

# Johnson Controls Institute Course

## HVAC Mechanical Systems (#210)

\$1,445/**\$1,295**  
(3.0 CEU)

**Learn the fundamentals of HVAC mechanical equipment operation in this introductory lab course.** This one-week course is taught at one of our full-scale, fully operational Building Environmental Systems Laboratories. Designed for personnel responsible for the selection, design, installation, calibration or maintenance of HVAC mechanical equipment. It emphasizes hands-on activities with boilers, chillers, air handlers and other operating equipment from a variety of manufacturers. Participants will gain a comprehensive understanding of operating principles and the proper use of test instruments to verify equipment performance.

**Related Course:** HVAC Maintenance (#220).

### MONDAY

AM: Introduction  
HVAC System Types and Piping Systems  
PM: Psychrometrics  
LAB: Tour of Mechanical Lab, Piping Systems

### TUESDAY

AM: Air Handlers, Types and Characteristics  
Fans and Fan Characteristics  
PM: Dampers and Damper Actuators  
Valves and Valve Actuators  
LAB: Air Handler Operation

### WEDNESDAY

AM: Facility Management Systems  
Controls and Components  
PM: Boilers and Boiler-Related Equipment  
Heat Exchangers and Pumps  
LAB: Pumps, Orifice Plate Flow Measuring  
LAB: Boiler, Heat Exchanger

### THURSDAY

AM: Refrigeration Fundamentals  
Reciprocating Chillers and Accessories  
PM: Centrifugal Chillers  
LAB: Centrifugal and Reciprocating Chillers  
Cooling Towers

### FRIDAY

AM: General Troubleshooting  
Final Review

Course ends at 11:30 a.m.

