

Technical College of the Lowcountry  
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## **EGR 286 ENGINEERING SURVEYING II**

### **Course Description**

This course covers land surveying and boundary laws, public land surveys, topographic mapping, horizontal and vertical curves, lot calculations, and engineering astronomy.

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

### **Course Focus**

This course is further discussion of the fundamentals of plane surveying. The course covers a variety of surveying techniques and surveying uses in civil engineering and construction.

### **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 types of mapping surveys
2. Understand survey control
3. Read contour lines
4. Produce contour lines
5. Understand TIN automated contour production
6. Review GPS science
7. Discuss GPS error correction schemes
8. Design GPS observation session
9. Discuss least squares principals
10. Review weighting in least squares
11. Plan building stakeout
12. Calculate invert elevations on piping
13. Compute trench cuts
14. Describe horizontal highway alignment
15. Compute horizontal curve parameters
16. Generate horizontal curve stake points
17. Place horizontal curve through a point
18. Locate spiral curve stations
19. Relate highway vertical alignment

20. Generate vertical curve stake points
21. Place vertical curve through a point
22. Compute vertical curve high/low point
23. Estimate earthwork area by cross section method
24. Measure earthwork volume by end area
25. Compute slope intercepts
26. Discuss earthwork distribution analysis
27. Compute limit of economic haul
28. Analyze mass haul diagram
29. Discuss photogrammetric survey methods
30. Measure ground distance from aerial photo
31. Compute heights/elevation by relief displacement
32. Plan photogrammetric survey
33. Discuss stereoscopic parallax
34. Compute ground coordinates from parallax
35. Find ground elevations from parallax
36. Discuss astronomic observation terminology
37. Understand parameters of celestial body apparent movement
38. Compute refraction errors in astronomic observations
39. Discuss parallax errors in astronomic observations
40. Find universal time
41. Discuss local hour angle calculations
42. Compute azimuth from solar observation

### Student Contributions

Each student will spend approximately 2.5-5 hours per week preparing for class and completing assignments weekly and will be in class on time.

Each week students will complete and turn in assignments as specified. In addition, quizzes are to be completed as assigned. Students will also complete a final exam to demonstrate their knowledge of the material.

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 2.75 lecture/presentation hours per week. Course content will be taught in the order that the content goals are presented in the syllabus.

Approved by: Kenneth Flick Developed/Revised: 1/7/2012  
 Ken Flick, Division Dean for Business/Industrial Division

### **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, WLVH 101.1, WSOK 1230 AM, WAEV 97.3, WTOC 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 Text Alert at TCL” and fill out the form or go to [www.tcl.edu/textalert.asp](http://www.tcl.edu/textalert.asp)