Course Description

Introduces electrical, pneumatic and electronic control circuits as applied to year-round air conditioning systems. Includes reading wiring and schematic diagrams, troubleshooting, and designing high and low voltage control systems. Lecture 3 hours. Laboratory 3 hours.

General Course Purpose

This course is designed to prepare students to design, diagnose, troubleshoot and install commercial controls.

Course Prerequisites/Corequisites

Prerequisite: AIR 134

Course Objectives

Upon completion of this course, the student should be able to:

- Design, diagnose, troubleshoot commercial control applications in the commercial HVAC buildings industry
- Install controls used in commercial HVAC applications including pneumatic, electric, and electronic controls
- Install and troubleshoot thermostats and humidistats, dampers and damper motors, automatic valves, transmitters, auxiliary devices
- Perform the functions of facilities managers in the maintenance and operations of control systems

Major Topics To Be Included

- HVAC design considerations
  - Optimizing control
  - Building automation
- Thermostats
  - Room
  - Unit
  - Special
- Dampers and automatic valves
  - Electric and pneumatic dampers
  - Two- and three-way valves
  - Transmitters and receivers
- Auxiliary devices
  - Pneumatic and electric relays
  - Transducers
  - Pressure controllers
- Electronic control products
  - Commercial electronic controls
  - Direct digital control
  - Energy management functions
- Primary supply systems
  - Boilers
  - Centrifugal and absorption chillers
  - Thermal storage for heat and cool
- Distribution systems
  - Two, three and four pipe systems
  - Pumping control
  - Stem distribution
- Supervisory control
  - Automation needs
  - Maintaining controls
  - Operating controls
  - Planning controls

Extra Topics (Optional)