

HVAC Fundamentals

Course Information

Developers: HVAC State Curriculum Committee

Chris Sterrett, FSCC; Jackie Long, Hutchinson CC; Glenn Smith, JCCC; Howard Hendren, JCCC; Jim Bennett, JCCC; Richard Fort, JCCC; David Yantz, KCKCC; Cliff Smith, KCKCC; Frank Avila, MATC; Ron Bell, MATC; Brian Badger, NCKTC; Corey Isbell, NCKTC; Linc Ostmeyer, NWKTC; Chad Townley, SATC; Judy Crymble, SATC; Joshua Thompson, Washburn Tech; Terry Smith, WATC; Fran Tedman, WATC; Mike Edwards, WATC; Chris Hickman, SCCC; Bud Smithson, SCCC; Kevin Brungardt, SCCC.

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KBOR Facilitators: Dr. Dennis Rittle / Don H. Richards
Shirley Antes/ Rita Johnson/Zoe Thompson

Business & Industry Liaison: Ray Frederick

Credit Hours: 4

Course Competencies:

1. Identify career and apprentice opportunities in the HVAC trade
2. Describe the types of regulatory codes encountered in the HVAC trade.
3. Identify the types of schedules/drawings used in the HVAC trade.
4. State the precautions that must be taken when installing refrigerant piping.
5. Select the right tubing for a job.
6. Cut and bend copper tubing.
7. Safely join tubing by using flare and compression fittings.
8. Determine the kinds of hangers and supports needed for refrigerant piping.
9. State the basic safety requirements for pressure-testing a system.
10. Identify types of plastic pipe and state their uses.
11. Cut and join lengths of plastic pipe.
12. Demonstrate soldering and brazing techniques.
13. Explain how heat transfer principles occur in a cooling system, demonstrating an understanding of the terms and concepts used in the refrigeration cycle.
14. Calculate the temperature and pressure relationships at key points in the refrigeration cycle.
15. Demonstrate the use of temperature- and pressure-measuring instruments to make readings at key points in the refrigeration cycle.
16. Identify commonly used refrigerants and demonstrate the proper procedures for handling these refrigerants.
17. Identify the major components of a cooling system and explain how each type works.
18. Identify the major accessories available for cooling systems and explain how each works.

19. Identify the control devices used in cooling systems and explain how each works.
20. Install one or more the following HVAC systems and their components: (1) Residential, (2) Commercial, and/or (3) Industrial.
21. Demonstrate refrigerant leak detection procedures.
22. Demonstrate refrigerant evacuation procedures.
23. Demonstrate refrigerant recovery procedures.
24. Demonstrate refrigerant charging procedures.
25. Apply trade math principles.