

**CE 305: Introduction to Geomatics**

**Credit hours:** 3  
**Contact Hours:** 43  
**Instructor:** Antar Jutla, ESB 627  
**Office hours:** Thursday 12:30-3:15pm or by appointment  
**Location of Class:** MRB E 109: 12:30 pm-01:45 pm; MRB-E 243: 02:00 pm-03:15 pm  
**Email:** asjutla@mail.wvu.edu  
**Required Text:** *Surveying: 6<sup>th</sup> Edition. Wiley Inc. McCormac, J., Sasasua, W., Davis, W. GIS Tutorial 1: Basic Workbook, ESRI Press; Wilpen L. Gorr and Kristen S. Kurland*

**Objective:** The objective of this course is to introduce students to the technologies used in the acquisition and processing of geospatial data for mapping, planning, designing, constructing, and managing the built and natural environments.

**Prerequisite:** None

**Expected Learning Outcomes** - Upon successful completion of this course students will:

<i>Goals by topic</i>	<i>Student Outcome</i>
Learn measurement concepts. Application of measurement concept to real –time problems	A,C, I
Understand concepts of Coordinate Systems, Projections, and Datums; Measurement Error Theory, Leveling Measurements, Total Station Measurements	A, E, I
Use technology, such as total stations and automatic levels, to understand landform design	E, I
Learn use of computer programs (spreadsheets, and commercial software) in engineering design.	K

**Assignments:** Homework assignments will be given approximately every other week. Each assignment will have approximately 50 points. If you do not submit assignments by the due date, 10% of the marks will be deducted. Late assignments after ONE day will **NOT** be accepted, unless you have obtained necessary permission. Instructor reserves right not to grade any late assignments and cannot be challenged. Sometimes your assignments will be returned with comments, though graded; you must rework any incorrect material and resubmit the assignment. *Grades will not be recorded* until each answer is correct and upto expectations. Your graded assignments will be returned within one week of the date of submission.

**Attendance:** You are expected to attend all classes. If you have specific problems with attendance notify me prior to class, unless the emergency is such that this is not possible. In the event of an emergency, notify me as soon as possible.

**Grading:** Final grades will be based on 90%, 80%, 70%... corresponding to A, B, C,... The instructor reserves the right to curve up. **To pass this class, you must earn a 70% in the final exam.** Mid-Term and Final Exam are mandatory. There is no substitution to both of these exams.

	Topic	Number of Lectures, Field Exercises	Reading
1	Basics of Surveying Introduction to Measurements	1	Chapter 1, 2
2	Measurements and Distance corrections	1, A1 1, A2	Chapter 3, 4
3	Leveling TERM EXAM 1*	1, A3 1	Chapter 6
4	Differential Leveling	1, A4	Chapter 7, 8
5	Angles and Directions	1, A5 1	Chapter 9, 10, 11
6	Traverse and Area Calculation TERM EXAM 2*	1 1, A6 1	Chapter 12
7	Topographic surveying	1, A7	Chapter 14
8	Geographical Information System FINAL EXAM Meeting hours	3, A8 1 ~43 (16 lecture days)	Chapter 17

\* depends on weather conditions and subject to change  
All exams will be conducted in class room.

Soci  
al  
Justi  
ce  
state  
ment

	Field/lab Exercises	Number of Lectures
<b>A1</b>	Pacing	1
<b>A2</b>	Reconnaissance	1
<b>A3</b>	Leveling 1	1
<b>A4</b>	Leveling 2	1
<b>A5</b>	Total Station Basics	1
<b>A6</b>	Traverse Calculations	1
<b>A7</b>	Topographic surveying	1
<b>A8</b>	Geographical Information System	4

“We  
st Virginia is  
committed to social  
justice. I concur  
with that  
commitment and  
expect to maintain a  
positive learning  
environment based  
upon open  
communication,

mutual respect, and nondiscrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration. If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class. Please advise me and make appropriate arrangement with Disability Services (293-6700).”