INTRODUCTION TO SURVEYING
CET 0100

Class Hours: 3.0  Credit Hours: 3.0
Laboratory Hours: 0.0  Date Revised: Fall 04

Catalog Course Description:
This course covers both fundamental and advanced concepts in algebra, geometry and trigonometry. Surveying as a career and basic terminology are also discussed.

Entry Level Standards:
Students enrolling in this course should possess basic math skills.

Prerequisites:
None

Textbook(s) and Other Course Materials:
Text:
Other:
Scientific Calculator
Paper
Pencil

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 - Fractions</td>
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<tr>
<td>2</td>
<td>Working with decimals and misc math.</td>
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<tr>
<td>3</td>
<td>Geometric concepts and Weights and Measures. EXAM 1</td>
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<tr>
<td>4</td>
<td>Perimeter, Circumference, Area and Volume.</td>
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<td>5</td>
<td>Dimensional Equations and Signed Numbers. EXAM 2</td>
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<tr>
<td>6</td>
<td>Working with Monomials and Exponents.</td>
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<td>7</td>
<td>Working with Exponents. EXAM 3</td>
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<td>8</td>
<td>Working with Polynomials.</td>
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<td>9</td>
<td>Factoring and Solving Quadratic Equations. EXAM 4</td>
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<tr>
<td>10</td>
<td>Right Triangle Trigonometry.</td>
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<tr>
<td>11</td>
<td>Law of Sines and Cosines.</td>
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12 Trigonometric functions of any angle, radian measure, double- and half-angle functions.

13 Working with Rectangular and Polar Coordinates.

14 Vectors, addition and applications.

15 FINAL EXAM PERIOD

II. Course Objectives*:

A. Master the arithmetic, algebraic, and trigonometric manipulative skills necessary for success in Surveying I and II. I, II, IV

B. Use and interpret function notation and concepts. I, II, III

C. Use the elementary trigonometric functions in solving right and oblique triangle problems. I, II

D. Apply triangle laws to the solution of vector problems. I, II, III

E. Translate verbal situations into an algebraic or trigonometric equation. I, II, III, IV, V

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

III. Instructional Processes*:

Students will:

1. Actively listen to class lectures and participate in class activities that develop and reinforce comprehension of the theories, concepts, principles and applications of mathematical skills to the solution of surveying related problems. Communication Outcome, Problem Solving & Decision Making Outcome, Numerical Literacy Outcome, Active Learning Strategies

2. Work individually and in teams to complete class assignments related to the theories, concepts and principles covered in the class. Communication Outcome, Personal Development Outcome, Problem Solving & Decision Making Outcome, Technological Literacy Outcome, Numerical Literacy Outcome, Information Literacy Outcome, Active Learning Strategies

3. Perform accurate, complete and neat calculations for all class assignments. Problem Solving & Decision Making Outcome, Numerical Literacy Outcome, Active Learning Strategies, 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. Solve elementary algebraic equations and literal formulas. A, B

2. Translate verbal situations into algebraic linear equations. A, B, C, D, E

3. Use a scientific calculator. A, C, D, E

4. Define and use the sine, cosine, and tangent ratios. C, D

5. Apply the trigonometric ratios to right triangle problems from geometry and surveying. A, C, D
6. Solve 2 x 2 linear systems by addition and substitution.  A, B
7. Solve quadratic and fractional equation applications.  A
8. Determine trigonometric and inverse trigonometric functional values for any angle measured in degrees or radians.  C, D
9. Add vectors algebraically and geometrically.  A, B
10. Use the law of sines and cosines to solve oblique triangles.  C, D

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

V. Evaluation:

A. Testing Procedures:

Five examinations are scheduled. They will be problem-solving of appropriately selected problems. Students may make up one exam due to absences. Examinations will normally be given as scheduled. Should a student have a planned vacation, operation, etc. during a scheduled exam, every effort should be made to take the exam prior to the scheduled absence. When a student misses an exam due to illness, he must contact the instructor immediately upon return and make-up the exam within one week.

B. Laboratory Expectations:

Quizzes:
Quizzes may be given by the instructor. Most quizzes will be unscheduled and randomly given. They cover the previous sessions material or the reading assignment for that day. There is no make-up or extra credit given for quizzes missed.

Homework:
Students may also be required to hand in answers to select questions at the end of each chapter or other appropriate homework at the instructor's discretion. All written assignments must be handed in on 8 1/2 x 11" engineering notepad paper, paper with smooth edges, or forms provided by your instructor. All written assignments will be assessed a 10% penalty for each school day it is late.

C. Field Work:

N/A

D. Other Evaluation Methods:

A subjective evaluation based on attendance, classroom participation and attitude may be included.

E. Grading Scale:

Final grades will be computed from the grades obtained on homework, quizzes, and examinations as follows:
Quizzes and homework = 10 - 30%
Examinations = 60 - 80%
Attendance/Participation = 0 - 10%

Grades are based on the following:
90 - 100 A
85 - 89 B+
80 - 84 B
70 - 74 C
60 - 69 D
Below 60 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). Individual departments/programs/disciplines, with the approval of the vice president of Academic and Student Affairs, may have requirements that are more stringent. It is the student's responsibility to attend every scheduled class activity on time. Students are responsible to get assignments missed and to make-up any work missed during an absence.

B. Academic and Classroom Misconduct:

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. In addition to other possible disciplinary sanctions that may be imposed as a result of academic misconduct, the instructor has the authority to assign either (1) an F or zero for the assignment or (2) an F for 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.