Hibbing Community College

HCT 1530: Air Conditioning/Heat Pump Systems

A. COURSE DESCRIPTION

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

Prerequisites:
This course requires all four of these prerequisites
HCT 1520 - Refrigerant Certification
HCT 1500 - Introduction to Electricity
HCT 1505 - Refrigeration Theory
HCT 1510 - Residential Refrigeration

Corequisites: None
MnTC Goals: None

Air Conditioning and Heat Pump Systems covers residential air conditioning and the characteristics and operation of heat pump systems. The electrical and mechanical systems will be studied and analyzed. In this course the student will study the procedures for the installation, maintenance, troubleshooting and repair of room air conditioners, split systems, and air to air heat pumps.

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

B. OUTLINE OF MAJOR CONTENT AREAS

1. Packaged Air Conditioning Systems
2. Split System
3. Heat Pumps System

C. LEARNING OUTCOMES (General)

1. Students will explain the difference between wet-bulb and dry-bulb temperatures.
2. Students will describe an air conditioning metering device verses heat pump.
3. Students will charge unit using charging scale.
4. Students will charge a system according to manufacturer’s charging charts.
5. Students will demonstrate the proper use of test equipment.
6. Students will state the various heat sources for heat pumps.
7. Students will list components of a reverse-cycle heat pump.
8. Students will describe reverse-cycle heat pump.
9. Students will explain the operation and function of a reversing valve.
10. Students will perform superheat and subcooling calculations.
D. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   None

E. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

F. SPECIAL INFORMATION
   HCC COMPETENCIES MET:
   Thinking Creatively and Critically
   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