HVAC1140 Heating Fundamentals/ Hydronics/Heat Pumps

Course Description

The theory of heat in relation to gas, electric, and heat pump technology. Topics include controls, sizing, types of heat, venting, and requirements how it can be distributed. (3 Cr 2 lec/pres, 1 lab, 0 other)

Course Goals

The following list of course goals will be addressed in the course. These goals are directly related to the performance objectives. (*designates a CRUCIAL goal)

1. Identify Hydronic heat components
2. Identify heat pump components
3. check controls with ohmmeter
4. define wiring diagram/ schematic terms
5. identify four-way reversing valve components
6. disassemble electrical controls
7. explain relay operation
8. disassemble fuel oil furnace
9. disassemble natural gas furnace
10. explain control functions
11. explain heat pump theory
12. troubleshoot heat pump relay operation
13. explain heat transfer
14. explain operating controls
*15. explain safety controls
16. explain solar energy
17. explain types of furnaces
18. explain zone controls
19. explain automatic control operation
20. explain bimetal/thermal/ liquid expansion
21. explain control circuits high/low voltage
22. explain heat and how it is used
23. explain operation of fuel oil furnace
24. explain operation of pulse furnace
25. explain operation of natural gas furnace
26. explain thermoelectric elements
27. explain types of heating systems
28. explain types of solar collectors
29. identify types of controls
30. reassemble controls and operate
31. reassemble fuel oil furnace
32. reassemble natural gas furnace
33. solve heat load/ electric heat
34. solve heat load/ hydronic heating
Student Contributions

Each student will spend at least 5 hours per week preparing for class. Attendance is critical in this class.

Course Schedule

The class meets for 2 lecture hours and 2 lab hours per week.

Developed/Revised: September 9, 1998