



# Air Conditioning, Refrigeration and Heating – Electrical

Produced by Palomar College

32, 45-minute programs

Closed Captioned

## Textbook:

### Modern Refrigeration and Air Conditioning

by Althouse, Turnquist, Bracciano, The Goodheart – Wilcox Publishing Company

This is an introduction to the fundamentals and application of electrical theory as related to air conditioning, heating and refrigeration. This telecourse includes the use of electrical meters, reading schematics, basic motor theory, controls and switches, and basic troubleshooting practices. The electrical concepts needed to work in this field that ranges from very basic to quite technical are also covered.

## PROGRAM DESCRIPTIONS

1: Introduction: Course Overview	TIME: 43:26.00
2: Safety	TIME: 42:13.20
3: Electrical Terminology & Definitions - Electrical Theory Part1	TIME: 39:23.08
4: Electrical Terminology & Definitions - Electrical Theory Part 2	TIME: 43:25.05
5: Electricity at Work - Light, Heat and Magnetism	TIME: 44:28.01
6: Electricity at Work - Simple Circuits	TIME: 46:14.07
7: Electric Meters - Types of Meters	TIME: 43:35.19
8: Electric Meters - How Meters are Used	TIME: 43:30.07
9: Fundamentals of Alternating Current	TIME: 44:07.08
10: Essentials of a Simple Circuit	TIME: 44:11.22
11: Standing Pilot Furnace - Parts of a Furnace	TIME: 44:31.05
12: Standing Pilot Furnace - Schematic & Wiring Diagram	TIME: 43:51.18
13: Electronic Ignition & Flame Sensing – Theory	TIME: 43:51.12
14: Electronic Ignition & Flame Sensing – Types	TIME: 43:39.00
15: Gas Furnace w/Electronic Controls - Components & Their Functions	TIME: 43:43.00
16: Gas Furnace w/Electronic Controls - Schematics and Wiring Diagrams	TIME: 44:23.17
17: Heat Pump, Mechanical Operation – Basic Refrigeration Cycle	TIME: 44:04.07
18: Heat Pump, Mechanical Operation - Reverse Refrigeration Cycle	TIME: 43:50.21
19: Heat Pump, Electrical Operation - Electrical Loads	TIME: 43:36.04
20: Heat Pump, Electrical Operation - Sequence of Operation	TIME: 44:34.08
21: Electric Motor Theory - Magnetism and Rotation	TIME: 43:38.18
22: Electric Motor Theory - Single Phase Motors - Part 1	TIME: 43:40.00
23: Electric Motor Theory - Single Phase Motors - Part 2	TIME: 44:04.00
24: Single Phase Motor Operation	TIME: 43:45.00
25: Motor Protection - Part 1	TIME: 43:30.00
26: Motor Protection - Part 2	TIME: 43:39.00
27: Basic Electrical Troubleshooting - Part 1	TIME: 44:18.00
28: Basic Electrical Troubleshooting - Part 2	TIME: 44:22.00
29: Troubleshooting Compressors	TIME: 43:10.00
30: Troubleshooting Capacitors	TIME: 42:05.00
31: Complex Systems - Components and their Relationship	TIME: 43:40.00
32: Job Search - Be Prepared and Making Contact with Employers	TIME: 44:40.00