BDT227 HVAC Syllabus

Course Information

Credits 4
Campus Washburn Institute of Technology
Address 5724 SW Huntoon
City/State/Zip Topeka, Kansas 66604
Office Fax 785-273-7080

Description
This course introduces fundamental theory and techniques needed to identify major components and functions of air conditioning systems. Instruction is given on types of air conditioning systems and use of instrumentation. Topics include types of AC systems, heat-load calculation, properties of air, duct design, air filtration, and safety principles.

Textbooks

Student Learning Outcomes:
A. Communicate effectively
B. Integrate technology
C. Learn effectively
D. Demonstrate cooperative teamwork skills
E. Apply safety in the workplace
F. Think critically and creatively
G. Demonstrate responsible work ethics

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. Determine the kinds of hangers and supports needed for refrigerant piping.
7. State the basic safety requirements for pressure-testing a system.
8. Identify types of plastic pipe and state their uses.
9. Identify the purposes and uses of solder and solder fluxes.
10. Identify the purposes and uses of filler metals and fluxes used for brazing.
11. Identify the inert gases that can be used safely to purge tubing when brazing.
12. Explain how heat transfer principles occur in a cooling system, demonstrating an understanding of the terms, and concepts used in refrigeration cycle.
13. Calculate the temperature and pressure measuring instruments to make readings at key points in the refrigerant cycle.
14. Identify the major components of a cooling system and explain how each type works.
15. Identify the major accessories available for cooling systems and explain how each works.
16. Identify the control devices used in cooling systems and explain how each works.
17. Identify similar units of measurement in both inch-pound (English) and metric systems and state which units are larger.
18. Convert measured values in the in-pound system to equivalent metric values and vice versa.
19. Convert temperature values between Celsius and Fahrenheit.
20. Describe the airflow and pressures in a basic force-air distribution system.
21. Explain the differences between propeller and centrifugal fans and blowers.
22. Describe the installation of metal, fiberboard, and flexible duct systems.
23. Explain the installation of fittings and transitions used in duct systems.
24. Describe the use and installation of diffusers, register, and grills used in duct systems.
25. Explain the use and installation of dampers used in duct systems.
26. Describe the use and installation of insulation and vapor barriers used in duct systems.

**Guidelines for Success**

**Assessment Plan**
Assessment is an integral part of the educational process at Washburn Tech and accurate feedback is an important tool in continuously improving the institution’s technical programs. Students can expect to participate in assessment activities prior to entry into programs, within specific courses and following program completion for specific fields of study.

**Grading Rationale and Grading Scale**

- 100% - 89% = A
- 88% - 79% = B
- 78% - 69% = C
- 68% - 59% = D
- 58% & Below = F

40% - Participation = Attendance, Tardies, Work Attire, Textbook, Tools, Behavior, Clean-up
30% - Daily Quizzes & Assignments
20% - Performance Assessments (Individual Evaluations)
10% - NCCER Accrediting Exams

**Attendance**
Classroom attendance is required. Material missed must be made up with instructor.
Disability
The Special Support Services (SSS) Office is responsible for assisting in arranging accommodations and for identifying resources at Washburn Institute of Technology for persons with disabilities. Qualified students with disabilities MUST register and provide documentation with the office to be eligible for services. New requests for accommodations should be submitted two months or more prior to the date services should begin; however, contact the SSS Office as soon as a need may arise. Depending on the accommodation request, four to eight week lead time may be needed for timely and effective provision of services. SSS coordinates and assist in arranging services it deems appropriate of eligible students on a case-by-case basis.

If you are a student with a disability that may substantially limit your ability to participate in this class and believe you will need accommodations, it is your responsibility to contact:

Special Support Services Coordinator
Phone: 785-228-6356
E-Mail: ssscoordinator@washburn.edu