



Course Description

ACR0001 | HVAC/R Fundamentals | 8.33 credits

Upon completion of this course, students will gain practical knowledge of basic electricity and electrical components in HVAC/R equipment, followed by understanding electrical wiring. They'll learn to troubleshoot electrical control systems, select and test generation components, and maintain, test, and troubleshoot motors. These competencies ensure students grasp electrical fundamentals, wiring techniques, and troubleshooting skills essential for managing HVAC/R systems effectively in commercial settings.

Course Competencies

Competency 1: The student will demonstrate a solid understanding of basic electricity and electrical components used in HVAC/R equipment, ensuring they can apply these principles effectively in commercial settings by:

1. Exploring the fundamental concepts of electricity, including voltage, current, and resistance, to understand their relevance in HVAC/R systems
2. Analyzing electrical components commonly found in HVAC/R equipment to identify their functions and applications within various systems
3. Evaluating the properties of electrical circuits to ensure safe and efficient operation of HVAC/R systems

Competency 2: The student will learn to read and implement electrical wiring diagrams, ensuring proper installation and maintenance of HVAC/R systems by:

1. Interpreting electrical wiring diagrams to understand the configuration and connectivity of HVAC/R components
2. Practicing proper wiring techniques to ensure safety and compliance with industry standards in HVAC/R installations
3. Implementing electrical wiring solutions for HVAC/R systems to enhance functionality and reliability

Competency 3: The students will develop practical troubleshooting skills for electrical control systems and motors, enabling them to diagnose and resolve issues in HVAC/R equipment by:

1. Diagnosing common electrical control system faults and implementing corrective measures to restore functionality
2. Applying, testing, and maintaining motors used in HVAC/R systems to ensure optimal performance and longevity
3. Applying systematic troubleshooting techniques to identify and resolve electrical issues in HVAC/R systems, minimizing downtime and enhancing system reliability

Learning Outcomes:

1. Communicate effectively using listening, speaking, reading, and writing skills
2. Use quantitative analytical skills to evaluate and process numerical data
3. Solve problems using critical and creative thinking and scientific reasoning