



Model Curriculum

QP Name: Jal Vitaran Sanchalak (Water Distribution Operator) (Multi - Skill)

QP Code: PSC/Q0122

QP Version: 1.0

NSQF Level: 4

Model Curriculum Version: 1.0

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Training Parameters

Sector	Plumbing
Sub-Sector	Industrial / Non-Industrial Plumbing
Occupation	Plumbing Systems Installation and Maintenance, Material Handling
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7126.0101, NCO-2015/3132.0600, NCO-2015/8212.0402, NCO-2015/7112.0201
Minimum Educational Qualification and Experience	12th grade Pass OR Pursuing 3rd year of 3-year diploma after 10th (Civil Engineering) OR 10th Class/I.T.I with 2 Years of experience Relevant OR 8th grade pass with 2 years of NTC with 2 Years of experience Relevant OR Previous relevant Qualification of NSQF Level (3 as Assistant Plumber - General with minimum 8th Grade Pass) with 3 Years of experience Relevant OR Previous relevant Qualification of NSQF Level (4 as Plumber - General with minimum 8th Grade Pass) with 1 Year of experience Relevant
Pre-Requisite License or Training	NA
Minimum Job Entry Age	20 Years
Last Reviewed On	13-06-2023
Next Review Date	13-06-2026
NSQC Approval Date	13-06-2023
QP Version	1.0
Model Curriculum Creation Date	13-06-2023
Model Curriculum Valid Up to Date	13-06-2026
Model Curriculum Version	1.0
Minimum Duration of the Course	510 Hours
Maximum Duration of the Course	510 Hours
NQR Code	QM-4PL-00358-2023-V1-WMPS

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Prepare the work area and piping materials and tools for plumbing and water management.
- Install water supply system, drainage pipes, sanitary fixtures and CP fittings.
- Carry out associated basic masonry work and Manhole construction
- Install and operate pumping systems and related machinery
- Operate and maintain water treatment units
- Maintain of water distribution and storage systems at water supply stations
- Perform basic installation of electrical fixtures and temporary LV connection
- Demonstrate how to assist Village Water and Sanitation Committees (VWSCs) in scheme planning, social mobilization and enhancing community ownership of schemes.
- Perform operations on Water Quality Testing
- Adhere to health and safety practices at the workplace
- Learn employability and entrepreneurship skills

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	Total Duration
PSC/N0163: Installation and Operations of Plumbing and Water Management Systems NOS Version No.: 1.0 NSQF Level: 4	30:00 Hours	65:00 Hours	25:00 Hours	120:00 Hours
Module 1: Introduction to the sector and the job role	04.00 Hours	00.00 Hours	00.00 Hours	04.00 Hours
Module 2: Basic concepts of water management and plumbing systems	04.00 Hours	00.00 Hours	00.00 Hours	04.00 Hours
Module 3: Preparation for plumbing systems installation, operation and maintenance	04.00 Hours	10.00 Hours	04.00 Hours	18.00 Hours
Module 4: Installation and operation of water supply systems	06.00 Hours	15.00 Hours	07.00 Hours	28.00 Hours

Module 5: Installation and operation of drainage systems	06:00 Hours	20:00 Hours	07:00 Hours	33:00 Hours
Module 6: Installation and operation of sanitary fixtures and CP fittings	06:00 Hours	20:00 Hours	07:00 Hours	33:00 Hours
PSC/N0174: Carry out associated Basic Masonry and Manhole construction work NOS Version No.: 1.0 NSQF Level: 4	15:00 Hours	45:00 Hours	60:00 Hours	120:00 Hours
Module 7: Carry out associate masonry work pertaining to Pipeline works	08:00 Hours	20:00 Hours	30:00 Hours	58:00 Hours
Module 8: Carry out construction manhole work	07:00 Hours	25:00 Hours	30:00 Hours	62:00 Hours
PSC/N0166: Perform Installation, Operation and Maintenance of Pumps and Related Machinery at Water Supply Stations and Water Treatment Units NOS Version No.: 1.0 NSQF Level: 4	15:00 Hours	30:00 Hours	15:00 Hours	60:00 Hours
Module 9: Basic concepts of Water pumps	03:00 Hours	00:00 Hours	00:00 Hours	03:00 Hours
Module 10: Installation of water pump systems and related machinery	03:00 Hours	10:00 Hours	05:00 Hours	18:00 Hours
Module 11: Operation and maintenance of water pump systems	05:00 Hours	10:00 Hours	05:00 Hours	20:00 Hours
Module 12: Monitoring and maintenance of water meter, flow meter and water treatment units	04:00 Hours	10:00 Hours	05:00 Hours	19:00 Hours
PSC/N0175: Perform basic installation of electrical fixtures and temporary LV connections	15:00 Hours	45:00 Hours	60:00 Hours	120:00 Hours

Module 13: Perform basic installation of electrical fixtures and temporary LV connection	15:00 Hours	45:00 Hours	60:00 Hours	120:00 Hours
PSC/N0149: Assist Village Water and Sanitation Committees(VWSCs) to Conduct Water Quality Survey NOS Version No.: 2.0 NSQF Level: 4	10:00 Hours	15:00 Hours	20:00 Hours	45:00 Hours
Module 14: Social Engagement	05:00 Hours	07:00 Hours	10:00 Hours	22:00 Hours
Module 15: Monitoring water quality	05:00 Hours	08:00 Hours	10:00 Hours	23:00 Hours
PSC/N0136: Applyhealth and safety practices at the workplace NOS Version No.:2.0 ONSQF Level: 4	05:00 Hours	10:00 Hours	00:00 Hours	15:00 Hours
Module 16: Health and safety	05:00 Hours	10:00 Hours	00:00 Hours	15:00 Hours
DGT/VSQ/N0101: Employability Skills (30 Hours) NOS Version No.: 1.0 NSQF Level: 2	30:00 Hours	00:00 Hours	00:00 Hours	30:00 Hours
Module 17: Employability Skills	30:00 Hours	00:00 Hours	00:00 Hours	30:00 Hours
Total Duration	120:00 Hours	210:00 Hours	180:00 Hours	510:00 Hours

Module Details

Module 1: Introduction to Jal Jeevan Mission and the job role

Bridge Module

Terminal Outcomes:

- Discuss the relevance and key features of Jal Jeevan Mission.
- Describe the role of Jal Mitra.

Duration: 04:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the relevance of Jal Jeevan Mission. • State the key features of Jal Jeevan Mission. • List the roles and responsibilities of Jal Mitra. • Outline the overview of the plumbing industry. • Discuss the scope of employment in the contracting segment of the industry. • List the key responsibilities of a water technician. • Describe the process of water flow in domestic households and commercial setups. • Discuss the application of various types of plumbing systems in residential and commercial setups. • Outline the overview of solar pumping and electric panel. • Discuss the importance solar pumping system in rural and urban areas. • Describe the importance of contribution to the sustainable operation and maintenance of the village rural water supply system 	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Nil	

Module 2: Basic concepts of water management and plumbing systems

Mapped to PSC/N0163, v 1.0

Terminal Outcomes:

- Identify the various plumbing and water management related systems, materials, tools and equipment.
- Recognise the common terms, symbols and jargons used by technicians.

Duration: 04:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> Recall the various types of symbols and terminologies and titles used in plumbing installation. Describe the standards applicable (such as ISI) to piping installations in the plumbing industry. State the importance of accuracy in measurements and calculations with respect to plumbing work. State the names, grades, characteristics and applications of different pipes, pipe fittings, fixture supports, fastening hardware and materials such as sealants, adhesives, plumber's putty, marking materials and cement used in plumbing. Identify various plumbing tools and equipment correctly. List the lifting/load shifting equipment including ladders, height scaffolding, elevated work platforms, hand trolleys, hoists and jacks used at plumbing installation sites. Explain the properties of water, including pressure and flow rates. Describe processes such as capillary action and thermal expansion in plumbing. 	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Pipes (such as PVC, cPVC, uPVC, mild steel, cast iron, galvanised iron), fittings, plumbing fixtures, plumbing accessories, tools, solvent cement, power tools, mechanical fasteners (such as nuts, bolts, screws).	

Module 3: Preparation for plumbing systems installation, operation and maintenance

Mapped to PSC/N0163, v 1.0

Terminal Outcomes:

- Perform the steps involved in planning and preparation of plumbing work.

Duration: 04:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the types and purpose of plumbing drawings. • Discuss the purpose of work schedules, work plans, charts, work bulletins, memos and the work-related information that can be obtained from them. • Describe the steps involved in collection of plumbing materials as per type, size and quantities based on specifications from drawings and plans. • Explain the factors to be kept in mind for safe handling, storage and transport of various plumbing materials. • List measures to avoid air and water contamination, erosion and sedimentation. • Discuss the risk and impact of not following defined procedures/work instructions. • Outline the process of reporting and handling hazards at the workplace. 	<ul style="list-style-type: none"> • Demonstrate the extraction of information from job specifications, layouts and measurements from drawings and plans associated with plumbing. • Calculate the quantity, dimensions and type of pipes, pipe fittings, devices and materials required from design drawings/specifications. • Prepare a work plan as per specified timelines. • Perform inspection of the tools and equipment to check for their proper functioning. • Demonstrate the process of clearing the work area of hazardous substances, debris and waste. • Demonstrate correct storage practices for plumbing materials. • Demonstrate placement of signages and barricades.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Plumbing drawings and plans; plumbing tools, materials and equipment; pipes, tubes, fittings and other accessories, pipes (such as PVC, cPVC, uPVC, mild steel, cast iron, galvanised iron), fittings, plumbing fixtures, plumbing accessories, tools, solvent cement, power tools, mechanical fasteners (such as nuts, bolts, screws).	

Module 4: Installation and operation of water supply systems

Mapped to PSC/N0163, v 1.0

Terminal Outcomes:

- Demonstrate the process of cutting, bending and assembling various types of water supply pipes.
- Perform the installation of the assembled pipes, fittings and other water supply components.
- Perform post-installation activities.

Duration: 06:00	Duration: 15:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the process of water distribution in municipal, residential, and private setups. • List the process and various components of a water supply and distribution system. • State the piping system layouts for various types of water supply systems. • Outline the installation process of pipes and fittings for various plumbing applications. • Describe the various techniques of installing the water piping system in a building such as over ground piping, underground piping, piping embedded in concrete, concealed piping, wall mounted piping. • Explain the properties of the different types of supports, hangers and restraints used in water supply plumbing systems. • List the characteristics of metal used in various plumbing materials and the fabrication methods compatible with them. • Explain the process of electrolysis and problems associated with the use of dissimilar metals. • State the impact of accurate marking on the fabrication process work time and finished work quality. • Describe the measuring and marking out processes for fabrication of pipes • List standard measuring procedures such as centre-to-centre, end-to-centre, and end-to-end. • State the allowances to be considered in measurements and markings during the fabrication of pipes. • List the types, characteristics and the application of different pipe fittings and fixture supports. • Discuss the various fixing and jointing techniques for water supply piping 	<ul style="list-style-type: none"> • Determine the fitting requirements for specified water supply pipe installations. • Demonstrate the steps involved in marking dimensions for fabrication on the pipes and fittings making allowances for spring-back, distortion and assembly. • Apply appropriate cutting and bending techniques on water supply plumbing pipes. • Demonstrate how to join and fix pipes as per defined specifications. • Demonstrate the steps involved in the installation of water supply piping, fittings and components in buildings. • Perform the inspection of the water supply installation system to ensure proper alignment, size, support and functioning. • Evaluate faults and their causes in dysfunctional piping. • Demonstrate the rectification of common faults found in dysfunctional piping. • Perform post installation activities such as clearing the work area, disposal of waste and cleaning and storage of tools and equipment.

installations.

- Explain the principles underlying various fit-off processes.
- State the importance of ensuring alignment and balance in piping installations.
- Describe the test procedures to check proper functioning of the pipework installed.
- Describe the checks and procedures to be conducted before commissioning.
- Explain the importance of reporting any difficulties as soon as they arise.

Classroom Aids:

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook

Tools, Equipment and Other Requirements

Pipes such as cPVC, Copper, SS, PPR, PEX, HDPE; fittings such as elbow, coupling, union, reducer, tee, cross, cap, plug, nipple, barb, valves; fixing devices such as screws, plastic plugs, plasterboard fixings, cavity fixing, nails, clips and brackets, bolts and nuts; components of water distribution system such as water mains, ferrule and external stop valve, water meter, internal stop valve, water tank, water pump, main water supply pipes, branch water supply pipes, valves; types of pipe fitting such as threaded pipe, solvent welding, soldering, brazing, compression fitting, flare fitting, flange fitting, mechanical fittings, crimped or pressed fittings; tools for cutting pipes such as hacksaws (junior and frame) –blades for different materials; Pipe cutters –for iron, steel, plastics; Files -for different materials; Tap and Dies; Hand tools for cutting building materials – chisels, hammers; Snips for cutting sheet metal pipes; heating/joining machine, compression joints, solder capillary joints, push-fit joints, threaded joints, solvent-welded joints, push-fit joints.

Module 5: Installation and operation of the drainage systems

Mapped to PSC/N0163, v 1.0

Terminal Outcomes:

- Demonstrate the cutting, bending and assembling of various types of drainage pipes.
- Perform installation of drainage systems.
- Perform the various post-installation activities.

Duration: 06:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the process of wastewater drainage — from a fixture to the drain and then to the environment — across various residential and commercial setups. • Describe the functions of the components of drainage systems. • Describe the various types of drainage piping systems and the pipes and fittings used in them. • Discuss the type of drainage piping systems and its components used in various types of building. • Explain the characteristics and the application of different pipe fittings, fixture supports and fastening hardware. • Discuss the fit off, fixing and jointing techniques applicable for drainage pipes. • Explain the allowances to be made for spring-back, distortion and assembly during marking for fabrication of pipes. • Explain the procedure of installing various types of drainage systems such as sewage, sullage, stormwater, sub-soil drainage system, drainage for fixtures, etc. • Identify the trap to be installed as per the type of drainage system. • List different types of pumps used in sanitary and drainage systems and their applications. • Discuss the characteristics of the flooring using for installation and levelling of drainage system. • Explain the importance of conducting post-installation and pre-commissioning tests and checks. • Describe the various post installation and pre-commissioning tests and checks. • List the signages to be put up at the site after the plumbing task has been completed. 	<ul style="list-style-type: none"> • Apply appropriate techniques to determine the location of various drainage components and the route of the water drainage piping and traps using plumbing project plans. • Demonstrate the construction of chambers to accommodate drainage systems. • Determine fitting requirements for installing various types of drainage pipes according to given specifications and site requirements. • Perform the necessary checks on the area for laying underground, above ground and overhead piping systems. • Perform fitting activities on various types of pipes such as stoneware (SW) pipes, polyvinyl chloride (PVC) pipes, cast iron (CI) pipes, etc. • Demonstrate the installation of the various components of drainage system such as various pipes and their fittings, manholes, traps, cleanouts, catch basins, inspection chamber, soak pit etc. • Show how to install stormwater and sub-soil drainage system. • Demonstrate the process of installing pipes and related accessories in water and sewage treatment plants. • Perform the steps to install different types of pumps used in sanitary and drainage system. • Perform the various post installation and pre-commissioning tests and checks. • Perform the backfilling of all excavated areas to secure the installation.

Classroom Aids:

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook

Tools, Equipment and Other Requirements

Components of drainage system (drainage pipes, ventilation/anti-siphonage pipes, pipe fittings, traps, cleanouts, catch basins, manholes, inspection chamber, soak pit, storm water drainage pipes), pipes used in drainage system (SW, PVC, CI, AC, RCC, HDP), water traps (as per shape: P-trap, S-trap, Q-trap, bottle trap; as per function: floor-trap, gully trap, intercepting trap), pumps such as submersible water pumps, dewatering pumps (for rainwater piping).

Module 6: Installation and operation of sanitary fixtures and CP fittings

Mapped to PSC/N0163 v 1.0

Terminal Outcomes:

- Perform the installation of sanitary fixtures, CP fittings support and related accessories.

Duration: 06:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> Describe the types, characteristics, materials, finishes, uses, limitations, working principle and performance measures of various plumbing related fixtures. List the accessories, supports and fasteners required for installing various types of wash basin, sinks, water closet, urinals, bathtubs and showers. List the sensor types of fittings and fixtures. Explain the basic working principal of sensor faucet and the principles of solenoid ball valves and sensors in touchless system. Describe the correct practices for installing plumbing fixtures. Explain the importance of traps for the sanitary fittings, both deep seal traps and low seal traps. Explain the working and use of conservancy, water carriage and the combination system. Discuss alignment and elevation techniques used in plumbing systems. List the codes, standards and regulations applicable for the installation of plumbing fixtures. 	<ul style="list-style-type: none"> Show how to tally the count and quality of fixtures, parts, support material provided in the packing with the manufacturer's list or order form. Select the size, type and quantity of fixture and trim required for specific applications based on specifications. Demonstrate how to mark the position of fixtures and fixture supports in structures based on plumbing plans. Demonstrate the procedure of installing various types of sanitary fixtures, supports, and accessories. Demonstrate the installation of sensors and batteries of fixtures with sensor-based or touchless fitting and fixtures. Perform alignment and levelling of supports and fixtures installed. Apply appropriate techniques to check if all installations are properly sized, supported and functioning.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Types of fixtures (taps/faucets, valves, water closet, showers, sinks, bath-tubs, basin, wall hung urinals, pop-up drains, water heaters), dishwashing machines, clothes washing machine, types of fasteners and supports (anchors, screws, nuts, bolts, circlips, clamps, wall hangers, carriers, etc.).	

Module 7: Carry out associate basic masonry work pertaining to Pipeline works Mapped to PSC/N0174, v 1.0

Terminal Outcomes:

- casting of pole stand
- Carry out operations on scaffold and shuttering
- Identify the materials and bonds for brickwork and masonry and their repair
- Plaster masonry on internal & external surface
- Perform construction of manholes

Duration: 08:00	Duration: 20:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the stability of structure • Explain the concrete ingredients, including cement, sand, and aggregates. • Enlist the composition of cement. • Discuss the importance of compaction in the concrete while casting the slab, beam, etc. • Enlist the types of formworks. • Discuss the procedure for casting the pole stand. • Enlist the different types of bonds in brick masonry such as header bond, stretcher bond, English bond, Flemish bond, etc • Discuss the type of scaffold and shuttering. • Discuss in detail the various methods of on field testing of bricks such as visual inspection, sound test effloresce test, etc • Explain different types of defects in brickwork. • Explain the possible type of repairs in brickwork • Discuss the correct method of preparing a mortar for brickwork, pointing and plastering. • Discuss the use of different equipment used in pointing work • Explain in detail about the repointing work. • Discuss the types of mortar used in pointing work. • Enlist the different types of pointing work. • Explain the different types of plastering • Enlist the tools and equipment used in 	<ul style="list-style-type: none"> • Perform the mixing of concrete ingredients. • Perform the casting of slab • Demonstrate the laying of RCC foundation. • Perform the scaffolding and shuttering work to start construction. • Perform the compaction in concrete while casting • Perform the casting of pole stand • Demonstrate the different types of bonds in brick masonry work • Demonstrate the different methods to test a brick on field. • Demonstrate the visual inspection of the bricks • Perform the types of repairs in brickwork. • perform the mixing of mortar for brick masonry, pointing, plastering, etc • demonstrate the repointing work. • Perform the procedure for carrying out pointing work • Demonstrate the sieving of aggregates of different size. • Perform the construction of manhole • Demonstrate the plastering of manhole. • Perform the plastering work on brick masonry as per the requirement. • Perform cleaning of the

plastering work

Classroom Aids:

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook

Tools, Equipment and Other Requirements

Construction drawings and plans: Tape measure, Spirit level, Chalk line, Laser level, Measuring wheel, Hammer, Screwdriver set, Pliers, Wrenches, Chisels, Utility knife, Handsaw, Hacksaw, Pry bar, Crowbar, Power drill, Circular saw, Jigsaw, Reciprocating saw, Angle grinder, Power sander, Power planer, Nail gun, Impact driver, Rotary hammer, Handsaw, Hacksaw, Miter saw, Table saw, Band saw, Router, Tile cutter, Rebar cutter, Shovel, Spade, Trenching shovel, Post hole digger, Pickaxe, Mattock, Trowel Concrete mixer, Trowels, Floats, Concrete vibrator, Brick hammer, Masonry chisels, Masonry saw, Forklift, Crane, Dolly, Wheelbarrow, Hand truck, Chain hoist, Come-along, Hard hat, Safety glasses, Ear protection,, Dust mask, Gloves, Safety harness, Fall protection equipment, Fire extinguisher Wire cutters, Wire strippers, Voltage tester, Electrical pliers, Circuit tester, Multimeter, Conduit bender, Ladders, scaffolding, Workbench, Toolbox,, Tool belt or pouch, Staple gun, Caulking gun, Paintbrushes, rollers

Module 8: Carry out construction of manhole work

Mapped to PSC/N0174, v 1.0

Terminal Outcomes:

Duration: 07:00	Duration: 25:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> Identify the purpose of the manhole, such as sewer access, utility access, or stormwater drainage. Discuss the detailed plan, including the location, depth, dimensions, and construction materials. Discuss the installation of a layer of granular material, such as gravel or crushed stone, to further enhance stability and drainage. Discuss the design specifications regarding the size, spacing, and configuration of the rebar. Discuss local guidelines for backfilling and compaction procedures. 	<ul style="list-style-type: none"> Calculate the required size of the manhole based on the anticipated flow and accessibility needs. Check local building codes and regulations to ensure compliance. Demonstrate marking of the location of the manhole on the ground. Demonstrate appropriate safety precautions, such as barricades and warning signs Demonstrate Excavation of the hole using appropriate machinery, such as an excavator, backhoe, or shovel. Perform the compaction of the soil using a plate compactor or a hand tamper. Demonstrate the construction of the formwork using plywood or metal panels. Demonstrate the concrete mix according to the recommended proportions and specifications. Perform the pouring of concrete into the formwork in layers, Perform the placement of steel reinforcement bars (rebar) within the formwork. Perform Installation of required components such as the manhole cover, steps or ladder, gaskets, and seals. Perform backfilling of the the excavated area around the manhole using suitable materials, such as soil or granular fill.

Classroom Aids:

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook

Tools, Equipment and Other Requirements

Construction drawings and plans: Tape measure, Spirit level, Chalk line, Laser level, Measuring wheel, Hammer, Screwdriver set, Pliers, Wrenches, Chisels, Utility knife, Handsaw, Hacksaw, Pry bar, Crowbar, Power drill, Circular saw, Jigsaw, Reciprocating saw, Angle grinder, Power sander,

Power planer, Nail gun, Impact driver, Rotary hammer, Handsaw, Hacksaw, Miter saw, Table saw, Band saw, Router, Tile cutter, Rebar cutter, Shovel, Spade, Trenching shovel, Post hole digger, Pickaxe, Mattock, Trowel Concrete mixer, Trowels, Floats, Concrete vibrator, Brick hammer, Masonry chisels, Masonry saw, Forklift, Crane, Dolly, Wheelbarrow, Hand truck, Chain hoist, Come-along, Hard hat, Safety glasses, Ear protection,, Dust mask, Gloves, Safety harness, Fall protection equipment, Fire extinguisher Wire cutters, Wire strippers, Voltage tester, Electrical pliers, Circuit tester, Multimeter, Conduit bender, Ladders, scaffolding, Workbench, Toolbox,, Tool belt or pouch, Staple gun, Caulking gun, Paintbrushes, rollers

Module 9: Basic concepts of water pumps

Mapped to PSC/N0166, v 1.0

Terminal Outcomes:

- List the processes conducted at the plumbing work site for pumping water and distribution of water.
- Identify the various pumps and related machinery.

Duration: 03:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> List the various types of pumps used in residential, agricultural and commercial setups. Describe the performance measures, applications and properties of water pumps. Interpret the common terminologies used in pump systems. Identify the various components of pump systems and related equipment. 	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Various types of pumps used in residential, agricultural and commercial setups	

Module 10: Installation of water pump systems and related machinery

Mapped to PSC/N0166, v 1.0

Terminal Outcomes:

- Prepare of installation.
- Install water pump and related equipment.
- Check the installation of pump
- Perform operation of various types of pumps
- Perform electrical connection of pumps

Duration: 03:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • List the preparatory requirements for pump system installation. • List the tools and materials used in pump installation. • State the units of measurements used during the preparation, installation and checking of water pumps. • State the steps involved in calculating material requirements. • State the types of water supply and their implication on pumping system. • Explain the importance of referring to the manufacturers' specifications and standard Operating Procedures (SOPs) related to the installation and fitting of pumps. • Describe the procedure of installing water pumps. • State some common dos and don'ts of various pumping systems. • Explain the importance of ensuring prevention of any contact of water and electrical connections with each other during the process. • Describe levelling and alignment procedures. • List the different types of pumping apparatus (reciprocating, rotary etc.) and associated equipment and purposes. • List the basic fittings (valves, clamps, elbows, etc.) in the pumping apparatus. • List the gauges, dials, monitoring apparatus and their purpose. • List the different types of valves and their functioning (stop valve, non-return valve, etc.) • State the importance of working as per the standards, policies, and procedures followed in the company relevant to 	<ul style="list-style-type: none"> • Assemble pump components and equipment. • Prepare the tools, area and materials for the task. • Locate and mark position for inlet and outlet supply connections of pump. • Fix the pump at the designated location as per instruction. • Connect the hoses of inlet and outlet supply to the pump. • Make provisions for electrical and other required connections. • Install and connect pump components without any damage to pump, fixture, pipe work, the surrounding environment, or to other services. • Adjust pressure/flow as per required supply and demand. • Check installed pump systems for correct functioning and compliance with specifications. • Check for cracks, defects and anomalies in the pumping apparatus. • Check for condition of couplings in the equipment and pumping on both suction and discharge sides. • Check the oil level, fuel level, radiator coolant and engine condition of a diesel operated pump. • Check air release valve and prime the pump.

employment and performance conditions.

- Describe the material disposal procedure to be applied after installation and its importance.
- Describe the process for condition monitoring of the equipment.
- Explain the importance of adhering to workplace safety requirements, hazard reporting and handling procedures during installation and checking of water motor pump systems and related equipment.

Classroom Aids:

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook

Tools, Equipment and Other Requirements

pumping apparatus (centrifugal, reciprocating, rotary etc.); basic fittings (valves, clamps, elbows, etc.); tools and materials used in pump installation.

Module 11: Operation and maintenance of water pump systems

Mapped to PSC/N0166, v 1.0

Terminal Outcomes:

- Perform maintenance of water pump systems.

Duration: 05:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> List the key features of the various types of pumps to be operated. Describe different types of operation and maintenance schedules. Explain the importance of preparing and following a schedule for pump operation and maintenance. List the factors to be considered for preparing an operation and maintenance schedule. Explain the need for standby pumps. Describe how to improve output gain from the pump. Explain the need and process for avoiding overloading and sudden change of water pressure. Describe the function and operation of various valves such as bypass valves of reflux valve, sluice valve and butterfly valve during operation of the pumps. Describe the factors that affect the efficiency of the pump such as voltage, current, location, starting load, etc. Identify common sounds, vibrations, temperature and other related parameters that can change during the operation of the pump and their significance. Explain the impact of various physical parameters like temperature, pressure, etc on the properties of final output. Describe various input/output parameters of the pump for various types of requirements. Explain the importance of preparing and following a schedule for pump maintenance Describe the factors to be considered for preparing a maintenance schedule. Explain the purpose and procedure for checking pump motor alignment. Explain normal load parameters and indicators of overload/underload. State the action to be taken in case of 	<ul style="list-style-type: none"> Demonstrate how to prepare a schedule for running the main pumps and the standby. Demonstrate how to prime the centrifugal pump before start of operation. Demonstrate measures that can be taken to ensure operation of the pump with full efficiency to improve output gain. Demonstrate how to operate the delivery valve effectively to avoid overloading and sudden change of water pressure. Close bypass valves of reflux valve, sluice valve and butterfly valve during normal operation of the pumps. Demonstrate the monitoring of sound, vibration, temperature and other related parameters to ensure that the pump is operating smoothly. Demonstrate how to maintain input/output parameters for the pump as per requirements. Check pump motor alignment. Demonstrate the defined action to be taken in case of overload/under load when the load parameters are above/below the specified limits. Demonstrate the maintenance of a record of all pump operation timings, voltage, current, reading on gauges and flow meter, temperature, water level and any problem that occurred during the operation. Demonstrate the preparation of a monthly, quarterly, bi-annual and annual preventive maintenance schedule Demonstrate how to clean the pump, related machinery, pump chamber filter beds, other structures and the area. Inspect the pump, related machinery and water supply system for faults, leaks, sparks, improper functioning, wear and tear or evidence of tampering. Demonstrate how to record and report the faults, leaks, sparks, improper functioning, water supply complaints and tampering.

overload/underload.

- Explain the importance of maintaining a record of pump operation timings, voltage, current, reading on gauges and flow meter, temperature, water level and any problem that occurred during the operation.
- Explain the importance of preventive maintenance.
- List the various preventive maintenance tasks to be performed daily, monthly, quarterly, bi-annually and annually.
- Explain the considerations to be taken while making a preventive maintenance schedule.
- State the dos and don'ts while cleaning the pump, related machinery, pump chamber filter beds, other structures and the area.
- Explain the importance of regular inspections of the pump, related machinery and water supply system.
- Identify common indicators of faults, leaks, sparks, improper functioning, wear and tear or tampering in a pump and related machinery.
- Explain the importance of timely recording and reporting of faults, leaks, sparks, improper functioning, water supply complaints and tampering.
- Describe appropriate oil levels and procedure to check it.
- State the action to be taken if motor is sparking or parts are leaking or worn out.
- Describe the procedure to check and rectify alignment of pump and drive.
- List the various bolts to be tightened.
- Describe the calibration procedure of all vital instruments such as pressure gauge, vacuum gauge, ammeter, voltmeter, watt meters, frequency meter, tachometer and flow meter.
- Describe the performance testing procedure of the pump for discharge, head and efficiency.
- Describe the usages of 3-phase and single phase motor systems
- Apply appropriate oil where oil levels are low as per standard
- Repair or replace sparking motor and leaking or worn-out parts
- Check and rectify alignment of pump and drive.
- Tighten the foundation bolts and holding down bolts of pump and motor mounting.
- Calibrate all vital instruments such as pressure gauge, vacuum gauge, ammeter, voltmeter, watt meters, frequency meter, tachometer and flow meter.
- Conduct performance test of the pump for discharge, head and efficiency
- Demonstrate how to troubleshoot faults as per standard operating procedure.

Classroom Aids:

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook

Tools, Equipment and Other Requirements

centrifugal pump, basic fittings (valves, clamps, elbows, etc.); tools and materials used in pump



operation.

Module 12: Monitoring and maintenance of water meter, flow meter and water treatment units

Mapped to PSC/N0166, v 1.0

Terminal Outcomes:

- Perform maintenance for the water meter, flow meter and water treatment units.

Duration: 04:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> Describe the operational and maintenance requirements and procedures for water meters. State the importance of following standard operating procedures while troubleshooting faults. Describe the operational and maintenance requirements and procedures for flow meters. Provide an overview of water treatment units. Describe commonly used water treatment units such as slow sand filters and chlorinators. Describe operational and maintenance requirements and procedures for water treatment units. Describe the process for starting and shutting off the filtration. Explain the concepts of rate of filtration and need for its adjustment. List the chemicals used in the water treatment units. Explain when and how to add chemicals, such as ammonia, chlorine, or lime, to disinfect water or other liquids. Explain the importance of regular inspection and the inspection process. Describe various meter and gauges and information to be gathered from them. Explain the importance and procedure of water and sewage testing. Explain the importance of maintaining records. 	<ul style="list-style-type: none"> Clean the dirt box or strainer. Replace gaskets upon its wear and tear. Clean the chamber where meter is installed. Apply standard measures to prevent water seepage into the water meter. Verify if water meter is given correct reading. Disassemble and reassemble the water meter for verification or repair. Demonstrate actions to be taken to troubleshoot common faults in water meters. Check the range and zero setting of the flow meter. Inspect for bearing wear out, deposits in flow meter or corrosion of attached pipes. Demonstrate actions to be taken to troubleshoot common faults in flow meters. Clean the disassembled parts. Start and shut off the filtration process. Adjust the rate of filtration as needed. Add chemicals, such as ammonia, chlorine, or lime, to disinfect water or other liquids. Inspect equipment on a regular basis to ensure proper functioning and adherence to safety standards. Monitor operating conditions, meters, and gauges. Collect and test water and sewage samples. Take recordings of meter and gauge readings, and operational data. Operate equipment to purify and clarify water, or to process or dispose of sewage. Clean and maintain equipment, tanks, filter beds, and other work areas.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	



Water meter, tools for disassemble, reassemble and repair water meter, Flow meter; tools for troubleshooting flow meters

Module 13: Perform basic installation of electrical fixtures and temporary LV connection

Mapped to PSC/N0175, v 1.0

Terminal Outcomes:

Duration: 15:00	Duration: 45:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> Identify different types of tools used in basic electrical fittings such as pliers, pullers, spanners, hand tongs, etc. Understand the need and use of protecting devices used in electrical fittings. Discuss different types of cables with their color coding Understand different types of conduits and fixtures Understand the electric non-metallic tubing. Understand the different type of electrical fixtures, fittings used at specified locations Discuss the installation of temporary LV connections Enlist different types of faults in lightning arrangement. Enlist the methods to perform quality check and testing of the fixtures. Understand the all-possible ways of power interruption. 	<ul style="list-style-type: none"> Demonstrate the cleaning of the tools with the help of brush reaked in oil, grease and dust. Demonstrate the various operations with the help of tools used in basic electrical fittings. Demonstrate the procedure to use different types of pullers. Perform the procedure to maintain the tools and equipment. Demonstrate single phase and three phase wiring Perform the temporary installation of LV connection. Perform the necessary measurements of the cables Perform the marking on the walls before installing the fixtures Demonstrate the connecting of pumps and motors with an electric source. Demonstrate the safety procedures adopted in performing electrical fittings. Perform temporary light arrangement Perform installing and replacing of light accessories Perform installation of distribution board. Perform installation of conduits. Perform laying and fixing of conduits in structures. Demonstrate the identification of power interruptions. Perform quality check for domestic electrical wiring.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Toggle switches, rocker switches, dimmer switches, push-button switches, Power outlets, GFCI outlets, USB outlets, combination outlets, Miniature circuit breakers (MCBs), molded case circuit breakers (MCCBs), residual current circuit breakers (RCCBs), Plugs, connectors, terminal blocks,	

wire nuts, wire connectors, Electrical wires, cables (such as Ethernet cables, coaxial cables), conduits, cable trays, pendant lights, recessed lighting, track lighting, Load centers, breaker panels, distribution boards, fuse boxes, Step-up transformers, step-down transformers, isolation transformers, Surge protectors, power strips, surge protection devices (SPDs), Electrical enclosures, junction boxes, pull boxes, weatherproof boxes, Conduit pipes, elbows, couplings, connectors, bushings, Grounding rods, ground clamps, grounding wires, grounding connectors, Cable ties, cable clips, cable glands, cable markers, wire ducts, Screwdrivers, pliers, wire strippers, multimeters, voltage testers, conduit benders

Module 14: Social Engagement

Mapped to PSC/N0149, v 2.0

Terminal Outcomes:

- Perform the steps to gather data for planning of social engagement schemes.
- Demonstrate various community mobilization activities aimed at enhancing participation and ownership.

Duration: 05:00	Duration: 07:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss various solutions and schemes related to water conservation and efficient water usage. • State the data and information required for planning various water conservation and efficient water usage solutions and schemes. • Explain how to obtain required data for water conservation. • Explain the importance of data verification and data triangulation. • Explain the importance of verifying data and information collected before handover to the relevant authorities. • Discuss basic water quality mapping and water budgeting concepts and practices. • Explain how to undertake drinking water quality tests for the geographic area. • Discuss the importance of collating information for water budgeting and water quality mapping. • Explain how to identify location in the community where water quality boards can be put up. • Discuss the role of community and importance of mobilizing community members for successful implementation of water conservation and efficient water usage practices and schemes. • List the stakeholders involved in selection and implementation of water conservation and efficient water usage solutions and schemes. • Share insight on conducting participatory rural appraisal (PRA) activities, structure and how to engage communities in it. 	<ul style="list-style-type: none"> • Demonstrate key steps involved in conducting a survey to estimate the water requirements in consultation with the Village Water and Sanitation Committee (VWSC). • Demonstrate the activities involved in collating community related data and suggestions for water conservation, grey water re-use and water usage efficiency potential. • Apply appropriate techniques to conduct a stakeholder analysis. • Role play enrolment conversations with communities aimed at getting them to participate in various schemes for water conservation and water usage efficiency practices. • Dramatize co-ordination activities with the village committees and gram panchayat for implementation of schemes for water conservation and efficient water usage. • Demonstrate the activities involved in setting up water quality board at gram panchayat to ensure proper planning, cleaning and maintenance of water harvesting structures. • Demonstrate the activities involved in conducting workshops, distributing flyers, organising rallies and other awareness building activities as part of promotion campaigns. • Dramatize the training to various local level stakeholders for use and care of the systems and structures installed.

- Describe how to create a roadmap for participatory rural appraisal(PRA) activities.
- State the roles and responsibilities of village water and sanitation committee (VWSC) and other rural committees
- Discuss the social and behavioral change required at the community level.
- Describe various types of campaigns and campaign activities used in rural social engagement schemes.
- Explain the importance of ensuring participation of diverse social groups of the village from different religions, castes and age groups for triangulation
- State the importance of awareness building of community members and other stakeholders.
- Discuss the importance of initiating dialogue and discussion between community members to find solutions on critical issues like health, sanitation, hygiene, etc.
- List key features of tools and techniques that will engage the community members.
- State the importance of providing suggestions for building effective community engagement tools and techniques aligned with local requirements.
- Explain the key aspects of cleanliness and maintenance of water conservation structures.

Classroom Aids:

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook

Tools, Equipment and Other Requirements

Smartphone, sample promotion media materials, stationary

Module 15: Monitoring water quality

Mapped to PSC/N0149, v 2.0

Terminal Outcomes:

- Monitor water quality.

Duration: 05:00	Duration: 08:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> Explain the importance of water quality monitoring. Describe water quality monitoring tasks. Explain the importance of adhering to water sampling schedule as per standard operating procedure. Explain how to share water quality test results with appropriate authorities and who are the authorities. Explain the physical, chemical and biological water quality parameter. Explain the significance of different colour coding in the testing kit. Describe the possible damage that can occur in supply system due to poor water quality and vice-versa. Explain different types of nuts and bolts. 	<ul style="list-style-type: none"> Identify a water sampling site representative to the source and in line with sampling guidelines. Obtain water samples from dug well, hand pump, tube well and borewell for quality testing. Test water quality using a field test kit. Store and send samples for laboratory testing. Interpret relevant information from water quality report. Identify physical, chemical, and biological water quality parameters. Identify the damages in the system Identify different types of nut, bolts and assembly.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
water quality field test kit	

Module 16: Health and safety

Mapped to PSC/N0136, v 2.0

Terminal Outcomes:

- Describe the various risks and hazards at the workplace and their preventive and corrective measures
- Employ preventive and corrective measures to protect self and others from common workplace hazards and risk

Duration: 05:00	Duration: 10:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Differentiate between risks and hazards. • Discuss the specific safety and health related problems faced in domestic, commercial and institutional setups. • List the various types of hazards (such as physical, fire, chemical compounds and electrical) that could affect the work process. • List the various hazardous environments and common hazards that can occur during plumbing installation and maintenance along with their precautions and remedial measures. • Discuss the importance of various types of personal protective equipment (PPE). • Discuss where the general health and safety equipment commonly is kept at the workplace. • Explain the various types of safety signs and their significance in the work process. • Discuss various causes of fire and precautionary activities to prevent the fire accident. • List the different techniques that employ various methods (such as using extinguishers, water hose, sprinklers, sand bucket, wet blanket, etc.) and materials such as water, powder, foam, CO₂, fire extinguishing chemical, sand, blanket, etc. used for extinguishing fire as per the type (as per class A, B, C and D). • Describe rescue techniques applied during a fire hazard or electrocution. • Discuss appropriate basic first aid treatment relevant to the condition e.g. shock, electrical shock, bleeding, minor burns, poisoning, eye injuries etc. • Discuss potential injuries and health problems associated with incorrect handling of tools and equipment. 	<ul style="list-style-type: none"> • Perform inspection of a work area in order to identify risks and hazards. (PC1) • Apply various health and safety precautions to be taken during plumbing work. • Apply personal and workspace hygiene and sanitation practices. • Dramatize workplace emergency and evacuation procedures using role plays. • Demonstrate the correct use of fire extinguishers. • Dramatize, using role play, safe methods of freeing a person from electrocution. • Perform appropriate first aid treatment for various conditions such as bleeding, burns, choking, electric shock and poisoning and injury. • Demonstrate the process of providing cardiopulmonary resuscitation (CPR).
Classroom Aids:	

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook

Tools, Equipment and Other Requirements

Personal protective equipment (such as eye protector, hard hats, safety belts, gloves, protective clothing), plumbing tools and materials, power tools, required machinery, fire extinguisher, first aid kit.

Terminal Outcomes:

- Apply Professionalism in the 21st Century
- Able to demonstrate Basic English Skills & Communication Skills including Digital Skills
- Role-play a situation in selecting the right financial institution, product, and service

Duration: 30:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the Employability Skills required for jobs in various industries • List different learning and employability related GOI and private portals and their usage • Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen • Discuss importance of relevant 21st century skills. • Exhibit 21st century skills like Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life. • Describe the benefits of continuous learning. • Explain the importance of active listening for effective communication • Discuss the significance of working collaboratively with others in a team • Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD • Discuss the significance of escalating sexual harassment issues as per POSH act. • Outline the importance of selecting the right financial institution, product, and service • Demonstrate how to carry out offline and online financial transactions, safely and securely • List the common components of salary and compute income, expenditure, taxes, investments etc. • Discuss the legal rights, laws, and aids. 	<ul style="list-style-type: none"> •

- Describe the role of digital technology in today's life.
- Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
- Discuss the significance of displaying responsible online behaviour while browsing, using various social media platforms, e-mails, etc., safely and securely
- Utilize virtual collaboration tools to work effectively
- Explain the types of entrepreneurship and enterprises
- Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
- Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
- Create a sample business plan, for the selected business opportunity
- Describe the significance of analysing different types and needs of customers
- Explain the significance of identifying customer needs and responding to them in a professional manner.
- Discuss the significance of maintaining hygiene and dressing appropriately
- Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
- Discuss the significance of maintaining hygiene and confidence during an interview
- Perform a mock interview
- List the steps for searching and registering for apprenticeship opportunities

Classroom Aids:

Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook

Tools, Equipment and Other Requirements

Energy-saving devices, non-recyclable, recyclable and reusable waste

Trainer Requirements

Annexure

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
B.E. / B. Tech	Civil or Mechanical Engineering	2	Relevant	1	Plumbing, Construction and electrical (Any one of them)	
Diploma	Civil or Mechanical Engineering	2	Relevant	1	Plumbing, Construction and electrical (Any one of them)	
Graduation (Science)	Plumbing / Environmental Engineering/ Water Management	2	Relevant	1	Plumbing, Construction and electrical (Any one of them)	
CITS Certified Trainer	Plumbing					

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role: “Jal Vitaran Sanchaalak (Water Distribution Operator) (Multi -Skill)” mapped to QP: “PSC/Q0122, v1.0”. Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/Q2601”. Minimum accepted score as per MEPSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training / Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
B.E. / B. Tech	Civil or Mechanical Engineering	2	Relevant	1	Plumbing, Construction and electrical (Any one of them)	
Diploma	Civil or Mechanical Engineering	2	Relevant	1	Plumbing, Construction and electrical (Any one of them)	
Graduation (Science)	Plumbing / Environmental Engineering/ Water Management	2	Relevant	1	Plumbing, Construction and electrical (Any one of them)	

Trainer Certification	
Domain Certification	Platform Certification
Certified for Job Role: "Jal Vitaran Sanchaalak (Water Distribution Operator) (Multi -Skill)" mapped to QP: "PSC/Q0122, v1.0". Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Job Role: "Assessor", mapped to the Qualification Pack: "MEP/Q2701". Minimum accepted score as per MEPSC guidelines is 80%.

Assessment Strategy

Assessment is done through third parties who are affiliated to IPSC as Assessment Body. Assessors are trained & certified by IPSC through Training of Assessors program. The assessment involves two processes. The first process is gathering the evidence of the competency of individuals. The second part of the assessment process is the judgement, based on the evidence as to whether a person is competent as per the standard or not. The assessment plan contains the following information:

- What will be assessed, i.e. the competency based on each NOS
- How assessment will occur i.e. methods of assessment
- When the assessment will occur
- Where the assessment will take place i.e. context of the assessment (workplace/simulation)
- The criteria for decision making i.e. those aspects that will guide judgements and
- Where appropriate, any supplementary criteria used to make a judgement on the level of performance.

The assessment is conducted through theory, viva voce and practical.

References

Glossary

Term	Description
Declarative Knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a task. It is the ability to work, or produce a tangible work output by applying cognitive, affective or psychomotor skills.
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training .
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module . A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
NCVET	National Council for Vocational Education and Training
WMPSC	Water Management and Plumbing Skill Council
QP	Qualification Pack
MC	Model Curriculum
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
NCO	National Classification of Occupations
ES	Employability Skills