

**ELPT 1319
FUNDAMENTALS OF ELECTRICITY**

Western Texas College

- I. Course Description
 - A. An introduction to basic direct current (DC) and alternating current (AC), and application theories.
- II. Basic Program Requirements
 - A. Safety glasses
 - B. Work boots
 - C. Leather work gloves
 - D. Long sleeve shirt
 - E. Notebook and pen
 - F. Proof of personal health/accident insurance is required.
 - G. Possible background check
 - H. Random drug testing will be performed on all Electrical Lineman Technology students.
- III. Course Objectives
 - A. Upon completion of the class each student will be able to:
 - Know and discuss basic direct and alternating current theories
 - Know major terms and vocabulary from the National Electric Code (NEC)
 - Show demonstrable knowledge of all phases of electrical safety
 - Participate in all duties as a lineman
- IV. Student Learning Outcomes
 - A. Demonstrate comprehensive knowledge of safety issues in electrical line work
 - B. Explain atomic structure and basic electrical values such as voltage, current, resistance, and power
 - C. Calculate electrical values for series, parallel, and combination circuits
 - D. Calculate voltage drop based on conductor length, type of material, and size
 - E. Summarize the principles of magnetism
 - F. Utilize electrical measuring instruments
- V. Outcome Assessment Methods
 - A. Written examinations, worksheets, scenarios, and group discussions.
- VI. Grading
 - A. Standard grading system is as follows:

▪ A	90-100	Superior Achievement
▪ B	80-89	Excellent Achievement
▪ C	70-79	Average Achievement
▪ D	60-69	Passing Achievement
▪ F	Below 60	Failing
 - B. There will be several exams spaced throughout the semester. The exam questions may include any combination of the following:

- True/False
- Multiple choice
- Fill in the blank
- Short answer

VII. Student Attendance

- A. Class roll will be taken since regular and punctual attendance is expected for all designated class meeting time
- B. The attendance policy established by the College and set out in the current catalog will be applied in determining student attendance. *This includes the reporting of three hours of unexcused absences to the Counseling Center by the instructor, and an administrative drop for repeated attendance policy violations.*
- C. Students are encouraged to coordinate anticipated absences with the instructor and/or to advise the Counseling Center of any anticipated longer-term absences from class
- D. Please keep in mind that this course contains a significant number of graded assignments
- E. Excessive absences will result in the failure to complete one or more of these activities and therefore result in the loss of credit as described above.
- F. PLEASE NOTE:
 - Every three unexcused absences will result in the loss (drop) of a letter grade, regardless of a student's course average.
 - Tardies will be treated the same, with five tardies being equivalent to a loss (drop) in a letter grade.

VIII. Conduct and Academic Dishonest

- A. This course will be taught in a college classroom environment. Students will come to class prepared to participate in the learning process and that part of this preparation will include the demonstration of mature and purposeful behavior. Therefore, activities such as sleeping in class, interruptive talking with fellow students (including cell phones), rudeness to fellow students, overt tobacco use or other types of inappropriate behavior (including cheating and plagiarism) will not be tolerated, and may be dealt with by instructor-initiated student withdrawal from class. College policy prohibits the consumption of drinks and snacks in the classroom.

IX. Additional Requirements

- A. Complete all course work with at least a score of 85, and pass 50% of the scheduled tests.
- B. Complete each level with a passing evaluation.

X. Required Books (Please note that these books will be used in several different classes.)

TITLE	AUTHOR
Lineman's + Cableman's Handbook	ISBN 978-1-111-53915-3

Basic Electric Power Distribution	ISBN 978-0-07-146789-6
SPECIFICATIONS AND DRAWINGS FOR 12.47/7.2 KV LINE CONSTRUCTION	Alexander Publishing
TRANSFORMATION FOR LINEWORKERS	Alexander Publishing
Distribution Transformer Handbook	Alexander Publishing
Pocket Guide to Watthour Meters	Alexander Publishing
Distribution Transformer Handbook	Alexander Publishing

XI. Course Schedule

Course Content
<u>Topic:</u> Introduction to Basic DC Current Lab 1: Introduction to Outside Lab
<u>Topic:</u> Lecture and Discussion on Basic DC Current Lab 2: Outside lab
<u>Topic:</u> Direct Current Applications Lab 3: Outside lab
<u>Topic:</u> Electron Theory Lab 4: Outside lab
<u>Topic:</u> Electrical Safety Lab 5: Outside lab
<u>Topic:</u> Introduction to Electrical Blueprints Lab 6: Outside lab
<u>Topic:</u> Mid-Course Review Intensive Lab 7: Outside lab Mid-Course Review Intensive
<u>Topic:</u> Boxes, Fittings, Conductors and Wiring Lab 8: Outside lab
<u>Topic:</u> Equipment Testing Lab #10 Outside lab
<u>Topic:</u> Installation and Repair Troubleshooting Lab #11 Outside lab
<u>Topic:</u> Calculations and Analysis Lab #12 Outside lab

Topic: Calculations and Analysis (continued)

Lab #13 Outside lab

Topic: Safety Review

Lab #14 Outside lab

Topic: Course Review Intensive

Lab 14: Lab Review Intensive

Last Modified: August 24, 2016