



Plumber General

Duration: 3 Months | QP Code: PSC/Q0104

Module 1: Prepare For Plumbing Installations And Maintenance

112 hrs

Plumber-General is responsible for installing, repairing, and maintaining plumbing systems in residential, commercial, and industrial settings. This can include tasks such as installing and repairing pipes, fixtures, and appliances, detecting and repairing leaks, and ensuring that the plumbing system meets building codes and regulations. The job involves installation of sewage and drainage systems, water supply systems, general and advanced sanitary fittings and fixtures in housing, commercial and institutional setups and maintenance of the plumbing systems and fixtures for housing setups.

Topics Covered:

- Workplace safety
- Commonly used scales, symbols, terminologies, abbreviations, titles, sub-titles, dimensions, reference dates used by plumbers
- Measurements and standards relevant to the plumbing industry
- Types and purpose of drawings and plans
- Tools, equipment and materials relative to drawings/specifications
- Mathematical formulas needed to calculate area, length, perimeter, diameter, circumference, volume, mass, force, pressure, scales, ratios etc
- Categories of materials and their safe handling, storage and transport requirements
- Measures to avoid air and water contamination, erosion and sedimentation
- Types of plumbing waste and their disposal

Module 2: Install Water Supply Systems

128 hrs

This unit covers Preparing for piping process, Cutting, bending and assembling various types of pipes, Installing the assembled pipes, fittings and other water supply components and post installation activities.

Topics Covered:

- Properties of water, including pressure and flow rates
- Capillary action, thermal expansion and fabrication techniques to prevent leaking installations
- Standard plumbing symbols used in sketches and blueprints
- Concrete, concealed piping, wall mounted piping
- Types, characteristics and the application of different pipe fittings and fixture supports, and the fixing and jointing techniques
- Supports, hangers and restraints used in water supply systems
- Installation process of pipes and fittings for various plumbing applications
- Pre-commissioning checks and procedures
- Corrosion protection such as coatings and tape

Module 3: Install Drainage Systems

72 hrs

This unit deals in detail with the installation of drainage systems in accordance with the industry standards and site requirements. This unit covers Preparation for installation of drainage systems, Performing installation of drainage systems and Post-installation activities.

Topics Covered:

- To identify the standard plumbing symbols used in sketches and blueprints
- Techniques of installing the water piping system in a building such as over ground piping, underground piping, piping embedded in concrete, concealed
- Installing wastewater and drainage plumbing for various fixtures
- Standards applicable to the piping installation in plumbing
- Properties of water, including pressure and flow rates
- Capillary action, thermal expansion and fabrication techniques to prevent leaking installations
- Electrolysis and problems associated with the use of dissimilar metals

- Characteristics and the application of different pipe fittings and fixture supports, including fixing and jointing techniques
- Types of supports, hangers and restraints, their properties and grades of fastening hardware such as studs, bolts and nuts
- Types of flooring for installations and leveling
- Piping and plumbing tools and equipment
- Standard measuring procedures such as center-to-center, end-to-center, and end-to-end
- Impact of accurate marking out on fabrication process, work time and finished work quality
- Measuring and marking dimensions and allowances on the pipes for fabrication
- Plumbing materials characteristics of various metal materials and their compatibility with different fabrication methods
- Various fit off processes and their tools and principles
- Installation process of pipes and fittings for various plumbing applications
- Test procedures to check proper functioning of the pipework installed

Module 4: Install Plumbing Fixtures

80 hrs

This unit deals in detail with installing plumbing fixtures in accordance with industry standards and site requirements. This unit/task covers preparation for installation of fixtures, installing sanitary fixtures, support and related accessories as well as perform post-installation activities.

Topics Covered:

- Standards, regulations and codes of practice relevant to the plumbing industry
- Alignment and elevation techniques used in plumbing systems
- Types of plumbing related fixtures, supports (such as carriers, blocking and wall hangers) and fasteners (such as anchors, bolts and clamps)
- Tools and equipment such as hand tools and power tools such as power drill and screw gun
- Lifting/load shifting equipment including ladders, height scaffolding, elevated work platforms, hand trolleys, hoists and jacks
- Sealants and adhesives, plumber's putty
- Characteristics, materials, finishes, uses, limitations and performance measures of plumbing related fixtures
- Plumbing for various types of water closets
- Types of urinal, description of flushing devices, lipper automatic tanks
- Principles of siphon ball valves in a flushing system
- Types of wash basin, sinks, kitchen sink sizes and its description
- Types of fittings and fixtures that come with sensors
- Basic working principal of sensor faucet
- Principles of solenoid ball valves and sensors in touchless system
- Accessories required for installing wash basin, sizes of mirror, glass shelf, towel rail
- Description and sizes of pantry and laundry sinks, their waste outlets, bathtubs and its accessories

Module 5: Perform Troubleshooting And Maintenance For Domestic Plumbing Fixtures And Systems

80 hrs

This unit deals in detail with performing maintenance activities, identifying and rectifying faults in domestic plumbing systems and fixtures as per the standards. This unit/task covers identifying faults in domestic plumbing systems and fixtures, perform repair and maintenance activities & post-maintenance activities.

Topics Covered:

- Types of plumbing related tools, equipment, fixtures, pipes, fittings, supports, fasteners, etc.
- Various pipes used in plumbing such as metal pipes - cast iron (CI), galvanised iron (GI); plastic pipes - polyvinyl chloride (PVC) pipes, chlorinated
- Characteristics, materials, finishes, uses, limitations and performance measures of plumbing related fixtures
- SI system of measurement
- Properties of water, including pressure and flow rates
- Mathematical formulas needed to calculate pipe length and piping offsets
- Capillary action, thermal expansion and fabrication techniques to prevent leaking installations
- Characteristics and the application of different pipe fittings and fixture supports, including fixing and jointing techniques
- Process of mains supply of water and drainage and their plumbing
- Layout of piping systems
- Various fit off processes and their tools and principles
- Common plumbing problems with respect to fixtures, pipes and fittings and their remedial and preventive measures

- Test procedures to check proper functioning of the fixtures and pipework installed
- Application of mechanical and hydraulic principles for clearing blockages
- Corrosion protection such as coatings and tape

Module 6: Apply Health And Safety Practices At The Workplace

72 hrs

This unit is about following safety procedures, communicating potential hazards and dangers of accidents on the job. This unit covers following safety measures to avoid accidents, daily inspection of tools and equipment & dealing with emergencies.

Topics Covered:

- Location of all the general health and safety equipment in the workplace
- Meaning of “hazards” and “risks”
- Hazardous environment encountered during work such as underground areas, elevated areas, areas with water and electricity supply, presence of biologic hazards
- Work practices and precautions to control and prevent risks, hazards and accidents
- Importance of each personal protective equipment used such as eye protection mask, hard hats, gloves, apron, rubber boots etc.
- Tools and plumbing equipment as per latest industry standards
- Preventative and remedial actions to be taken in case of exposure to toxic materials
- Specific safety and health related problems faced in domestic, commercial and institutional setups
- Various causes of fire and precautionary activities to prevent the fire accident
- Techniques of using the different fire extinguishers
- Rescue techniques applied during a fire hazard
- Various types of safety signs and meaning
- Appropriate basic first aid treatment relevant to the condition e.g. Shock, electrical shock, bleeding, minor burns, poisoning, eye injuries etc.
- Potential injuries and ill health associated with incorrect handling of tools and equipment

Module 7: Work Effectively With Others

80 hrs

This unit covers basic etiquette and competencies required in behavior and interactions with others at the workplace. This unit covers communicating effectively, working in a team effectively & respect diversity.

Topics Covered:

- Importance of effective communication and the impact of poor communication on the employee
- The employer and the customer
- Importance of teamwork in organizational and individual success
- Various components of effective communication such as tone and pitch
- Importance of ethics and discipline for professional success
- How to express and address grievances appropriately and effectively
- Importance and ways of managing interpersonal conflict effectively

Module 8: Optimize Resource Utilization At Workplace

88 hrs

This unit is about adopting sustainable practices and optimizing use of resources, especially material, energy and waste, in day-to-day operations at work.

Topics Covered:

- Potential hazards, risks and threats based on the nature of work
- Layout of the workstation and electrical and thermal equipment used
- Organization's procedures for minimizing waste
- Efficient and inefficient utilization of material and water
- Ways of efficiently managing material and water in the process
- Basics of electricity and prevalent energy efficient devices
- Ways to recognize common electrical problems
- Common practices of conserving electricity
- Usage of different colours of dustbins
- Categorization of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics
- Waste management and methods of waste disposal
- Common sources of pollution and ways to minimize it