Class Hours: 0.67 (40 mins) Credit Hours: 1.0
Laboratory Hours: 0.33 (55 mins) Revised: Fall 2012

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:

- Required Materials: 2GB (minimum) Flash/Pen/Jump USB Storage Drive, 3 Ring Notebook, earbuds or earphones.

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Intro to computers, computer components, Math concepts, Engineering Use of Computers, Resources, Editor and Environment, Terms, Lab Assignments</td>
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<tr>
<td>2</td>
<td>C++ Language Fundamentals, Code organization, Lab Assignments</td>
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<tr>
<td>3-4</td>
<td>Data Input/Output, Structure, Constants, 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, Accurate data output representation, Lab Assignments, Review</td>
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<tr>
<td>8</td>
<td>Midterm exam (written and coding)</td>
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</tbody>
</table>
II. Course Goals*

The course will:

A. Provide lab use of an interactive development environment (IDE). I, II, III, IV

B. Provide opportunities for students to apply engineering processes as input and produce calculated outputs. I, II, III, IV.

C. Provide instruction in the construction of C++ language based programming code. I, II, III, IV, V.

D. Provide the application of engineering and math problem solving techniques to the C++ language coding standards. I, II, III, IV, V.

E. Provide entry level understanding of data storage, program storage, programming syntax, usage, compiling and programming concepts. I, III, IV, V.

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

III. Expected Student Learning Outcomes*

The student will be able to:

1. Demonstrate proficient use of the C++ IDE Compiler and its editing features. (A, B, C, D, E)

2. Demonstrate the ability to formulate program code from specifications, real-world data representation, engineering problems and real-world problem examples. (A, B, C)

3. Demonstrate efficient use of the computer system and its operating environments. (A, B, C, D, E)

4. Use the C++ language to interact with client users to produce data output and accurate results. (A, B, D, E)

5. Create solutions to engineering problems using the C++ programming language. (A, B, C, D, E)

6. Demonstrate proficient use of a programming language in problem solving, data manipulation, data storage and retrieval, menu handling and error detection. (A, B, C, D, E)

* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

IV. Evaluation:

A. Testing Procedures: 33% of grade
There will be assignments 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: 67% of grade

There will be a number of labs from 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%. Students must sign the roll-sheet daily 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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</tbody>
</table>

V. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

• Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.

• Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.

• Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented
as one’s own work.
• Taking an exam for another student.
• Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
• Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

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 Goins 127, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at http://www.pstcc.edu/sswd/.

D. Other Policies:

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.

Additional information, if applicable, will be provided by the instructor via a syllabus supplement.