Lesson 1 - Introduction to the Concept of Heat
Objectives:
- Describe heat and energy relationships.
- Define a Btu and explain its importance.
- Explain the difference between sensible heat and latent heat.
- Explain the four methods of heat transfer.
- State the law of conservation of energy.

Lesson 2 - Principles of Heating
Objectives:
- Measure temperatures using Fahrenheit and Celsius scales.
- Convert Fahrenheit to Celsius and Celsius to Fahrenheit.
- Describe steam principles and characteristics.
- Explain the difference between absolute pressure and gauge pressure.
- Use heating terminology correctly.

Lesson 3 - Principles of Heat Flow
Objectives:
- Determine what “comfort conditions” are.
- Identify the factors that control human comfort.
- List the four methods of heat transfer.
- Describe the effect that air movement has on comfort.
- Explain why relative humidity is important.
- Identify the various ways that heat is delivered.
- Explain the effect of temperature swings.
- Define the conductivity of various substances.

Lesson 4 - Heat Loss from Structures
Objectives:
- Calculate the heat loss from a structure.
- Explain the importance of ventilation.
- Explain how to reduce heat loss.
- Describe how to insulate a house properly.

Lesson 5 - Review of Fundamentals of Heat Load Calculation
Objectives:
- Explain the difference between conductivity and resistance
- Calculate the heat loss of a house.
- Use heat transfer multipliers.
- Determine infiltration load.

Lesson 6 - Ducted Warm Air Systems/Room Air Distribution
Objectives:
- Recognize various duct designs.
- Explain what criteria to use if an oversize unit is chosen.
- Determine the maximum pressure loss in duct systems.
- Correct high-humidity problems.
- Decide on proper registers and grilles.
• Determine the proper locations for registers and grilles.
• Explain the necessity of using proper duct fittings.
• Lay out a floor plan for supplies and returns.
• Determine main truck ducts correctly.
• Select proper register styles.
• Determine the total cubic feet per minute per section of extended plenum.
• Explain the letters and numbers identifying fittings.
• Determine fan speed.

Lesson 7 - Duct Sizing and Layout
Objectives:
• Use and understand duct system terminology.
• Identify duct system components properly.
• Explain how static pressure affects air movements.
• Calculate total static pressure.
• List the factors that affect air flow.
• Select the proper type of duct system for an application.
• Lay out the duct system.
• Determine the proper fittings for the system.
• Use various sizing tables.

Lesson 8 - Air Filtration
Objectives:
• Identify proper filtering methods of airborne contaminants.
• Explain proper filter selection.
• Describe how an electronic air cleaner operates.
• Determine the type of air filtration service required.
• Identify a self-cleaning precipitator.
• Describe how filters are cleaned and maintained.
• Describe how filters are tested.
• Explain the steps that you can take to improve indoor air quality.

Lesson 9 - Humidification (Part 1)
Objectives:
• Use the proper terminology in discussing humidification.
• Identify the proper humidity levels for comfort and health.
• Measure humidity levels correctly with instruments.
• Size and select a humidifier.

Lesson 10 - Humidification (Part 2)
Objectives:
• Add moisture to air by various methods.
• Install a humidifier properly.
• Control the humidity level properly.

Lesson 11 - Control Systems: A Functional Approach
Objectives:
• Explain control design and operation.
• Describe control performance characteristics.
• Determine how and where to set a heat anticipator.
• Check the current draw of a heat anticipator.
• Install controls properly.

Lesson 12 - Review of Safety and Codes
Objectives:
• Adhere to personal safety practices and proper equipment safety practices.
• Comply with federal, state, and local safety codes and regulations.

Lesson 13 - Customer Relations
Objectives:
• Apply good business practice and customer service skills.
• Develop personal traits and attitudes that lead to improved customer relations.
• Demonstrate successful techniques of selling equipment and service.

Lesson 14 - Glossary of Terms