

Technical College of the Lowcountry
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CET 120 CONSTRUCTION MATERIALS

Course Description

This course includes a study of basic materials used in construction, including research of building product specifications.

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

Course Focus

The course purpose is to introduce the student to the various major civil engineering construction materials. The course will progress through the introduction to wood, concrete, asphalt, masonry, and steel as structural materials. Building codes will be introduced.

Text and References

Marotta et. al., **Basic Construction Materials**, 8th edition, Pearson

Published: 2011

ISBN 978-0-13-512969-2

Course Goals

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

1. Review the science of materials
2. List common materials testing agencies
3. Understand thermal expansion
4. Know force vector concept
5. Calculate material stress
6. Explain compression, tension, and shear stresses
7. Understand a factor of safety
8. Explain differences in response to stress
9. Calculate strain
10. Compute modulus of elasticity
11. Explain aggregate properties
12. Understand aggregate strength
13. Review differences in aggregate gradation
14. List four states of aggregate moisture
15. Understand specific gravity
16. Review production of asphalt
17. Study types of asphalt binders
18. Explain major asphalt tests
19. Review super pave mix design
20. Explain components of concrete
21. Study the limitations of concrete
22. Understand hydration
23. List reasons for water cement ratio control
24. Review typical concrete acceptance tests

25. Study the production of ferrous metals
26. Explain major rolled steel shapes
27. Review steel structural connections
28. Explain light gauge steel shape and limitations
29. Explore steel joist construction according to the SJI
30. Identify metal decking materials and limitations
31. Describe lumber production
32. Identify lumber defects
33. Calculate lumber volume
34. Compute National Design Standard allowable wood stresses
35. Name wood panel types and uses
36. Distinguish types of engineered lumber products
37. Summarize structure hazard designs
38. Recall lateral load distribution in buildings
39. Identify diaphragm elements in light frame construction
40. Recognize various masonry materials and elements
41. Classify masonry mortars
42. Recall E119 fire test methods
43. Identify E84 fire test materials
44. Reiterate heavy timber building specifications
45. Classify building construction types per code requirements
46. Identify building occupancy types
47. Understand height and fire area restrictions by various construction materials
48. Investigate fire department views on building materials

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	30%
Quizzes	30%
Final	40%

Course Schedule

The class meets for 2.75 hours lecture/presentation 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.

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

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