Hibbing Community College

HCT 1535: Gas Heating Systems

A. COURSE DESCRIPTION

Credits: 5
Lecture Hours/Week: 2
Lab Hours/Week: 6
OJT Hours/Week: **.*

Prerequisites:
This course requires the following prerequisite
   HCT 1500 - Introduction to Electricity

Corequisites: None
MnTC Goals: None

Gas Heating Technology provides the student an opportunity to study different types of gas furnaces, gas fuels, combustion theory and components associated with gas furnaces, safety devices, venting and piping. High efficiency furnaces are also discussed at great length. The student will be studying troubleshooting, repair, and maintenance of forced air gas-fired heating equipment.

B. COURSE EFFECTIVE DATES: 08/26/2013 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Safety
2. Combustion Theory
3. Mechanical
4. Electrical
5. Performance
6. Maintenance

D. LEARNING OUTCOMES (General)

1. Students will describe each of the major components of a gas furnace.
2. Students will list two fuels burned in gas furnaces and describe characteristics of each.
3. Students will discuss flame rollout switches, auxiliary limit switches and draft safeguard switches.
4. Students will discuss gas pressure measurement in inches of water column.
5. Students will discuss the meaning of a redundant gas valve.
6. Students will list different ways of controlling furnace blower.
7. Students will describe the standing pilot, intermittent pilot, direct spark and hot surface ignition systems.
8. Students will list three flame proving devices.
9. Students will describe a two stage furnace.
10. Students will describe a modulating furnace.
E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   None

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   HCC COMPETENCIES MET:
   Communicating Clearly and Effectively
   Working Productively and Cooperatively

   STUDENT CONTRIBUTIONS: The student is expected to attend all lectures and working sessions, participate in activities and discussions, listen to and follow directions, complete assignments on time and request assistance when needed. Each student is expected to spend the necessary time to become adept at the procedures and their applications. At all times the student is expected to demonstrate and exercise safety skills and procedures.

   METHODS FOR EVALUATING STUDENT LEARNING:
   Exams, quizzes, outside assignments, class attendance/participation, group discussions, behavioral observations, simulations and other learning experiences will be translated to points earned. Letter grades A-F will be earned based on points earned.

   AASC APPROVAL DATE: January 17, 2018
   REVIEW DATE: January 2023