NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
AIR 205 – HYDRONICS AND ZONING (4 CR.)

Course Description

Presents installation, servicing, troubleshooting, and repair of hydronic systems for heating and cooling. Includes hot water and chilled water systems using forced circulation as the transfer medium. Lecture 2 hours. Laboratory 2 hours.

General Course Purpose

This course of study will provide the student with the knowledge to design, analyze, diagnose, repair and install of a water distribution system. The student will be able to apply this knowledge and skills to the different application of heating and cooling systems using water as a medium.

Entry Level Competencies

Prerequisite: AIR 154

Course Prerequisites/Corequisites

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

- Design, install, analyze, diagnose, repair and install a hydronic system and its associated components
- Design hydronic heating and cooling systems
- Create a system that maximizes comfort, reliability, and energy efficiency
- Demonstrate the latest design and installation techniques for residential and light commercial hydronic systems
- Demonstrate the use of renewable energy heat sources, hydraulic separation, smart circulators, distribution efficiency, thermal accumulators, mixing methods, heat metering, and web-enabled control methods

Major Topics to Be Included

- Principles of heat transfer
- Terms/definitions
- Safety precautions
- Tools and test equipment
- Brazing/soldering techniques
- Boiler design/types
- Piping systems
- Appliance rating
- Selection of boiler
- Selection of heat distribution units
- Layout the heating circuits
- Sizing circulator/pumps
- Sizing trunk lines
- Selection of peripheral components
- Water/steam systems
- Maintenance and installation
- Zone systems
- Balancing a hydronic system

Extra Topics (Optional)