

# PHCC Academy™

## Plumbing 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 plumbing trade
- To familiarize entry-level students with a broad overview of fundamental topics in the plumbing industry
- To provide students with an understanding of basic mathematical concepts necessary for plumbing work
- To provide students with an introduction to interpreting basic construction drawings

### 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)**

PHCC Educational Foundation Plumbing Apprentice & Journeyman Training Committee (2012). Plumbing 101, 6th ed. Clifton Park, NY: Delmar, Cengage Learning.

### **Assignments**

#### Unit 1 – Plumbing Essentials and Tools

Read Chapter 1 in the Plumbing 101 textbook.

Video – Intro to Careers in the Plumbing Industry

Video – History of Plumbing

Video – Customer Service Teamwork

Video – Customer Service Leadership

Chapter 1 Review PowerPoint

Read Chapter 2 in the Plumbing 101 textbook.

Video – Hand and Power Tool Safety

Chapter 2 Review PowerPoint

Unit 1 Exam

#### Unit 2 – First Aid and Safety

Read Chapter 3 in the Plumbing 101 textbook.

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

Video – First Aid in Construction

Video – Safety Music Video  
Chapter 3 Review PowerPoint  
Safety and First Aid Review Game  
Unit 2 Exam

### Unit 3 – Basic Math for Plumbing

Read Chapter 4 in the Plumbing 101 textbook.  
Read Basic Math Workbook: Numbers  
Video – Basic Math: Numbers  
Read Basic Math Workbook: Operations on Numbers  
Video – Basic Math: Operations on Numbers Part 1a  
Video – Basic Math: Operations on Numbers Part 1b  
Video – Basic Math: Operations on Numbers Part 2  
Complete Basic Math Workbook: Numbers  
Read Basic Math Workbook: Fractions  
Quiz – Operations on Numbers  
Video – Understanding Fractions  
Video – Types of Fractions  
Video – Equivalent Fractions  
Video – Multiplication of Fractions  
Video – Division of Fractions  
Video – Addition of Fractions  
Video – Subtraction of Fractions  
Complete Basic Math Workbook: Fractions  
Quiz – Fractions  
Read Basic Math Workbook: Units of Measurement  
Complete Basic Math Workbook: Units of Measurement  
Quiz – Units of Measurement  
Chapter 4 Review PowerPoint  
Unit 3 Exam

### Unit 4 – Plumbing and Construction Basics

Read Chapter 5 in the Plumbing 101 textbook.  
Read Chapter 6 in the Plumbing 101 textbook.  
Video - What is Backflow?  
Video – What Happens After You Flush?  
Video - Drinking Water Treatment Plant  
Video - Wastewater Treatment Plant  
Chapter 5 Review PowerPoint  
Chapter 6 Review PowerPoint  
Unit 4 Exam

### Unit 5 – Piping Materials and Joining Methods

Read Chapter 7 in the Plumbing 101 textbook.  
Read Chapter 8 in the Plumbing 101 textbook.  
Video – Manufacture of Cast Iron Soil Pipe and Fittings  
Video – Pressure Testing Plastic Piping with Air  
Chapter 7 Review PowerPoint

Video – Soldering of No-Lead Copper Alloys  
Video – Solderless Fittings  
Chapter 8 Review PowerPoint  
Fittings and Joining Methods Review Game  
Unit 5 Exam

#### Unit 6 – Squares, Square Roots and Geometry

Read Chapter 9 in the Plumbing 101 textbook.  
Video – Squares and Square Roots  
Quiz – Squares and Square Roots  
Video – Parts of a Circle  
Video – Circumference and Area of a Circle  
Complete Circles Worksheet 1  
Complete Circles Worksheet 2  
Quiz – Circles  
Video – Triangles  
Video – Area of a Triangle  
Video – Pythagorean Theorem  
Quiz – Angles and Triangles  
Chapter 9 Review PowerPoint  
Unit 6 Exam

#### Unit 7 – Fixtures, Faucets, and Valves

Read Chapter 10 in the Plumbing 101 textbook.  
Read Chapter 11 in the Plumbing 101 textbook.  
Read Chapter 12 in the Plumbing 101 textbook.  
Video – Behind the Flush  
Video – Touring the Kohler Showroom and Factory  
Chapter 10 Review PowerPoint  
Chapter 11 Review PowerPoint  
Video – Backwater Valve  
Chapter 12 Review PowerPoint  
Valve Types, Faucet Parts, and Fixtures Review Game  
Unit 7 Exam

#### Unit 8 – Water Heaters

Read Chapter 13 in the Plumbing 101 textbook.  
Video – Water Heater Manufacturing Process  
Video – Tank versus Tankless Water Heaters  
Video – Tankless Water Heater Basics  
Video – Customer Service Leadership  
Chapter 13 Review PowerPoint  
Unit 8 Exam

#### Unit 9 – Fundamentals of Plumbing Drawings

Read Chapter 14 in the Plumbing 101 textbook.  
Read Chapter 15 in the Plumbing 101 textbook.  
Video – Reading Scale Rulers

Chapter 14 Review PowerPoint  
Video – Reading a Floor Plan Part 1  
Video – Reading a Floor Plan Part 2  
Chapter 15 Review PowerPoint  
Unit 9 Exam

Final Exam

Course Evaluation