

# PHCC Academy™

## HVAC 201 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

HVAC 101 or equivalent

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 more detailed introduction to HVACR systems and components
- To familiarize students with proper troubleshooting techniques
- To familiarize students with proper installation techniques
- To provide an introduction to psychrometrics
- To provide an introduction to basic sizing techniques

### 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 and Hohman, John (2009). HVACR 201, 1st ed. Clifton Park, NY: Delmar, Cengage Learning.

### **Assignments**

#### Unit 1 – Refrigeration Cycle Review, Compressors, and Refrigerants and Lubrication

Read Chapter 1 in the HVACR 201 textbook.

Chapter 1 Review PowerPoint

Read Chapter 2 in the HVACR 201 textbook.

Chapter 2 Review PowerPoint

Read Chapter 3 in the HVACR 201 textbook.

Video – Effective Refrigerant Recovery Techniques Part 1

Video – Effective Refrigerant Recovery Techniques Part 2

Chapter 3 Review PowerPoint

Unit 1 Exam

#### Unit 2 – Condensers and Metering Devices

Read Chapter 4 in the HVACR 201 textbook.

Video – How It's Made: Evaporative Cooling Towers

Chapter 4 Review PowerPoint

Read Chapter 5 in the HVACR 201 textbook.

Video – TXV Manufacture  
Video – EEV Operation  
Chapter 5 Review PowerPoint  
Unit 2 Exam

### Unit 3 – Refrigeration Accessories and Evaporators

Read Chapter 6 in the HVACR 201 textbook.  
Video – Heat Pump Reversing Valve Operation  
Chapter 6 Review PowerPoint  
Read Chapter 7 in the HVACR 201 textbook.  
Chapter 7 Review PowerPoint  
Unit 3 Review Game  
Unit 3 Exam

### Unit 4 – Evacuation and Charging Procedures

Read Chapter 8 in the HVACR 201 textbook.  
Video – Evacuation Part 1  
Video – Evacuation Part 2  
Chapter 8 Review PowerPoint  
Unit 4 Exam

### Unit 5 – Heating

Read Chapter 9 in the HVACR 201 textbook.  
Video – Sequence of Operation for a Gas Furnace  
Video – Carbon Monoxide Safety Tips  
Chapter 9 Review PowerPoint  
Unit 5 Exam

### Unit 6 – Electrical and Electrical Troubleshooting

Read Chapter 10 in the HVACR 201 textbook.  
Chapter 10 Review PowerPoint  
Read Chapter 11 in the HVACR 201 textbook.  
Video – Troubleshooting Electric Circuits  
Chapter 11 Review PowerPoint  
Unit 6 Exam

### Unit 7 – Introduction to Motors

Read Chapter 12 in the HVACR 201 textbook.  
Video – How it Works: Electric Motors  
Video – Common HVAC Motors  
Chapter 12 Review PowerPoint  
Unit 7 Exam

### Unit 8 – Cooling Equipment and Mechanical Troubleshooting

Read Chapter 13 in the HVACR 201 textbook.  
Video – Installing a Ductless Mini Split System  
Video – How a Chiller and Cooling Tower Work Together  
Video – Heating, Chillers, and the Economizer Cycle

Chapter 13 Review PowerPoint  
Read Chapter 14 in the HVACR 201 textbook.  
Chapter 14 Review PowerPoint  
Unit 8 Exam

Unit 9 – Advanced Installation Techniques and Control Systems

Read Chapter 15 in the HVACR 201 textbook.  
Video – Duct Sealing  
Chapter 15 Review PowerPoint  
Read Chapter 16 in the HVACR 201 textbook.  
Chapter 16 Review PowerPoint  
Unit 9 Exam

Unit 10 – Psychrometrics and Basic Sizing  
Read Chapter 17 in the HVACR 201 textbook.  
Video – Reading a Psychrometric Chart  
Chapter 17 Review PowerPoint  
Read Chapter 18 in the HVACR 201 textbook.  
Chapter 18 Review PowerPoint  
Psychrometric Chart Reading Review Game  
Unit 10 Exam

Final Exam

Course Evaluation