Revised 1/ 2013

NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
AIR 154 – HEATING SYSTEMS (3 CR.)

Course Description

Introduces types of fuels and their characteristics of combustion; types, components and characteristics of burners, and burner efficiency analyzers. Studies forced air heating systems including troubleshooting, preventive maintenance and servicing. Lecture 3 hours. Laboratory 3 hours.

General Course Purpose

Training requires good information. The purpose of the course of study is to provide the student with the knowledge and skills needed to assist in training heating mechanics and technicians. The student will understand and be to apply the principles of warm air heating systems to analyze, troubleshoot, and install the heating systems.

Course Prerequisites/Corequisites

Prerequisite or Corequisite: AIR 111. Basic high school math and mechanical aptitude

Course Objectives

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

- Explain the theories and principles of climate and comfort conditions
- Apply proper basic safety skills while working with mechanical equipment and combustible fuels
- Explain the theory and concepts of heating and demonstrate them in the lab
- Describe the various types of fuel burning equipment
- Wire controls of a warm air heating system
- Install, test, maintain, service, and repair or replace heating system components

Major Topics To Be Included

- Terms/history/definitions
- Climate and factors effecting climate control
- Evaluating the heating system
- Sources of heating loads
- Equipment selection and air distribution
- Installation practices
- Types of combustion and types of fuels
- Parts common to all warm air furnaces
- Components of gas fired units
- Components of oil fired units
- Components of high efficiency warm air units
- Components of the wiring system and the controls
- Electrical diagrams and circuits
- Using electrical testing instruments
- Combustion efficiency testing
- Instruments used in efficiency testing
- Equipment adjustment, preventive maintenance, and customer relations
- Energy conservation

Extra Topics (Optional)