

Technical College of the Lowcountry  
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## **EGR 285 ENGINEERING SURVEYING I**

### **Course Description**

This course is a study of the fundamentals of plane surveying. This course covers linear measurements, leveling, compass and transit/theodolite, theory of errors, areas, stadia, coordinate geometry, state plane coordinates, and standard map projections

3 Cr (3 lec/pres, 0 lab, 0 other)

### **Course Focus**

The course covers errors in observations, leveling, distance and angle measurements, use of total stations, traversing, and area measurement. The course also introduces coordinate geometry, state plane coordinates, and map projections. The course purpose is to introduce the fundamentals of plane surveying and the care and use of surveying instruments.

### **Text and References**

Wolf & Ghilani, **Elementary Surveying, an Introduction to Geomatics**, 12th Edition, Prentice Hall

Published: 2008

ISBN 978-0-13-615431-0

### **Course Goals**

The following list of course goals will be addressed in the course. These goals are directly related to the performance objectives.

1. Discuss the history of surveying
2. Understand geodetic versus plane surveying
3. use units of measurement
4. use appropriate significant figures
5. understand the requirements for field notes
6. explain types of errors in surveying
7. understand general laws of probability
8. compute standards deviation of observations
9. compute the error of the mean
10. explain vertical datum
11. correct for curvature and refraction errors
12. compute differential leveling circuit
13. apply leveling corrections
14. compute trigonometric leveling
15. test collimation error in a level
16. compute leveling precision
17. understand three-wire leveling
18. draw a profile
19. understand grid or borrow-pit leveling
20. demonstrate distance measurement by taping

21. calculate taping corrections
22. understand EDM distance
23. compute horizontal distance from slope distance
24. describe kinds of horizontal angles
25. compute azimuths
26. calculate bearings
27. convert angles from bearings to azimuths
28. convert angles from azimuths to bearings
29. adjust for magnetic declination
30. understand measurement of horizontal angles
31. understand measurement of vertical angles
32. calculate angular misclosure
33. balance traverse angles
34. compute traverse azimuths or bearings
35. calculate departures and latitudes
36. compute linear misclosures
37. adjust traverse
38. understand use of open traverse
39. understand rectangular coordinate systems
40. discuss map projections used in state plane coordinate systems
41. approximate areas by use of simple figures
42. understand areas calculations by offsets
43. calculate area by coordinates

**Student Contributions**

The student is expected to be prepared for class and to be in class on time. Test materials are weighed heavily in favor of lecture materials. The student will complete all assignments. The student is required to observe and practice all lab safety rules. All cell phones and pagers must be silenced during class.

**Course Evaluation**

The grade scale is as follows:

90 – 100 =	A
80 – 89 =	B
70 – 79 =	C
60 – 69 =	D
Below 60 =	F

Course grades will be determined from the following weighting scheme:

Attendance/Notebook Review/Homework completion	20%
Quizzes	60%
Final	20%

**Course Schedule**

The class meets for 1 lecture for 2.75 hours per week.

### **ADA Statement**

The Technical College of the Lowcountry provides access, equal opportunity and reasonable accommodation in its services, programs, activities, education and employment for individuals with disabilities. To request disability accommodation, contact the counselor for students with disabilities at (843) 525-8228 during the first ten business days of the academic term.

### **Academic Misconduct**

There is no tolerance at TCL for academic dishonesty and misconduct. The College expects all students to conduct themselves with dignity and to maintain high standards of responsible citizenship.

It is the student's responsibility to address any questions regarding what might constitute academic misconduct to the course instructor for further clarification.

The College adheres to the Student Code for the South Carolina Technical College System. Copies of the Student Code and Grievance Procedure are provided in the *TCL Student Handbook*, the Division Office, and the Learning Resources Center.

### **Attendance**

The College's statement of policy indicates that students must attend ninety percent of total class hours or they will be in violation of the attendance policy.

- Students not physically attending class during the first ten calendar days from the start of the semester must be dropped from the class for NOT ATTENDING.
- Students taking an online/internet class must sign in **and** communicate with the instructor within the first ten calendar days from the start of the semester to indicate attendance in the class. Students not attending class during the first ten calendar days from the start of the semester must be dropped from the class for NOT ATTENDING.
- Reinstatement requires the signature of the division dean.

In the event it becomes necessary for a student to withdraw from the course **OR if a student stops attending class, it is the student's responsibility to initiate and complete the necessary paperwork.** Withdrawing from class may have consequences associated with financial aid and time to completion.

When a student exceeds the allowed absences; the student is in violation of the attendance policy. The instructor **MUST** withdraw the student with a grade of "W", "WP", or "WF" depending on the date the student exceeded the allowed absences and the student's progress up to the last date of attendance *or* under extenuating circumstances and at the discretion of the faculty member teaching the class, allow the student to continue in the class and make-up the work. This exception must be documented at the time the allowed absences are exceeded.

Absences are counted from the first day of class. There are no "excused" absences. All absences are counted, regardless of the reason for the absence.

- A student must take the final exam or be excused from the final exam in order to earn a non-withdrawal grade. A copy of TCL's **STATEMENT OF POLICY NUMBER: 3-1-307 CLASS ATTENDANCE (WITHDRAWAL)** is on file in the Division Office and in the Learning Resources Center.

### **Hazardous Weather**

In case weather conditions are so severe that operation of the College may clearly pose a hardship on students and staff traveling to the College, notification of closing will be made through the following radio and television stations: WYKZ 98.7, WGCO 98.3, WGZO 103.1, WFXH 106.1, WWVV 106.9, WLOW 107.9, WGZR 104.9, WFXH 1130 AM, WLVA 101.1, WSOK 1230 AM, WAEV 97.3, WTOG TV, WTGS TV, WJWJ TV, and WSAV TV. Students, faculty and staff are highly encouraged to opt in to the Emergency Text Message Alert System. [www.tcl.edu/textalert.asp](http://www.tcl.edu/textalert.asp)

**Emergency Text Message Alert**

Students, faculty and staff are highly encouraged to opt in to the Emergency Text Message Alert System. Participants receive immediate notification of emergency events and weather cancelations via text messaging on their cell phones. Participants can also opt in to receive non-emergency news and announcements. Go to [www.tcl.edu](http://www.tcl.edu). On the homepage, click on “emergency TextAlert at TCL” and fill out the form or go to [www.tcl.edu/textalert.asp](http://www.tcl.edu/textalert.asp)