PHCC Academy®
Fast Track to Service Plumbing 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
If your state is not listed – PHCC Academy staff – fasttrack@naphcc.org

Course Contact for Technical Problems in Absorb LMS
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Welcome to the PHCC Academy® Online Fast Track to Service Plumbing!

Course Description
Develop your entry level service technicians (residential or commercial) using a standardized plumbing service curriculum. Combined with on the job training activities, service technicians will gain the knowledge and skills necessary to perform their duties safely, efficiently and job ready. The course includes 33 online training modules critical for the success of today's plumbing professional. Module topics include safety, customer service, plumbing and electrical work, basic business skills and more.

Required Textbook (Purchased Separately)
Plumbing: Service and Repair (Custom Edition) eBook. PHCC Educational Foundation Plumbing Apprentice & Journeyman Training Committee (2012). Plumbing 101, 6th ed. Clifton Park, NY: Delmar, Cengage Learning.

Assignments
All module units consist of assigned reading, video, and a 25-question exam.

Module 01 – The Plumb Truth
Explore the beginnings of the plumbing industry from ancient civilizations to current society. Understand basic plumbing definitions and principles as well as learn the purpose of the plumbing profession. Learn the responsibilities necessary to ensure a clean water supply as well as how plumbing codes and licensing keep the nation safe. Explore the skills needed to have a successful future in the plumbing profession.

Module 02 – Safety Dance
Identify safety procedures and practices that are common in today's plumbing profession. Examine common jobsite safety requirements, emergency medical services, fire protection, electrical lockout/tagout and safety and personal protective equipment required in the plumbing profession to ensure job safety for everyone on the team.

Module 03 – It's Business Time
Understand how a typical service business works by identifying basic business terms, practices and contract types used by service/repair plumbing technician. Identify the path of a typical service request from the initial call to completion. Learn how "soft skills" can set the tone to create a professional image and strong first impression to encourage a return customer.

Module 04 – Water You Talking About?
Examine the importance of plumbing safety and the consequences of improper plumbing installation on the water supply. Learn the states and sources of water and how they are treated. Explore common water contaminants and how to handle public and private water waste.

Module 05 – A Suitable Case for Treatment
Understand the relationship between pressure, force, and area in liquid systems and learn the causes and remedies for noise in water systems such as vibration, turbulence, and water hammer. Identify common contaminants and the contaminant groups as defined by the Safe Drinking Water Act as well as the treatment methods for various water problems including filters, neutralizing tanks, softeners, and radiation.

Module 06 – It's a Trap!
Describe and discuss the properties of air including pneumatics, drain lines, and compressed air. Examine the methods and problems associated with measuring very small air pressures. Identify the types of plumbing traps that are seen in the plumbing profession as well as understanding how they operate.

Module 07 – Electric Slide
Understand basic electrical concepts such as voltage, resistance, and power. Discuss various supply voltages and arrangements for single-phase and three-phase levels that could be involved in service and repair troubleshooting. Explain how electricity flows through a circuit.

Module 08 – Mo' Power!
Describe various power supply voltages for single- and three-phase. Discuss series and parallel circuits.

Module 09 – Resistance is Not Futile; It's Voltage Divided by Current
Review the fundamentals of electricity. Learn how to calculate unknown values using Ohm's law and the power equation.

Module 10 – Always Use Protection
Expand on electrical safety requirements like lockout/tagout. Describe and discuss the different types of circuit protections such as fuses, breakers, and GFCIs and how they help keep everyone safe. Review electrical safety concepts for jobsite safety.

Module 11 – Motor Head
Discuss the different types of motors found in the plumbing profession. Examine the basic components and characteristics of motors found in plumbing.

Module 12 – Shocking!
Review basic and electrical safety. Learn what to do if an electrical shock occurs and how grounding and voltage relationship impact an electrical shock. Explore various scenarios of an electric shock on a jobsite and what to do in each scenario.

Module 13 – Trouble is My Middle Name
Explore proper techniques for using test equipment such as voltmeter, ammeter, and ohmmeter. Demonstrate the use of a systemic approach for finding a fault in an electrical circuit. Understand how using proper techniques and test equipment helps identify electrical faults quickly and accurately.

Module 14 – Mathletics Training
Learn the math solving process and what information is critical for solving math problems. Understand how integers, fractions, percentages and decimals are used in the day to day plumbing profession. Calculate the solutions for equations involving fractions, decimals and percentages.

Module 15 – Measurement Rules!
Identify and understand common measuring devices in the plumbing profession including rulers and tapes. Interpret building dimensions from scale measurements. Understand and interpret readings on basic gauges.

Module 16 – Without Geometry Life is Pointless
Learn basic geometric concepts found in day to day plumbing work. Understand and calculate perimeter, area and volume. Discuss offsets and offset calculations.

Module 17 – This is Not a Drill!
Identify and discuss various tool usage in the plumbing trades such as hand tools, rough in tools, finish and repair tools and power tools. Study the numerous tool types and understand when each one is appropriate to use.

Module 18 – Down the Drain
Identify what materials and fittings are used for backflow protection drains. Understand how construction details are used to correctly identify sizing and flow rates for various types of drains. Calculate drainage fixture units as well as understand the variables that contribute to the calculation. Discuss impacts of drain installation planning, cleanouts, support, and protections in calculating the correct building drain size.

Module 19 – What You Get Out of It Depends on What You Put in It
Learn the list of allowable materials for building sewers and typical installation practices following general rules related to installation methods, cleanouts, and thrust blocks. Explore how proper trenching and shoring procedures keep people safe from cave ins and falls.

Module 20 – All Types of Pipes (Part 1)
Identify and learn various types of pipes used in plumbing today such as cast iron, clay, concrete and glass. Discuss wyes, tees, p-traps, bends, and offsets used with each type of pipe material as well as proper joining methods.

Module 21 – I Need to Vent!
Discuss the proper locations and techniques for notching, boring, and altering the structure for pipe penetrations including proper stack routes including roof penetrations. Review the construction details of stacks as well as leak testing. Understand the function of the vent system as well as vent piping materials. Identify the types of hangers and support available used in vent systems.

Module 22 – All Types of Pipes (Part 2)
Identify and learn various types of pipes used in plumbing today such as plastic and steel pipes. Discuss common fittings and joints as well as joining methods for these materials.

Module 23 – Jumpin' Jack Flash It's a Gas, Gas, Gas!
Review suitable materials for gas piping systems and proper techniques for working with gas piping systems. Examine the physical and chemical properties of common fuel gases such as natural, LP, manufactured, and special purpose gases. Learn the steps necessary to place an appliance into service and summarize proper installation techniques. Calculate sizing for small residential gas piping systems.

Module 24 – Keep Your Pipes Healthy!
Understand how to protect pipes from corrosion. Review the theory related to cathode protection for piping and describe sacrificial anodes and impressed current.

Module 25 – All Types of Pipes (Part 3)
Learn about copper and poly piping and review the types and uses of copper tubing as well as the proper joining methods. Identify various joining methods including solvent cement, threaded, flanges, welding, transition joints, and fixture connections for each type of pipe.

Module 26 – Control the Flow!
Review various types of valves used in plumbing work such as open-close valves, flow regulation valves, automatic pressure reduction valves, relief valves, and specialty valves. Identify the function of the parts of typical valves and contrast the uses for different valve types. Identify typical valve body markings.

Module 27 – That Sinking Feeling...
Identify sinks used in residential, commercial, industrial, and institutional applications. Review the types of sinks, sink mounting, sink faucets, and sink materials. Identify and describe typical faucet parts. Discuss typical problems with sinks and faucets and how to troubleshoot them. Examine how to properly install a food waste disposer as well discuss troubleshooting techniques for typical problems.

Module 28 – Insert Toilet Joke Here
Describe water closets used in residential, commercial, industrial, and institutional applications. Review the process of how to remove an old water closet and install a new one as well as troubleshooting techniques for typical problems. Compare and contrast bidet and water closet installation as well as discuss troubleshooting techniques.

Module 29 – Bathrooms are Not Just for Baths!
Discuss residential bathtubs and showers including sizes, drain placements, and materials. Review proper installation techniques for bathtubs and showers and troubleshooting techniques for typical problems. Understand lavatories used in residential, commercial, industrial, and institutional applications including installation and troubleshooting.

Module 30 – You're in Some Hot Water!
Identify the various parts of a typical tank-type water heater. Review the difference between direct- and indirect-fired water heaters. Understand the characteristics of electric, gas-fired, oil-fired, and tankless water heaters and describe the basic functions and differences between these types of water heaters. Discuss the process for replacing a water heater safely. Understand the various methods for providing ventilation for the combustion process and summarize the different types of drafts when working with fuel gas appliance vents.

Module 31 – We're Here to Pump You Up!
Understand the differences between sump pumps and sewage pumps as well as the design features and uses of said pumps. Describe the features as well as what to consider when selecting a sump or sewage pump. Learn the different types of water pumps available to the plumber such as positive vs non-positive displacement pumps. Examine some general troubleshooting techniques for typical problems with water pumps.

Module 32 – Never Stop Never Stopping!
Identify the fundamentals of leaks and stoppages. Discuss repair procedures for a building water service for both in-ground and above ground water piping repair procedures. Review clean-out procedures for a waste stoppage. Identify and describe equipment used to clear waste stoppages such as plunger, paize plunger, closet auger, cables, fish tape, and rodding machines.

Module 33 – In Through the Out Door
Examine the types of backflow and how they occur. Define and review the degree of backflow hazard such as toxic substances, nontoxic substances, polluted, and contaminated. Identify mechanical equipment used for cross-connection protection and summarize methods of eliminating the risk of backflow.

Final Exam

Course Evaluation