

SOUTHEAST COMMUNITY COLLEGE
ADVANCED TECHNOLOGIES AND SKILLED TRADES DIVISION
Land Surveying/GIS/Civil Engineering Technology Program
Revision Date: August 2025

I. CATALOG DESCRIPTION

Course Number: LSCE2520
Course Title: Geodetic Surveying
Prerequisite(s): LSCE1320
Catalog Description: Study of control surveys, state plane coordinates Photogrammetry and Global Positioning Systems. Application of field work using GPS for static observations. Applications of trigonometry are used to solve surveying problems. Continuation of study and application of surveying mathematics.
Credit Hours: 3.0
Class Hours: 15
Lab Hours: 90
Total Contact Hours: 105

II. COURSE OBJECTIVES: *Course will:*

- A. Prepare the control framework for less precise surveys for topographic, cadastral and engineering, mapping and LIS, GID systems.
- B. Demonstrate the use of horizontal and vertical networks that span the country and form the primary spatial reference system used in mapping.
- C. Determine how a successful photogrammetric survey project depends on a thorough understanding of the basic components.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. State the purpose of control surveys.
 - 2. List items provided by established horizontal and vertical reference monuments.
 - 3. Distinguish between the types of control surveys.
 - 4. Distinguish between the types of reference datums.
 - 5. Compute State Plane coordinates of traverse stations.
 - 6. Discuss the advantages of placing surveys on state plane coordinate systems.
 - 7. Discuss advantages of state plane coordinate systems.
 - 8. Name basic projections used in state plane coordinate systems.
 - 9. Identify different types of aerial photographs.
 - 10. List the uses of Photogrammetry.
 - 11. Compare the similarities between static and kinematic GPS.
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO #3: Critical Thinking & Problem Solving
Outcome 1: Collect, identify, interpret and analyze data.

IV. CONTENT/TOPICAL OUTLINE

- A. Unit 1 – Control Surveys
- B. Unit 2 – State Plane Coordinates
- C. Unit 3 – Accuracy Standards
- D. Unit 4 – Photogrammetry

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): Charles D. Ghilani, *Elementary Surveying: An Introduction to Geomatics*,
- B. Other Resources: Handouts supplied by instructor when required.
- C. Supplies: Scientific Calculator/Drafting tools when required.

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
 - 1. Lecture
 - 2. Classroom discussion
 - 3. Videos
 - 4. Demonstration
 - 5. Instructional handouts

VII. METHODS OF EVALUATION

- A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
 - 1. Assignment Worksheets
 - 2. Tests
 - 3. Participation

VIII. SPECIFIC COURSE REQUIREMENTS

- A. A minimum grade of “C” or higher is required in all courses designated or starting with LSCE to progress through or graduate from the program.