COLLIN COLLEGE

COURSE SYLLABUS

Course Information

Course Number: HART 2449

Course Title: Heat Pumps

Course Description: A study of heat pumps, heat pump control circuits, defrost controls, auxiliary heat, air flow, and other topics related to heat pump systems.

Course Credit Hours: 4
Lecture Hours: 2
Lab Hours: 4

Student Learning Outcomes:

- State Mandated Outcomes: Upon successful completion of the course, students will:
    1. Explain a reverse cycle system; (SCANS: F1, F5, F6)
    2. List the mechanical and electrical components for the heat pump operation; (SCANS: F2)
    3. Explain the operation of heat pump modes including cooling, heating, defrost, emergency heat, and auxiliary heat mode. (SCANS: F1, F6)
    4. Identify and explain different methods of accomplishing defrost; (SCANS: F1, F2, F6)
    5. Charge a system correctly in the heating and cooling mode; (SCANS: C20)
    6. Troubleshoot electrical and mechanical components; (SCANS: C20)
    7. Perform tests for adequate air flow; (SCANS: C20)
    8. Determine balance point and coefficiency of performance (C.O.P.); (SCANS: F3)
    9. Define attributes of geothermal heat pump systems. (SCANS: F1, F5, F6)
- Additional Collin College Outcomes: Upon successful completion of this course, students will:
    1. Perform mechanical troubleshooting using computer simulations. (SCANS: C20)

Secretary's Commission on the Acquisition of Necessary Skills (SCANS)- SCANS skills are a group of foundational skills and workplace competencies that the Secretary's Commission on the Acquisition of Necessary Skills established as vitally important for workplace success in the 21st century. In Collin's workforce programs, the SCANS skills are developed and reinforced throughout the curriculum to provide students with an opportunity to hone these skills/competencies in the context of their education. Over the course of an entire degree program, the successful student is expected to demonstrate all of the SCANS skills and competencies as part of their education. The SCANS Foundation Skills and Workplace Competencies are described at: http://www.collin.edu/academics/programs/Workforce_SCANS_Skills_Syllabi_Code_Key.pdf

Withdrawal Policy: See the current *Collin Registration Guide* for last day to withdraw.

Collin College Academic Policies: See the current *Collin Student Handbook*

Americans with Disabilities Act Statement: Collin College will adhere to all applicable federal, state and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to contact the ACCESS office, SCC-D140 or 972.881.5898 (V/TTD: 972.881.5950) to arrange for appropriate accommodations. See the current *Collin Student Handbook* for additional information.