

Common Course Outline

SURV 111

Surveying Computations

3 Credits

Community College of Baltimore County

Description

SURV 111 – Surveying Computations introduces students to the mathematical procedures involved in the study of construction, land, and engineering surveys; covers use of scientific calculators; mathematical computations required to reduce field data and measurements to adjusted data; the reduction of distance, direction, and elevations to provide the positions of points on the earth's surface; traverse computations; and curve stakeout computations.

3 Credits: 2 lecture hours and 2 lab hours

Corequisite: SURV 101, or permission of the program coordinator

Overall Course Objectives

Upon completion of this course students will be able to:

1. use a scientific calculator to perform data conversions and basic calculations with 90% accuracy;
2. calculate and adjust distance measurements to industry standards of accuracy;
3. calculate and adjust elevation measurements to industry standards of accuracy;
4. calculate and adjust horizontal and vertical directions to industry standards of accuracy;
5. calculate and adjust magnetic directions;
6. correct measurements for local magnetic declination to determine a true direction to industry standards of accuracy;
7. calculate and adjust traverse data to industry standards of accuracy;
8. compute horizontal and vertical curves to industry standards of accuracy;
9. apply knowledge and industry standards; and
10. compute state plane coordinate conversions to industry standards of accuracy.

Major Topics

- I. Scientific Calculator
 - A. Algebraic/RPN Function
 - B. Key Functions
 - C. Entering Formulas and Data Conversions
- II. Distance Calculations
 - A. Horizontal to Grid/Grid to Horizontal
 - B. State Plane

- III. Elevation Calculations
- IV. Direction Calculations
- V. Magnetic Calculations
- VI. Traverse Calculations
- VII. Horizontal Curve Calculations
- VIII. Vertical Curve Calculations

Course Requirements

Grading procedures will be determined by the individual faculty member but will include the following:

Grading/exams

- A minimum of two tests or weekly quizzes
- Comprehensive midterm exam
- Comprehensive final exam
- A minimum of two graded homework assignments

Written Assignments: Students are required to use appropriate academic resources.

Other Course Information

This course is a core course in the Survey Technology AAS and Certificate programs.

Date Revised: 04/21/2017