Virginia Western Community College
ELE 134
Practical Electricity II

Prerequisites
MTE 1, MTE 2 and MTE 3; ELE 133

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:
Text: Herman, Stephen, Electrical Studies for Trades, 5th Edition, ISBN-13: 978-1133278238. © 2014 Cengage Learning. http://www.cengage.com/

Other Required Materials:
- Scientific calculator: Same as ELE 133 (TI-30 or equivalent)
- 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 basic operation of the following:
    - Common types of three-phase and single-phase induction motors
    - Overload Protective Devices
    - Relays, Contactors, and Motor Starters
    - Other assorted control sensors and devices
    - Common Types of Solid-State Devices
    - Digital and programmable control devices
- Demonstrate an understanding of basic troubleshooting techniques
- Use and interpret schematic and wiring diagrams used to install and troubleshoot Air Conditioning Units and Heat Pumps, Oil, Gas, and Electric Heating Units.

- Use schematic and wiring diagrams to construct electrical circuits.
- Demonstrate the proper use of test equipment to check Solid-State Devices and other components.

Topical Description

Week/Class	Topics/Activities	Reference
1.	Alternating Current (continued)	Unit 9
2.	Alternating Current Loads (Inductive)	Unit 10
3.	Alternating Current Loads (Capacitive)	Unit 11
4.	AC Circuits Review	Units 9-11 **Quiz #1**
5.	Three-Phase Circuits	Unit 12
6.	Transformers	Unit 13
7.	Three-Phase transformers	Unit 14
9.	**Spring Break**	
10.	Three-Phase Motors	Unit 18
11.	Single-Phase Motors	Unit 19 **Quiz #2**
12.	Schematic and Wiring Diagrams	Unit 20
13.	Schematic and Wiring Diagrams (continued)	Unit 20
14.	Motor Installation	Chapter 21
		Quiz #3
15	Supplemental Topics	– – –
16.	Practice and review for final exam	– – –
17.	Final Exam	– – –

Notes to Instructors

- Suggested Grading Scheme:

Mid Term	30%
Final Exam	30%
Labs and Homework	20%
Quizzes	10%

- Attendance 5%

- Class Participation 5%

- Suggested 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 week in advance for any special accommodations or materials that will be needed for class

ADA Statement (PDF)

Title IX Statement (PDF)