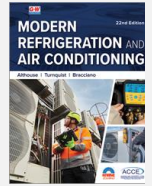
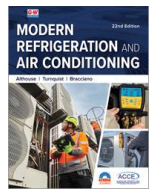


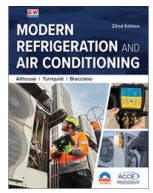
Goodheart-Willcox
Correlation of Modern Refrigeration and Air Conditioning ©2025
To Georgia Department of Education
Architecture and Construction Career Cluster
Heating, Ventilation, Air-Conditioning Refrigeration
Course Number 47.41500



Course Task/Competency Lists		Correlating Textbook Pages
AC-HVACR1-1 Demonstrate employability skills required by business and industry. The following elements should be integrated throughout the content of this course.		
1.1	Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.	11
1.2	Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.	11
1.3	Exhibit critical thinking and problem solving skills to locate, analyze and apply information in career planning and employment situations.	11
1.4	Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.	11
1.5	Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply team work skills.	10-11
1.6	Present a professional image through appearance, behavior and language.	11
AC-HVACR1-2 Apply mathematical concepts related to HVACR.		
2.1	Solve algebraic equations that relate to the HVACR trade.	256-258, 267-268
2.2	Calculate volume, weight, pressure, vacuum, and temperature related to the HVACR trade.	256-258, 267-268
AC-HVACR1-3 Demonstrate using hand and power tools associated with the HVACR trade in a professional and safe manner.		
3.1	Demonstrate the ability to correctly use the following: pipe wrenches, torque wrenches, hammers and mallets, tin snips, hand and power hacksaws, drills, and measuring instruments	45-58
AC-HVACR1-4 Demonstrate the proper selection, handling, and methods of joining, installing and supporting of HVACR pipe and tubing.		
4.1	Describe procedures and precautions that must be taken when preparing and installing HVACR piping.	70-93
4.2	Braze and solder copper tubing and fittings in a safe and professional manner.	82-89



Course Task/Competency Lists		Correlating Textbook Pages
4.3	Demonstrate correct preparation and installation of Poly(vinyl chloride) or PVC and Ferrous Metal Piping.	73-74
AC-HVACR1-5 Describe how an HVACR system conditions and cools the air within a specified space.		
5.1	Demonstrate an understanding of the basic refrigeration cycle.	125-127
5.2	Recognize the major components of a cooling system and explain how they operate.	135-158
5.3	Identify and describe refrigerants and demonstrate procedures for safe handling of them.	163-183, 220-250
5.4	Use temperature and pressure measuring instruments to evaluate the condition of the system.	58-61
AC-HVACR1-6 Describe how an HVACR system conditions and heats the air within a specified space.		
6.1	Explain the three methods of heat transfer.	106-107
6.2	Recognize the major components of a forced air furnace (gas and electric) and explain their function.	749-785, 833-835, 840-845
6.3	State the factors that must be considered when installing a furnace.	744 – 756, 847-850
6.4	Demonstrate performing preventive maintenance procedures such as cleaning and filter replacement.	776-785, 848-850
6.5	Demonstrate an understanding of the sequence of operation of a gas furnace.	749-785
6.6	Demonstrate an understanding of how to adjust a gas valve.	761
AC-HVACR1-7 Describe how compressors operate.		
7.1	Identify and explain the operation of the different kinds of compressors.	128-129, 135-143
7.2	Demonstrate the common procedures for servicing and maintenance of both hermetic and semi-hermetic compressors.	136-142, 381, 385-388
AC-HVACR1-8 Demonstrate how to operate the equipment used in the HVAC field.		
8.1	Demonstrate proper operation of manifold gages.	203-207
8.2	Demonstrate proper operation of recovery machines, vacuum pumps, micron gages, charging scales, and leak detectors.	207-211 , 213-214
8.3	Demonstrate the ability to check superheat and sub cooling.	58-59
8.4	Demonstrate recovering refrigerant, evacuating a system, and charging a system.	224-232, 242-250
AC-HVACR1-9 Demonstrate proper assembly of ductwork.		
9.1	Demonstrate the ability to assemble pre-made sections of ductwork.	673-691



Course Task/Competency Lists		Correlating Textbook Pages
9.2	Demonstrate how to make S Cleats, Drive Cleats, and Pittsburg seams, and explain how they are installed.	673-691
9.3	Demonstrate how to install Flex duct, take offs, boots, and registers.	673-691
AC-HVACR1-10		
Examine how SkillsUSA is a co-curricular part of career and technical education through leadership development, school and community service projects, and competitive events.		
10.1.	Explain the purpose, mission, objectives, motto, colors, official dress and other distinguishing characteristics of SkillsUSA.	11, 1320-1321
10.2.	Explain how participation in SkillsUSA can promote lifelong responsibility for community service, professional growth and development.	11, 1320-1321
10.3.	Explore the impact and opportunities that SkillsUSA can develop to bring business and industry together with education in a positive working relationship through innovative leadership and career development programs.	11, 1320-1321
10.4.	Explore the local, state, and national opportunities available to students through participation in SkillsUSA, including but not limited to conferences, competitions, community service, philanthropy, and other SkillsUSA activities	11, 1320-1321