

**ELPT 2239**  
**ELECTRIC POWER DISTRIBUTION**

**Western Texas College**

- I. Basic Course Information
  - A. Design, operation, and technical details of modern power distribution systems including generating equipment, transmission lines, plant distribution, and protective devices. Includes calculations of fault current, system load analysis, rates, and power economics.
- 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:
    - Effectively use critical thinking skills regarding safety and procedures
    - Know a majority of the terms used in the field of Electrical Distribution Systems
    - Know how to read staking sheets and framing specifications
    - Have intermediate knowledge of electric distribution line construction
    - Install conductors, transformers and other line equipment
    - Know and effectively discuss OSHA and NESC regulations
    - Use the problem-solving approach as the basis for decision making in the field
    - Use effective organizational skills in planning electrical lineman duties
    - Show respect for the dignity of individuals as customers and co-workers
    - Evaluate the safety and make necessary adjustments
    - Demonstrate accountability for lineman responsibilities
    - Demonstrate promptness and reliability
    - Participate in all duties as a lineman
- IV. Student Learning Outcomes
  - A. Explain major parts of utility systems
  - B. Compare overhead systems versus underground systems

- C. Discuss mechanical design considerations to meet codes, standards, climate, and terrain relating to the utility systems
- D. Explain considerations for utility line
- E. Analyze energy economics
- F. Explain how smart grid technologies and standards effect power distribution systems.
- G. Explain how smart grid technologies and standards effect power distribution systems.

V. 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

VI. 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.

VII. Conduct and Academic Dishonesty

- 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.

VIII. 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.

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

TITLE	AUTHOR
Lineman's + Cableman's Handbook	ISBN 978-0-07-146789-6
Basic Electric Power Distribution	Alexander Publishing
SPECIFICATIONS AND DRAWINGS FOR 12.47/7.2 KV LINE CONSTRUCTION	Alexander Publishing
TRANSFORMATION FOR LINEWORKERS	Alexander Publishing
Distribution Transformer Handbook	Alexander Publishing

X. Course Schedule

Course Content
<u>Topic:</u> Introduction to Electrical Distribution Line Construction Lab 1: Introduction to Outside Lab
<u>Topic:</u> Reading and Comprehending Stake Sheets Lab 2: Outside lab
<u>Topic:</u> Reading and Comprehending Framing Specifications Lab 3: Outside lab
<u>Topic:</u> Tailboard Discussions Lab 4: Outside lab
<u>Topic:</u> Pole Framing and Setting Lab 5: Outside lab
<u>Topic:</u> Pole Framing and Setting (continued) Lab 6: Outside lab
<u>Topic:</u> Mid-Course Review Intensive Lab 7: Outside lab Mid-Course Review Intensive

Topic: Safety in Electrical Distribution Construction  
Lab 8: Outside lab

Topic: Planning and Design  
Lab #10 Outside lab

Topic: System Components & Trouble Shooting  
Lab #11 Outside lab

Topic: Underground Electrical Distribution System  
Lab #12 Outside lab

Topic: Underground Systems Planning Considerations and Compliance  
Lab #13 Outside lab

Topic: Underground System Components and Equipment  
Lab #14 Outside lab

Topic: Course Review Intensive  
Lab 15: Lab Review Intensive

Last Modified: August 24, 2016