# COMPUTER PROGRAMMING FOR ENGINEERING TRANSFER

**CSIT 1370 (formerly CST 1370)**

<table>
<thead>
<tr>
<th>Class Hours: 3.0</th>
<th>Credit Hours: 4.0</th>
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<tr>
<td>Laboratory Hours: 3.0</td>
<td>Date Revised: Fall 04</td>
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## Catalog Course Description:

Application of computers to engineering problem solving. Introduction to computers, operating systems, document preparation, structured programming, spreadsheet, use of the Internet and engineering data plotting. Solutions of engineering problems using existing software packages.

## Entry Level Standards:

The entry-level student is not expected to have familiarity with computers. The student should be able to use a standard keyboard and maintain 23 words per minute error-free typing rate. The student must have math, writing, verbal and English language skills at the college-entry level.

## Prerequisites:

None

## Corequisite:

MATH 1730 or equivalent

## Textbook(s) and Other Course Materials:


Zip disk (ZIP100 or ZIP250) or Flash/Pen Drive, one PC Formatted Floppy disk, Notebook.

## I. Week/Unit/Topic Basis:

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<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Intro to computers, computer history, computer components, Intro to operating systems, Engineering Use of Computers, Lab Assignments</td>
</tr>
<tr>
<td>2</td>
<td>Windows, eMail, Internet, Search Engines Lab Assignments</td>
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<tr>
<td>3-4</td>
<td>Intro to Word Processing, Lab Assignment, Test</td>
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<tr>
<td>5-7</td>
<td>Spreadsheet Terminology, Spreadsheet design, Excel Functions, Plots, Lab Assignments, Review, Midterm</td>
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<tr>
<td>8</td>
<td>Introduction to Database Concepts using Access, Lab Assignments</td>
</tr>
<tr>
<td>9-11</td>
<td>Introduction to Programming Concepts, Lab Assignments</td>
</tr>
<tr>
<td>12-13</td>
<td>Intro to MATLAB, arithmetic operations, Engineering/ Statistical Applications, Measurements, Lab Assignments, Test</td>
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<tr>
<td>14</td>
<td>PowerPoint, Lab Assignment; Review - Final</td>
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II. Course Objectives:

A. Use terminology associated with the computer science and the programming fields as they relate to engineering. III, VIII

B. Demonstrate use of Windows operating system, on-line resources, and the PC microcomputer equipment. II, III, IX

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

D. Demonstrate proficiency in spreadsheets and their applications in engineering environments. V, VIII, XI

E. Demonstrate proficiency with a word processor. I, XI

F. Demonstrate proficiency with a presentation product. V, VIII, XI

G. Demonstrate a working knowledge of programming and math model concepts. IV, V, VI, VII, IX, X, XII

H. Demonstrate proficiency in using MATLAB software. 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. Technical Literacy Outcome, Information Literacy Outcome, Personal Development Outcome, Active Learning Outcome

2. Find resources and effectively use communication tools on the Internet. Problem Solving and Decision Making Outcome, Technical Literacy Outcome, Communication Outcome, Information Literacy Outcome, Personal Development Outcome, Transitional Strategy Outcome, Active Learning Outcome

3. Create documents using the features of a word processor. Technical Literacy Outcome, Communication Outcome, Information Literacy Outcome, Transitional Strategy Outcome, Information Literacy Outcome

4. Create working desired output using the features of a spreadsheet. Technological Literacy Outcome, Numerical Literacy Outcome, Active Learning.

5. Use tools, utilities and features of various hardware and software products. Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Personal Development Outcome, Transitional Strategy Outcome, Active Learning Outcome

6. Create working programs that produce desired results. Problem Solving and Decision Making Outcome, Technological Literacy Outcome, Transitional Strategy Outcome, Active Learning Outcome

7. Create graphical representations of engineering data. Problem Solving and Decision Making Outcome, Communication Outcome, Technical Literacy Outcome, Transitional Strategy Outcome, Active Learning Outcome, Personal Development Outcome

8. Meet deadlines while maintaining high quality results. Communication Outcome, Personal Development Outcome, Transitional Strategy

*Strategies and outcomes listed after instructional processes reference TBR’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. Demonstrate proficient use of terminology associated with the computer science and data processing fields. A,B,C,D,E,F,G,H

2. Demonstrate an understanding of the use of hardware, firmware, and software technology. A,B,C,F,H

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

4. Demonstrate proficient use of internal and external DOS commands. A,C,E,F,G


6. Use word processing software to produce documentation and reports. E

7. Use a spreadsheet product and produce data output and graphs. A,B,D

8. Use an application spreadsheet in the engineering environment. A,B,D

9. Transfer data files to/from one storage device to another. A,B,C,E,G,H

10. Demonstrate proficient use of engineering software in problem solving, graphing, plotting and data manipulation. C,D,F,G,H

11. Learn the application of software packages to solve engineering problems. C,D,E,H

12. Apply logic to engineering situations and problems and resolve the task using a computer program. G,H

13. Enter programs and data to produce product outcomes and plots using MATLAB. A,B,C,F,H


*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 each product 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 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%. No assignment will be accepted more than one week late unless approved in advance by the lab instructor. Students must sign the rollsheet daily in both lecture and lab to be counted as in attendance.

C. Field Work:

N/A

D. Other Evaluation Methods:
E. Grading Scale:

- 93 – 100 A
- 88 – 92 B+
- 83 – 87 B
- 78 – 82 C+
- 73 – 77 C
- 65 – 72 D
- Below 65 F

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 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.

C. Accommodations for disabilities:

If you need accommodation because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please inform the instructor immediately. Privately after class or in the instructor's office. To request accommodations students must register with Services for Students with Disabilities: Goins 127 or 131, Phone: (865) 539-7153 or (865) 694-6751 Voice/TDD.