CE3301 - Surveying
Course Objectives & Outcomes
College of Science & Engineering

Objective 1) Have the ability to apply knowledge of mathematics, science, and engineering to understand the measurement techniques and equipment used in land surveying.

Outcomes
1) Appreciate the need for accurate and thorough note taking in field work to serve as a legal record.
2) Gain the ability to use modern survey equipment to measure angles and distances.
Assignments that demonstrate accomplishment of this outcome:
   1) Ch 2 “Measurements and Computations” homework and quiz
   2) Ch 6 “Measuring Angles and Directions” homework and quiz
   3) Ch 1 – 3 Exam
   4) Ch 4 – 7 Exam
   5) Compass Rule Adjustment of Field Traverse
   6) Ch 8 “Property Surveys” homework and quiz

Objective 2) Gain an appreciation of the need for lifelong learning through the discussion of recent changes in survey procedures and equipment.

Outcomes
1) Gain a basic understanding of the principles and operation of the Global Positioning System.
Assignments that demonstrate accomplishment of this outcome:
   1) Ch 7 – “Surveying Applications” homework and quiz
   2) Fieldwork – Rapid Static GPS
   3) Labwork – OPUS solution of Rapid Static fieldwork

Objective 3) Have the ability to use techniques, skills, and modern engineering tools necessary for engineering practice.

Outcomes
1) Gain the ability to measure differences in elevation, draw and utilize contour plots, and calculate volumes for earthwork.
Assignments that demonstrate accomplishment of this outcome:
   1) Ch 3 “Basic Mathematics for Surveying” homework and quiz
   2) Ch 4 “Measuring Horizontal Distances” homework and quiz
   3) Ch 5 “Measuring Vertical Distances” homework and quiz
   4) Fieldwork – Vertical Angle Measurement
   5) Fieldwork – Direct Rod Reading with Level
   6) Ch 9 “Topographic Surveys and Mapping” homework and quiz
   7) Ch 10 “Highway Curves and Earthwork” homework and quiz
   8) Ch 11 “Construction Surveys” homework and quiz
9) Ch 7-11 Exam

Objective 4) Ability to function as a member of a team.

Outcomes
1) Improve ability to function as a member of a survey party in completing the assigned field work.

Assignments that demonstrate accomplishment of this outcome:
   1) Fieldwork – Taping Horizontal Distances
   2) Fieldwork – Setting Out a Point
   3) Fieldwork – Differential Leveling Circuit
   4) Fieldwork – Profile Leveling
   5) Fieldwork – Triangulation & Trilateration
   6) Fieldwork - Control Survey
   7) Fieldwork – Topographic Survey w/total station
   8) Fieldwork – Topographic Survey w/GPS

Objective 5) Understand the importance of professional licensure to protect the public in the practice of land surveying.

Outcomes
1) Appreciate the need for licensed surveyors to establish positioning information for property and structures.

Assignments that demonstrate accomplishment of this outcome:
   1) Ch 1 "The Art and Science of Surveying” Homework and quiz
   2) Labwork - Topographic Map