

CEEN 113 Engineering Measurements  
Final Exam Review

Traverse Computation and Adjustment

Balanced angles  
Latitude and departure  
Closure error  
Accuracy ratio  
Compass rule adjustment

Intersections and Resections

Bearing-bearing  
Distance-distance  
Bearing-distance  
3-point

GPS Basics

GIS Basics

Area Computations

Geometric formulae  
Coordinate method

Volume Computations

Average end area  
Grid

## Tape corrections

Calibration correction  
Temperature correction  
Corrections to  
    Measure between 2 points  
    Layout a given distance

## Differential Leveling

Front sights  
Back sights  
Level notes  
Arithmetic check

## Horizontal Angles

Angles by repetition  
Bearing / azimuth conversion  
Adding / subtracting angles  
Magnetic declination  
    Change over time

## Land and Boundary Surveys

- Public land survey system
  - Initial point
  - Prime meridian and base line
  - Township and range location
  - Subdivision into sections
  - Section subdivision
    - Aliquot parts
  - Area
- Metes and bounds descriptions
  - Read a description
  - Write a description

## Horizontal Curves

- Geometry
- Stationing
- PI, PC, PT, T, L, R,  $D_a$  relationships
- Deflection angles and chords

## Vertical Curves

- Geometry
- Stationing
- Elevation at stations
- High/low point station and elevation

## Construction Staking

- Slope stakes and catch lines
- Stake marking

**YOU MUST BE ABLE TO:**

(a) inverse between known points to determine bearing or azimuth and distance between the points;

(b) calculate latitude and departure of any known distance and bearing or azimuth;

(c) convert between azimuth and bearing;

(d) add and subtract angles and determine when to do so;

(e) calculate the coordinates of a point based on the latitude and departure from a known point.