

Fall 2015

ENCE 2310

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Civil Engineering 2310
ELEMENTARY SURVEYING MEASUREMENTS

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Fridays 1:00 p.m. to 3:45 p.m.
ENG Rm. # 316

CATALOG DESCRIPTION

ENCE 2310 Elementary Surveying Measurements

3 cr.

Practical surveying measurement techniques are presented with suitable office computation methods for boundary, construction, and topographic surveys. State coordinate systems are introduced with proper use of geodetic datums (NAD 1927 to NAD 1983). Two hours of lecture and three hours of laboratory.

CREDIT/CO-REGISTRATION

MATH 1126 or MATH 2107 or MATH 2111 or MATH 2114; credit or registration in ENCE 2302 or 2303 or equivalent.

TEXTBOOKS AND OTHER MATERIAL

1. Kavanagh, Barry, "Geomatics", 1st Ed., Pearson Education, Inc., 2003 (ISBN: 0-13-032289-X).
2. Survey Fieldbook.
3. Access to AutoCAD or elementary drafting tools.

STUDENT LEARNING OBJECTIVES:

1. Perform basic surveying measurement techniques.
2. Determine linear measurement including corrections for temperature.
3. Determine elevations and grades using standard leveling practices and corrections for closure.
4. Possess the ability to determine horizontal and vertical angular measurements using transits.
5. Possess the ability to determine the azimuths, bearings and distance shown in property surveying based on traverse measurements and allowable error of closure.
6. Possess the ability to collect data for and prepare a topographic map with contours based on coordinate systems, published elevations and data collected throughout the semester.
7. Demonstrate an understanding of State Plane Coordinate systems, GPS, Lidar, Construction Layout, Mapping Projections and Basic Land Reference Systems.
8. Manage and document the collection of field data for horizontal, vertical and topographic surveys.

COURSE TOPICS AND SCHEDULE

Linear Surveying

Leveling

Benchmarks and Datums

Cross Sectioning, Profiling and Pay Quantities

Azimuths, Bearings, and Magnetic Declination

Traverse and Error of Closure

Topographic Surveying and Contour Development

GPS, LIDAR and current software

Construction Layout

Basic Land Reference Systems and Projections

CONTRIBUTION OF THE COURSE TO MEETING PROFESSIONAL COMPONENT

1. *Contribution to proficiency in one of the four recognized major civil engineering areas:* this course contributes to proficiency in the area of water resource and transportation engineering.

RELATIONSHIP OF COURSE TO PROGRAM OUTCOMES

c. An ability to collect data and design a system, component, or process to meet desired needs
This course relates to outcome (c) by teaching the student to design parts of a transportation / public works system.

GRADING

Field Assignments (Homework)*5 assignments @ 50% of grade

Tests (including Final).....3 tests @ 50% of grade

Grading Scale:

90-100	A	approx. exam dates: Test 1.....9/18/2015
80-90	B	Mid-Term10/9/2015
70-80	C	Final.....12/11/2015
60-70	D	
0-60	F	

*field assignments also include punctuality, attendance participation and equipment care.

ATTENDANCE POLICY

This class is highly interactive and fast paced in order to cover the material required. Your attendance to class is extremely important and your participation will be 5% of your final grade. Any missed lecture notes or field data will be the responsibility of the student to acquire.

CLASSROOM CONDUCT

Punctuality and participation are essential. Be on time, in your seat and prepared to learn. Test material is acquired from lectures, labs and text. All assignments are to be turned in on the assigned date. Points will be deducted (a letter grade per week) for all work submitted after the due date unless prior arrangements have been made.

ACADEMIC INTEGRITY

Academic integrity is fundamental to the process of learning and evaluating academic performance.

Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, the following: cheating, plagiarism, tampering with academic records and examinations, falsifying identity, and being an accessory to acts of academic dishonesty. Refer to the Student Code of Conduct for further information. The Code is available online at <http://www.studentaffairs.uno.edu>

STUDENTS WITH DISABILITIES

It is the University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities should contact the Office of Disability Services as well as their instructors to discuss their individual needs for accommodations. For more information, please go to <http://www.ods.uno.edu>.