

# Virginia Western Community College

## CIV 171

### Construction Management and Estimating

#### **Prerequisites**

Engineering Technical Mathematics

#### **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.

**Semester Credits: 3 Lecture Hours: 2 Lab/Clinical/Internship Hours: 3**

#### **Required Materials**

##### **Textbook:**

Elementary Surveying w/access code 13th ed. Author: Ghilani – Pearson ISBN: 9780132554343

##### **Other Required Materials:**

Calculator

Access to Excel or other spreadsheet software

#### **Course Outcomes**

**At the completion of this course, the student should be able to:**

- Understand basic instruments of surveying
- Use basic instruments of surveying
- Analyze field data
- Prepare topographic maps

#### **Topical Description**

<b>Week</b>	<b>Topic</b>
1	Introduction, Units, Significant Figures, and Field Notes
2	Theory of Errors in Observations
3	Leveling – Theory, Methods, and Equipment
4	Leveling – Field Procedures and Computations
5	Distance Measurement

- 6 Angles, Azimuths, and Bearings
- 7 Station Instruments and Angle Observations
- 8 Traversing
- 9 Traverse Computations
- 10 Coordinate Geometry in Surveying Computations
- 11 Area
- 12 Satellite Systems – Introduction and Principles
- 13 Satellite Systems – Static Surveys
- 14 Satellite Systems – Kinematic Surveys
- 15 Mapping and Surveys
- 16 Final Exam

### **Notes to Instructors**

1. All instructors teaching this course will use the same textbook.
2. Course content within this course may be covered at the instructor's discretion but with all topics being understood.
3. This course and its grades will be structured around a minimum of a midterm exam, final exam, and homework.
4. At the end of the semester, all instructors will give the outcome assessment as it relates to the final exam to the program head at the same time they prepare their student final grades.
5. The final exam will include only the material covered after the midterm exam.