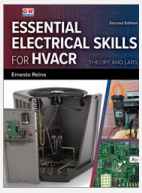
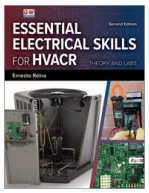
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Correlation of Essential Electrical Skills for HVACR ©2025
To Georgia Department of Education
Architecture and Construction Career Cluster
Introduction to HVACR Systems
Course Number 47.41400

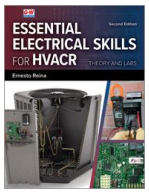


Course Task/Competency Lists		Correlating Textbook Pages
AC-HVACR1-1 **Demonstrate employability skills required by business and industry.** **The following elements should be integrated throughout the content of this course.**		
1.1	Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.	viii
1.2	Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.	viii
1.3	Exhibit critical thinking and problem solving skills to locate, analyze and apply information in career planning and employment situations.	viii
1.4	Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.	vi-viii
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.	vi-viii
1.6	Present a professional image through appearance, behavior and language.	vi-viii
AC-IHVACR-2 **Demonstrate a thorough understanding of electrical concepts, theories, laws, and simple circuits.**		
2.1	Explain atomic theory, Ohm's law, and Kirchoff's law in relation to electrical circuits.	15-17, 51-56, 69
2.2	Demonstrate a working knowledge of the math needed to calculate amperage, voltage, wattage, and resistance.	51-56
2.3	Distinguish between series, parallel, and series parallel circuits .	66-74
2.4	Demonstrate proper use of a multi meter and ammeter.	174-184
AC-IHVACR-3 **Identify and describe electrical circuitry associated with the HVACR trade.**		
3.1	Recognize and describe the purpose and operation of the various electrical components used in HVACR equipment.	238-242



Course Task/Competency Lists		Correlating Textbook Pages
3.2	Identify different types of resistors and explain how their resistance values can be determined.	241 - 242
AC-IHVACR-4 **Compare components to schematic symbols.**		
4.1	Compare components to the schematic symbol.	39-40
4.2	Read and interpret schematic diagrams.	39-40
4.3	Identify and explain the sequence of operation for a basic HVACR schematic diagram .	39-40
AC-IHVACR-5 **Describe and illustrate alternating current.**		
5.1	Explain how alternating current is developed and draw a sine wave.	85-89
5.2	Describe the operation of types of single-phase transformers.	111-113
5.3	Describe the types and applications of capacitors.	129-140
5.4	Identify and describe applications of single-phase motors.	150-154
AC-IHVACR-6 **Demonstrate the ability to test various electrical components in a HVAC system.**		
6.1	Explain how magnetism works in various electrical components in an HVAC system.	99-113
6.2	Demonstrate testing contactors, relays, transformers, bi-metal thermostats, electrical heating elements, capacitors, and solenoids.	5-7, 174-189
6.3	Demonstrate checking a compressor electrically using resistance readings.	5-7, 174-189
6.4	Demonstrate starting and running common terminals on a compressor.	5-7, 174-189
AC-IHVACR-7 **Demonstrate installing and troubleshooting thermostats.**		
7.1	Identify and explain the types and operation of thermostats.	233-237
7.2	Identify and explain the low voltage side of the HVAC system.	331-336
7.3	Demonstrate correct thermostat installation procedures.	233-237
7.4	Explain and demonstrate troubleshooting procedures on the low voltage side of the HVAC system.	331-336
AC-IHVACR-8 **Examine how SkillsUSA is a co-curricular part of career and technical education through leadership development, school and community service projects, and competitive events.**		
8.1	Explain the purpose, mission, objectives, motto, colors, official dress and other distinguishing characteristics of Skills USA.	vi-viii
8.2	Explain how participation in Skills USA can promote lifelong responsibility for community service, professional growth and development.	vi-viii

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Course Task/Competency Lists		Correlating Textbook Pages
8.3	Explore the impact and opportunities that Skills USA can develop to bring business and industry together with education in a positive working relationship through innovative leadership and career development programs.	vi-viii
8.4	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 Skills USA activities.	vi-viii