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Model Curriculum

QP Name: Fire Systems Supervisor

QP Code: PSC/Q0119

QP Version: 1.0

NSQF Level: 5

Model Curriculum Version: 1.0

Water Management and Plumbing Skills Council || Unit- 606 & 609, Tower-C, DLF Prime Towers, Phase-1, Okhla, Delhi, 110020

Table of Contents

Training Parameters

Sector	Plumbing
Sub-Sector	Firefighting & Safety Systems
Occupation	Plumbing Systems Installation and Maintenance
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3119.1000
Minimum Educational Qualification and Experience	Pursuing 3rd year of UG (Civil Engineering) OR Pursuing 3rd year of UG (Mechanical Engineering) OR 12th grade pass with 2-year NTC/ CITS/NAC with 1 Year of experience Relevant OR 12th grade Pass with 3 Years of experience Relevant OR Certificate-NSQF (Level-4 in Plumber - General) with 3 Years of experience Relevant
Pre-Requisite License or Training	NA
Minimum Job Entry Age	21 years
Last Reviewed On	28/02/2023
Next Review Date	28/02/2026
NSQC Approval Date	
QP Version	1.0
Model Curriculum Creation Date	28/02/2023
Model Curriculum Valid Up to Date	28/02/2026
Model Curriculum Version	1.0
Minimum Duration of the Course	540 Hours
Maximum Duration of the Course	540 Hours

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.

- Demonstrate the planning and scheduling activities for a plumbing project
- Perform the steps involved in Initiating the project
- Demonstrate the tasks performed to ensure timely completion of a plumbing project as per plan
- Demonstrate the steps involved in handing over of plumbing project
- Apply appropriate health and safety practices at the workplace
- Discuss the importance of working effectively with others
- Discuss the 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)	On-the-Job Training Duration (Recommended)	Total Duration
PSC/N0158: Plan and prepare for installation and maintenance of fire protection systems NOS Version No.: 1.0 NSQF Level: 5	**40:00 Hours**	**90:00 Hours**	**20:00 Hours**	**00:00 Hours**	**150:00 Hours**
Module 1: Introduction to the sector and the job role	10:00 Hours	00:00 Hours	00:00 Hours	00:00 Hours	10:00 Hours
Module 2: Basics of fire protection systems	05:00 Hours	00:00 Hours	00:00 Hours	00:00 Hours	05:00 Hours
Module 3: Identifying work requirements	05:00 Hours	30:00 Hours	10:00 Hours	00:00 Hours	45:00 Hours
Module 4: Planning and scheduling	10:00 Hours	30:00 Hours	05:00 Hours	00:00 Hours	45:00 Hours
Module 5: Organizing resources	10:00 Hours	30:00 Hours	05:00 Hours	00:00 Hours	45:00 Hours
PSC/N0159: Install and commission fire protection systems NOS Version No.: 1.0 NSQF Level: 5	**40:00 Hours**	**90:00 Hours**	**20:00 Hours**	**00:00 Hours**	**150:00 Hours**
Module 6: Installation of the fire protection systems	15:00 Hours	30:00 Hours	10:00 Hours	00:00 Hours	55:00 Hours

Module 7: Testing an installation	15:00 Hours	30:00 Hours	05:00 Hours	00:00 Hours	50:00 Hours
Module 8: Commissioning an installation	10:00 Hours	30:00 Hours	05:00 Hours	00:00 Hours	45:00 Hours
PSC/N0160: Ensure effective repair and maintenance of fire protection systems NOS Version No.: 1.0 NSQF Level: 5	**30:00 Hours**	**70:00 Hours**	**20:00 Hours**	**00:00 Hours**	**120:00 Hours**
Module 9: Prepare for repair and maintenance	10:00 Hours	25:00 Hours	00:00 Hours	00:00 Hours	35:00 Hours
Module 10: Maintenance work	10:00 Hours	25:00 Hours	10:00 Hours	00:00 Hours	45:00 Hours
Module 11: Repair work	10:00 Hours	20:00 Hours	10:00 Hours	00:00 Hours	40:00 Hours
PSC/N0136: Apply health and safety practices at the workplace NOS Version No.: 1.0 NSQF Level: 4	**05:00 Hours**	**10:00 Hours**	**00:00 Hours**	**00:00 Hours**	**15:00 Hours**
Module 12: Health and safety	05:00 Hours	10:00 Hours	00:00 Hours	00:00 Hours	15:00 Hours
PSC/N0138: Implement Measures to Work Effectively NOS Version No.: 1.0 NSQF Level: 5	**05:00 Hours**	**10:00 Hours**	**00:00 Hours**	**00:00 Hours**	**15:00 Hours**
Module 13: Team Effectiveness	05:00 Hours	10:00 Hours	00:00 Hours	00:00 Hours	15:00 Hours
DGT/VSQ/N0103: Employability Skills (90 Hours) NOS Version No.: 1.0 NSQF Level: 5	**60:00 Hours**	**30:00 Hours**	**00:00 Hours**	**00:00 Hours**	**90:00 Hours**
Module 14: Employability Skills	60:00 Hours	30:00 Hours	00:00 Hours	00:00 Hours	90:00 Hours
Total Duration	**180:00 Hours**	**300:00 Hours**	**60:00 Hours**	**00:00 Hours**	**540:00 Hours**

Module Details

Module 1: Introduction to the sector and the job role

Bridge Module

Terminal Outcomes:

- Explain the importance of fire systems industry.
- List the key responsibilities of a fire systems technician.

Duration: *10:00*	**Duration**: *00:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Outline the overview of the fire systems industry for buildings and townships. • Discuss the scope of employment in the contracting segment of the industry. • List the key responsibilities of a fire systems technician.	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Nil	

Module 2: Basics of fire protection systems

Mapped to PSC/N0158, v 1.0

Terminal Outcomes:

- Explain basic concepts of fire protections systems.

Duration:*05:00*	**Duration**: *00:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• various types of fire protection and fire suppression systems within different setups • industry accepted standards for pipes, fittings and fixtures for fire systems • importance of following organisation's policies on delivery standards, safety and hazards, integrity, dress code, etc.	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Nil.	

Module 3: Identifying work requirements

Mapped to PSC/N0158, v 1.0

Terminal Outcomes:

- Explain the process of identifying work requirements based on project related inputs and documentation.
- Inspect the site where fire protection have to be installed and identify faults, drawbacks, hazards and limitations

Duration: *05:00*	**Duration**: *30:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the various project documents and the information to be extracted regarding tasks to be performed for fire protection systems. • Explain the importance of work instructions, drawings and building plans in a fire systems project. • Discuss the risk and impact of not following defined procedures/work instructions. • Identify the type of fire systems to be installed and the work involved from specified client inputs, project documents, work instructions, drawings and building plans. • Discuss the impact of site limitations on the installation and maintenance work. • List commonly observed hazards at the work sites where fire protection systems are to be installed or maintained. • Explain how to evaluate the type and nature of existing fire systems infrastructure at the worksite • Describe the procedure to inspect piping connections within a building for adequate water supply. • Discuss various local common local conditions that would require modifications to be suggested in the fire system drawings. • State some quality procedures and processes commonly employed by organisations within the context of fir systems work site.	• Carry out an exercise to identify the faults and drawbacks in an existing installation of fire protection systems. • Conduct an inspection of a site to detect site hazards and limitations such as electrical wiring and other complex structures for installation of fire protection systems.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	

Sample client inputs, project documents, work instructions, drawings and building plans; a worksite with fire protection systems already installed and due for maintenance; a work site where fire systems have to be installed.

Module 4: Planning and scheduling

Mapped to PSC/N0158, v 1.0

Terminal Outcomes:

- Demonstrate the steps involved in planning and scheduling fir protection systems installation and maintenance projects.

Duration: *10:00*	**Duration**: *30:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the steps involved in planning the tasks to be performed as per inputs obtained. • Discuss the considerations for deciding the sequence of tasks to be performed. • Describe the steps involved in preparing a process flow chart for the project. • Describe the steps involved in preparing an inspection plan to evaluate the work progress. • Explain the importance of discussing the work plan with the team. • Explain the importance of planning a strategy to manage multiple sites effectively. • State the importance of following the documentation and reporting procedure followed in the organisation.	• Demonstrate the steps involved in planning the sequence and schedule of the tasks to be performed for installation as per specified project requirements. • Prepare a sample plan and schedule for quality assurance. • Prepare a sample plan for a strategy for supervising multiple sites effectively. • Demonstrate the documentation of a fire system installation plan, schedule and process flow as per specified template commonly used in organisations.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Sample client inputs, project documents, work instructions, drawings and building plans; sample documentation template for fire systems installation plan, schedule and process flow.	

Module 5: Organising resources

Mapped to PSC/N0158, v 1.0

Terminal Outcomes:

- Demonstrate the steps involved in planning and scheduling fir protection systems installation and maintenance projects.

Duration: *10:00*	**Duration**: *30:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the various time and material requirements for a fire systems installation and maintenance project and how to estimate them. • Explain the basic measurements performed for the identification of the types of pipes, fittings and materials required. • Describe the procedure to be followed for allocating manpower in a given project. • Discuss good practices for communicating the fire systems work plan and procedure to the team. • Explain the importance of escalating the issues that require expert help as per escalation matrix.	• Demonstrate basic calculations to estimate time and material requirements. • Demonstrate the steps involved in estimating and sourcing manpower as per plan in terms of welders, fitters, electricians, helpers etc. • Prepare a sample work allocation plan for a specified project. • Demonstrate the steps involve in placing order for the required resources such as type and amount of materials and equipment required.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Sample client inputs, project documents, work instructions, drawings and building plans; sample documentation template for fire systems installation plan, schedule and process flow.	

Module 6: Installation of the fire protection systems

Mapped to PSC/N0159, v 1.0

Terminal Outcomes:

- Explain the fire protection systems installation processes and checks
- Demonstrate the monitoring of the installation of fire protection systems.

Duration: *15:00*	**Duration**: *30:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• State the various steps involved in installation of fire protection systems. • List the various team members involved in a typical fire systems installation process and their responsibilities. • Discuss good practices for providing instructions to the team for installation of fire protection system components as per plan. • Describe the route and lay out procedure of the piping for the fire protection system. • List the various fittings, accessories and various types of materials used in the fire protection systems installation and commissioning. • Describe the steps involved in the tools, equipment and materials inspection process. • Explain the steps for checking the availability of materials and required resources at the work site. • State the considerations for ensuring minimal wastage and proper consumption of materials at the work site. • Describe the procedure to check the installed piping with respect to site requirements. • List the various welding operations used in fire protection systems installation. • Discuss correct welding practices applicable for fire protection systems. • Discuss the correct work practices for angle elevation and levelling for fire protection systems. • Explain the importance of workmanship and accurate erections for installation of fire systems.	• Demonstrate the marking of the route and laying out of the piping for the fire protection system. • Demonstrate the steps involved in ensuring the adequacy of materials and project resources at the worksite. • Demonstrate the steps involved in ensuring that the materials, fittings and accessories being used are compliant to the site requirements. • Demonstrate how to check whether the welding operations are being performed using correct welding rods, filet size, welding preparation etc. • Perform the procedure for checking and confirming adequate angle elevation and levelling. • Demonstrate the steps involved in ensuring that the workmanship and the erections are in line with specified task requirements.

• Explain the importance of adhering to approved project design and modifications for site installations. • Discuss the risk and impact of not following defined procedures/work instructions • Explain the importance of adhering to health and safety practices at the workplace.	
• Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Sample client inputs, project documents, work instructions, drawings and building plans; a work site where fire systems are being installed; tools, equipment materials required for fire systems installation	

Module 7: Testing an installation

Mapped to PSC/N0159, v 1.0

Terminal Outcomes:

- Explain the testing processes for fire protection systems installations
- Demonstrate the testing of fire protection systems installations.

Duration: *15:00*	**Duration**: *30:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the various inspections to be performed to check the installation of fire protection systems. • List the steps involved in the testing and troubleshooting of the installed fire system/equipment. • Discuss the techniques used for testing and ensuring proper water circulation at the rising main pipes. • Explain the procedure to conduct pressure test for installed piping systems. • List the steps involved in testing and evaluating the fire system's performance with respect to site requirements. • Describe the process to conduct partial-flow trip test for installed fire system. • Discuss the techniques used to test the sprinkler and its components as per approved standards. • List the steps involved in performing final checks for the installed fire protection systems. • Discuss the techniques used to rectify faults in the fire protection systems • Explain the procedure to inspect gauges to ensure required water pressure. • Describe the importance and procedure of recording faults to be rectified and improvements required.	• Demonstrate the steps involved in planning the sequence of testing activities to be performed to test the installed fire protection systems. • Conduct a visual and physical inspection of specified fire protection systems including fire sprinklers, fire hydrants, water hose reel, water sprays/mist systems, valves, gauges, piping, etc. • Demonstrate the process of pressure testing used to ensure adequate water flow and zero leakage in the installed piping system. • Demonstrate the steps involved in testing the fire pump to evaluate pump's performance such as flow rate and pressure with respect to site requirements. • Demonstrate the steps involved in conducting a partial-flow trip test to ensure the system activates appropriately in response to a fire emergency. • Conduct an evaluation of the system performance with respect to required standards. • Demonstrate how to confirm that the installation adheres to the established standards for fire safety for the building/structure.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Sample client inputs, project documents, work instructions, drawings and building plans; a work site where fire systems have been installed; tools, equipment materials required for testing fire systems installation	

Module 8: Commissioning an installation

Mapped to PSC/N0159, v 1.0

Terminal Outcomes:

- Explain the fire protection systems commissioning processes and checks.
- Demonstrate the commissioning of fire protection systems installations.

Duration: *10:00*	**Duration**: *30:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the sequence of operations for commissioning of fire protection systems • Explain the importance of ensuring that all the modifications are done to resolve the faults before commissioning. • Explain the importance of dealing with equipment malfunction and rectifying the faults during the commissioning process. • Explain the start-up procedures for operating an installed fire protection systems installation. • Describe the commissioning documentation. • List the processes that the operators have to be trained on.	• ensure that the work site is clear of flammable materials and unwanted waste after the completion of the project • verify that the water supply components are as per approved designs • ensure that the installed sprinklers have adequate supply of water as per demand • carry out start-up procedures for operating the fire protection systems, at the minimal initial recommended loads • confirm that the functioning meets specifications by conducting a trial run of the equipment at full power/speed/flow • complete necessary commissioning documentation and handover • provide training to the operators of the fire protection systems
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Sample client inputs, project documents, work instructions, drawings and building plans; a work site where fire systems have been installed; tools, equipment materials required for testing fire systems installation	

Module 9: Prepare for repair and maintenance

Mapped to PSC/N0160, v 1.0

Terminal Outcomes:

- Explain the fire protection systems commissioning processes and checks.
- Demonstrate the commissioning of fire protection systems installations.

Duration: *10:00*	**Duration**: *25:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the components and equipment used in fire protection and fire suppression systems. • Discuss diagrams, sketches, blueprints and manufacturer manuals for fire systems • List the steps involved in performing functional testing for fire protection systems • Describe the type of faults that occur in fire protection systems and related visual inspection methods for repair and maintenance • Discuss the standards applicable to fire protection systems such as National Buildings Code (NBC), National Environmental Policy Act (NEPA) and National Fire Protection Association (NFPA) regulations. • List the fittings, accessories and types of piping used in fire systems • Explain the importance of following organisational policy, reporting procedure and documentation on maintenance of fire protection systems.	• Demonstrate how to identify maintenance and repair requirements from the client inputs, work instructions and standard operating procedures provided. • Interpret sample diagrams, sketches, blueprints, and manufacturers' manuals for the fire systems to be maintained and repaired. • Demonstrate how to isolate the components/equipment that need repair and maintenance. • Demonstrate how to identify the tasks to be performed for maintenance of the fire protection systems as per the maintenance agreement and manufacturer's specifications. • Prepare sample checklists and calendar for specified scheduled maintenance activities for fire protection systems.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Sample client inputs, project documents, work instructions, drawings and building plans; a work site where fire systems have been installed; tools, equipment materials required for testing fire systems installation; fittings, accessories and types of piping used in fire systems	

Module 10: Maintenance work

Mapped to PSC/N0160, v 1.0

Terminal Outcomes:

- Demonstrate various maintenance activities for fire protection systems.

Duration: *10:00*	**Duration**: *25:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the process to check the activation mechanism, control valves, signs of corrosion in fire alarm systems. • Explain the impact of improper positioning and locking of valves in fire systems. • Describe the process to verify the positioning of hose and nozzles in fire hydrant systems. • Describe the process to check fire pumps for adequate pressure and water flow. • Explain the importance of ensuring adequate fuel in emergency pumps. • Describe the process to check the leakage and defects in the sprinkler heads. • Explain the importance of maintaining static pressure, running pressure and flow rate at desirable level. • Clarify the role of a hydraulic nameplate in fire systems. • State the considerations to check for weight or liquid level on all pressure containers. • Describe the procedure followed for emptying and refilling the pumps with engine oil. • Explain the importance of adding an antifreeze in pipes during winters. • Discuss the techniques for the removal of debris and other contaminants from fire systems. • Explain the importance of ensuring that the work site is clean and tidy after maintenance and repair tasks. • Explain the importance of disposing unwanted waste and flammable materials from the work site.	• Demonstrate a visual and physical inspection of the fire protection systems as per checklists. • Demonstrate various maintenance checks with respect to alarm systems, accessories, fittings and components, drain valves and control valves, gauges, fire hydrants, hose and nozzles and sprinkler heads. • Demonstrate the positioning and locking of the control/section valves correctly to ensure there is zero leakage and adequate water pressure. • Demonstrate the steps involved in the operation all fire pumps to confirm adequate pressure and water flow across fire protection systems. • Demonstrate how to confirm that the emergency fire pump fuel supply is adequate to ensure full operability at times of need. • Demonstrate how to ensure that the static pressure, running pressure and flow rate of fire systems is maintained as per manufacturer guidelines. • Demonstrate how to ensure that the hydraulic nameplate is secured to the sprinkler riser and is legible • Demonstrate the procedure fr checking weight or liquid level on all pressure containers by following standard operating procedure. • Demonstrate the procedure of emptying the pumps and refill using industry approved engine oil as per manufacturer guidelines. • Demonstrate the procedure of adding antifreeze solution or other industry approved additives to prevent freezing of pipes in winters.

	• ensure that the debris and contaminants from filters/strainers are cleared by following standard practices • record status, observations, work required and the maintenance procedure performed in the log book after all inspections and tests
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Sample client inputs, project documents, work instructions, drawings and building plans; a work site where fire systems have been installed; tools, equipment materials required for testing fire systems installation	

Module 11: Repair work

Mapped to PSC/N0160, v 1.0

Terminal Outcomes:

- Demonstrate the common repair work performed on fire protection systems.

Duration: *10:00*	**Duration**: *20:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss techniques to repair alarm systems, corroded or damaged sprinkler heads, piping, hangers and seismic braces. • Explain methods of repair of control valves showing non-operability and improper drainage. • Explain methods used to unblock the piping to ensure adequate flow of water. • Discuss techniques to repair faulty fire pumps showing signs of inadequate water flow and discharge pressure. • Explain methods to replace depleted batteries used in fire systems. • Describe repair and replacement methods for non-functional relays, wiring, contactor in the fire alarm systems. • Describe installation methods for backflow prevention device and expansion chambers • Discuss the techniques followed for repair and replacement of pressure gauges showing incorrect readings and corroded piping.	• Demonstrate the appropriate procedures for removing different faulty items or components using appropriate tools and equipment. • Demonstrate the selection and fitting of items/components to be replaced in line with manufacturer recommendations and site specifications • Demonstrate the adjustment of equipment and/or components of fire protection systems as per specifications. • Demonstrate the procedure of recharging the fire system with water as per specifications. • Perform the repair of alarm systems that show problems in getting activated automatically. • Demonstrate the activities involved in repair or replacement of the sprinkler heads and valves that show signs of damage. • Demonstrate the activities involved in repair or replacement of the piping, hangers and seismic braces after a thorough inspection of the problems such as corroded piping or hangers, broken hangers, improper pipe alignment etc. • Demonstrate how to open any blockages that are hindering the flow of water across fire piping systems. • Demonstrate the steps involved in the repair of fire pumps that show sign of poor performance such inadequate water flow, and poor discharge mechanism • Demonstrate the steps involved in the replacement of depleted batteries to ensure that fire systems run effectively when required. • Demonstrate the steps involved in the replacement and repair of non-functional

	relays, wiring, contactor in the fire alarm systems. • Demonstrate the procedure for installing a backflow prevention device for preventing reverse flow within fire piping. • Demonstrate the procedure for installing a relieving device such as expansion chambers to prevent over pressurization of fire piping. • Demonstrate the steps involved in the replacement of corroded piping as per need and site requirements. • Demonstrate the steps involved in the repair or replacement of pressure gauges showing incorrect readings. • Demonstrate the documentation to be performed after the repair work of fire protection systems.
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Sample client inputs, project documents, work instructions, drawings and building plans; a work site where fire systems have been installed; tools, equipment materials required for testing fire systems installation	

Module 12: Health and safety

Mapped to PSC/N0136, v 1.0

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**
• 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, CO_2, 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.	• Perform inspection of a work area to identify risks and hazards. • 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).

• Discuss potential injuries and health problems associated with incorrect handing of tools and equipment.	
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.	

Module 13: Team Effectiveness

Mapped to PSC/N0138, v 1.0

Terminal Outcomes:

- Apply effective communication techniques with team and stakeholders.
- Describe approaches to handle queries, concerns and welfare of workers.
- Role play a situation on how to demonstrate behaviours indicating respect for all genders and PwD.

Duration: *05:00*	**Duration**: *10:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• State the importance of effective communication in the workplace and the impact of poor communication on any employee, employer and customer. • List various components of effective communication. • State the advantages and disadvantages of various modes of communication. • State the importance of teamwork in organizational and individual success. • Describe the group dynamics and processes • List the common reasons for interpersonal conflict and ways of managing it effectively. • Discuss the possible ways to deal with grievances and problems appropriately and effectively • Explain the concept of goal setting and its importance for self and team. • State common measures that can be implemented at a plumbing work site to improve workplace productivity and team effectiveness. • Discuss the importance of adhering to legislation, standards, policies, and procedures relevant to own employment and performance conditions. • Discuss types of unacceptable behaviour • Explain the importance of ethics and discipline for professional success • Explain the impact of gender, disability, cultural and age-related biases, stereotyping at the workplace and in society. • State the laws, acts, provisions and schemes defined for PwD and against sexual	• Dramatize situations showing good practices for handling worker complaints and concerns. • Dramatize the process of dealing with conflicts among team members. • Demonstrate the various administrative duties and personnel duties. • Demonstrate the use of inclusive language (verbal, non-verbal and written) that is gender, disability and culturally sensitive. • Dramatize the use of appropriate tone, pitch and language to convey politeness, assertiveness, care, professionalism and a non-biased attitude. • Demonstrate practices to eliminate personal bias based on gender, disability, caste, religion, colour, sexual orientation and culture from routine transactions. • Demonstrate how to give feedback on individual work performance to each team member for improvement in work quality. • Demonstrate the best practices for training of workers on performing various plumbing tasks correctly.

harassment of women in workplace by the Government bodies. • Discuss basic gender concepts such as gender power relations, gender roles, access and control, gender sensitivity, gender equity and equality. • Discuss the importance of gender sensitivity and equality. • Discuss indicators of harassment and discrimination based on gender, disability, caste, religion, colour, sexual orientation and culture at workplace. • State general organisational norms and procedures applied to protect against harassment and discrimination. • Discuss the importance of reporting incidents of harassment and discrimination to appropriate authority. • List common causes for lag in performance of the plumbing team as well as possible solutions to bridge the gap. • Explain the importance of providing feedback on individual work performance to each team member for improvement in work quality. • Explain the importance of training the workers involved in plumbing installation. • State basic considerations while training the plumbing team members.	
Classroom Aids:	
Computer, Projection Equipment, PowerPoint Presentation and software, Facilitator's Guide, Participant's Handbook	
Tools, Equipment and Other Requirements	
Nil	

Module 14: Employability Skills (90 Hours)

Mapped to DGT/VSQ/N0103, v 1.0

Terminal Outcomes:

- Describe the importance and values of employability skills and apprenticeship opportunities to meet job demands.
- Explain basic communication skill, digital and financial literacy skills for customer-oriented outcome.

Duration: *60:00*	**Duration**: *30:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• 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.	• Show how to practice different environmentally sustainable practices. • Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone • Read and interpret text written in basic English • Write a short note/paragraph / letter/e -mail using basic English11. Create a career development plan with well-defined short- and long-term goals • Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette. • Create sample word documents, excel sheets and presentations using basic features • Create a professional Curriculum Vitae (CV)

• 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. • 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 36. 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	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
B.E / B. Tech	Civil or Mechanical Engineering	3	In Fire Fighting Systems Installation and Maintenance	1	Relevant	
Diploma	Civil or Mechanical Engineering	4	In Fire Fighting Systems Installation and Maintenance	1	Relevant	

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Fire Systems Technician" mapped to QP: "PSC/Q0119, 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 Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
B.E / B. Tech	Civil or Mechanical Engineering	3	In Fire Fighting Systems Installation and Maintenance	1	Relevant	
Diploma	Civil or Mechanical Engineering	4	In Fire Fighting Systems Installation and Maintenance	1	Relevant	

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Fire Systems Technician" mapped to QP: "PSC/Q0119, v1.0". Minimum accepted score is 80%.	Recommended that the Assessor 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
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards