**ELE 134**

**Practical Electricity II**

**COURSE OUTLINE**

**Prerequisites:**

Prerequisites: None

**Course Description: (must be word-for-word from the College Catalog)**

Teaches the fundamentals of electricity, terminology, symbols, and diagrams. Includes principles essential to understanding general practices, safety, and the practical aspects of residential and non-residential wiring and electrical installation, including fundamentals of motors and controls. May require preparation of a report as an out-of-class activity.

**Semester Credits:** 3 **Lecture Hours: 2 Lab/Recitation Hours: 2**

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**Course Outcomes**

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

1. Explain the basic operation of the following:  
   a) Common types of three-phase and single-phase induction motors  
   b) Overload Protective Devices  
   c) Relays, Contactors, and Motor Starters  
   d) Other assorted control sensors and devices   
   e) Common Types of Solid-State Devices  
   f) digital and programmable control devices
2. Use and interpret schematic and wiring diagrams used to install and troubleshoot Air Conditioning Units and Heat Pumps, Oil, Gas, and Electric Heating Units.
3. Use schematic and wiring diagrams to construct electrical circuits.
4. Demonstrate the proper use of test equipment to check Solid-State Devices and other components.

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Required Materials:

1. Text:Herman, Stephen, Electrical Studies for Trades, 5th Edition, ISBN-13: 978-1133278238. © 2014 Cengage Learning. <http://www.cengage.com/>
2. Scientific calculator: Same as ELE 133 (TI-30 or equivalent)
3. ETCAI Circuit software (Available for download from bb)

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Topical Description: (Outline chapters and sections to be covered in the book – may include timeline)

|  |  |  |
| --- | --- | --- |
| **Week/Class** | **Topics/Activities** | **Reference** |
|  | Introduction, Course Orientation and Policies, Emergency and Safety Review.  Alternating Current Review | Take Notes /Unit 9 |
|  | Alternating Current (continued) | Unit 9 |
|  | Alternating Current Loads (Inductive) | Unit 10 |
|  | Alternating Current Loads (Capacitive) | Unit 11 |
|  | AC Circuits Review | Units 9-11  **Quiz #1** |
|  | Three-Phase Circuits | Unit 12 |
|  | Transformers | Unit 13 |
|  | Three-Phase transformers | Unit 14 |
| 9. | **Spring Break 03/06/15 – 03/13/16** |  |
| 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 | – – – |
|  |  |  |

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Notes to Instructors

(List information about optional topics, departmental exams, etc.)

1. Suggested Grading Scheme:

Mid Term 30%

Final Exam 30%

Labs and Homework 20%

Quizzes 10%

Attendance 5%

Class Participation 5%

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

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