

LNWK 2324
TROUBLESHOOTING DISTRIBUTION SYSTEMS

Western Texas College

- I. Course Description
 - A. Study of power outages and voltage complaints on distribution systems. Includes lockout-tagout procedures, safety grounds, backfeed, induced voltages, causes of outages and analyzing voltage complaints.
- 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. Analysis of power outages and discussion of common troubleshooting scenarios. Discuss load and service size, backfeed and demonstrate application of required procedures.
- IV. Student Learning Outcomes
 - A. Describe causes of power outages; illustrate lockout-tagout procedures; and describe step and touch potentials. Describe backfeed and induced voltages; and calculate service size from customer load. Explain causes of power outages and voltage problems; explain grounding procedures; and all relevant safety rules and procedures.
- V. Outcome Assessment Methods
 - A. Lab projects, written examinations, scenarios, rubric 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 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.

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.)

- A. Book: Lineman & Cableman's Handbook – ISBN 978-0-07-146789-6
- B. Book: Distribution Transformer Handbook – Alexander Publishing
- C. Book: Basic Electrical Power Distribution – A. Pansini
- D. CD: Troubleshooting Overhead Lines – Alexander Publications
- E. CD: Overhead Troubleshooting Units 1 and 2 – Alexander Publications

XI. Course Schedule

Course Content
<u>Topic:</u> Power Outages Lab 1: Introduction to Outside Lab
<u>Topic:</u> Voltage Complaints on Distribution Systems Lab 2: Outside lab
<u>Topic:</u> Safety Grounds Lab 3: Outside lab
<u>Topic:</u> Backfeed Lab 4: Outside lab
<u>Topic:</u> Induced Voltage Lab 5: Outside lab
<u>Topic:</u> Induced Voltage Lab 6: Outside lab
<u>Topic:</u> Mid-Course Review Intensive Lab 7: Outside lab Mid-Course Review Intensive
<u>Topic:</u> Causes of Outages Lab 8: Outside lab
<u>Topic:</u> Outage Troubleshooting Lab #10 Outside lab
<u>Topic:</u> Grounding Procedures Lab #11 Outside lab
<u>Topic:</u> Analyzing Voltage Complaints Lab #12 Outside lab
<u>Topic:</u> Review of Outage Troubleshooting Lab #13 Outside lab
<u>Topic:</u> Safety Review Lab #14 Outside lab
<u>Topic:</u> Course Review Intensive Lab 15: Lab Review Intensive

Disclaimer: Schedule and content is subject to change at the instructor's discretion.

Class/Lab Assignments	60%
Exams	20%
Final Exam	20%

Last Modified: August 24, 2016