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
Please refer to the TCL Bookstore for the most recent course textbook.

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**

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**

This course meets for 3 lecture 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 withdrawal 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.

ONLINE ATTENDANCE PROCEDURE
For all online courses, students must complete an assignment designated by the instructor during the first
week of classes. The instructor will drop the student from the course if the initial assignment is not completed.

Instructors will withdraw students from the class when 90% attendance is not maintained. Attendance in an online course is defined by regular course access and by timely completion of assignments as required by the instructor. Each student will be expected to access the web class at least once a week and complete 90% of assignments on time. Additional access is encouraged and may be necessary for successful completion of classes.

Failure to log in and complete assignments will result in the student being withdrawn from the course. The instructor will assign a grade of “W,” “WP,” or “WF” based upon the student’s academic standing as the last date of attendance, which is the last login. Students are responsible for any financial matters associated with an administrative withdrawal. If a fails to email the instructor (using the my.tcl.edu email account) requesting to be dropped from the course and has not submitted the initial assignment required during the first week of class, the instructor will assign a “Never Attended” code in the student information system (web-advisor) no later than ten calendar days after the first day of the class. Students who are dropped as a result of never attending the course are still responsible for all fees associated with the course.

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

EXTRA:
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. On the homepage, click on “emergency TextAlert at TCL” and fill out the form or go to www.tcl.edu/textalert.asp

GRADING METHODOLOGY
The final grade must be 70 or more (a grade “C” or better) in order to pass the course and progress to the next course. Students absent from an examination or presentation will receive a “0” grade for the examination unless other arrangements are made with the individual instructor prior to the examination or presentation day or on the examination or presentation day before the test/presentation is scheduled to be given.

The student is responsible for notifying the instructor for the reason of the absence. It is also the responsibility of the student to contact the appropriate instructor to arrange to make up the examination. Arrangements may be completed by telephone.

If the instructor is not available, a message should be left on the instructor’s voice mail AND with another member of the faculty or administrative assistant. The make-up exam will be scheduled and the instructor will decide the method of examination. Messages sent by other students are unacceptable.
The purpose of this safety addendum is to provide each student with safety guidelines during an incident, emergency, or disaster at TCL. In addition, it provides students guidelines for lockdown procedures, evacuation procedures, and active shooter.

**Definition**

**An incident** is any event, potential or actual, that may impact normal operations but has no immediate health or life threatening consideration or serious effect on the overall functional capacity of the College. An event of this nature should be reported to the Office of the Vice President for Administrative Services. Also notify the off-site campus administrator if applicable.

**An emergency** is any incident, potential or actual, which may endanger life or health or which affects an entire building or buildings, and will disrupt the overall operations of the College. Outside emergency services will probably be required, as well as major efforts from campus support services. Major policy considerations and decisions will usually be required from the college administration during times of crises. An emergency should be reported immediately by directly using 911 if life or health/injury considerations exist and then to the Office of the President or Vice President for Administrative Services as quickly as possible. Also notify the off-site campus administrator if applicable.

**A disaster** is any event or occurrence that has taken place and has seriously impaired or halted the operations of the College. In some cases, mass personnel casualties and severe property damage may be sustained. A coordinated effort of all campus-wide resources is required to effectively control the situation. Outside emergency services will be essential. In all cases of disaster, an Emergency Control Center will be activated, and the appropriate support and operational plans will be executed. The disaster should be immediately reported, first by calling 911 and then to the Office of the President or Vice President for Administrative Services. Also notify the off-site campus administrator if applicable.

**Types of Emergencies**

- Hurricane
- Tornado
- Fire
- Biochemical or Radiation Spill
- Explosion/Bomb
- Downed Aircraft (crash which directly impacts campus operations)
- Utility Failures
- Violent or criminal behavior
- Psychological Crisis

**Procedures**

**Active Shooter**

**Building Evacuation**
1. Building evacuations occur when an alarm sounds and/or upon notification by Security or the Emergency Director.

2. When the building evacuation alarm is activated during an emergency, individuals should exit according to the building evacuation plan and alert others to do the same.
3. Once outside, individuals should proceed to a clear area that is at least 500 feet away from the affected building. Streets, fire lanes, hydrant areas and walkways should be kept clear for emergency vehicles and personnel.

4. Individuals should not return to an evacuated building unless told to do so by Security or the Emergency Director.

5. Individuals should assist persons with disabilities in exiting the building. Elevators are reserved for disabled persons.

**Campus Evacuation**

1. A uniformed Security Guard, the Emergency Director, or an Emergency Resource Team member will announce evacuation of all or part of the campus grounds.

2. All persons (students and staff) are to immediately vacate the campus, or in the case of a partial evacuation relocate to another part of the campus grounds as directed.

**Lockdown**

1. Clear the halls
2. Report to the nearest classroom/office
3. Assist those needing special assistance
4. Ensure classroom/office doors are closed and locked
5. Turn off lights
6. Stay away from doors and windows (out of the line of sight)
7. BE QUIET and follow instructor’s directions
8. Silence cell phones
9. Wait for the “All Clear” before leaving

*Updated August 2019*