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