

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

**INTRODUCTION TO SURVEYING
CET 0100**

Class Hours: 3.0

Credit Hours: 3.0

Laboratory Hours: 0.0

**Date Revised: Spring
02**

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 Reference Materials Basic to the Course:

Text:

Land Surveyor Reference Manual; Second edition; Harbin; Professional Publications.

Other:

Scientific Calculator

Paper

Pencil

I. Week/Unit/Topic Basis:

| Week | Topic |
|-------------|--------------------------------------------------------|
| 1 | Introduction - Fractions |
| 2 | Working with decimals and misc math. |
| 3 | Geometric concepts and Weights and Measures. EXAM 1 |
| 4 | Perimeter, Circumference, Area and Volume. |
| 5 | Dimensional Equations and Signed Numbers. |
| 6 | Dimensional Equations and Signed Numbers. EXAM 2 |
| 7 | Working with Monomials and Exponents. |

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| 8 | Working with Exponents. EXAM 3 |
| 9 | Working with Polynomials. |
| 10 | Factoring and Solving Quadratic Equations. EXAM 4 |
| 11 | Right Triangle Trigonometry. |
| 12 | Law of Sines and Cosines. |
| 13 | Trigonometric functions of any angle, radian measure, double- and half-angle functions. |
| 14 | Working with Rectangular and Polar Coordinates. |
| 15 | Vectors, addition and applications. |
| 16 | FINAL EXAM |

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 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. 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.

All student work submitted for evaluation may be retained by the instructor.

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 Dishonesty:

To use any form of unauthorized aid (notes, text, etc.) during a quiz or obtain any form of help from another student during testing is considered a form of cheating. Any time any form of cheating is observed the student will receive a 0 on that quiz or test.