

HVAC Fundamentals and Testing

This five-day course is ideal for anyone tasked with ensuring the proper operation and maintenance of industrial HVAC units. The course provides a background in basic air laws, application information, and the refrigeration cycle, as well as a practical knowledge of the various types of instrumentation used in HVAC testing. Minimum testing requirements for over a dozen different applications are detailed, along with balancing testing procedures, air conditioner servicing techniques, and sound and vibration testing.

I. HVAC Systems Construction and Applications

- Basic Air Laws
- Purpose of HVAC
- Fans
- Ductwork
- Basic Refrigeration Cycle
- Types of Air Systems
- Hydronic Systems

II. Field Instrumentation Overview

- Airflow Measurement Devices
- Hydronic Measuring Equipment
- Temperature Measuring Instruments
- Humidity Measuring Devices
- Electrical Measuring Devices
- Minimum Values and Frequency of Insulation Resistance Test
- Rotation Measuring Instruments
- Vibration Measurement

III. Equipment Test and Balance Requirements

- Heating and Ventilating Units
- Built-Up Units – Low-Pressure and High- Pressure Single Duct

IV. Test and Balance Procedures

V. Testing and Balancing Air/Water Systems

VI. Sound and Vibration Testing

- Sound
- Field Vibration Testing
- Vibration Testing Procedure

VII. HEPA Filter and Charcoal Absorber Requirements and Testing

- HEPA Filter History
- HEPA Filter Testing
- Charcoal Absorber Requirements and Testing