

**NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
AIR 257 – GAS FIRED WARM AIR FURNACES (4 CR.)**

Course Description

Covers the study of mid and high efficiency gas-fired warm air furnaces and their components. Includes equipment components, installation, servicing and maintenance. Lecture 3 hours. Laboratory 3 hours.

General Course Purpose

To increase student knowledge and technical skills specifically related to medium and high efficiency gas-fired furnaces.

Course Prerequisites/Corequisites

Prerequisite: AIR 154

Course Objectives

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

- Identify the components of mid and high efficiency furnaces and demonstrate repair and replacement
- Identify the components of combustion and combustion by-products and describe their importance
- Describe the sequence of operation of mid and high efficiency furnaces
- Describe the design and categories of vent systems of warm air fossil fuel furnaces
- Size gas pipes
- Install flue or venting for different furnaces
- Wire high- and low-voltage furnaces
- Comply with mechanical, plumbing, and electrical codes
- Troubleshoot problems with heating by gas-fired furnaces and fix them
- Recommend the correct furnace for different sites
- Describe the importance and procedures for yearly maintenance and troubleshooting

Major Topics To Be Included

- Conditions that affect comfort
- Estimating the heating load
- Evaluating a heating system
- Supply air distribution - return air distribution
- Installation procedures
- Combustion, combustion by-products
- Instruments used in testing
- Components of warm-air furnace
- Components of mid and high efficiency gas fired warm-air furnaces
- Characteristics of mid and high efficiency warm-air furnaces
- Wiring diagrams and components
- Heating system maintenance
- Energy conservation
- Retrofit procedures and pre-job survey and assessment