



HVAC Technician
Online Self-Paced Course | 12-Month Access
Enroll Anytime

- A. Introduction
 - 1. Heat, Temperature, and Pressure
 - 2. Matter and Energy
 - 3. Refrigeration and Refrigerants
- B. Safety, Tools and Equipment, and Shop Practices
 - 1. General Safety Practices
 - 2. Tools and Equipment
 - 3. Fasteners
 - 4. Tubing and Piping
 - 5. Leak Detection, System Evacuation, and System Cleanup
 - 6. Refrigeration and Oil Chemistry and Management – Recovery, Recycling, and Reclaiming, and Retrofitting
 - 7. System Charging
 - 8. Calibrating Instruments
 - 9. Simulation: Safety Quiz
 - 10. Simulation: Soft Skills Quiz
- C. Automatic Controls
 - 1. Basic Electricity and Magnetism
 - 2. Introduction to Automatic Controls
 - 3. Automatic Control Components and Applications
 - 4. Troubleshooting Basic Controls
 - 5. Advanced Automatic Controls-Direct Digital Controls (DDCs) and Pneumatics
- D. Electric Motors
 - 1. Types of Electric Motors
 - 2. Application of Motors

3. Motor Controls
4. Troubleshooting Electric Motors
- E. Commercial Refrigeration
 1. Evaporators and the Refrigeration System
 2. Condensers
 3. Compressors
 4. Expansion Devices
 5. Special Refrigeration Systems
 6. Commercial Ice Machines
 7. Special Refrigeration Applications
 8. Troubleshooting and Typical Operating Conditions for Commercial Refrigeration
- F. Air-Conditioning (Heating and Humidification)
 1. Electric Heat
 2. Gas Heat
 3. Oil Heat
 4. Hydronic Heat
 5. Indoor Air Quality
- G. Air-Conditioning (Cooling)
 1. Comfort and Psychometrics
 2. Refrigeration Applied to Air-Conditioning
 3. Air Distribution and Balance
 4. Installation
 5. Residential Energy Auditing
 6. Typical Conditions
 7. Troubleshooting
- H. All-Weather Systems
 1. Heat Gains and Heat Losses in Structures
 2. Air Source Heat Pumps
 3. Geothermal Heat Pumps
- I. Domestic Appliances
 1. Domestic Refrigerators and Freezers
 2. Room Air Conditioners
- J. Commercial Air-Conditioning and Chilled-Water Systems
 1. High-Pressure, Low-Pressure, and Absorption Chilled-Water Systems
 2. Cooling Towers and Pumps
 3. Operation, Maintenance, and Troubleshooting of Chilled-Water Air-Conditioning Systems
 4. Commercial, Packaged Rooftop, Variable Refrigerant Flow, and Variable Air Volume Systems

- K. Simulation Challenge Mode: HVAC
- L. Simulation Challenge Mode: Electricity for HVAC