

**PELLISSIPPI STATE COMMUNITY COLLEGE  
MASTER SYLLABUS**

**INTRODUCTION TO SURVEYING  
CET 0100**

**Class Hours: 3.0**

**Credit Hours: 3.0**

**Laboratory Hours: 0.0**

**Revised: Fall 2013**

**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: *Land Surveyor Reference Manual*; Fourth edition; Harbin; Professional Publications.  
Other: Scientific Calculator ; Paper ; Pencil

**I. Week/Unit/Topic Basis:**

<b>Week</b>	<b>Topic</b>
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. EXAM 2
6	Working with Monomials and Exponents.
7	Working with Exponents. EXAM 3
8	Working with Polynomials.
9	Factoring and Solving Quadratic Equations. EXAM 4

- 10 Right Triangle Trigonometry.
- 11 Law of Sines and Cosines.
- 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. Engineering Technology General Outcomes (Educational objectives)**

- I. Apply basic engineering theories and concepts creatively to analyze and solve technical problems
- II. Utilize with a high degree of knowledge and skill equipment, instruments, software, and technical reference materials currently used in industry.
- III. Communicate effectively using developed writing, speaking, and graphics skills.
- IV. Assimilate and practice the concepts and principles of working in a team environment.
- V. Obtain employment within the discipline or matriculate to a four year program in engineering or industrial technology

## **III. Engineering Technology Concentration Competencies\***

Students will:

- A. Apply the knowledge, techniques, skills, and modern tools for the concentration of study to specifically defined engineering technology activities
  - B. Demonstrate the knowledge of mathematics, science, engineering and technology to engineering technology problems using developed practical knowledge
  - C. Conduct and report the results of standard tests and measurements, and conduct, analyze and interpret experiment or project results
  - D. Function effectively as a member of a technical team
  - E. Identify, analyze and solve specifically defined engineering technology-based problems
  - F. Employ written, oral and visual communication in a technical environment
- At the program level all 6 competencies apply to roman numerals I – V of the Engineering Technology General Outcomes (Educational objectives) listed above.

## **IV. Course Goals\*:**

**The course will**

1. Solve the arithmetic, algebraic, and trigonometric exercises necessary for success in Surveying I and II. A, B, E
2. Apply and interpret function notation and concepts. A, B, E

3. Apply the elementary trigonometric functions in solving right and oblique triangle problems. A, B, E
4. Apply triangle laws to the solution of vector problems. A, B, E
5. Translate verbal situations into an algebraic or trigonometric equation. A, B, E

\*Capital letters after course goals reference the competencies of the Engineering Technology concentrations listed above.

#### **V. Expected Student Learning Outcomes\*:**

Students will be able to:

- a. Solve elementary algebraic equations and literal formulas. 1 & 2
- b. Translate verbal situations into algebraic linear equations. 5
- c. Operate a scientific calculator. 1, 3, & 4
- d. Define and use the sine, cosine, and tangent ratios. 3 & 4
- e. Apply the trigonometric ratios to right triangle problems from geometry and surveying. 1, 3 & 4
- f. Solve 2 x 2 linear systems by addition and substitution. 1 & 2
- g. Solve quadratic and fractional equation applications. 1
- h. Evaluate trigonometric and inverse trigonometric functional values for any angle measured in degrees or radians. 3 & 4
- i. Add vectors algebraically and geometrically. 1 & 2
- j. Solve oblique triangles using the law of sines and/or cosines to solve. 3 & 4

\*Numbers after Expected Student Learning Outcomes reference the course goals listed above.

#### **VI. 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:

N/A

##### C. Field Work:

N/A

#### D. Other Evaluation Methods:

##### Quizzes:

Quizzes may be given by the instructor. Most quizzes will be unscheduled and randomly given. They cover the previous session's 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.

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

### VII. 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 that 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 sending email to [disabilityservices@pstcc.edu](mailto:disabilityservices@pstcc.edu), or visiting Goins 127, 132, 134, 135, 131. More information is available at <http://www.pstcc.edu/sswd/>.

D. Other Policies:

**Safety and Equipment Abuse:**

Repeated safety violations will result in a reduction of final grade, at the instructor's discretion. Flagrant violations which result in equipment damage or personal injury could result in automatic failure of the course