

PHCC Academy™

HVAC 101 Syllabus

Course Contact for Registration and Non-LMS Questions

State Chapter Partner

Refer to <http://foundation.phccweb.org> and search for PHCC Academy page for listing

Course Contact for Technical Problems in Absorb LMS

PHCC Academy™ Staff

academy@naphcc.org

Prerequisites

None

Welcome to the PHCC Academy™ Online Apprenticeship-Related Instruction Program!

This program is designed to provide students who cannot attend classes in a traditional apprentice program with the same opportunity to learn the textbook fundamentals of the trade. This training course must be supplemented by your employer, through both technical assistance and on-the-job training in each area of instruction in the book.

Course Goals

- To provide a practical introduction to the HVACR trade
- To familiarize entry-level students with a broad overview of fundamental topics in the HVACR industry
- To provide students with an understanding of energy efficiency concerns in the HVACR field
- To provide students with an understanding of the fundamentals of selling and customer service

Student Responsibilities

- Complete work in a timely manner.
- Read all information and assignments within the learning management system before starting the course.
- Complete all tests in this course as closed-book. Students are on the honor system.
- Complete all assignments with a passing grade of 70 percent or higher.
- Complete the course in 1 year (12 months) or request a 6-month extension before the course expiration date.
- Maintain records of on-the-job training completed.

Employer Responsibilities

- Ensure that all students enrolled are proficient in reading and writing in English at a high school level and possess the self-motivation to complete internet-based coursework.
- Register apprentices with the U.S. Department of Labor, either through your own apprenticeship program or through your PHCC State Chapter Partner's registered apprenticeship program.

- Track the apprentice's on-the-job training hours and document such hours. Documentation records must be maintained by the employer for the duration of the apprentice's employment and must be retained as required by the U.S. Department of Labor.
- Ensure that apprentices are paid a progressively increasing schedule of wages and fringe benefits based on a percentage of the current journey worker wage rate as specified in the Standards of Apprenticeship for the program under which the apprentice is participating.

State Chapter Partner Responsibilities

- Register and enroll students in the appropriate courses on the learning management system.
- Assist students with ordering textbooks for their courses.
- Act as the primary point of contact for students and employers who register for courses in their state.
- Serve as the liaison between the PHCC Academy and employers of apprentices enrolled in the program in their state.

PHCC Academy Responsibilities

- Ensure that the federal Department of Labor approval for the apprenticeship program is kept current and is updated as needed.
- Administer the learning management system and course offerings for the eLearning program. This includes developing course content and placing it into the learning management system.
- Provide students with learning management system usernames and passwords.
- Provide all administrative functions on the learning management system.
- Coordinate any Advanced Placement Testing with PHCC State Chapter Partners.
- Provide a completion letter and certificate to students upon successful completion of each course.

Required Textbook (Purchased Separately)

Moravek, Joseph (2008). HVACR 101, 1st ed. Clifton Park, NY: Delmar, Cengage Learning.

Assignments

Unit 1 – Introduction to HVACR Concepts

Read Chapter 1 in the HVACR 101 textbook.

Video – Heating and Air Conditioning Fire and Ice

Chapter 1 Review PowerPoint

Read Chapter 2 in the HVACR 101 textbook.

Video – Refrigeration Cycle

Chapter 2 Review PowerPoint

Unit 1 Exam

Unit 2 – First Aid and Safety

Read Chapters 1-12 in the First Aid Manual (found in course).

Video – First Aid in Construction

Video – Safety Music Video

First Aid Review PowerPoint

Safety and First Aid Review Game

Unit 2 Exam

Unit 3 – Basic Electricity

Read Chapter 3 in the HVACR 101 textbook.

Video – Introduction to Circuits and Ohm’s Law

Video – Electric Power

Video – Voltmeter and Ammeter

Chapter 3 Review PowerPoint

Unit 3 Exam

Unit 4 – Basic Thermodynamics

Read Chapter 4 in the HVACR 101 textbook.

Video – Thermal Conduction, Convection, and Radiation

Video – Specific Heat and Latent Heat of Vaporization/Fusion

Video – First Law of Thermodynamics

Video – Second Law of Thermodynamics

Video – Boyle’s Law

Video – Charles’ Law

Video – Dalton’s Law

Chapter 4 Review PowerPoint

Unit 4 Exam

Unit 5 – Basic Refrigeration Cycle

Read Chapter 5 in the HVACR 101 textbook.

Video – PT Chart 101

Video – Scroll Compressors for Refrigeration Applications

Video – Evaporator Coil and Air Handler Assembly

Chapter 5 Review PowerPoint

Refrigeration Cycle Review Game

Unit 5 Exam

Unit 6 – Scheduled Maintenance and Systematic Problem Solving

Read Chapter 6 in the HVACR 101 textbook.

Chapter 6 Review PowerPoint

Read Chapter 7 in the HVACR 101 textbook.

Video – Common Summer HVAC Problems

Video – Is It an Airflow Problem?

Chapter 7 Review PowerPoint

Unit 6 Exam

Unit 7 – Installation and Repair Methods

Read Chapter 8 in the HVACR 101 textbook.

Video – Brazing

Video – Tube Flaring Techniques

Video – Hand and Power Tool Safety

Chapter 8 Review PowerPoint

Unit 7 Exam

Unit 8 – Energy Efficient Installation, Selling and Customer Service

Read Chapter 9 in the HVACR 101 textbook.

Video – Energy Efficient Measurements
Chapter 9 Review PowerPoint
Read Chapter 10 in the HVACR 101 textbook.
Video – Customer Service Teamwork
Video – Customer Service Leadership
Video – Customer Service Persuasion
Video – Customer Service Superiority
Video – Tech Best Practices
Chapter 10 Review PowerPoint
Unit 8 Exam

Final Exam

Course Evaluation