

NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
AIR 213 – AIR CODITIONING AND REFRIGERATION CONTROLS III (4 CR.)

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)