

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: LSCE1320
Course Title: Route and Construction Surveying
Prerequisite(s): LSCE1220, LSCE1232
Corequisite(s): MATH1050 or higher
Catalog Description: Field work for topographic details using total station equipment and electronic data collected. Study of circular and vertical curves as employed in construction projects. Lab work includes setting out circular curves, and learning safety practices. Unit of study also covers sanitary sewer networks and principles of hydraulics.
Credit Hours: 3.0
Class Hours: 15
Lab Hours: 90
Total Contact Hours: 105

II. COURSE OBJECTIVES: *Course will:*

- A. Introduce land surveying concepts and theory related to horizontal and vertical curves.
- B. Meet the needs of safety concerns while working in the field.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Calculate stake out a simple horizontal curve.
 - 2. Identify the elements of a simple horizontal circular curve.
 - 3. Demonstrate the ability to calculate horizontal curves using the HP35s curve program.
 - 4. Match the elements of a simple vertical curve with their correct definitions.
 - 5. Demonstrate the ability to calculate vertical curves using the HP35s vertical curve program.
 - 6. Match terms related to construction surveying with the correct definitions.
 - 7. State the rule or formula for computation of grades or slopes.
 - 8. Identify typical roadway sections.
 - 9. Select true statements concerning rules for general job safety.
 - 10. Describe the general procedure for sanitary sewer design.
- 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 Global Navigation Satellite Systems
- B. Unit 2 Topography and Mapping
- C. Unit 3 Construction Surveying and Vertical Curves

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s):
 - 1. 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.