

**J. Sargeant Reynolds Community College  
Course Content Summary**

**Course Prefix and Number:** CIV 171

**Credits:** 3

**Course Title:** Surveying I

**Course Description**

Introduces surveying equipment, procedures and computations including adjustment of instruments, distance measurement, leveling, angle measurement, traversing, traverse adjustments, area computations and introduction to topography. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

**General Course Purpose**

To introduce the student to the fundamentals of field surveying

**Course Prerequisites/Corequisites** (Entry-level competencies **required** for enrollment)

Corequisite or prerequisite: MTH 115 or equivalent

**Course Objectives**

Upon completing the course, the student will be able to:

Lecture:

- a. Identify the duties of a surveyor
- b. Identify the units of measure, computations, accuracy and precision used by a surveyor
- c. Make horizontal distance (taping) corrections
- d. Compute mathematically and check leveling problems
- e. Adjust angles for closure
- f. Complete and correct bearings for magnetic declination
- g. Compute and adjust latitudes and departure of a traverse
- h. Compute the coordinates of a traverse
- i. Compute the area of a traverse
- j. Draw contour lines and other topographic features
- k. Demonstrate an understanding of EDM Equipment

Lab:

- a. Measure distances by pacing
- b. Measure distances by taping
- c. Determine elevations by differential leveling
- d. Determine elevations by profile leveling
- e. Determine elevations by trigonometric leveling
- f. Measure direct angles of a closed traverse
- g. Measure deflection angles of a closed traverse
- h. Measure vertical angles
- i. Locate physical features of a closed traverse
- j. Determine elevation to draw contour lines
- k. Draw a topographic map
- l. Record field notes correctly and accurately

- m. Traverse measurement using EDM equipment

**Major Topics to be Included**

- a. Introduction
- b. Measurements and computations
- c. Measuring horizontal distances
- d. Measuring vertical distances
- e. Measuring angles and directions
- f. Horizontal curve surveys
- g. Topographic surveys and maps

**Effective Date of Course Content Summary:** February, 2009