

Virginia Western Community College

ELE 133

Practical Electricity I

Prerequisites

MTE 1, 2 and 3.

Course Description

Teaches the fundamentals of electricity, terminology, symbols and diagrams. Includes the principles essential to the understanding of general practices, safety, and the practical aspects of residential and non-residential wiring and electrical installation, including fundamentals of motors and controls.

Semester Credits: 3 Lecture Hours: 2 Lab/Clinical/Internship Hours: 2

Required Materials

Textbook:

Electrical Studies for Trades. 5th Edition. ISBN-13: 978-1133278238.

Other Required Materials:

- Scientific calculator, TI-30 or equivalent
- ETCAI Circuit software (Available for download from BlackBoard)
- Safety Glasses

May require preparation of a report as an out-of-class activity.

Course Outcomes

At the completion of this course, the student should be able to:

- Explain the following:
 - a) Electrical Terminology and Symbology
 - b) DC and AC Fundamentals
 - c) Wire Sizing and Wiring Methods
 - d) Transformers
 - e) Basic Lighting and Heating
 - f) Electrical Distribution
- Use and interpret schematic and wiring diagrams.
- Use schematic and wiring diagrams to construct electrical circuits.
- Demonstrate the proper use of test equipment to check basic circuitry.

Topical Description

Week	Topic/Activities	Reference
1	Introduction and Course Policies Electrical and Campus Safety	Notes and Videos
2	Fundamentals of Electricity Lab: Electrical Quantities/Units conversion	Chapter 1
3	Electrical Quantities and Ohms Law Chapter 3a Lab: Resistor Color Code and Meter Reading Handout/Software	Chapter 2
4	Electrical Sources and Static Electricity	Chapter 3
5	Magnetism Lab: Electromagnetism Demo	Chapter 4
6	Series Circuits Lab: Series Circuits	Chapter 5
7	Parallel Circuits Lab: Parallel Circuits	Chapter 6
8-9	Combination (Series-Parallel) Circuits Lab: TBA	Chapter 7
10	Measuring Instruments Lab: TBA	Chapter 8
11	Introduction to Alternating Current Chapter 7 Lab: TBA	Chapter 9
12	Electrical Services Lab: Electrical Service	Chapter 15
13	General Wiring Practices Part 1	Chapter 16
14	General Wiring Practices Part 2 Lab: Switch-Controlled Lamp Holder and Three and Four-Way Switches	Chapter 17
15	Supplemental Topics/Exam Review	

Notes to Instructors

- Suggested Grading Scheme:

Scheduled Test	60%
Labs and Homework	20%
Comprehensive Final Exam	20%

- Grading Scale:

A = 91 – 100
B = 81 – 90
C = 71 – 80
D = 60 – 70
F = below 60

- Recommended lab materials, sample tests and supplemental handouts are available from the program head.
- Instructors should notify the program head at least a day in advance for any special accommodations or materials that will be needed for class.