

Technical College of the Lowcountry
921 Ribaut Road
Beaufort, SC 29901



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CET 251 HIGHWAY DESIGN

Course Description

This course covers a study of the design and construction of a highway.
3 Cr (3 lec/pres, 0 lab, 0 other)

Course Focus

The purpose of the course is to introduce the fundamental concepts involved in planning, designing and construction of highways. Driver and traffic characteristics are covered as well as the geometric design of highways and roadsides. Drainage, drainage structures, highway materials, base & pavement design are also discussed.

Text and References

Wright, P, Dixon, k, **Highway Engineering**, 7th ed, John Wiley & Sons
Published: 2004
ISBN 978-0-471-26461-3

Course Goals

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

1. Identify highway functional classifications
2. Review highway federal state local funding
3. Study highway planning
4. Summarize driver limitations
5. Use power formula
6. Review traffic studies
7. Apply highway level of service
8. Determine highway capacity
9. Consider highway alignment
10. Use highway stationing
11. Consider grade limitations
12. Understand highway horizontal curve
13. Calculate degree of curve
14. Calculate horizontal curve parameters
15. Use superelevation formula
16. Compute cross section superelevation
17. Choose sight stopping distance
18. Enumerate decision stopping distance
19. Analyze horizontal stopping distance
20. Understand spiral curve
21. Calculate vertical curve elevation

22. Analyze vertical stopping distance
23. Use vertical curvature rate
24. Evaluate passing sight distance
25. Analyze roadside embankment
26. Analyze clear zone roadside requirements
27. Review design barrier
28. Understand roadside barriers requirements
29. Design cross sections road
30. Compare design vehicles
31. Complete highway intersections design
32. Use parking lot standards
33. Apply drainage principles
34. Calculate highway drainage requirements
35. Design roadside ditches
36. Approximate culvert inlet control design
37. Approximate culvert outlet control design
38. Know strength parameters subgrade
39. Understand pavement strength parameters
40. Design asphalt institute method flexible pavement
41. Design AASHTO method flexible pavement
42. Understand rigid pavement design

Student Contributions

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

Students will complete and turn in assignments as specified. In addition, quizzes are to be completed as assigned. Students will also complete a final project 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 Project	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: 9-23-2013

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, WWWV 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

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