissippi State Online Catalog)

B. Academic Dishonesty:
Plagiarism, cheating and other forms of academic dishonesty are prohibited. A student guilty of academic misconduct, either directly or indirectly through participation or assistance, is immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions that may be imposed through the regular Pellissippi State procedures as a result of academic misconduct, the instructor has the authority to assign an F or a zero for the exercise or examination or to assign an F in the course. (Pellissippi State Online Catalog)

C. Accommodations for disabilities:

Students who need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins134 or 126 or by phone: 694-6751(Voice/TTY) or 539-7153. More information is available at www.pstcc.edu/departments/swd/

D. Computer Usage Guidelines:

College-owned or -operated computing resources are provided for use by students of Pellissippi State. All students are responsible for the usage of Pellissippi State’s computing resources in an effective, efficient, ethical and lawful manner. (Pellissippi State Online Catalog)