

LNWK 1270
Basic Electricity and Metering
Western Texas College

I. Basic Course Information

- A. Course Description: This course teaches the fundamental principles of electrical theory as applied to electrical circuits and devices such as transformers, inductors, and capacitors. This course also presents an overview of kilowatt-hour meters and meter operation.

- B. Prerequisites: None

II. Student Learning Outcomes

- A. State the three characteristics of electrical charges and list six major sources of electricity
- B. Explain current, voltage, and resistance
- C. State the equation for Ohm's Law
- D. Describe the difference between a series circuit and a parallel circuit
- E. Describe the effect of a changing magnetic field on a conductor
- F. Describe the characteristics of inductance
- G. Describe the basic parts and operating principles of an electromechanical, watt-hour meter
- H. Describe the characteristics of a typical three-phase delta service and a typical three-phase wye service
- I. Demonstrate how an instrument transformer is connected to a transformer-rated meter
- J. Demonstrate the basic steps for conducting a comparison test on a single-phase, watt-hour meter
- K. Describe various forms of power "theft" and how the meter safety features can be compromised

III. Online Testing Requirements

- A. The midterm and final exam must be proctored by an approved testing organization. (Ask your instructor for more details.)
- B. Students are not allowed to use their book or notes of any kind while taking their proctored tests and exams.

IV. Major Course Requirements: The grade for this course will be determined as follows:

- A. Exams: 25%
- B. Quizzes/Daily Assignments: 25%
- C. Participation: 25%
- D. Attendance: 25%

E. Grading scale:

A= (90-100%)

B= (80-89%)

C= (70-79%)

D= (60-69%)

V. Information on Books and Other Course Materials

A. The Program utilizes T & D Power Skills' Lineworker Apprentice Training Program.

B. Lineman gear and all training materials are provided to students.

VI. Other Policies, Procedures and important dates: Please refer to the WTC Course Catalog for the following:

A. Campus Calendar

B. Final exam schedule

C. How to drop a class

D. Withdrawal information

E. Student Conduct/Academic Integrity

F. Class Attendance

G. Students with disabilities

VII. Course Sequence & Content

Week	Topic
Week 1	Introduction to course. Discuss class syllabus, learning objectives, and classroom expectations.
Week 2	Where does Electricity come from? Quiz 1
Week 3	Basic Electrical Quantities Quiz 2
Week 4	Series and Parallel Circuits Quiz 3
Week 5	Electromagnetism Quiz 4
Week 6	Inductance and inductors Quiz 5
Week 7	Capacitance and Capacitors Quiz 6
Week 8	Exam 1
Week 9	Basic Concepts of Metering Quiz 7

Week 10	Self-Contained Meter Application Quiz 8
Week 11-12	Transformer-Rated Meter Application Quiz
Week 13	Meter Testing Quiz 10
Week 14	Meterman Responsibilities Quiz 11
Week 15	Course Review
Week 16	Final Exam

Disclaimer: Sequence & Content is subject to change at the instructor's discretion.