
MIDDLESEX COUNTY COLLEGE

COURSE SYLLABUS

Department:	Engineering Technologies
Program:	Civil Engineering Technology
Course Number:	CIT 104
Title of Course:	Construction Surveying I
Curriculum Coordinator:	Daniel Grek
Designation:	Required Course

Course Description:

An introduction to surveying, measurement theory, field and office procedures and error analysis. Lectures emphasize the concepts, computations. Analysis and adjustments of leveling, angle observation, distance measure and control traverses. Field exercises stress the techniques of distance measure from rough pacing to use of the Electronic Distance Measure instrument, as well as students prepare drawings and maps from their field notes.

Prerequisite:

MAT 129A Pre-Calculus A or MAT 129 Pre-Calculus

Co-requisite:

None

Textbooks and /or other required material:

Elementary Surveying by Ghilani, Pearson, 15th Ed

Course Learning Outcomes and their relationships to Student Outcomes:

1. Recognize, define and explain common surveying terms and symbols.
2. Use traditional and modern surveying equipment for measurement of horizontal distances, within a specified degree of accuracy, and compute appropriate corrections. **(SO 1)**
3. Compute accuracies for horizontal and vertical distance measurements.
4. Maintain a set of neat and legible surveying field notes in acceptable format.
5. Set up and use an automatic level and read a level rod; close a benchmark leveling circuit within a specified degree of accuracy.
6. Use a steel tape, plumb bob, and other accessories for measurement of horizontal distances, within a specified degree of accuracy; also compute appropriate tape corrections. **(SO a)**
7. Perform direction computations involving horizontal angles, azimuths, bearings.
8. Use a total station for electronic measurement of horizontal and vertical angles; close the horizon at a survey station.
9. Perform a loop traverse survey; do basic traverse computations including closure, adjustment, station coordinates, and enclosed area.
10. To relate this information to other courses and real world situations.

Topics Covered:

- Mathematics of Surveying-Review
- Surveying Fundamentals and Procedures
- Pacing
- Taping and Corrections
- Electronic Distance Measure
- Differential Leveling
- Trigonometric Leveling
- Bearings, Azimuths and Line Direction
- Angle Turning
- Traverse Design
- Traverse Calculations
- Traverse Adjustments
- Errors and Adjustments
- Drawing of Maps, profiles and tie sheets

Laboratory Topics:

- Distance Measure
- Vertical Control
- Horizontal Control
- Traverse Control
- Map Drawing
- Error and Adjustment

Class/Laboratory schedule. Number of sessions each week and duration of each session:

2 lecture hours per week for 14 weeks

2 laboratory hours per week for 14 weeks

Criterion 5 Contribution:

Technical Content

Prepared By:	Jay Edelson	Date:	April 25, 2008
Rev 2:	Edelson Update course outcomes and mapping to 2014-2015 ABET student outcomes	Date:	4/8/14
Rev 3:	Carballo Update course outcomes. Course outcomes were developed in CIT205 when the new instructor took over the class. Further outcome dividing will continue next semester.	Date:	1/22/15
Rev 4:	Update mapping to new student outcomes	Date:	11/5/20
Rev 5:	Update CC	Date:	3/5/21